MEETING, NOVEMBER 5, 2010

A meeting of the South Coast Air Quality Management District Board will be held at 9:00 a.m., in the Auditorium at AQMD Headquarters, 21865 Copley Drive, Diamond Bar, California.

The agenda and documents in the agenda packet will be made available upon request in appropriate alternative formats to assist persons with a disability. Disability-related accommodations will also be made available to allow participation in the Board meeting. Any accommodations must be requested as soon as practicable. Requests will be accommodated to the extent feasible. Please telephone the Clerk of the Boards Office at (909) 396-2500 from 7:00 a.m. to 5:30 p.m. Tuesday through Friday.

All documents (i) constituting non-exempt public records, (ii) relating to an item on the agenda, and (iii) having been distributed to at least a majority of the Governing Board after the agenda is posted, are available prior to the meeting for public review at the South Coast Air Quality Management District Clerk of the Boards Office, 21865 Copley Drive, Diamond Bar, CA 91765.

CALL TO ORDER

- Pledge of Allegiance
- Opening Comments: William A. Burke, Ed.D., Chair
  Other Board Members
  Barry R. Wallerstein, D. Env., Executive Officer
- Presentation of Retirement Award to Martha Lucero **Burke**

Staff/Phone (909) 396-

CONSENT CALENDAR (Items 1 through 23)

Note: Consent Calendar items held for discussion will be moved to Item No. 24

1. Minutes of October 1, 2010 Board Meeting and Minutes of October 29, 2010 Special Board Meeting **McDaniel/2500**

2. Set Public Hearings December 3, 2010 to Consider Amendments and/or Adoption to AQMD Rules and Regulations **Wallerstein/3131**

   (A). Amend Rule 1415 – Reduction of Refrigerant Emissions from Stationary Refrigeration and Air Conditioning Systems, and Adopt Rule 1415.1 - Reduction of Refrigerant Emissions from Stationary Refrigeration Systems **Tisopulos/3123**

   The proposed amendments to Rule 1415 expand the scope of the rule to include provisions for reducing emissions of high global warming potential refrigerants utilized in stationary air conditioning systems and other administrative changes. Staff is also proposing a new rule, Rule 1415.1, to incorporate provisions for reducing emissions of certain high global warming potential refrigerants that will be consistent with CARB's statewide rule for stationary refrigeration systems. The proposed new rule will consolidate all other emission control requirements for stationary refrigeration systems currently in Rule 1415. (Review: Stationary Source Committee, November 19, 2010)

(B). Amend Rule 1143 - Consumer Paint Thinners & Multi-Purpose Solvents **Tisopulos/3123**

The amendment will propose an exemption for artist solvents and thinners that will make the rule more consistent with the state consumer products regulation by: (1) exempting artist solvents and thinners that are properly labeled and sold in containers that are one liter or less from applicable VOC limits; (2) defining artist solvents and thinners; (3) making changes to the rule to clarify that all exempt products shall be subject to recordkeeping and reporting; and (4) making changes to the rule to clarify that the sell-through provisions for the final VOC limit do not apply to products that do not meet the interim VOC limit. The proposed amendment will result in 114 pounds of VOC emission reductions foregone per day. (Review: Stationary Source Committee, October 15, 2010)

Budget/Fiscal Impact

3. Advertising and Public Outreach Initiative to Chinese-American Communities to Increase Awareness of Impacts of Air Pollution **Atwood/3687**

Staff has developed a proposal for an advertising and public outreach program focused on Chinese-American communities in the South Coast Air Basin. The goals of the program include raising awareness of the health impacts of poor air quality; demonstrating how AQMD is protecting public health by improving air quality; and urging residents to be more involved in efforts to improve air quality. The 26-week initiative will include paid advertising in print, TV, radio and online media at a cost not to exceed $400,000. (Review: Administrative Committee, October 8, 2010)

4. Execute Contract for Security Guard Services at Diamond Bar Headquarters **Johnson/3018**

The current contract for Diamond Bar headquarters security guard services expires on November 30, 2010. On July 9, 2010 the Board approved release of an RFP to solicit proposals from firms interested in providing these services. This action is to execute a two-year contract with Contact Security Inc., for a total amount not to exceed $887,245. Funding has been included in the FY 2010-11 Budget and will be requested in successive fiscal years. (Review: Administrative Committee, October 8, 2010)

5. Authorize Executive Officer to Waive Late Fees Incurred by State Agencies Due to Delay in Adoption of State Budget **O'Kelly/2828**

As the result of the late approval of the State budget, approximately 40 State agencies are subject to late fees related to permit renewal and emissions fees. As the result of operation of the District's fee rules, the State agencies now owe a total of approximately $10,000 in late fees. This action is to authorize the Executive Officer to waive those fees.

6. Execute Contract for Biennial Audit of Motor Vehicle Registration Revenues for FYs 2007-08 and 2008-09 **O'Kelly/2828**

Health and Safety Code Section 44244.1 requires any agency receiving fee revenues pursuant to Section 44243 or 44244 to be subject to an audit of each program or project funded at least once every two years. On July 9, 2010, the Board approved release of an RFP to select an auditor to perform the biennial audit for FYs 2007-08 and 2008-09. An evaluation panel of representatives from the MSRC and AQMD staff evaluated the proposals. This action is to award a contract to the firm of Thompson, Cobb, Bazilio and Associates, PC. Local governments, the MSRC and AQMD will pay the cost of their own audits in the amounts of $71,393, $10,450, and $6,626 respectively. (Review: Administrative Committee, October 8, 2010)

7. Appropriate Funds for PAMS and Lead Monitoring Programs from U.S. EPA Section 105, Recognize and Appropriate Funds for Section 103 Monitoring Programs, and Authorize Purchases and Release of RFQ Under These Programs **Liu/2105**

U.S. EPA has allocated Section 105 funding for the 19th Year PAMS Program and the Lead Monitoring Program. Section 105 revenue for these two programs has been included in the FY 2010-11 Budget. Supplemental Section 103 PM2.5 funding from U.S. EPA is also being provided for fixed assets to meet the NCore Program monitoring requirements and an ultrafine monitor testing project. This action is to: (1) appropriate funds to the FY 2010-11 Budget for the 19th year PAMS Program; (2) appropriate funds to the FY 2010-11 Budget for the Lead Monitoring Program; (3) recognize revenue and appropriate funds for Section 103 monitoring programs; and (4) authorize purchases and the release of an RFQ. (Review: Administrative Committee, October 8, 2010)

8. Execute Contracts to Conduct Conceptual Feasibility Studies for Reduction of Near Roadway Pollutant Exposures **Liu/2105**

Numerous air monitoring and health studies document elevated pollution levels and health risks in areas immediately adjacent to busy roadways and freeways. In addition to reducing on-road tailpipe emissions, other mitigation measures may be effective in reducing the pollution exposure of those living, working or playing in these affected areas. On March 5, 2010, an RFP was released for conceptual research studies to assess the feasibility and cost-effectiveness of roadside pollution mitigation measures, and six proposals were received. Based on the results of the technical evaluation process, this action is to execute three contracts in a total amount not to exceed $250,000 to study the reduction of pollutant exposures using near roadway mitigation measures. (Review: Technology Committee, October 15, 2010)

9. Execute Contract To Provide Technical Assistance for Alternative-Fueled Trucks Funded Under AQMD's Heavy-Duty Diesel Truck Replacement Program **Liu/2105**

The AQMD has received grant awards from the Department of Energy and Environmental Protection Agency for LNG truck projects approved under AQMD's Heavy-Duty Diesel Truck Replacement Program, including administrative funds. AQMD's administration of the program consists of project outreach and solicitation, project evaluation, inspections, contracting, invoice processing, project monitoring and other activities to comply with all program requirements. AQMD is required to monitor the operation of each LNG truck on a quarterly basis for a period of two years. This action is to execute a contract with Clean Fuel Connection to provide technical assistance for quarterly reporting and other program administrative activities in an amount not to exceed $80,000. (Review: Technology Committee, October 15, 2010)

10. Execute Sole Source Contract for Buy-Down Incentive Program for CNG Home Refueling Appliance **Hogo/3184**

Since May 6, 2005, the AQMD has implemented a buy-down incentive program for the Phill natural gas home refueling appliance (HRA) manufactured by FuelMaker Corporation to broaden the consumer base of light-duty natural gas vehicles. In April 2009, FuelMaker Corporation filed bankruptcy and was acquired by Fuel Systems Solutions, Inc. In July 2010, sale of the HRA in California resumed through an exclusive distributor, Gas Equipment Systems, Inc. (GESI). This action is to execute a sole source contract with GESI for an amount not to exceed $60,000 from the Clean Fuels Fund to provide a buy-down incentive of $1,000 per HRA. (Review: Technology Committee, October 15, 2010)

11. Execute Contracts to Support Electric Charging Infrastructure **Miyasato/3249**

Southern California has an established but obsolete network of public charging for electric vehicles. State and federal funds are being invested in our region to support the deployment of plug-in electric vehicles including charging infrastructure. This action is to execute contracts with Clipper Creek, Coulomb Chargepoint and ETEC ECOtality to cofund the upgrade of existing chargers and install new chargers in high priority locations for a total cost not to exceed $210,000 from the Clean Fuels Fund. (Review: Technology Committee, October 15, 2010)

12. Authorize Purchase of Desktop Computer Hardware Upgrades **Marlia/3148**

AQMD operational efficiency is dependent on staffs' desktop computer systems, and many software applications (both off-the-shelf and in-house developed applications) are exceeding the capacity of the present desktop systems. This action is to authorize purchase of new desktop computer systems, with adequate capacity to support current software applications, to replace older desktop systems. These replacements are in accord with AQMD's Information Management Strategic Plan. Funds ($150,000) for this purchase are included in the FY 2010-11 Budget. (Review: Administrative Committee, October 8, 2010)

13. Authorize Purchase of Ingres Relational Database Management System Software Support **Marlia/3148**

The Ingres Relational Database Management System is used for the implementation of the Central Information Repository database. This database is used by most enterprise-level software applications at the AQMD and currently supports a suite of client/server and web-based applications known collectively as the Clean Air Support System (CLASS). The CLASS applications are used to support all of the AQMD core activities. Maintenance support for this software expires November 29, 2010. This action is to obtain approval for the purchase of Ingres Database software maintenance support for another year. Funds in the amount of $115,831 for this expense are included in the FY 2010-11 Budget. (Review: Administrative Committee, October 8, 2010)

14. Issue RFP for Greenhouse Gas Reduction Projects **Whynot/3104**

This action is to issue an RFP to solicit a qualified third party to develop certified greenhouse gas emission reductions through undertaking a carbon reduction project through approved protocols. Funding for this project in an amount not to exceed $300,000 is from Chevron’s CEQA mitigation fees. (Review: Climate Change Committee, October 13, 2010)

15. Appropriate Funds from Designation for Litigation and Enforcement and Authorize Amending/Initiating Contracts with Outside Counsel **Wiese/3460**

AQMD District Counsel is currently being assisted in several environmental lawsuits by outside law firms and in other matters requiring specialized legal counsel. This action is to appropriate $425,000 from the Designation for Litigation and Enforcement to the Legal Budget, Professional and Special Services account, and to authorize the Chairman or the Executive Officer, as appropriate, to amend or initiate contracts to expend these funds with prequalified counsel approved by the Board as well as specialized legal counsel with monies to be appropriated as the need arises. (Review: Administrative Committee, October 8, 2010)

16. Approve Contract Modifications and Award under FYs 2003-04, 2008-09 and 2010-11 AB 2766 Discretionary Fund Work Programs — **Winterbottom/**

The MSRC approved a replacement contract for regional rideshare database enhancements as part of the FY 2003-04 AB 2766 Discretionary Fund Work Program, as well as a contract modification for BusWest providing additional funds for alternative fuel school buses as part of the FY 2008-09 Work Program. As the initial elements of their FY 2010-11 Work Program, the MSRC approved a $1,500 contract increase for upgrades to their existing website, a $100,000 set aside for development of a new website, and a $2,250,000 allocation for an off-road diesel exhaust after-treatment demonstration program. The MSRC seeks AQMD Board approval of the FY 2010-11 Work Program elements as well as the contract modifications and award under the FYs 2003-04, 2008-09 and 2010-11 AB 2766 Discretionary Fund Work Programs. (Review: Mobile Source Air Pollution Reduction Review Committee, October 21, 2010)

Action Item/No Fiscal Impact

17. Establish Board Meeting Schedule for Calendar Year 2011 — **Burke**

The proposed Board Meeting Schedule for Calendar Year 2011 (includes January 2012) is submitted for Board consideration. The Administrative Committee meeting schedule (second Friday of the month) is included for information only. (Review: Administrative Committee, October 8, 2010)

Information Only/Receive and File

18. Legislative & Public Affairs Report — **Abarca/3242**

This report highlights the September 2010 outreach activities of Legislative & Public Affairs, which include Environmental Justice Update, Community Events/Public Meetings, Business Assistance, and Outreach to Business and Federal, State and Local Government.

19. Hearing Board Report — **Camarena/2500**

This reports the action taken by the Hearing Board during the period of September 1 through September 30, 2010.

20. Civil Filings and Civil Penalties Report **Wiese/3460**

This reports the monthly penalties from July 1 through August 31, 2010, and legal actions filed by the District Prosecutor during September 1 through September 30, 2010. An Index of District Rules is attached with the penalty reports.

21. Rule and Control Measure Forecast **Chang/3186**

This report highlights AQMD rulemaking activity and public workshops potentially scheduled for the year 2010 and portions of 2011.

22. Lead Agency Projects and Environmental Documents Received by AQMD **Chang/3186**

This report provides, for the Board's consideration, a listing of CEQA documents received by the AQMD between September 1, 2010 and September 30, 2010, and those projects for which the AQMD is acting as lead agency pursuant to CEQA. (Review: Mobile Source Committee, October 15, 2010)

23. Status Report on Major Projects for Information Management Scheduled to Start During First Six Months of FY 2010-11 **Marlia/3148**

Information Management is responsible for data systems management services in support of all AQMD operations. This action is to provide the monthly status report on major automation contracts and projects to be initiated by Information Management during the first six months of FY 2010-11.

24. Items Deferred from Consent Calendar

BOARD CALENDAR

25. Administrative Committee **Chair: Burke** **Wallerstein/3131**

26. Climate Change Committee **Chair: Burke** **Whynot/3104**

27. Legislative Committee **Chair: Carney** **Abarca/3242**

The Committee deliberated on agenda items for Board consideration and recommended the following position:

Bill/Title	**Recommended Position**
H.R. 6291 (Richardson) Freight FOCUS Act of 2010	Support with Amendments

28. Mobile Source Committee **Chair: Loveridge** **Chang/3186**

29. Refinery Committee **Chair: Carney** **Tisopulos/3123**

30. Stationary Source Committee **Chair: Yates** **Nazemi/2662**

31. Technology Committee **Chair: Gonzales** **Liu/2105**

32. Mobile Source Air Pollution Reduction Review Committee **Board Liaison: Antonovich** **Hogo/3184**

33. California Air Resources Board Monthly Report **Board Rep: Loveridge** **McDaniel/2500**

PUBLIC HEARINGS

34. Adopt Proposed Rule 1420.1 - Emissions Standard for Lead From Large Lead-acid Battery Recycling Facilities **Chang/3186**

(Continued from October 1, 2010 Board Meeting)

On October 15, 2008, the U.S. EPA amended the National Ambient Air Quality Standard (NAAQS) for Lead. The standard has been lowered from 1.5 µg/m3 to 0.15 µg/m3 in order to provide an adequate margin of safety that would ensure the protection of public health. Based on current monitoring data, large lead-acid battery recycling facilities are one of the largest sources of lead. Proposed Rule 1420.1 establishes additional requirements for large lead-acid battery recycling facilities to meet attainment of the new NAAQS for Lead. (Review: Stationary Source Committee, April 16, May 21, June 18, September 24, and October 15, 2010)

35. 2010 Clean Communities Plan **Chang/3186**

The 2010 Clean Communities Plan builds from existing traditional toxic regulatory approaches and includes 23 measures designed to address cumulative air toxics exposure in communities and neighborhoods throughout the South Coast Air Quality Management District. The 2010 Clean Communities Plan includes measures to address reductions of air toxics and air related nuisance issues at the community level. Increased community participation, communication and outreach, agency coordination, enhanced monitoring and compliance programs as well as traditional source-specific measures. (Review: Stationary Source Committee, September 19, 2008, April 16 and September 24, 2010)

36. Adopt Proposed Rule 1714 - Prevention of Significant Deterioration for Greenhouse Gases, and Amend Regulation XXX – Title V Permits **Tisopulos/3123**

On June 3, 2010, U.S. EPA promulgated a "tailoring rule" establishing BACT and permitting requirements for GHG emissions under Prevention of Significant Deterioration (PSD), and Title V programs. U.S. EPA proposed a phased approach to the regulation and permitting of GHG sources. Staff is proposing amendments to the AQMD's existing PSD - Regulation XVII, and Title V - Regulation XXX programs to implement the federal provisions. (Review: Stationary Source Committee, September 24, 2010)

37. Amend Regulation XX - RECLAIM Program **Tisopulos/3123**

Proposed Amendments to Regulation XX – RECLAIM will achieve additional SOx reductions pursuant to the 2007 AQMP Control Measure #2007CMB-02. The proposed amendments also address requirements for demonstrating Best Available Retrofit Control Technology equivalency in accordance with California Health and Safety Code §40440. (Review: Stationary Source Committee, June 20, 2008, June 19, 2009, November 20, 2009, May 21, 2010, July 23, 2010 and September 24, 2010; Refinery Committee, December 11, 2009, August 18, 2010, and September 22, 2010)

38. Amend Rule 1175 – Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products **Tisopulos/3123**

Proposed Amended Rule 1175 will address the concerns expressed by the U.S. EPA in their disapproval of the September 2007 amendment. As requested by the U.S. EPA, the proposed amended rule will require source testing to demonstrate compliance, require all operational parameters necessary for compliance to be contained in a federally enforceable permit and recordkeeping to verify operational techniques and parameters. The proposed rule will also clarify the prohibition of use for chlorofluorocarbons to be consistent with U.S. EPA Significant New Alternatives Policy Program, correct typographical errors and make minor clarifications and editorial corrections to the rule. The proposed changes are administrative in nature and are not expected to impact emissions or costs. (Review: Stationary Source Committee, September 24, 2010)

OTHER BUSINESS

39. Overview of CARB's Recently Released Cap and Trade Regulation with Staff's Preliminary Comments and Recommendations *(No Written Material)* **Whynot/3104**

Staff is providing an overview of CARB's recently released Cap and Trade Regulation with preliminary comments and recommendations to the Board.

PUBLIC COMMENT PERIOD – (Public Comment on Non-Agenda Items, Pursuant to Government Code Section 54954.3)

BOARD MEMBER TRAVEL – (*No Written Material*)

Board member travel reports have been filed with the Clerk of the Boards, and copies are available upon request.

CLOSED SESSION - (*No Written Material*) **Wiese/3460**

It is necessary for the Board to recess to closed session pursuant to Government Code section 54956.9(a) to confer with its counsel regarding pending litigation which has been initiated formally and to which the District is a party. The actions are:

- NRDC, et al. v. SCAQMD, et al., U.S. District Court Case No. CV08-05403 GW (PLAx) and United States Court of Appeals, 9th Circuit, Case No. 09-57064;

- CCAT, et al. v. State of California; SCAQMD, et al., Los Angeles Superior Court Case No. BS124264 and California Court of Appeal, Second District, Case No. B226692;

- Petition Before the Administrator of the U.S. Environment Protection Agency In the Matter of Alleged Failure of California to Comply with Mandatory Procedures to Amend SIP Regarding Internal Bank Offset Credits Held by the South Coast Air Quality Management District (filed December 10, 2009);

- NPCA v. SCAQMD, Court of Appeal, 4th Appellate District, Division Three, Case No. G040122 and Supreme Court of California Case No. S177823;

- Association of American Railroads, et al. v. SCAQMD, et al., U. S. District Court Case No. CV06-1416 JFW (PLAx) and United States Court of Appeals, 9th Circuit, Case No. 07-55804;

- W.M. Barr & Company, Inc. v. SCAQMD, Los Angeles Superior Court Case No. BS127359;

- Southern California Gas Company v. SCAQMD, Los Angeles Superior Court Case No. BS122004;

- Communities for a Better Environment v. South Coast Air Quality Management District, et al., Los Angeles Superior Court Case No. BS091275, and Carlos Valdez, et al. v. South Coast Air Quality Management District, et al., Los Angeles Superior Court Case No. BS091276, Court of Appeal of the State of California Case No. B193500, and Supreme Court of California Case No. S161190;

- Voices of the Wetlands v. California State Water Resources Control Board, et al., California Supreme Court, Case No. S160211;

- Robert Sarvey v. North Coast Unified Air Quality Management District, et al., Humboldt Superior Court, Case No. CV 100303;

- South Coast Air Quality Management District v. Rimpo & Associates, Los Angeles Superior Court Case No. BC432208; and

- Natural Resources Defense Council, et al. v. EPA, United States Court of Appeals, 9th Circuit, Case No. 08-72288.

It is also necessary for the Board to recess to closed session under Government Code section 54956.9(c) to consider initiation of litigation (two cases).

ADJOURNMENT

PUBLIC COMMENTS

Members of the public are afforded an opportunity to speak on any listed item before or during consideration of that item. Please notify the Clerk of the Board, (909) 396-2500, if you wish to do so. All agendas are posted at AQMD Headquarters, 21865 Copley Drive, Diamond Bar, California, at least 72 hours in advance of the meeting. At the end of the agenda, an opportunity is also provided for the public to speak on any subject within the AQMD's authority. Speakers may be limited to three (3) minutes each.

Note that on items listed on the Consent Calendar and the balance of the agenda any motion, including action, can be taken (consideration is not limited to listed recommended actions). Additional matters can be added and action taken by two-thirds vote, or in the case of an emergency, by a majority vote. Matters raised under Public Comments may not be acted upon at that meeting other than as provided above.

Written comments will be accepted by the Board and made part of the record, provided 25 copies are presented to the Clerk of the Board. Electronic submittals to cob@aqmd.gov of 10 pages or less including attachment, in MS WORD, plain or HTML format will also be accepted by the Board and made part of the record if received no later than 5:00 p.m., on the Tuesday prior to the Board meeting.

ACRONYMS

AQIP = Air Quality Investment Program
AVR = Average Vehicle Ridership
BACT = Best Available Control Technology
Cal/EPA = California Environmental Protection Agency
CARB = California Air Resources Board
CEMS = Continuous Emissions Monitoring Systems
CEQA = California Environmental Quality Act
CE-CERT =College of Engineering-Center for Environmental Research and Technology
CNG = Compressed Natural Gas
CO = Carbon Monoxide
CPI = Consumer Price Index
CTG = Control Techniques Guideline
DERA = Diesel Emissions Reduction Act
EV = Electric Vehicle
FY = Fiscal Year
GHG = Greenhouse Gas
HRA = Health Risk Assessment
IAIC = Interagency AQMP Implementation Committee
IGA = Intergovernmental Affairs
LEV = Low Emission Vehicle
LNG = Liquefied Natural Gas
MATES = Multiple Air Toxics Exposure Study
MOU = Memorandum of Understanding
MSERCs = Mobile Source Emission Reduction Credits
MSRC = Mobile Source (Air Pollution Reduction) Review Committee
NESHAPS = National Emission Standards for Hazardous Air Pollutants
NGV = Natural Gas Vehicle
NO_x = Oxides of Nitrogen
NSPS = New Source Performance Standards
NSR = New Source Review
PAMS = Photochemical Assessment Monitoring Stations
PAR = Proposed Amended Rule
PM_{10} = Particulate Matter $\leq$ 10 microns
$PM_{2.5}$ = Particulate Matter $\leq$ 2.5 microns
PR = Proposed Rule
RFP = Request for Proposals
RFQ = Request for Quotations
SCAG = Southern California Association of Governments
SIP = State Implementation Plan
SO_x = Oxides of Sulfur
SULEV = Super Ultra Low Emission Vehicle
TCM = Transportation Control Measure
ULEV = Ultra Low Emission Vehicle
U.S. EPA = United States Environmental Protection Agency
VMT = Vehicle Miles Traveled
VOC = Volatile Organic Compound
ZEV = Zero Emission Vehicle

Back to Agenda

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 1

MINUTES: Governing Board Monthly Meeting

SYNOPSIS: Attached are the Minutes of the October 1, 2010 meeting and Minutes of the October 29, 2010 special meeting.

RECOMMENDED ACTION:
Approve Minutes of the October 1, 2010 Board Meeting and the October 29, 2010 Special Board Meeting.

Saundra McDaniel,
Clerk of the Boards

sm:dp

FRIDAY, OCTOBER 1, 2010

Notice having been duly given, the special meeting of the South Coast Air Quality Management District Board was held at the Millennium Biltmore Hotel Los Angeles, 506 South Grand Avenue, Los Angeles, California. Members present:

William A. Burke, Ed.D., Chairman
Speaker of the Assembly Appointee

Mayor Dennis R. Yates, Vice Chairman
Cities of San Bernardino County

Councilmember Michael A. Cacciotti
Cities of Los Angeles County – Eastern Region

Ms. Jane W. Carney
Senate Rules Committee Appointee

Supervisor Josie Gonzales
County of San Bernardino

Mayor Ronald O. Loveridge
Cities of Riverside County

Dr. Joseph K. Lyou
Governor's Appointee

Councilmember Judith Mitchell
Cities of Los Angeles County – Western Region

Councilmember Jan Perry (arrived at 9:25 a.m.)
City of Los Angeles

Mayor Miguel A. Pulido (arrived at 9:20 a.m.)
Cities of Orange County

Members Absent:

Supervisor Michael D. Antonovich
County of Los Angeles

Supervisor John J. Benoit
County of Riverside

Supervisor Bill Campbell
County of Orange

CALL TO ORDER: Chairman Burke called the meeting to order at 9:05 a.m.

- Pledge of Allegiance: Led by Councilwoman Mitchell.

- Opening Comments

  Dr. Wallerstein. Alerted the Board to a letter the District received regarding Agenda Item No. 3 from two of the firms that submitted proposals and did not get selected, suggesting that the firm that was selected is not qualified and that their bid is too low, as well as highlighting the negative aspects of the selected firm being located in Colorado.

- Presentation in Recognition of Alan K. Stazer, Public Member Alternate, AQMD Hearing Board, July 2004 – August 2009

  Chairman Burke presented a plaque to Joseph Arnold on behalf of the late Alan K. Stazer in recognition and appreciation of 5 years of service as Public Member Alternate on the AQMD Hearing Board.

- Presentation to AQMD on behalf of Los Angeles Sparks

  Mike Levy, President of the Los Angeles Sparks, presented a commemorative display to the Board for the joint effort with the AQMD during their past season. He highlighted various events in which the AQMD was involved in an effort to increase outreach regarding air quality issues including the Downtown Dribble, an outdoor game held in Carson, and the Go Green night held at Staples Center.

CONSENT CALENDAR

1. Minutes of September 10, 2010 Board Meeting

2. Set Public Hearings to Consider Amendments and/or Adoption to AQMD Rules and Regulations

   October 29, 2010

   (A). Adopt Proposed Rule 320 - Automatic Adjustment Based on Consumer Price Index for Regulation III Fees

November 5, 2010

(B). Amend Regulation XX - RECLAIM Program

(C). Adopt Proposed Rule 1714 - Prevention of Significant Deterioration for Greenhouse Gases, and Amend Regulation XXX – Title V Permits

(D). Amend Rule 1175 – Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products

Budget/Fiscal Impact

3. Execute Contract and Appropriate Funds for Production of Signature AQMD Video

4. Approve Purchase of Gas Chromatograph/Mass Spectrometer/Flame Ionization Detector Instrument

5. Execute Contract to Develop and Demonstrate Electric Drive Conversion for Fleet Vehicles

6. Execute Contract for 2010 Leaf Blower Exchange Program

7. Execute Contracts and Transfer Funds for Voucher Incentive Program

8. Execute Contract to Demonstrate Natural Gas-Powered Refuse Truck

9. Issue RFP for Demonstration of Natural Gas Stationary Fuel Cells at AQMD Headquarters

10. Issue Program Announcements for Electric Lawnmower Vendors, Licensed Scrappers and Support Service Providers

11. Recognize Funds, Approve Additional Truck Projects and Amend Awards under Proposition 1B-Goods Movement Program

12. ***This item was withdrawn by staff.***

13. Execute Contract for Hydrogen Fueling Station and Amend Contracts for Maintenance and Fueling Services for Five Cities Program Vehicles and Stations

14. Execute Contracts for FY 2009-10 "Year 12" Carl Moyer Program and SOON Provision, Amend Carl Moyer Program Awards and Issue Program Announcement for SOON Provision

15. Recognize Funds from San Joaquin Valley Air Pollution Control District to Promote Development of Natural Gas-Fired, Fan-Type Central Furnaces with Reduced NOx Emissions

16. Execute Contract for Sources, Composition, Variability and Toxicological Characteristics of Ultrafine Particles in Southern California

17. ***This item was withdrawn by staff.***

18. Appropriate Funds and Authorize Amending Existing Contract with Special Outside Counsel to Assist with Litigation Regarding SB 827 and AB 1318 and Internal Offset Accounts

19. Approve Contract Modification, New Award and Corrected Award under FYs 2008-09 and 2009-10 AB 2766 Discretionary Fund Work Programs

Information Only/Receive and File

20. Legislative & Public Affairs Report

21. Hearing Board Report

22. Civil Filings and Civil Penalties Report

23. Rule and Control Measure Forecast

24. Lead Agency Projects and Environmental Documents Received by AQMD

25. Annual Report on 457 Deferred Compensation Plan

26. Status Report on Major Projects for Information Management Scheduled to Start During First Six Months of FY 2010-11

Dr. Lyou announced his abstention on Item No. 7 due to Cummins Cal Pacific, LLC being a source of income to his employer, Item No. 8 due to Waste Management being a source of income to his employer, Item 13 due to Air Products and Chemicals, Inc. being a source of income to his employer, and Item No. 18 regarding a Contract for Outside Counsel to assist on a lawsuit that he prefers to abstain on.

Agenda items 3, 11, and 14 were withheld for discussion.

MOVED BY YATES, SECONDED BY CACCIOTTI, AGENDA ITEMS 1, 2, 4 THROUGH 10, 13, AND 15 THROUGH 26 APPROVED AS RECOMMENDED, BY THE FOLLOWING VOTE:

AYES:	Burke, Cacciotti, Carney, Gonzales, Loveridge, Lyou (*except Items #7, #8, #13 and #18*), Mitchell, and Yates.
NOES:	None.
ABSTAIN:	Lyou *(Items #7, #8, #13 and #18 only*).
ABSENT:	Antonovich, Benoit, Campbell, Perry and Pulido.

27. Items Deferred from Consent Calendar

3. Execute Contract and Appropriate Funds for Production of Signature AQMD Video

Dr. Lyou left the meeting after recusing himself from Agenda Item No. 3 because of Makeover Earth Incorporated being a potential source of income.

Ms. Carney commented that she was present at the Administrative Committee meeting when the submitted proposals were reviewed and sample videos from each company were shown. She acknowledged the decision was difficult because of the high caliber of the proposals received; but, in the end, the overwhelming cost savings associated with selecting Cinema Vertige, LLC, coupled with their level of experience filming documentaries, was the determining factor. She recognized the importance of providing the filmmaker with the appropriate material that they will need to successfully complete the video and suggested the Board

entertain a proposal to provide the contractor with individuals with expertise on the issues the Basin faces to provide assistance on the substance of the video.

Dr. Wallerstein expressed staff's belief that the District has sufficient resources in-house to provide the required information. He also explained that staff intended to give the filmmaker an opportunity to talk with some Board Members in order to get their perspective.

Dr. Burke expressed his optimism that Cinema Vertige will bring a fresh, youthful approach to delivering the intended message.

Ms. Carney acknowledged that the company's lack of background in air quality issues was disconcerting; but, overall, the Committee was impressed with their proposal and sample video.

(Mayor Pulido arrived at 9:20 a.m.)

Mayor Yates commented that when the City of Chino awards a contract pursuant to the issuance of an RFP, they receive complaints and letters speaking out against the chosen contractor; and this practice has become more prevalent given the current economic conditions. He expressed his confidence in the ability to produce an effective film with the current contractor.

Councilman Cacciotti raised a concern regarding the great disparity between the budget presented by Cinema Vertige and the other proposals because, it would seem, that certain costs such as creative fees, on-camera talent, technical production personnel, equipment rental, location shooting, and film stock would have fixed costs. He is unsure, therefore, where they were able to cut costs to create such an affordable proposal.

Dr. Burke replied that the company's references were thoroughly checked and all respondents awarded them extraordinarily high marks regarding budgetary matters. In the event that they did go over the allocated budget, there is such a large difference between their budgeted cost and the budgeted cost of the other proposers, the District would still be saving money as opposed to having chosen one of the other proposals.

Councilman Cacciotti expressed the need for the filmmaker to meet with members of the Board in order for them to gain the information and knowledge necessary to make the film a success.

Councilwoman Mitchell raised the concern of the potential for increased production costs due to filming in the Basin that the out-of-state filmmaker would not be familiar with and therefore did not account for in their proposal.

(Councilwoman Perry arrived at 9:25 a.m.)

Dr. Wallerstein responded that the thorough reference checks that were completed included questioning on whether or not the company brought their project in on budget, and the responses from the former clients were all positive.

MOVED BY CACCIOTTI, SECONDED BY GONZALES, AGENDA ITEM 3 APPROVED AS RECOMMENDED BY STAFF, BY THE FOLLOWING VOTE:

AYES: Burke, Cacciotti, Carney, Gonzales, Loveridge, Mitchell, Perry, Pulido and Yates.

NOES: None.

ABSENT: Antonovich, Benoit, Campbell and Lyou.

11. Recognize Funds, Approve Additional Truck Projects and Amend Awards under Proposition 1B-Goods Movement Program

At the request of Kurt Wiese, General Counsel, the Chairman conducted individual votes on four of the contracts contained within Item No. 11; and a vote on the remainder of the contracts.

MOVED BY MITCHELL, SECONDED BY GONZALES, AND UNANIMOUSLY CARRIED (Absent: Antonovich, Benoit, and Campbell), THE BOARD APPROVED THE FOLLOWING ACTIONS ON AGENDA ITEM NO. 11, AS RECOMMENDED BY STAFF:

1.) RECOGNIZING UPON RECEIPT UP TO $2,710,000 IN “YEAR 1” PROPOSITION 1B GOODS MOVEMENT PROGRAM FUNDS FROM CARB COMPRISED OF UP TO $2,610,000 FOR “OTHER TRUCKS” AND UP TO $100,000 FOR “PORTS AND INTERMODAL RAIL YARD TRUCKS” PROJECTS AND PLACE THEM INTO THE AQMD PROPOSITION 1B – GOODS MOVEMENT PROGRAM FUND (81).

2.) AUTHORIZING THE EXECUTIVE OFFICER TO

a. EXECUTE A CONTRACT WITH CASCADE SIERRA SOLUTIONS TO REPLACE TWO TRUCKS SERVING PORTS AND INTERMODAL RAIL YARD FACILITIES AS SHOWN IN TABLE 1, IN AN AMOUNT NOT TO EXCEED $100,000 FROM THE PROPOSITION 1B – GOODS MOVEMENT PROGRAM FUND (81);

b. EXECUTE CONTRACTS FOR UP TO 50 ADDITIONAL "OTHER TRUCKS" REPLACEMENT PROJECTS IN RANK ORDER FROM THE LIST OF BACKUP PROJECTS APPROVED BY THE BOARD ON JUNE 4, 2010, UNDER AGENDA NO. 9, IN AN AMOUNT NOT TO EXCEED $2,500,000 FROM THE PROPOSITION 1B-GOODS MOVEMENT PROGRAM FUND (81), EXCEPT FOR PROJECTS BY MATICH CORPORATION, CARDENAS MARKETS, INC., ECOLOGY AUTO PARTS, ROBERTSON'S READY MIX AND UPS, WHICH WERE VOTED ON SEPARATELY, AS NOTED BELOW; AND

c. AMEND PROPOSITION 1B- GOODS MOVEMENT PROGRAM AWARDS APPROVED BY THE BOARD ON FEBRUARY 5, AND JUNE 4, 2010, TO CHANGE AWARD RECIPIENTS FROM PIER WEST TRANSPORTATION FOR EIGHT TRUCKS, RUDY VERNON GOMEZ FOR ONE TRUCK AND WESTAR TRANSPORT FOR EIGHT TRUCKS TO CASCADE SIERRA SOLUTIONS FOR UNCHANGED AWARD AMOUNTS AS OUTLINED IN TABLE 2.

MOVED BY CARNEY, SECONDED BY YATES, APPROVED ACTION 2B FOR **MATICH CORPORATION**, BY THE FOLLOWING VOTE:

AYES: Burke, Cacciotti, Carney, Loveridge, Lyou, Mitchell, Perry, Pulido and Yates.

NOES: None.

ABSTAIN: Gonzales, due to receipt of a campaign contribution from Matich.

ABSENT: Antonovich, Benoit, and Campbell.

MOVED BY CARNEY, SECONDED BY YATES, APPROVED ACTION 2B FOR **CARDENAS MARKETS, INC.**, BY THE FOLLOWING VOTE:

AYES: Burke, Cacciotti, Carney, Loveridge, Lyou, Mitchell, Perry, Pulido and Yates.

NOES: None.

ABSTAIN: Gonzales, due to receipt of a campaign contribution from Cardenas.

ABSENT: Antonovich, Benoit, and Campbell.

MOVED BY CARNEY, SECONDED BY YATES, APPROVED ACTION 2B FOR **ECOLOGY AUTO PARTS**, BY THE FOLLOWING VOTE:

AYES: Burke, Cacciotti, Carney, Gonzales, Lyou, Mitchell, Perry, Pulido and Yates.

NOES: None.

ABSTAIN: Loveridge, due to receipt of a campaign contribution from Ecology Auto Parts.

ABSENT: Antonovich, Benoit, and Campbell.

MOVED BY YATES, SECONDED BY CACCIOTTI, APPROVED ACTION 2B FOR **ROBERTSON'S READY MIX**, BY THE FOLLOWING VOTE:

AYES: Burke, Cacciotti, Carney, Loveridge, Lyou, Mitchell, Perry, and Yates.

NOES: None.

ABSTAIN: Gonzales and Pulido, due to receipt of a campaign contribution from Robertson's Ready Mix.

ABSENT: Antonovich, Benoit, and Campbell.

MOVED BY CARNEY, SECONDED BY YATES, APPROVED ACTION 2B FOR **UPS**, BY THE FOLLOWING VOTE:

AYES: Burke, Cacciotti, Carney, Gonzales, Loveridge, Mitchell, Perry, Pulido and Yates.

NOES: None.

ABSTAIN: Lyou, due to UPS being a potential source of income.

ABSENT: Antonovich, Benoit, and Campbell.

14. Execute Contracts for FY 2009-10 "Year 12" Carl Moyer Program and SOON Provision, Amend Carl Moyer Program Awards and Issue Program Announcement for SOON Provision

Mr. Wiese announced the abstentions of Supervisor Gonzales on the contract with Burrtec Waste Industries due to a campaign contribution and of Dr. Lyou on the Waste Management Collection and Recycling contract due to Waste Management being a source of income to his employer.

MOVED BY MITCHELL, SECONDED BY PERRY, AGENDA ITEM 14 APPROVED AS RECOMMENDED BY STAFF, BY THE FOLLOWING VOTE:

AYES: Burke, Cacciotti, Carney, Gonzales *(except as to Burrtec Waste contract)*, Loveridge, Lyou *(except as to the Waste Management Contract)*, Mitchell, Perry, Pulido and Yates.

NOES: None.

ABSTAIN: Gonzales *(as to the Burrtec Waste contract only, due to receipt of a campaign contribution from Burrtec),* and Lyou *(as to the Waste Management contract only, due to Waste Management being a potential source of income)*.

ABSENT: Antonovich, Benoit, and Campbell.

BOARD CALENDAR

28. Administrative Committee

29. Legislative Committee

30. Mobile Source Committee

31. Stationary Source Committee

32. Technology Committee

33. Mobile Source Air Pollution Reduction Review Committee

MOVED BY PERRY, SECONDED BY GONZALES, THE BOARD APPROVED AGENDA ITEMS 28 THROUGH 33 AS RECOMMENDED, RECEIVING AND FILING THE COMMITTEE REPORTS, AND ADOPTING THE POSITIONS ON LEGISLATION AS SET FORTH BELOW, BY THE FOLLOWING VOTE:

AYES: Burke, Cacciotti, Carney, Gonzales, Loveridge, Lyou, Mitchell, Perry, Pulido and Yates.

NOES: None.

ABSENT: Antonovich, Benoit and Campbell.

Bill/Title	**Recommended Position**
S. 3495 (Dorgan) Promoting Electric Vehicles Act of 2010	Support with Amendments
S. 3608 (Schumer) Fuel Cell Industrial Vehicle Jobs Act of 2010	Support
H.R. 5174 (Tonko) Fuel Cell Industrial Vehicle Jobs Act of 2010	Support with Clarification
S. 3629/H.R. 5976 (Lautenberg/Sires) Freight Transportation Policy and Strategic Development (companion bills)	Support with Amendments

34. California Air Resources Board Monthly Report

MOVED BY LYOU, DULY SECONDED, AND UNANIMOUSLY CARRIED (Absent: Antonovich, Benoit, and Campbell), THE BOARD APPROVED RECEIPT/FILING OF AGENDA ITEM 34 AS RECOMMENDED.

Staff Presentation

35. Clean Fuels Program Draft Plan Update

Dr. Matt Miyasato, Assistant DEO Science and Technology Advancement gave the staff presentation.

Mayor Loveridge commented that the District should be more invested in the deployment of electric vehicles since the technology advancements in the field warrant a shift in the focus from demonstration to promotion and deployment.

Dr. Miyasato replied that the District wants to ensure that the public and private infrastructure resources being provided by the Department of Energy will be intelligently deployed throughout the Basin, while the original equipment manufacturers consider residential charging the top priority. Staff wants to ensure that public infrastructure is sufficient to have market penetration but not be overbuilt causing a waste of public funds. Staff did not focus on residential charging because the Department of Energy and the vehicle manufacturers are going to ensure that area is sufficiently provided for. He added that the research plan includes staff's findings that infrastructure is going to be important, but the main focus will be to expand investment of medium- and heavy-duty applications, because those technologies will offer significant emissions benefits.

Mayor Loveridge noted that the City of Riverside recently purchased six Zap vehicles, and indicated that local cities and counties are open to these technologies and the District should focus its efforts to further advocate for the utilization of these technologies by other entities.

Dr. Miyasato added that there are different considerations with each of the different types of vehicles including the city electric vehicles such as the Zap, the slightly wider range vehicles such as the Nissan Leaf, as well as the plug-in hybrids with a 300-600 mile range; and staff will need to consider how to best support each of these various applications.

Supervisor Gonzales explained that the District needs to capitalize on the new opportunities that are present as a result of the technologies that are now becoming more of a reality to the public. She emphasized the importance of effectively spreading the message of the benefits and uses of these new applications to ensure they are being deployed in the most effective manner.

Dr. Burke commented that he believes it would be beneficial to work with those companies that will benefit from this technology, including the electrical companies and automobile manufacturers, about a joint-promotion package where they help fund this technology in order to make it more widely available to the public.

Dr. Miyasato confirmed that staff will reach out to those stakeholders as requested.

Councilman Cacciotti expressed his agreement with the previous comments, and suggested that the amount of funds devoted to electric and hybrid technologies be increased to 30 percent. He suggested lessening the percentage of project funds devoted towards engine systems in order to increase the infrastructure and deployment funds to 10 percent. He is encouraged by the possibility of utilizing more electric and hybrid technologies in city and county government fleets, and stressed the importance of having financial assistance available for those conversions to take place.

Dr. Burke asked staff to look into redistribution of the potential project funds in the Draft Plan based on the comments made by Board Members.

Councilwoman Mitchell expressed a concern with the focus on expansion of the use of and infrastructure for CNG, which is a fossil fuel.

Dr. Miyasato responded that CNG is currently the lowest emission option for heavy-duty vehicles and highlighted the benefits of CNG, including reduction of criteria pollutants, GHG emissions, and reliance on petroleum. He added that it can be created renewably which produces a greater reduction in GHG emissions.

In response to Councilwoman Mitchell's inquiry into the negative effects of mining natural gas, Dr. Miyasato responded that most of the natural gas used is from North America and the full life-cycle analyses that are completed account for all of the emissions and the energy associated with extraction. The majority of natural gas used is from reserves and it does not suffer those same types of environmental consequences.

Councilwoman Mitchell asked staff to balance the focus on the need for zero-emission light-duty vehicles with the current technology for heavy-duty vehicles in the District's Clean Fuels Program.

Dr. Wallerstein recommended that staff address the comments that were made by the Board Members and present those at the next meeting of the Technology Committee; a report of the Committee's proceedings will be included on the Board's November 5, 2010 meeting agenda.

Dr. Burke commented that all of the various low-emission technologies are important in different ways because of the various purposes they serve; stressed the importance of the District being able to promote utilization of vehicles which are going to help reduce emissions in the Basin; and suggested that, at the next Board retreat, staff could give a short overview of the strengths of the various fuel systems and technologies available.

RECEIVED AND FILED; NO ACTION NECESSARY.

PUBLIC HEARINGS

36. Adopt Proposed Rule 1420.1 - Emissions Standard for Lead From Large Lead-acid Battery Recycling Facilities

(Continued from September 10, 2010 Board Meeting)

Ms. Carney recused herself from Agenda Item No. 36 because of U.S. Battery being a source of income to her, and left the room.

Mayor Yates reported that all members of the Stationary Source Committee recommended that this item be held over another 30 days in light of new information that has come from one of the manufacturers regarding lower levels of emissions, which may result in a change in staff's recommendation to the Board.

Chairman Burke asked that anyone in the audience who wanted to testify on the item as it is currently drafted, instead of waiting for the November Board meeting, do so at this time. The six individuals who submitted cards to speak on the item waived comments.

Written Comments Submitted by:
Duncan McKee
10 Employees of Rehrig Pacific
Quemetco, Inc.
Sheppard Mullin Richter & Hampton LLP on behalf of Exide Technologies

Dr. Lyou reminded the Board Members that there was still a substantive question that needs to be addressed at either the Stationary Source Committee or the November Board Meeting with regard to the legal context or the purpose of this Rule and whether it had to do with the national ambient air quality standards or whether it was more focused on toxics.

Mr. Wiese alerted the Board to two errata sheets containing alternative language that staff composed in relation to the recommendations of the Stationary Source Committee that was provided to the Board Members and made available to the public.

THE PUBLIC HEARING ON RULE 1420.1 WAS CONTINUED BY UNANIMOUS CONSENT OF THE BOARD TO THE NOVEMBER 5, 2010 BOARD MEETING, AS RECOMMENDED BY THE STATIONARY SOURCE COMMITTEE.

PUBLIC COMMENT PERIOD – (Public Comment on Non-Agenda Items, Pursuant to Government Code Section 54954.3)

There was no public comment on non-agenda items.

CLOSED SESSION

The Board recessed to closed session at 10:05 a.m., pursuant to Government Code section 54956.9(a) to confer with its counsel regarding pending litigation which has been initiated formally and to which the District is a party, as follows:

- NRDC, et al. v. SCAQMD, et al., U.S. District Court Case No. CV08-05403 GW (PLAx) and United States Court of Appeals, 9th Circuit, Case No. 09-57064;
- CCAT, et al. v. State of California; SCAQMD, et al., Los Angeles Superior Court Case No. BS124264 and California Court of Appeal, Second District, Case No. B226692;
- Petition Before the Administrator of the U.S. Environment Protection Agency In the Matter of Alleged Failure of California to Comply with Mandatory Procedures to Amend SIP Regarding Internal Bank Offset Credits Held by the South Coast Air Quality Management District (filed December 10, 2009);
- Association of American Railroads, et al. v. SCAQMD, et al., U. S. District Court Case No. CV06-1416 JFW (PLAx) and United States Court of Appeals, 9th Circuit, Case No. 07-55804; and
- W.M. Barr & Company, Inc. v. SCAQMD, Los Angeles Superior Court Case No. BS127359.

Following closed session, General Counsel Kurt Wiese announced that there were no reportable actions taken in closed session.

ADJOURNMENT

There being no further business, the meeting was adjourned by General Counsel Kurt Wiese at 10:30 a.m.

The foregoing is a true statement of the proceedings held by the South Coast Air Quality Management District Board on October 1, 2010.

Respectfully Submitted,

Denise Pupo
Senior Deputy Clerk

Date Minutes Approved: _____

_____
Dr. William A. Burke, Chairman

ACRONYMS

CARB = California Air Resources Board

CNG = Compressed Natural Gas

CO_2 = Carbon Dioxide

FY = Fiscal Year

GHG = Greenhouse Gas

MSRC = Mobile Source (Air Pollution Reduction) Review Committee

NO_X = Oxides of Nitrogen

RFP = Request for Proposals

SO_x = Oxides of Sulfur

U.S. EPA = United States Environmental Protection Agency

FRIDAY, OCTOBER 29, 2010

Notice having been duly given, the special meeting of the South Coast Air Quality Management District Board was held at District Headquarters, 21865 Copley Drive, Diamond Bar, California. Members present:

William A. Burke, Ed.D., Chairman
Speaker of the Assembly Appointee

Mayor Dennis R. Yates, Vice Chairman
Cities of San Bernardino County

Supervisor John J. Benoit
County of Riverside

Councilman Michael A. Cacciotti
Cities of Los Angeles County – Eastern Region

Supervisor Bill Campbell
County of Orange

Ms. Jane W. Carney
Senate Rules Committee Appointee

Supervisor Josie Gonzales
County of San Bernardino

Dr. Joseph K. Lyou
Governor's Appointee

Councilwoman Judith Mitchell
Cities of Los Angeles County – Western Region

Mayor Miguel A. Pulido
Cities of Orange County

Members Absent:

Supervisor Michael D. Antonovich
County of Los Angeles

Mayor Ronald O. Loveridge
Cities of Riverside County

Councilwoman Jan Perry
City of Los Angeles

CALL TO ORDER: Chairman Burke called the meeting to order at 9:40 a.m.

- Pledge of Allegiance: Led by Chairman Burke.

PUBLIC HEARING

1. Adopt Proposed Rule 320—Automatic Adjustment Based on Consumer Price Index for Regulation III Fees

Barbara Baird, District Counsel, gave the staff presentation; and noted the errata sheet containing additional language for the Resolution, which was distributed to Board Members and copies made available to the public.

At the request of Supervisor Campbell, Ms. Baird explained that the Rule provides that the amount of the CPI adjustment would be determined by the calculation performed by the California Division of Labor each year and would be repealed if Proposition 26 does not pass.

Supervisor Campbell expressed his support of Proposition 26 because of the intent to place restrictions on various governmental agencies who have taken advantage by naming something a fee rather than a tax in order to avoid voter approval; and noted he is not able to support the rule.

Supervisor Benoit expressed his agreement with Supervisor Campbell's concerns and raised a concern about the negative view the public may have regarding the Board passing such a Rule in such close proximity to the upcoming election.

Ms. Carney commented that she believes the Rule has merit regardless of the outcome of the vote on Proposition 26; so, the language that repeals Rule 320 in the event that Proposition 26 is not implemented was disconcerting to her. Her concern if Rule 320 is not put in place is that litigation would most likely result, which would require excessive amounts of money be spent to defend the collection of fees by the District, to the detriment of taxpayers and residents of the South Coast Basin.

Mayor Yates and Supervisor Gonzales expressed their concerns with regard to the impact to the business community and acknowledged the difficulty of balancing the District's mission of protecting public health and cleaning the air, with the financial resources needed to continue those efforts. On balance, however, both Board Members noted their support for Proposed Rule 320.

Dr. Burke noted that he agreed with comments made by all of his fellow Board Members and as Chairman believed it is necessary to support adoption of the proposed rule.

Councilwoman Mitchell noted that she supports Rule 320 and believes that it is necessary.

The public hearing was opened and, there being no requests from the public to comment on this item, the public hearing was closed.

Written Comments Submitted By:
Clint Brown
Robert McCormick, McCormick & Son
Patty Senecal, Western States Petroleum Association

MOVED BY YATES, SECONDED BY CACCIOTTI, AGENDA ITEM NO. 1 APPROVED, ADOPTING RESOLUTION NO. 10-27, ADOPTING RULE 320 – AUTOMATIC FEE ADJUSTMENT BASED ON CONSUMER PRICE INDEX FOR REGULATION III FEES, AND CERTIFYING THE CEQA EXEMPTION, AS RECOMMENDED BY STAFF, WITH THE MODIFICATION OF THE ADOPTING RESOLUTION TO INCLUDE THE LANGUAGE SET FORTH IN THE ERRATA SHEET AND NOTED BELOW, BY THE FOLLOWING VOTE:

AYES: Burke, Cacciotti, Carney, Gonzales, Lyou, Mitchell, Pulido and Yates.

NOES: Benoit and Campbell.

ABSENT: Antonovich, Loveridge and Perry.

MODIFICATION:

Include the following language in the Resolution:

BE IT FURTHER RESOLVED, that the Executive Officer is directed to annually prepare a socioeconomic impact analysis of the effect of an automatic adjustment based on the California Consumer Price Index, in time for consideration by the Budget Advisory Committee, public consideration by March 15, and the Governing Board's consideration on or before the May Board Meeting; and

BE IT FURTHER RESOLVED, that the Executive Officer is directed to annually schedule a public consultation meeting regarding the automatic fee adjustment established by Rule 320 to receive any public comments, and shall report those comments and any responses, along with any recommendations by the Budget Advisory Committee, to the Governing Board by April 15, together with a recommendation on whether to schedule a public hearing on the fees in Regulation III.

ADJOURNMENT

There being no further business, the meeting was adjourned by Chairman Burke at 10:05 a.m.

The foregoing is a true statement of the proceedings held by the South Coast Air Quality Management District Board on October 29, 2010.

Respectfully Submitted,

Denise Pupo
Senior Deputy Clerk

Date Minutes Approved: _____

_____
Dr. William A. Burke, Chairman

ACRONYMS

CEQA = California Environmental Quality Act

CPI = Consumer Price Index

Back to Agenda

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 2

PROPOSAL: Set Public Hearings December 3, 2010 to Consider Amendments and/or Adoption to AQMD Rules and Regulations:

(A) Amend Rule 1415 – Reduction of Refrigerant Emissions from Stationary Refrigeration and Air Conditioning Systems, and Adopt Rule 1415.1 - Reduction of Refrigerant Emissions from Stationary Refrigeration Systems. The proposed amendments to Rule 1415 expand the scope of the rule to include provisions for reducing emissions of high global warming potential refrigerants utilized in stationary air conditioning systems and other administrative changes. Staff is also proposing a new rule, Rule 1415.1, to incorporate provisions for reducing emissions of certain high global warming potential refrigerants that will be consistent with CARB's statewide rule for stationary refrigeration systems. The proposed new rule will consolidate all other emission control requirements for stationary refrigeration systems currently in Rule 1415. (Review: Stationary Source Committee, November 19, 2010)

(B) Amend Rule 1143 - Consumer Paint Thinners & Multi-Purpose Solvents. The amendment will propose an exemption for artist solvents and thinners that will make the rule more consistent with the state consumer products regulation by: (1) exempting artist solvents and thinners that are properly labeled and sold in containers that are one liter or less from applicable VOC limits; (2) defining artist solvents and thinners; (3) making changes to the rule to clarify that all exempt products shall be subject to recordkeeping and reporting; and (4) making changes to the rule to clarify that the sell-through provisions for the final VOC limit do not apply to products that do not meet the interim VOC limit. The proposed amendment will result in 114 pounds of VOC emission reductions foregone per day. (Review: Stationary Source Committee, October 15, 2010)

The complete text of the proposed rule and amendments, staff reports, and other supporting documents are available from the District's Public Information Center, (909) 396-2550, and on the Internet (www.aqmd.gov).

RECOMMENDED ACTION:
Set Public Hearings December 3, 2010 to amend Rules 1415 and 1143 and adopt Proposed Rule 1415.1.

Barry R. Wallerstein, D.Env.
Executive Officer

sm

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Draft Staff Report for

Proposed Amended Rule 1415 – Reduction of Refrigerant Emissions from Stationary Air Conditioning Systems and Proposed Rule 1415.1 - Reduction of Refrigerant Emissions from Stationary Refrigeration Systems

Deputy Executive Officer
Planning, Rule Development, & Area Sources
Elaine Chang, DrPH

Assistant Deputy Executive Officer
Planning, Rule Development, & Area Sources
Laki Tisopulos, Ph.D., P.E.

Manager
Planning, Rule Development & Area Sources
Naveen Berry

October 2010

Author: Rizaldy Calungcagin, Air Quality Specialist

Contributor: Tyler Kitchel, Air Quality Specialist

Reviewed By: David De Boer, Program Supervisor
Sue Lieu, Program Supervisor
Jeri Voge, Sr. Deputy District Counsel
Jill Whynot, Director of Strategic Initiatives

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

GOVERNING BOARD

Chairman: DR. WILLIAM A. BURKE
Speaker of the Assembly Appointee

Vice Chairman: DENNIS YATES
Mayor, Chino
Cities of San Bernardino County

MEMBERS:

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Supervisor, Fifth District
County of Los Angeles

JOHN J. BENOIT
Supervisor, Fourth District
County of Riverside

MICHAEL A. CACCIOTTI
Councilmember, South Pasadena
Cities of Los Angeles County/Eastern Region

BILL CAMPBELL
Supervisor, Third District
County of Orange

JANE W. CARNEY
Senate Rules Appointee

JOSIE GONZALES
Supervisor, Fifth District
County of San Bernardino

RONALD O. LOVERIDGE
Mayor, Riverside
Cities of Riverside County

JOSEPH K. LYOU, Ph.D.
Governor's Appointee

JUDITH MITCHELL
Councilmember, Rolling Hills Estates
Cities of Los Angeles County/Western Region

JAN PERRY
Councilmember, Ninth District
Cities Representative
Los Angeles County/Western Region

MIGUEL A. PULIDO
Mayor, Santa Ana
Cities of Orange County

EXECUTIVE OFFICER:

BARRY R. WALLERSTEIN, D.Env.

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EXECUTIVE SUMMARY

In December 2009, the California Air Resources Board (CARB) approved the Management of High Global Warming Potential Refrigerants for Stationary Sources regulation (commonly called the Refrigerant Management Program) to help reduce the state's greenhouse gas (GHG) emissions to 1990 levels by year 2020, as required by the California Global Warming Solutions Act of 2006 (AB 32). The regulation will go into effect on January 1, 2011.

The Refrigerant Management Program's goal is to reduce emissions of high global warming potential (GWP) refrigerants such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs) used in commercial and industrial refrigeration systems. The regulation requires registration, leak detection and monitoring, leak repair, retrofit or retirement, reporting, and recordkeeping for the affected industries including owners or operators of refrigeration systems, any person who services a refrigeration system, and distributors, wholesalers, and reclaimers of high GWP refrigerants.

Currently, the AQMD has a similar regulation, Rule 1415 – Reduction of Refrigerant Emissions from Stationary Refrigeration and Air Conditioning Systems (Rule 1415), which covers the reduction of ozone depleting refrigerant (CFC and HCFC) emissions. Rule 1415 requirements, however, apply to both stationary refrigeration and air conditioning systems whereas the Refrigerant Management Program covers only stationary refrigeration systems. In certain aspects, the CARB's regulation is more stringent than Rule 1415 particularly when it comes to leak inspection, leak detection and monitoring, and reporting requirements, while other components are less stringent. In particular, the CARB regulation allows leak repair periods of 45 or 120 days depending on the nature of the refrigeration system, and circumstances surrounding the leak, while the existing Rule 1415 requires completion of leak repairs within 14 days of initial leak detection. Further, the CARB rule has a provision that allows an exemption from the leak repair and retrofit or retirement plan requirements for a period of up to three years if specific exemption criteria are met. Rule 1415 does not provide such exemption. Staff's goal is to ensure that the AQMD refrigerant rule is equivalent in every aspect to the CARB regulation; therefore, a new Rule 1415.1 – Reduction of Refrigerant Emissions from Stationary Refrigeration Systems (Rule 1415.1) is being proposed to reduce refrigerant emissions from stationary refrigeration systems and to align AQMD's program with CARB's Refrigerant Management Program. Proposed Rule (PR) 1415.1 will consolidate all emission control requirements for stationary refrigeration systems currently in Rule 1415, and adopt all provisions in the state regulation pertaining to the control of high GWP refrigerant emissions.

For Rule 1415, which will apply only to air conditioning systems, staff is proposing to expand the scope of the rule to include high GWP refrigerants. In addition, staff's proposed amendments to Rule 1415 would place all emission control requirements solely for air conditioning systems under this Rule. Similar to PR 1415.1, staff's proposal would also allow an extended leak repair period of up to 45 days in situations where a certified technician is not available or the part(s) needed to complete the repair is unavailable within 14 days of initial leak detection.

Staff believes that having separate rules for air conditioning (PAR 1415) and refrigeration systems (PR 1415.1) would minimize confusion with regard to rule applicability, improve clarity, and enhance rule enforceability.

The CARB Refrigerant Management Program will result in an estimated GHG emission reduction for the South Coast Air Basin of approximately 3.5 MMT CO_2E by year 2020. Implementing PR 1415 is not expected to achieve additional GHG emission reductions beyond what is expected from the CARB regulation. Extending the leak repair period to 45 days in PAR 1415 could result in foregone emissions of 497 metric tons per year of CO_2E. For PR 1415.1, extending the time period during which a leak must be repaired from 14 days to 45 or 120 days for refrigeration systems could result in foregone CO_2E emissions of 5,849 metric tons per year. Additionally, the exemption provision in PR 1415.1 could result in foregone emissions of 4,618 metric tons per year of CO_2E. The total emissions impacts of relaxing the leak repair period in PAR 1415 and PR1415.1, including the exemption provision in PR1415.1, translate to foregone CO_2E emissions of 10,964 metric tons per year, which is a small amount when compared to the 3.5 MMT CO_2E emission reductions anticipated from this program.

BACKGROUND

Rule 1415 – Reduction of Refrigerant Emissions from Stationary Refrigeration and Air Conditioning Systems was adopted on June 7, 1991, and later amended on October 14, 1994, to reduce emissions of Class I and Class II ozone-depleting refrigerants from stationary refrigeration and air conditioning systems. Class I refrigerants are typically CFCs, while Class II refrigerants are all HCFCs, and are listed under section 602 of the Clean Air Act.

Production of CFCs and HCFCs were designated for phase out under the Montreal Protocol, primarily due to concerns about stratospheric ozone depletion. The use of these ozone depleting substances (ODS) as refrigerants is also regulated for the same reason. As a result of the Montreal Protocol's phase-out of ODS, the use of CFCs and HCFCs as refrigerants has been replaced with HFCs and PFCs, generally referred to as ODS substitutes. These ODS substitutes are not ozone depleters, but have much higher global warming potential. The use of ODS substitutes are increasing, and will continue to increase as ODS refrigerants are replaced by these high global warming potential ODS substitutes, particularly the HFCs. Consequently, greenhouse gas (GHG) emissions are projected to increase on a CO_2 equivalent basis.

The increase in GHGs in the atmosphere has been attributed to the average rise in the Earth's temperature that has been observed in recent years, which is commonly referred to as global warming. These GHGs make the Earth warmer by trapping heat from the sun in the earth's atmosphere, which increases the temperature. Many chemical compounds found in the Earth's atmosphere, such as methane, carbon dioxide, nitrous oxide, HCFCs, PFCs, and HFCs, act as GHGs. There is strong evidence that significant amounts of GHGs are added to the atmosphere as a result of human activities, thereby, contributing to global warming. Scientists believe that a warmer Earth may lead to changes in weather patterns, a rise in sea level, and may have significant impacts on plants, wildlife, and humans.

In 2006, the State Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), establishing a comprehensive program to reduce the state's GHG emissions to the 1990 level by year 2020. AB 32 directed CARB to begin developing discrete early action measures to reduce greenhouse gases while also preparing a scoping plan to identify the best approach to reach the 2020 target. In addition, AB 32 requires that any GHG emission reduction measures developed be technologically feasible and cost-effective.

In December 2009, the CARB Board approved the Management of High Global Warming Potential Refrigerants for Stationary Sources regulation, commonly referred to as the Refrigerant Management Program. This program is one of the early action measures adopted by CARB under AB32 aimed at reducing the state's GHG emissions. The adopted final regulation and related documents has been submitted to the Office of Administrative Law for final approval and/or action, which is expected sometime in October 2010. This regulation is scheduled to go into effect on January 1, 2011.

The Refrigerant Management Program seeks to reduce emissions of high GWP refrigerants from stationary refrigeration systems. A high-GWP refrigerant is any compound used as a heat transfer fluid or gas, and includes CFCs, HCFCs, HFCs, PFCs, or any compound or blend of compounds with a global warming potential value equal to or greater than 150, or any ozone depleting substance as defined in Title 40 of the Code of Federal Regulation, Part 82, §82.3. These substances are GHGs which are thousands of times more potent than carbon dioxide (CO_2). The CARB regulation addresses stationary commercial and industrial refrigeration systems that can have high leak rates and minimal oversight. Specifically, facilities with refrigeration systems using more than 50 pounds of high GWP refrigerants, or those who service refrigeration systems, or distribute, sell or reclaim high GWP refrigerants, must comply with the regulation.

The CARB regulation requires registration, leak detection and monitoring, leak repair, retrofit or retirement, reporting, and recordkeeping for owners or operators of refrigeration systems subject to the regulation. Reporting and recordkeeping requirements are also applicable to distributors, wholesalers, and reclaimers of high GWP refrigerants. Additionally, required service practices for refrigerant management are applicable to any person who services a refrigeration system that uses a high GWP refrigerant.

The requirements in the CARB Refrigerant Management Program are similar to existing federal regulations under section 608 of the Clean Air Act, particularly in the areas of leak repair, required service practices, and recordkeeping requirements. In addition, the CARB regulation was developed to be as consistent as possible with the current Rule 1415. However, there are certain areas where the existing Rule 1415 differs with the CARB regulation.

While current Rule 1415 applicability is limited to ODS refrigerants, such as CFCs and HCFCs, the CARB Refrigerant Management Program includes both ODS and ODS substitute refrigerants. In addition, Rule 1415 covers both refrigeration and air conditioning systems while the CARB regulation is limited to refrigeration systems only. In certain aspects, the CARB's regulation is more stringent than Rule 1415 particularly when it comes to leak inspection, leak detection and monitoring, and reporting requirements, while other requirements are less stringent. In particular, the CARB regulation allows leak repair periods of 45 or 120 days depending on the nature of the refrigeration system, and circumstances surrounding the leak, while the existing Rule 1415 requires completion of leak repairs within 14 days of initial leak detection. Further, the CARB rule has a provision that allows an exemption from the leak repair and retrofit or retirement plan requirements for a period of up to three years if specific exemption criteria are met. Rule 1415 does not provide such exemption.

Staff's proposal to create a new Rule 1415.1 to control high GWP refrigerant emissions solely from stationary refrigeration systems would align AQMD's regulation with CARB's Refrigerant

Management Program. PR 1415.1 will consolidate all emission control requirements for stationary refrigeration systems currently in Rule 1415, and incorporate all provisions in the state regulation to reduce emissions of high global warming potential refrigerants. By proposing Rule 1415.1, AQMD staff can implement or enforce the state's Refrigerant Management Program, which is expected to be done through a Memorandum of Understanding (MOU) with CARB. The CARB MOU will provide additional guidelines related to the implementation and enforcement of the Refrigerant Management Program, including rule interpretation and training. The CARB regulation is based largely on the AQMD's existing program for controlling refrigerant emissions from stationary refrigeration systems.

In addition, the proposed changes to Rule 1415 would place all emission control requirements for air conditioning systems under this rule. Staff believes that proposing separate rules for air conditioning (PAR 1415) and refrigeration systems (PR 1415.1) would minimize confusion with regard to rule applicability, improve clarity, and enhance rule enforceability.

LEGISLATIVE AUTHORITY

The California Legislature created the South Coast Air Quality Management District (AQMD) in 1977 (The Lewis-Presley Air Quality Management Act, Health and Safety Code section 40400 et seq.) as the agency responsible for developing and enforcing air pollution control rules and regulations in the South Coast Air Basin (Basin). The AQMD obtains its authority to adopt, amend, or rescind rules and regulations from Health and Safety Code sections 39002, 40000, 40001, 40702, 41508, and 41700.

RULE PROPOSAL

Proposed Amended Rule 1415 - Reduction of Refrigerant Emissions from Stationary Air Conditioning Systems

Staff's proposal is to amend Rule 1415 to incorporate all registration, emission control, and recordkeeping requirements in the rule solely for stationary air conditioning systems. Staff's proposal will also expand the scope of the current rule to include all high GWP refrigerants, similar to the CARB regulation for stationary refrigeration systems. Other administrative changes to the rule are also proposed. A summary of the proposed amendments to Rule 1415 is as follows:

1. Amend Rule Title

   Currently, the rule title pertains to stationary refrigeration and air conditioning systems. Staff's proposal revises the rule title solely for the reduction of refrigerant emissions from stationary air conditioning systems, and eliminates reference to refrigeration systems.

2. Modify Rule Purpose and Applicability, subdivisions (a) and (b)

   Staff is proposing to modify the rule purpose to include emission reductions from high global warming potential refrigerants, and limit the applicability of this to stationary air conditioning systems only. Requirements pertaining to stationary refrigeration systems such as refrigerators, freezers, and other refrigeration appliances will be in the Proposed

Rule 1415.1 – Reduction of Refrigerant Emissions from Stationary Refrigeration Systems.

3. Amend the definition section, subdivision (c)

   Staff proposes to add definition for new terms used in the rule and modify existing ones to clarify rule intent, and make the definitions consistent with Proposed Rule 1415.1 as follows:

   - Additional refrigerant charge
   - Air conditioning system
   - Audit
   - Bubble test
   - Certified reclaimer
   - Certified refrigerant recovery or recycling equipment
   - Certified technician
   - Chlorofluorocarbon or CFC
   - Component
   - Global warming potential value
   - High global warming potential refrigerant
   - Hydrochlorofluorocarbon or HCFC
   - Hydrofluorocarbon or HFC
   - Perfluorocarbon
   - Reclaim
   - Recycle
   - Refrigerant leak
   - Self-contained recovery equipment

   In addition, staff is proposing to delete terms that are no longer applicable, as follows:

   - Approved recycling equipment
   - Certified auditor
   - Class I refrigerant
   - Class II refrigerant
   - High-pressure refrigeration system
   - Low-pressure refrigeration system

- Maintenance
- Refrigeration system
- Very high pressure refrigeration system

4. Move registration and leak inspection requirements in paragraph (d)(2) to paragraph (d)(1), and clarify requirements that pertain to owners or operators of air conditioning systems as follows:
   a) Registration Plan requirement in subparagraph (d)(2)(C) is moved to subparagraph (d)(1)(A). Further, staff has added new information to be included during submission of the Registration Plan, consistent with existing data reported in the current Rule 1415 Registration Form.
   b) The annual audit requirements in subparagraphs (d)(2)(A) and (d)(2)(B) are moved to and consolidated under subparagraph (d)(1)(B). Language pertaining to leak detection methods has been modified to reflect current industry practices, such as the use of refrigerant leak detection device, a bubble test, or observation of oil residue. Further, the rule provision in clause (d)(2)(B)(i) requiring a certified technician to conduct leak inspection is removed to make it consistent with state and federal leak inspection requirement.
   c) Delete redundant recordkeeping requirement in clause (d)(2)(B)(ii). This requirement is included in the Recordkeeping section, paragraph (e)(1).

5. Move leak repair requirements in paragraph (d)(3) to paragraph (d)(2).

6. Add a provision in paragraph (d)(3) to allow leak repair period of up to 45 days.

   Staff's proposing a longer repair period of up to 45 days to fix a refrigerant leak only in situations where a certified technician is not available, or the part(s) needed to complete the repair is unavailable within 14 days of initial leak detection. The owner or operator of the affected refrigeration system shall keep a written record to prove that a certified technician or the required parts are not available.

7. Move requirements in paragraph (d)(1) to paragraph (d)(4). In addition, language is proposed in (d)(4)(A) to clarify the U.S. EPA certified technician requirement.

8. Move language in paragraph (e)(5), under Recordkeeping section, to subparagraph (d)(5)(B) under Requirements section, which allows an authorized representative of a person employing at least one certified technician to purchase refrigerant. Consequently, similar language in paragraph (e)(5) is proposed for deletion.

9. Modify language by deleting the words "Class I or Class II" and replacing them with "high global warming" in paragraph (d)(6) to clarify rule intent and enhance rule enforceability.

10. Modify certain languages in subdivision (e), Recordkeeping.
    Staff is proposing to add clarifying language in paragraphs (e)(1), (e)(4) and (e)(5), as well as delete obsolete rule language in (e)(1)(iv) and (e)(8)(D) pertaining to permit number requirement for refrigerant recovery and recycling equipment. Such equipment is

now exempt from permit requirements pursuant to Rule 219 (d)(11). Facilities are expected to continue using the Rule 1415 Recordkeeping Forms when documenting annual audits and leak repair activities for each air conditioning system pursuant to the recordkeeping provisions of paragraph (e)(1). Such records shall be kept at the facility for a minimum of 5 years, and shall be made available to the Executive Officer upon request.

Proposed Rule 1415.1 - Reduction of Refrigerant Emissions from Stationary Refrigeration Systems

As stated in the previous section, Proposed Rule 1415.1 mirrors CARB's Refrigerant Management Program, and will implement all provisions in the state regulation to reduce emissions of high GWP refrigerants. Staff is proposing to incorporate the following provisions pertaining to stationary refrigeration systems in Rule 1415.1:

1. Rule Title

   Staff's proposed rule title is specific to the reduction of refrigerant emissions from stationary refrigeration systems only.

2. Purpose and Applicability

   The scope and applicability is for high GWP refrigerants used in stationary refrigeration systems.

3. Definitions

   Staff is proposing 56 definitions for terms used in the rule in order to clarify rule intent and enhance rule enforceability. These definitions are consistent with those found in the CARB Refrigerant Management Program.

4. Registration Requirements, paragraph (d)(1)

   Staff is proposing that owners and operators of refrigeration systems with full charge greater than 50 lbs of high GWP refrigerant submit annually a Registration Plan to the District. However, registration with the District ceases once the CARB registration requirements for the refrigeration system begins. Registration of the refrigeration system with CARB will be required in 2012 for large refrigeration systems (full charge greater than or equal to 2,000 lbs refrigerant); 2014 for medium-size refrigeration systems (full charge equal to or greater than 200 lbs but less than 2,000 lbs refrigerant); and 2016 for small refrigeration systems (full charge greater than 50 lbs but less than 200 lbs refrigerant). For facilities with multi-size systems, e.g. large and medium-size refrigeration systems operating at the facility, the owner or operator has the option of registering the medium-size refrigeration system at the same time as the registration for the large system is due in 2012, even though registration of a medium-size refrigeration system would not be due until year 2014 if it was the largest or only system operating at the facility.

The proposed registration provision also includes information that facilities need to provide about the refrigeration systems during registration, and a provision requiring initial and annual implementation fees to cover the costs of administering and enforcing the rule based on fee guidelines established by CARB.

Currently, CARB's initial and annual implementation fees for large refrigeration systems (full charge greater than or equal to 2,000 lbs refrigerant) are both set at $370 per facility, and $170 per facility for medium-size refrigeration systems (full charge greater than or equal to 200 lbs but less than 2,000 lbs refrigerant). Fees paid are based on the largest system operating at the facility; therefore, a facility with both large and medium-size refrigeration systems operating will pay an initial and annual implementation fee of $370. There is no implementation fee for small refrigeration systems. Additionally, the proposal includes change of ownership requirements for refrigeration systems previously registered with CARB.

5. Leak Detection and Monitoring Requirements, paragraph (d)(2)

   The proposed requirements incorporate existing Rule 1415 and CARB's regulation on leak inspection and monitoring. Prior to January 1, 2011, owners or operators of refrigeration systems, with full charge capacity greater than 50 pounds of high GWP refrigerants, are required to conduct annual leak inspection of their refrigeration system to ensure that the system does not have refrigerant leaks. Annual leak inspection is already being done by owners or operators of refrigeration systems, and the proposed provision is a continuation of an existing leak inspection requirement in Rule 1415 for refrigeration systems.

   Beginning January 1, 2011, owners or operators of large refrigeration systems (full charge greater than or equal to 2,000 lbs refrigerant) are required to conduct monthly leak inspections. Quarterly leak inspections are required for medium-size refrigeration systems (full charge greater than or equal to 200 lbs but less than 2,000 lbs refrigerant), while small refrigeration systems (full charge greater than 50 lbs but less than 200 lbs refrigerant) will continue to conduct annual leak inspections. These leak inspection requirements do not apply if the refrigeration system has an automatic leak detection system. In comparison, current Rule 1415 requires an annual leak inspection regardless of the size of the refrigeration system, considered to be less stringent for large and medium-size refrigeration systems.

   In addition, the proposal will require the installation of an automatic leak detection system for large refrigeration systems beginning in year 2012. The automatic leak detection system has to be calibrated annually, i.e., within one year of installation and every year thereafter, using the manufacturer's recommended procedures to ensure that the system accurately detects a vapor concentration level of 10 parts per million (ppm) of the specific refrigerant used in the refrigeration systems, and alerts the operator when 100 ppm of vapor concentration is reached. In addition, sensors or intakes of the automatic leak detection system shall be placed in the proximity of the compressor, evaporator, condenser, and other areas with a high potential for a refrigerant leak. Based on discussions with CARB, the specific placement of sensors was not defined in the

regulation in order to allow flexibility in accommodating the different application-specific designs of refrigeration systems and refrigerant monitoring systems. The proximity of sensors to the refrigeration system parts with high potential for refrigerant leaks would be dependent on each installation, but need to be close enough to the refrigeration system's principal components to detect a leak. Leak inspection methods consistent with industry practices, e.g. refrigerant leak detection device, bubble test, observation of oil residue, are also being proposed.

6. Leak Repair Requirements, paragraph (d)(3)

   Consistent with Rule 1415, the proposal will require the repair of a refrigerant leak within 14 days of initial leak detection. In order to be consistent with the CARB regulation, however, PR 1415.1 will allow longer repair periods of 45 days and 120 days depending on the nature of the refrigeration system, and the circumstances surrounding the leak. For example, if a certified technician or a part needed to repair the refrigerant leak is not available within 14 days of initial leak detection, or the leak repair requires an industrial shutdown, then additional time to complete the repair may be allowed up to 45 days from initial leak detection. Further, facilities that are subject to the Mandatory Greenhouse Gas Emissions Reporting requirements under section 101 of the California Code of Regulations may qualify for a 120-day repair period. Such facilities include cement plants, electrical generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cogeneration facilities, and industrial sources that emit more than 25,000 MT CO_2 per year.

   The proposal will also require the owner or operator to prepare and implement a retrofit and retirement plan if the refrigerant leak cannot be repaired within the allowable repair period of 14, 45, or 120 days.

7. Retrofit or Retirement Plan Requirements, paragraph (d)(4)

   The proposed provision will require the owners or operators of refrigeration systems that continue to leak to establish a schedule to retrofit or retire the system within six months of initial leak detection. All work shall be completed during this six-month period. This section also includes specific information that needs to be included in the plan pertaining to the facility and to the retrofitted or newly installed refrigeration system.

   The retrofit or retirement plan is not required to be submitted to the Executive Officer, but needs to be maintained and kept at the facility.

8. Approval of Exemptions, paragraph (d)(5)

   This rule provision outlines specific conditions upon which a facility may be exempted from the leak repair and retrofit/retirement plan requirements for up to three years. Such provision allows flexibility in rule implementation to address significant hardship as a result of complying with the leak repair and retrofit/retirement plan requirements in the rule. Facility owners or operators need to submit a written application to the Executive Officer demonstrating that one or more of the exemption criteria have been met.

Any exemption granted may be extended for additional periods of up to three years (maximum of six years exemption) if the Executive Officer determines that the demonstrations made to satisfy the exemption remain valid. Based on additional guidance from CARB staff, any exemption and extension granted may not necessarily be for the full three years as a facility has to submit documentation to justify the exemption, including any mitigation and compliance plans. For any extensions, a facility must document that the criteria for granting the exemption remain valid, including reasons why the mitigation and compliance plans have not been effective.

9. Required Service Practices and Prohibitions, subdivision (e)

   Staff is proposing specific required service practices for a person who installs, services, maintains, repairs or disposes of any refrigeration systems, regardless of its charge size. The proposed rule also includes provisions for operating a certified refrigerant recovery or recycling equipment, and prohibitions pertaining to the sale, use and disposal of refrigerants. Some of the requirements include the mandatory use of U.S. EPA certified technician for service or repair of refrigeration systems; recovery and recycling of refrigerant and the use of certified refrigerant recovery and recycling equipment during leak repair; and restrictions on the sale of refrigerants.

   The proposed provisions, expanded to include high GWP refrigerants, are modeled from Title 40, Part 82 of the Code of Federal regulations, Subpart F requirements specific to ODS refrigerants. In addition, most of these provisions are already part of the requirements in the current Rule 1415, but limited to ODS refrigerants.

10. Reporting Requirements, subdivision (f)

    Staff's proposal includes reporting requirements for owners or operators of refrigeration systems, including refrigerant distributors, wholesalers, and reclaimers. Specifically, owners or operators of large and medium-size systems are required to submit annually to CARB a Facility Stationary Refrigeration Report (Annual Report). There is no reporting requirement for facilities with small refrigeration systems.

    Submission of the Annual Report begins in year 2012 for an owner or operator of a facility with a large refrigeration system, and year 2014 for an owner or operator of a facility with a medium-size refrigeration system. The Annual Report contains information about the refrigeration system such as equipment type and model, specific data on refrigeration system service and leak repairs, as well as refrigerant purchases and use information.

    Refrigerant distributors or wholesalers are also required to report annually to CARB specific information for the previous calendar year on each type of high GWP refrigerant that was purchased or received for the purpose of subsequent resale; high GWP refrigerants sold or distributed, excluding sales to facilities outside of California or to a refrigerant distributor or wholesaler for eventual resale; or high GWP refrigerants shipped to a certified reclaimer. In addition, certified reclaimers are required to submit an annual report on the amount of high GWP refrigerants received for reclamation or destruction,

the amount of high GWP refrigerant reclaimed in California, or the amount of high GWP refrigerant shipped outside of California for reclamation or destruction.

CARB is developing a web-based reporting system that facilities will be able to use for the reporting requirements.

11. Recordkeeping Requirements, subdivision (g)

    This section describes recordkeeping requirements for facilities with stationary refrigeration systems, refrigerant wholesalers or distributors, refrigerant reclaimers, and persons owning and operating a certified refrigerant recovery or recycling equipment. CARB clarified that documentation of leak detection system may include the type of leak detection method used at the facility such as automatic leak detection system, leak detection device, bubble test, etc, and any records generated by the leak detection system used. These may be strip charts, hand filled out forms, computer records, etc.

12. Exemption Section, subdivision (h)

    Staff is proposing to add exemption provisions in the rule as follows:

    a. Exemption for tactical support equipment, as defined in paragraph (c)(55);

    b. Criteria for fee exemption;

    c. Conditions for exemption from leak repair and retrofit/retirement plan requirements; and

    d. Exemption from the contractor's license requirements.

13. Section Pertaining to Violations, subdivision (i)

    This subdivision clarifies enforcement actions for failure to comply with the provisions of the rule.

14. Severability Section, subdivision (j)

    This section is added to clarify that in the event any provision of the rule is invalidated by judicial order, the remainder of the rule shall remain in effect.

EMISSIONS INVENTORY AND REDUCTIONS

The emissions inventory for high GWP refrigerants used in stationary refrigeration system was developed by CARB using several models. First, CARB utilized the United States Environmental Protection Agency (U.S. EPA) Vintage Model in determining national GHG emissions estimates for years 2010-2020. This model was developed to estimate nationwide patterns of GHG emissions of HFCs, PFCs, CFCs, and HCFCs from all major emission sources, including refrigerant usage.

In order to get a rough estimate of statewide GHG emissions from stationary refrigeration and air conditioning units, CARB scaled down the national estimates from the U.S. EPA Vintage Model to California's proportion of the U.S. population of 12.5%. In addition, CARB used additional California-specific data sources to further refine the emissions estimates and establish a more

accurate year 2010 baseline emissions for California, with year 2020 as the initial target date for AB 32 measures. Details of CARB's methodology for estimating statewide GHG emissions inventory are discussed in Appendix B of CARB's Initial Statement of Reasons for Proposed Regulation for the Management of High Global Warming Potential Refrigerants for Stationary Sources, dated October 23, 2009.

The following table shows the number of facilities statewide with stationary refrigeration systems with refrigerant full charge of at least 50 pounds, including year 2010 baseline GHG emissions and projected pre-rule emissions for year 2020. The total statewide GHG emission reduction by year 2020 from implementing the Refrigerant Management Program is about 8.1 MMT CO_2E per year.

Table 1 – Emissions Inventory for High GWP Refrigerants in Refrigeration Systems

[1]Statewide Commercial Refrigeration Systems with Full Charge Greater Than or Equal to 50 lbs.					
		Emissions in Million Metric Tons CO_2 Equivalent ($MMTCO_2E$)			
Equipment Size	Number of Facilities	2010 Baseline Emissions	2020 Pre-Rule Emissions	2020 Total GHG Emission Reductions	2020 Post-Rule Emissions
Small Commercial (50 to <200)	15,500	1.2	1.4	0.9	0.5
Medium Commercial (200 to <2000)	8,500	5.7	7.9	3.3	4.6
Large Commercial	2,000	5.0	6.5	3.9	2.6
Total	26,000	11.9	15.8	8.1	7.7

[1] Appendix B of CARB's Initial Statement of Reasons for Proposed Regulation for the Management of High Global Warming Potential Refrigerants for Stationary Sources, dated October 23, 2009

Following CARB's methodology, the statewide emissions inventory is scaled down to South Coast Air Basin's proportion of the state population of 43% to determine GHG emissions for the South Coast Air Basin. As a result, the year 2010 baseline GHG emissions for the South Coast Air Basin is estimated at 5.1 $MMTCO_2E$, and year 2020 pre-rule GHG emissions is about 6.8 $MMTCO_2E$. The total GHG emission reduction for the South Coast Air Basin portion is approximately 3.5 $MMTCO_2E$ by year 2020. However, this is not an incremental emission reduction from Proposed Rule 1415.1, but rather reflects the projected GHG emission reductions as a result of implementing the CARB's Refrigerant Management Program that focuses on best management practices to minimize the emissions of refrigerants.

PAR 1415 does not result in additional GHG reductions since the proposed changes are administrative in nature.

However, staff estimates that extending the repair period from 14 days to 45 days in PAR 1415 for air conditioning systems could result in 497 metric tons per year of CO_2E emissions foregone. For PR 1415.1, extending the time period during which a leak must be repaired from 14 days to 45 or 120 days for refrigeration systems could result in 5,849 metric tons per year of foregone CO_2E emissions. In addition, PR1415.1 would include certain exemptions from leak repair and retrofit or retirement plan requirements for up to three years. Approximately 4,618 metric tons per year of CO_2E emissions foregone could result from these exemptions. The total emissions impacts of the slightly relaxed leak repair requirements in PAR 1415 and PR1415.1 are estimated to be 10,964 metric tons per year of foregone CO_2E emissions. However, an estimated 3.5 million metric tons of CO_2E emission reductions are expected from fully implementing the proposed regulation.

COST

Beginning January 1, 2011, facilities with refrigeration systems with full charge greater than 50 pounds of high GWP refrigerants have to comply with CARB's regulation for the Management of High Global Warming Potential Refrigerants or generally referred to as the Refrigerant Management Program, and would incur additional cost to comply with the CARB regulation. Staff's proposal is administrative in nature and is designed to make the District's refrigerant rule equivalent to and consistent with the CARB regulation. Compliance with PR 1415.1 will require facilities to register their refrigeration systems annually with the AQMD until CARB registration begins in 2012 for large systems, 2014 for medium-size systems, and 2016 for small refrigeration systems. The total cost of complying with PR 1415.1 from registering refrigeration systems with the AQMD is estimated to be $1.28M in 2011, $745K in 2012, $1.18M in 2013, $516K in 2014, and $764K in 2015.

It is worthwhile to note that CARB's cost evaluation of the Refrigerant Management Program indicates that owners or operators of refrigeration systems can benefit financially through implementation of the refrigerant best management practices required in the regulation. Such practices would reduce refrigerant purchases needed to replenish the refrigerant that had leaked and, thus, result in cost savings to the owners or operators of refrigeration systems. Details of the Refrigerant Management Program's cost analysis are contained in Appendix C of CARB's Initial Statement of Reasons for Proposed Regulation for the Management of High Global Warming Potential Refrigerants for Stationary Sources, dated October 23, 2009. (http://www.arb.ca.gov/regact/2009/gwprmp09/refappc.pdf)

For PAR 1415, staff's proposal will also require registration of air conditioning systems using high GWP refrigerants other than CFCs and HCFCs, such as HFCs and PFCs. Based on CARB's inventory, it is estimated that about 2,000 facilities with stationary air conditioning units using HFCs and PFCs in the South Coast Air Basin will be affected by the registration requirements in PAR 1415. Based on the current fee schedule for Rule 1415 Registration Plan, the estimated compliance cost industry-wide will be $115,000 annually.

SOCIOECONOMIC ASSESSMENT

The proposed amendments to Rule 1415 and Proposed Rule 1415.1 align the AQMD's requirements for GHG reductions with CARB's Refrigerant Management Program (RMP). The proposed amendments to Rule 1415 would require that facilities with air conditioning (AC) systems that use high global warming potential (GWP) refrigerants such as HFC and PFC register with AQMD every two years. Currently, only facilities with AC and refrigeration units using ODS refrigerants are required to register. All the references relating to refrigeration systems in the existing Rule 1415 would be removed and instead codified in PR 1415.1, which would adopt all the provisions in the state RMP regarding the control of high GWP and ODS emissions used in stationary refrigeration systems. PR 1415.1 would implement an annual registration through the AQMD until these systems are required to register with CARB in 2012, 2014, or 2016, depending on the size of the refrigeration system.

Based on estimates from CARB, the registration requirement for PAR 1415 is expected to affect approximately 2,000 facilities in the basin, using HFC and PFC refrigerants for AC systems. These facilities are spread in nearly every sector of the local economy. CARB estimated that over 11,100 facilities would be affected by PR 1415.1. Facilities with refrigeration systems are mostly in the sectors of manufacturing (NAICS 31-33), retail trade (44-45), transportation and warehousing (NAICS 48-49), educational services (NAICS 61), health care and social assistance (NAICS 62), and other services (NAICS 81).

The proposed amendments to Rule 1415 would add a $114.66 registration fee (based on the fee rate in Rule 306) on facilities with AC systems that use HFC and PFC refrigerants. The estimated total additional cost to these facilities for PAR 1415 is $229,000, payable to the AQMD every two years, beginning in 2012.

The registration fee under PR 1415.1 would be $114.66 every year as well. Upon adoption, PR 1415.1 would require an affected facility to register at the start of its operation, and every year thereafter, until CARB registration begins. Since the last registration for refrigeration systems under the existing Rule 1415 occurred in February 2010, the next registration under PR 1415.1 is expected to be in February 2011. The registration deadlines in the CARB regulation will be 2012 for large systems, 2014 for medium systems, and 2016 for small systems of ODS and high GWP refrigerant users, respectively. CARB does not charge a fee to small systems.

The impact of PR 1415.1 herein is assessed relative to the CARB's RMP and the existing Rule 1415 on refrigeration. As such, the impact of PR 1415.1 would be an additional registration fee payment by HFC and PFC users to the AQMD before the CARB's RMP becomes effective as well as the additional payment resulting from the more frequent registration by ODS users (from biennial to annual). Table 2 shows the impact of PR 1415.1 on users of refrigerants. Since a facility may own refrigeration systems with more than one size, it is further assumed that a facility owning multiple sizes of systems would register all systems at the earliest deadline because the fee is assessed at the facility level.

Table 2 - Impact of PR1415.1 Registration Requirements by Type of Refrigerant and Year

Refrigerant		2011	2012	2013	2014	2015
ODS	Large	X				
	Medium	X		X		
	Small	X		X		X
HFC & PFC	Large	X				
	Medium	X	X	X		
	Small	X	X	X	X	X

Table 3 shows the additional payment for ODS, and HFC and PFC users by year. The total registration fees range from $516,000 in 2014 to $1,279,000 in 2011. There will be no fees paid to the District by users after 2015 since the CARB's RMP will be fully implemented in 2016.

Table 3 – PR1415.1 Registration Cost by Refrigerant by Year (in thousands of dollars)

Refrigerant	2011	2012	2013	2014	2015
ODS	$488		$433		$248
HFC & PFC	$791	$745	$745	$516	$516
Total	$1,279	$745	$1,178	$516	$764

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

PAR 1415/PR 1415.1 is considered a "project" as defined by the California Environmental Quality Act (CEQA), and the AQMD is the designated lead agency. Pursuant to CEQA and AQMD Rule 110, AQMD staff has prepared a Draft Environmental Assessment (EA) to analyze potential adverse environmental impacts that could be generated from the proposed project. The Draft EA has been circulated for a 30-day public review and comment period. Comments received from the public will be addressed in the Final EA.

COMPARATIVE ANALYSIS

Health and Safety Code section 40727.2 requires a written analysis to identify and compare any other AQMD or federal regulations that apply to the same equipment or source type.

The only federal requirement applicable to similar sources is the Protection of Stratospheric Ozone – Recycling and Emissions Reduction (40 CFR Part 82 Subpart F) for stationary air conditioning and refrigeration systems. The existing Rule 1415, the Proposed Amended Rule 1415, and Proposed Rule 1415.1 are not in conflict with this federal requirement.

The existing federal regulation, promulgated under section 608 of the Clean Air Act, establishes requirements for controlling ODS refrigerant emissions from stationary refrigeration and air

conditioning systems. Specific rule provisions pertain to refrigerant venting, the use of certified equipment, technician training and certification, recordkeeping, and sales restrictions.

The current Rule 1415 goal is to reduce ODS emissions from stationary air conditioning and refrigeration systems. The rule requirements are similar to the federal regulation except that Rule 1415 is more stringent in the area of leak repair. Proposed Amended Rule 1415 expands the scope to include high GWP refrigerants but limits the rule applicability to air conditioning systems.

As discussed in an earlier section of this staff report, the CARB Board approved a statewide regulation (Refrigerant Management Program or RMP) for controlling high GWP emissions from stationary refrigeration systems. The RMP is modeled from 40 CFR Part 82, Subpart F requirements specific to ODS refrigerants, but is expanded to include high GWP refrigerants. In addition, the RMP contains stricter leak testing requirements than the federal regulation.

Proposed Rule 1415.1 incorporates provisions that are consistent with the RMP and consolidates emission control requirements for stationary refrigeration systems currently in Rule 1415. Table 2 below has been prepared to show a comparison among Proposed Amended Rule 1415, Proposed Rule 1415.1, and 40 CFR Part 82 Subpart F.

Table 2 – Comparison of Regulations for Stationary Refrigeration Systems

Category	Proposed Amended Rule 1415	Proposed Rule 1415.1	40 CFR 82 Subpart F
Purpose	Reduce emissions of high GWP refrigerants	Reduce emissions of high GWP refrigerants	Reduce emissions of Class I/II refrigerants and their substitutes
Applicability	Applies to owners or operators of air conditioning systems; to persons who install, repair, services a/c systems; to persons who recycle and/or sell high GWP refrigerants	Applies to owners or operators of refrigeration systems; to persons who install, repair, services refrigeration systems; to persons who recycle and/or sell high GWP refrigerants	Applies to persons servicing, maintaining, or repairing any a/c and refrigeration systems; to refrigerant reclaimers, appliance owners or operators, and equipment manufacturers
Leak Detection/Repair	Annual leak inspection Repair leak within 14 calendar days from initial leak detection; 45 day repair period allowed in certain situations	Leak inspection frequency (monthly, quarterly, annual) depends on charge size of refrigeration system Repair leak within 14 calendar days from initial leak detection; 45/120 day repair period allowed in certain situations	Repair leak within 30 days if refrigerant loss will exceed 35% of full charge for commercial and industrial refrigeration, and 15% of full charge for other refrigeration systems during a 12-month period

Category	Proposed Amended Rule 1415	Proposed Rule 1415.1	40 CFR 82 Subpart F
Service Practices and Prohibitions	Repairs conducted by US EPA certified technician Recovery and recycling of refrigerant using certified equipment during service or repair of refrigeration system Restrict sale of refrigerants to certified technicians	Repairs conducted by US EPA certified technician Recover, recycle refrigerant using certified recovery equipment before repairing refrigeration system Sale of refrigerants to certified technicians only Sale of approved refrigerants only	No venting of refrigerants during servicing or repair Repairs conducted by US EPA certified technician Recovers, recycles refrigerant during repair using certified equipment Sale of refrigerants to certified technicians only
Reporting	None	Owners or operators to submit Annual Report to include leak inspections and repair data, refrigerant purchases Refrigerant wholesaler, distributors, reclaimers to submit annual report on refrigerants sold, reclaimed	Approved testing organization to report list of certified equipment to EPA
Recordkeeping	Owners or operators to keep records of leak inspections, repair activities, refrigerant purchases Distributors, wholesaler, reclaimers to keep records of refrigerants sold or reclaimed Records kept for 5 years	Owners or operators to keep records of annual reports, registration information, leak inspections, repair activities,, refrigerant purchases Distributors, wholesaler, reclaimers to keep records of annual reports, refrigerant sales invoices, amount and sources of refrigerants reclaimed Records kept for 5 years	Owners or operators to keep leak repair records and amount of refrigerant added Refrigerant distributors or wholesalers to retain invoices of refrigerants sold Refrigerant reclaimers must maintain records of refrigerants received for reclamation, including amount reclaimed and waste products Records kept for 3 years

DRAFT FINDINGS UNDER THE CALIFORNIA HEALTH AND SAFETY CODE

The California Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing rules, the AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication and reference, based on relevant information presented at the hearing. The draft findings are as follows:

Necessity - The AQMD Governing Board has determined that a need exists to amend Rule 1415 – Reduction of Refrigerant Emissions from Stationary Refrigeration and Air Conditioning Systems to expand the scope of the rule to include provisions for reducing emissions of high global warming potential refrigerants used in stationary air conditioning systems, and to adopt Proposed Rule 1415 - Reduction of Refrigerant Emissions from Stationary Refrigeration Systems to incorporate provisions for reducing emissions of certain high global warming potential refrigerants that will be consistent with CARB's statewide rule for stationary refrigeration systems.

Authority - The AQMD Governing Board obtains its authority to adopt, amend, or rescind rules and regulations from the California Health and Safety Code sections 39002, 40000, 40001, 40702, and 41508.

Clarity - The AQMD Governing Board has determined that Proposed Amended Rule 1415 - Reduction of Refrigerant Emissions from Stationary Air Conditioning Systems and Proposed Rule 1415 - Reduction of Refrigerant Emissions from Stationary Refrigeration Systems are written or displayed so that their meaning can be easily understood by persons directly affected by them.

Consistency - The AQMD Governing Board has determined that Proposed Amended Rule 1415 - Reduction of Refrigerant Emissions from Stationary Air Conditioning Systems and Proposed Rule 1415 - Reduction of Refrigerant Emissions from Stationary Refrigeration Systems are in harmony with, and not in conflict with or contradictory to, existing federal or state statutes, court decisions, or regulations. The proposed new rule is consistent with the state regulation for stationary refrigeration systems.

Non-Duplication - The AQMD Governing Board has determined that Proposed Amended Rule 1415 - Reduction of Refrigerant Emissions from Stationary Air Conditioning Systems and Proposed Rule 1415 - Reduction of Refrigerant Emissions from Stationary Refrigeration Systems do not impose the same requirement as any existing state or federal regulation, and the proposed rules are necessary and proper to execute the powers and duties granted to, and imposed upon, the AQMD. Since AQMD will be implementing the state requirements, there will not be duplication.

Reference - In adopting this regulation, the AQMD Governing Board references the following statutes which the AQMD hereby implements, interprets or makes specific: Health and Safety Code sections 40001 and 40702.

COMMENTS AND RESPONSES

A public workshop was held on September 21, 2010 in which 52 people attended. The following summarizes the comments received and staff's responses.

COMMENT: Proposed Rule 1415.1 allows longer periods to repair a refrigerant leak in refrigeration systems. The same provision should be included in PAR 1415 to allow the same flexibility to owners or operators of air conditioning systems.

RESPONSE: Staff agrees. The leak repair requirement in PAR 1415 is modified to allow longer repair periods of up to 45 calendar days after initial leak detection only in situations where a certified technician is not available to complete the repair, or the parts necessary to repair the refrigerant leak are unavailable within 14 days of initial leak detection. This is expected to impact total GHG reductions of 3.5 million metric tons of CO_2E per year by 497 metric tons of CO_2E per year. The owner or operator is responsible for keeping records documenting that the condition(s) for allowing longer repair period exists.

COMMENT: The annual energy usage data requirement in PAR 1415 and PR 1415.1 should be removed as it serves no useful purpose, and is not relevant to the refrigerant rules. Most facilities do not have separate meters to record energy used for refrigeration or air conditioning systems.

RESPONSE: Staff reviewed the need to report energy usage and agreed to remove such reporting requirement during registration.

COMMENT: The rule should specify what method to use when detecting leaks.

RESPONSE: The provisions in PAR 1415 (d)(1)(B) and PR 1415.1 (d)(2)(E) identify approved methods that may be used when conducting refrigerant leak inspection in air conditioning and refrigeration systems, respectively. Approved leak detection methods include the use of a refrigerant leak detection device, a bubble test, observation of oil residue, or any alternate method approved by the Executive Officer.

COMMENT: State and federal regulations do not require refrigerant leak inspections to be conducted by a U.S. EPA certified technician. PAR 1415 and PR1415.1 should be consistent with the state and federal regulations.

RESPONSE: Staff agrees and has removed this rule provision in PAR 1415 and PR1415.1 requiring leak inspections by a U.S. EPA certified technician. However, all service or repair of refrigeration and air conditioning systems have to be made by a U.S. EPA certified technician.

COMMENT: Are facilities with both refrigeration and air conditioning systems subject to registration, reporting, and fees with AQMD and CARB?

RESPONSE: Separate registrations are required for facilities with air conditioning and refrigeration systems that meet the applicability of PAR 1415 and PR 1415.1. Facilities with air conditioning systems, with full charge capacity > 50 lbs of high GWP refrigerant, are required to submit a registration plan

for the air conditioning system to AQMD at the time of operation, and every two years thereafter. There is no requirement to register air conditioning systems with CARB. Other provisions pertaining to the operation of an air conditioning system are included in PAR 1415.

For refrigeration systems with full charge capacity > 50 lbs of high GWP refrigerants, registration with the AQMD is required until CARB registration begins in 2012 for large systems, 2014 for medium-size systems, and 2016 for small systems. When CARB registration begins for a size class, i.e. large, medium-size, or small systems, the facility will have to register the refrigeration system(s), pay fees, and submit reports only to CARB.

COMMENT: What rule would apply for a single system that is used for both refrigeration and air conditioning?

RESPONSE: A refrigeration system used for two or more applications, e.g., refrigeration and air conditioning, is considered as "other refrigeration system," and will have to comply with the requirements of PR 1415.1 only. This is consistent with CARB staff guidance for multi-use refrigeration systems.

COMMENT: The definition of air conditioning system in PAR 1415 should add reference to cooling of equipment since it indicates that computer room air conditioners are included in the definition.

RESPONSE: The definition already includes reference to the cooling of objects.

COMMENT: The definition of high global warming potential refrigerants should reference commonly used names such as R-123, R-407, R-22, and R-134, in addition to the chemical names.

RESPONSE: It is not practical to list all trade names of commonly used refrigerants. Facilities can always refer to the MSDS to determine the chemical name of the refrigerant.

COMMENT: It is important to keep the common definitions in PR 1415.1 and CARB's RMP rule the same. This will provide consistency and minimize confusion caused by misinterpretation of two different definitions.

RESPONSE: Staff referenced the RMP in defining terms used in PR 1415.1.

COMMENT: The definition of "High Global Warming Potential Refrigerant" does not include hydrofluorocarbon (HFC) in the list of refrigerant gases.

RESPONSE: Staff has added hydrofluorocarbon to the refrigerant list in PAR 1415 and PR 1415.1.

COMMENT: The rule does not specify the amount of initial and annual implementation fees to be paid to CARB for registering refrigeration systems.

RESPONSE: Staff intentionally omitted the amount of implementation fees assessed by CARB for medium-size and large systems. By doing this, staff does not have to amend the AQMD rule every time CARB changes their fee schedule. Currently, the CARB fee is $370 for large systems, and $170 for medium size systems. No fee is assessed by CARB on small refrigeration systems.

COMMENT: The proposed provisions in subparagraph (e)(1)(G) and paragraphs (e)(5) and (g)(3) of PR 1415.1 are not part of the CARB rule.

RESPONSE: Staff's intent is to retain provisions that are in the current Rule 1415; thus, Proposed Rule 1415.1 includes provisions from both the CARB regulation and Rule 1415.

(Adopted June 7, 1991)(Amended October 14, 1994)(Amended December 3, 2010)

PROPOSED AMENDED RULE 1415. REDUCTION OF REFRIGERANT EMISSIONS FROM STATIONARY AIR CONDITIONING SYSTEMS

(a) Purpose

The purpose of this rule is to reduce emissions of high-global warming potential refrigerants from stationary air conditioning systems by requiring persons subject to this rule to reclaim, recover, or recycle refrigerant and to minimize refrigerant leakage.

(b) Applicability

This rule is applicable to any person who owns or operates an air conditioning system, as defined in this rule. This rule is also applicable to any person who installs, repairs, maintains, services, relocates, or disposes of an air conditioning system; to any person who services or maintains recycling and recovery equipment; and to any person who recycles, recovers, reclaims, or sells high-global warming potential refrigerant.

(c) Definitions

For purposes of this rule, the following definitions shall apply:

(1) ADDITIONAL REFRIGERANT CHARGE means the quantity, in pounds, of refrigerant added to an air conditioning system in order to bring the system to a full charge Additional refrigerant charge does not include an initial refrigerant charge.

(2) AIR CONDITIONING SYSTEM means any stationary, non-residential appliance, which holds more than 50 pounds of high global warming potential refrigerant, and provides cooling to a space to an intended temperature of not less than 68°F for the purpose of cooling objects or occupants. Computer-room air conditioner is included in this definition.

(3) AUDIT means inspection and maintenance of an air conditioning system conducted to identify leaks and ensure proper operation pursuant to manufacturer's specification.

(4) BUBBLE TEST means applying a soap solution or spraying on with an aerosol around a potential leak source, and observing for bubbles.

(5) CERTIFIED RECLAIMER is a person who holds a current, valid, and applicable reclaimer certificate in accordance with Title 40 of the Code of Federal Regulations, Part 82, Subpart F, §82.164.

(6) CERTIFIED REFRIGERANT RECOVERY OR RECYCLING EQUIPMENT is equipment for refrigerant recovery or recycling that meets the definition by the U.S. Environmental Protection Agency pursuant to Title 40 of the Code of Federal Regulations, Part 82, Subpart F, §82.152.

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(7) CERTIFIED TECHNICIAN is a person who has a current, valid, and applicable U.S. Environmental Protection Agency technician certificate issued in accordance with Title 40 of the Code of Federal Regulations, Part 82, §82.40 or §82.161.

(8) CHLOROFLUOROCARBON or CFC is a class of compounds primarily used as refrigerants, consisting of only chlorine, fluorine, and carbon.

(9) COMPONENT is a part of an air conditioning system or appliance (including condensing units, compressors, condensers, evaporators, receivers) and all of its connections and subassemblies, without which the air conditioning system or appliance will not properly function or will be subject to failures.

(10) DISPOSE is to discard refrigerant in any manner, except destruction by incineration or by a treatment method specifically approved by the U.S. Environmental Protection Agency for handling such refrigerant without releasing it to the atmosphere.

(11) GLOBAL WARMING POTENTIAL VALUE or GWP VALUE means the 100-yr GWP value first published by the Intergovernmental Panel on Climate Change (IPCC) in its Second Assessment Report (SAR) (IPCC,

1995); or if a 100-yr GWP value was not specified in the IPCC SAR, it means the GWP value published by the IPCC in its Fourth Assessment A-3 Report (AR4) (IPCC, 2007); or if a 100-yr GWP value was not specified in the IPCC AR4, then the GWP value will be determined by the Executive Officer based on data, studies and/or good engineering or scientific judgment. Both the 1995 IPCC SAR values and the 2007 IPCC AR4 values are published in Table 2.14 of the 2007 IPCC AR4. The SAR GWP values are found in column "SAR (100-yr)" of Table 2.14.; the AR4 GWP values are found in column "100 yr" of Table 2.14.

(12) HIGH GLOBAL WARMING POTENTIAL REFRIGERANT means any compound used as a heat transfer fluid or gas that is:

(A) a chlorofluorocarbon; or

(B) a hydrochlorofluorocarbon; or

(C) a hydrofluorocarbon; or

(D) a perfluorocarbon; or

(E) any compound or blend of compounds, with a global warming potential value equal to or greater than 150; or

(F) any ozone depleting substance as defined in Title 40 of the Code of Federal Regulation, Part 82, §82.3

(13) HYDROCHLOROFLUOROCARBON or HCFC is a class of compounds primarily used as refrigerants, consisting of only hydrogen, chlorine, fluorine, and carbon.

(14) HYDROFLUOROCARBON or HFC is a class of compounds primarily used as refrigerants, consisting of only hydrogen, fluorine, and carbon.

(15) PERFLUOROCARBON or PFC is a class of compounds consisting only of carbon and fluorine.

(16) PERSON is any individual, firm, association, organization, partnership, business trust, corporation, company, contractor, supplier, installer, user or owner, or any state or local government agency or public district or any other officer or employee thereof. PERSON also means the United States or its agencies to the extent authorized by Federal law.

(17) RECLAIM is to reprocess refrigerant to a level equivalent to new product specifications in accordance with applicable requirements of the U.S. Environmental Protection Agency contained in Title 40, Code of Federal Regulations, Part 82, Subpart F, §82.152.

(18) RECOVER is to remove refrigerant in any condition from a system and to store it in an external container without necessarily testing or processing it in any way.

(19) RECYCLE is to extract refrigerant from an appliance and to clean the refrigerant for reuse by oil separation and single or multiple passes through moisture-absorption devices, such as replaceable core filter-driers which reduce moisture, acidity, and particulate matter, without meeting all of the requirements for reclamation.

(20) REFRIGERANT LEAK is any discharge of refrigerant into the atmosphere from an air conditioning system, refrigerant recovery or recycling equipment, refrigerant cylinder, or other container.

(21) SELF-CONTAINED RECOVERY EQUIPMENT is any refrigerant recovery equipment that is capable of removing the refrigerant from an air conditioning system without the assistance of components contained in the air conditioning system.

(d) Requirements

(1) A person shall not operate an air conditioning system subject to this rule unless all of the following requirements are met:

(A) A Registration Plan for the entire facility is submitted to the Executive Officer at start of operation, and every two years thereafter. Such plan shall contain the following information:

(i) facility name and address;

(ii) name and title of contact person;

(iii) type of business;

(iv) number of air conditioning systems in operation;

(v) manufacturer name, model and serial number for each of the air conditioning systems;

(vi) type of refrigerant in each air conditioning system;

(vii) full charge of refrigerant in each air conditioning system, in pounds;

(viii) date of last audit and/or maintenance performed for each air conditioning system; and

(ix) amount of additional refrigerant charge every year for each system, in pounds.

(B) The owner or operator shall conduct an audit of the air conditioning system no later than one year after beginning operation, and every year thereafter, to determine whether such system is operating pursuant to manufacturer's specifications and does not have refrigerant leaks. At a minimum, the annual audit shall include the following:

(i) A leak inspection using one or more of the following methods:

(I) Refrigerant leak detection device used in accordance with the manufacturer's specifications;

(II) A bubble test;

(III) Observation of oil residue; or

(IV) An alternate method approved by the Executive Officer.

(ii) A determination of the amount of refrigerant leak for each air conditioning system by recording the total capacity of refrigerant charge in each air conditioning system, the quantity of any additional refrigerant charge for each air conditioning system, and the date of each charge. The quantity of additional refrigerant charge shall be determined by weighing the refrigerant charging container before and after each charge, using equipment that is accurate to the nearest pound.

(iii) An examination for deficiencies which may cause refrigerant leakage.

(2) Any person who owns or operates an air conditioning system that has a refrigerant leak shall ensure that the leak is repaired no later than 14 calendar days after the leak has been discovered or should have been discovered. The owner or operator shall maintain a log of repair activities beginning at the time the leak is discovered and ending at the time when the leak has been repaired. The air conditioning system shall be verified by a certified technician to be leak free before any refrigerant is added to the system.

(3) The owner or operator of an air conditioning system has 45 days after initial leak detection to repair a refrigerant leak if one or more of the following conditions exist:

(A) A certified technician is not available to complete the repair. A written record shall be kept to document that no certified technician is available within 14 days of the initial leak detection; or

(B) The parts necessary to repair a refrigerant leak are unavailable within 14 days of the initial leak detection. A written statement verifying that the parts are unavailable from the air conditioning system or component manufacturer or distributor shall be obtained.

(4) No person shall install, service, repair, modify, or dispose of any air conditioning system that may cause the release of high-global warming potential refrigerants unless that person meets all of the following requirements:

(A) The person has a current, valid, and applicable U.S. Environmental Protection Agency technician certificate issued in accordance with Title 40 of the Code of Federal Regulations, Part 82, Subpart F, §82.161.

(B) Recovers, recycles, or reclaims the refrigerant, using certified refrigerant recovery or recycling equipment for that type of air conditioning unit, and employs procedures for which the certified refrigerant recovery or recycling equipment was approved by the

U.S. Environmental Protection Agency. Such equipment shall be used as specified by the certified refrigerant recovery or recycling equipment manufacturer, unless the manufacturer's specifications are in conflict with the procedures approved by the U.S. Environmental Protection Agency for the certified refrigerant recovery or recycling equipment. Refrigerant may be returned to the air conditioning system from which it is recovered, or to another air conditioning system owned by the same person, without being recycled or reclaimed.

(C) Satisfies job site evacuation of high global warming potential refrigerants during recycling, recovering, reclaiming, or disposing in accordance with Title 40 of the Code of Federal Regulations, Part 82, Subpart F, §82.156. De minimis refrigerant releases associated with a good faith attempt to recycle or recover refrigerants are allowed. Refrigerant releases shall be considered de minimis only if they occur when the required practices or requirements in Part 82, Subpart F, §§82.156 and 82.158, and Part 82, Subpart B of Title 40 of the Code of Federal Regulations, are followed;

(D) Has at least one piece of certified, self-contained recovery equipment available at their place of business;

(E) Any person who owns or operates a certified refrigerant recovery or recycling equipment:

(i) Shall not operate any certified refrigerant recycling or recovering equipment, except for the maintenance or repair of such equipment, unless the equipment has been tested for and been determined to have no leaks within the past six months as determined by a method approved by the Executive Officer. Leaks in recycling, recovering, or charging equipment shall be repaired within 2 working days after the leak is first detected, unless its use is promptly discontinued and the equipment does not leak after its use is discontinued;

(ii) Shall not alter the design of a certified recovery and recycling equipment in a manner that would affect the equipment's ability to meet the certification standards set by the U.S. Environmental Protection Agency without resubmitting the altered design to an approved equipment testing facility for certification testing. Until such altered equipment is tested by a U.S. Environmental Protection Agency approved equipment testing facility, and is shown to meet the certification standards set forth by the U.S. Environmental Protection Agency, the equipment so altered shall not be considered certified, and shall not be used; and

(iii) Shall provide proof of certification for the recovery and recycling equipment from the U.S. Environmental Protection Agency to the Executive Officer upon request.

(5) No person shall sell, distribute, offer for sale or distribution any high-global warming potential refrigerant for use as a refrigerant to any person unless:

(A) The buyer is a certified technician pursuant to Part 82 of Title 40 of the Code of Federal Regulations; or

(B) The buyer is an authorized representative of a person employing at least one certified technician, and the buyer has provided evidence that at least one technician is properly certified; or

(C) The refrigerant is sold only for eventual resale to certified technicians or to air conditioning system manufacturers; or

(D) The refrigerant is contained in an air conditioning system.

(6) No person shall sell, offer for sale, supply, or distribute, any high-global warming refrigerant consisting wholly or in part of used refrigerant unless the refrigerant has been reclaimed by a certified reclaimer.

(7) No person reclaiming refrigerants shall release into the atmosphere more than 1.5 percent of the refrigerant received for reclamation.

(e) Recordkeeping

(1) Any person owning or operating any air conditioning system is required to maintain the following records for each air conditioning system:

(A) Documents demonstrating compliance with paragraphs (d)(1) and (d)(2), which includes the following information:

(i) Date of annual audit;

(ii) All work completed for each air conditioning system to prevent or repair leaks, including results of leak testing and leak determinations;

(iii) Name(s) of the person who completed the inspection and repair, including the name, address, and telephone number of the company the person is representing;

(iv) The log of repair activities; and

(v) Technician certificate number.

(B) A log of the quantity of each additional refrigerant charged to the air conditioning system and the date of each charge.

(C) A log of malfunctions of the air conditioning system, other than that determined in paragraphs (d)(1) and (d)(2), including the following:

(i) The cause of the malfunction; and

(ii) The type of repairs required and the date the repairs were completed.

(D) If refrigerant is recycled off-site, a transportation bill-of-lading (or other transportation document as approved by the Executive Officer) indicating the name and location of the facility from which the refrigerant is shipped, the quantity of refrigerant transported, destination (company name, phone number, and location) and date of transportation.

(E) The quantity (in pounds) of high-global warming refrigerants purchased or used in the District in a calendar year and the name and address of the refrigerant supplier.

(2) Any person who receives refrigerant for recycling or reclaiming from off-site locations shall maintain copies of all transportation documents as required in subparagraph (e)(1)(D) for each shipment of refrigerant received.

(3) Records and reports required under subparagraphs (e)(1)(A), (e)(1)(B), and (e)(1)(C) shall be generated by a certified technician. Annual audits and maintenance records shall be in a format approved in writing by the Executive Officer.

(4) All persons who sell or distribute any high-global warming refrigerant shall retain invoices, pursuant to paragraph (e)(9), that indicate the name of the purchaser, the date of sale, and the quantity of refrigerant purchased.

(5) A refrigerant distributor or wholesaler selling high-global warming potential refrigerant to a purchaser who employs a certified technician shall obtain written documentation that the purchaser employs at least one certified technician. The distributor or wholesaler shall keep this information on file for a minimum of five years.

(6) Reclaimers shall maintain records of the names and addresses of persons sending them material for reclamation and the quantity of the material (the combined mass in pounds of refrigerant and contaminants) sent to them for reclamation.

(7) Reclaimers shall maintain records of the quantity of material sent to them for reclamation, the mass in pounds of refrigerant reclaimed, and the mass in pounds of waste product.

(8) Any person owning and operating a certified refrigerant recovery or recycling equipment shall maintain records to determine compliance with clause (d)(4)(E)(i), which includes the following information:

(A) Date of semi-annual inspection;

(B) All work completed for each recycling or recovery system to prevent or repair leaks, including results of leak testing and leak determinations; and

(C) Name(s) of the person who completed the inspection and repair, including the name, address, and telephone number of the company the person is representing.

(9) Records and reports as required under paragraphs (e)(1), (e)(2), (e)(4), (e)(5), (e)(6), (e)(7), and (e)(8) shall be maintained for a minimum of 5 years, shall be kept at the facility where the air conditioning system is in operation, and shall be made available to the Executive Officer upon request.

(Adopted December 3, 2010)

PROPOSED RULE 1415.1 REDUCTION OF REFRIGERANT EMISSIONS FROM STATIONARY REFRIGERATION SYSTEMS

(a) Purpose

The purpose of this rule is to reduce emissions of high global warming potential refrigerants from stationary refrigeration systems by requiring persons subject to this rule to recover, recycle, or reclaim refrigerant and to minimize refrigerant leaks.

(b) Applicability

This rule applies to any person who owns or operates a refrigeration system, as defined in this rule. This rule also applies to any person who installs, repairs, maintains, services, relocates, or disposes of any refrigeration system, regardless of charge size; to any person who services or maintains recycling and recovery equipment; and to any person who recycles, recovers, reclaims, distributes or sells high global warming potential refrigerant.

(c) Definitions

For purposes of this rule, the following definitions shall apply:

(1) ADDITIONAL REFRIGERANT CHARGE means or is the quantity, in pounds, of refrigerant added to a refrigeration system in order to bring the system to a full charge. Additional refrigerant charge does not include an initial refrigerant charge.

(2) AUTOMATIC LEAK DETECTION SYSTEM means or is a calibrated device that uses continuous monitoring for detecting leakage of refrigerants, and alerts the operator when a refrigerant leak is detected. An automatic leak detection system may be either:

(A) A direct system that automatically detects the presence in air of refrigerant leaked from a refrigeration system; or

(B) An indirect system that automatically interprets measurements (e.g. temperature or pressure) within a refrigeration system that indicate a refrigerant leak and alerts the operator to the presence of a refrigerant leak.

(3) BUBBLE TEST means applying a soap solution or spraying on with an aerosol around a potential leak source, and observing for bubbles.

(4) CERTIFIED RECLAIMER means or is a person who holds a current, valid, and applicable reclaimer certificate in accordance with Title 40 of the Code of Federal Regulations, Part 82, Subpart F, §82.164.

(5) CERTIFIED REFRIGERANT RECOVERY OR RECYCLING EQUIPMENT means or is equipment for refrigerant recovery or recycling that meets the definition by the U.S. Environmental Protection Agency pursuant to Title 40 of the Code of Federal Regulations, Part 82, Subpart F, §82.152.

(6) CERTIFIED TECHNICIAN means or is a person who has a current, valid, and applicable U.S. Environmental Protection Agency technician certificate issued in accordance with Title 40 of the Code of Federal Regulations, Part 82, §82.40 or §82.161.

(7) CHANGE OF OWNERSHIP means or is a transfer of the title of a facility subject to this rule.

(8) CHLOROFLUOROCARBON or CFC means or is a class of compounds primarily used as refrigerants, consisting of only chlorine, fluorine, and carbon.

(9) COMMERCIAL REFRIGERATION means or is a refrigeration appliance typically utilized in the retail food and cold storage warehouse sectors. Retail food refrigeration includes, but is not limited to, the refrigeration equipment found in supermarkets, convenience stores, restaurants and other food service establishments. Cold storage includes, but is not limited to, the equipment used to store meat, produce, dairy products, and other perishable goods.

(10) COMPONENT means or is a part of a refrigeration system or appliance (including condensing units, compressors, condensers, evaporators, receivers) and all of its connections and subassemblies, without which the refrigeration system or appliance will not properly function or will be subject to failures.

(11) CONTINUOUS MONITORING means or is measuring the ambient concentration of refrigerant using electronic or mechanical sensors, or

interpreting measurements (e.g. temperature or pressure) within a refrigeration system that indicate a refrigerant leak in real time.

(12) DIRECT EMISSIONS mean high global warming potential refrigerant emissions from a facility that are emitted by refrigeration systems under the operational control of a facility owner or operator. Direct emissions are calculated as the total weight in pounds of each type of high global warming potential refrigerant that was charged into a refrigeration system minus the total weight in pounds of each type of high global warming potential refrigerant that was recovered from a refrigeration system, as reported in the annual Facility Stationary Refrigeration Report pursuant to paragraphs (f)(1), (f)(2), and (f)(3).

(13) ENCLOSED BUILDING OR STRUCTURE means or is a building or structure with a roof and walls that prevent wind from entering the facility.

(14) EQUIPMENT TYPE means or is commercial refrigeration, industrial process refrigeration, or other refrigeration appliance.

(15) FACILITY for the purpose of this rule means or is any property, plant, building, structure, stationary source, stationary equipment or grouping of stationary equipment or stationary sources located on one or more contiguous or adjacent properties, in actual physical contact or separated solely by a public roadway or other public right-of-way, and under common operational control, that includes one or more refrigeration systems or appliance subject to this rule. Operators of military installations may classify such installations as more than a single facility based on distinct and independent functional groupings within contiguous military properties.

(16) FACILITY IDENTIFICATION NUMBER means or is a unique identification number provided by the Executive Officer for each facility with one or more refrigeration systems in operation.

(17) FOLLOW-UP VERIFICATION TEST means or is a test that involves checking the repairs within 30 days of the refrigeration system returning to normal operating characteristics and conditions. "Follow-up verification test" for a refrigeration system from which the refrigerant charge has been evacuated means a test conducted after the refrigeration system or portion of the refrigeration system has resumed operation at normal operating

characteristics and conditions of temperature and pressure, except in cases where sound professional judgment dictates that these tests will be more meaningful if performed prior to the return to normal operating characteristics and conditions. "Follow-up verification test" for a refrigeration system from which the refrigerant charge has not been evacuated means a reverification test conducted after the initial verification test and usually within 30 days of returning to normal operating characteristics and conditions. Where a refrigeration system is not evacuated, it is only necessary to complete any required changes to return the refrigeration system to normal operating characteristics and conditions.

(18) "FULL CHARGE", "OPTIMAL CHARGE", or "CRITICAL CHARGE" means or is the amount of refrigerant required in the refrigerant circuit for normal operating characteristics and conditions of a refrigeration system, as determined by one of the following methods:

(A) Use of the equipment manufacturer's specifications of the full charge; or

(B) Use of calculations based on component sizes, density of refrigerant, volume of piping, seasonal variances, and other relevant considerations; or

(C) The midpoint of an established range for full charge based on the best available data regarding the normal operating characteristics and conditions for the system.

(19) GLOBAL WARMING POTENTIAL means or is the capacity to heat the atmosphere, calculated as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram (kg) of a substance relative to that of 1 kg of CO_2. Global warming potential shall be calculated according to the factors for a 100-year time horizon.

(20) GLOBAL WARMING POTENTIAL VALUE or GWP VALUE means or is the 100-yr GWP value first published by the Intergovernmental Panel on Climate Change (IPCC) in its Second Assessment Report (SAR) (IPCC, 1995); or if a 100-yr GWP value was not specified in the IPCC SAR, it means the GWP value published by the IPCC in its Fourth Assessment A-3 Report (AR4) (IPCC, 2007); or if a 100-yr GWP value was not specified

in the IPCC AR4, then the GWP value will be determined by the Executive Officer based on data, studies and/or good engineering or scientific judgment. Both the 1995 IPCC SAR values and the 2007 IPCC AR4 values are published in Table 2.14 of the 2007 IPCC AR4. The SAR GWP values are found in column "SAR (100-yr)" of Table 2.14.; the AR4 GWP values are found in column "100 yr" of Table 2.14.

(21) HIGH GLOBAL WARMING POTENTIAL REFRIGERANT means or is any compound used as a heat transfer fluid or gas that is:

(A) A chlorofluorocarbon; or

(B) A hydrochlorofluorocarbon; or

(C) A hydrofluorocarbon; or

(D) A perfluorocarbon; or

(E) Any compound or blend of compounds, with a global warming potential value equal to or greater than 150; or

(F) Any ozone depleting substance as defined in Title 40 of the Code of Federal Regulation, Part 82, §82.3

(22) HYDROCHLOROFLUOROCARBON or HCFC means or is a class of compounds primarily used as refrigerants, consisting of only hydrogen, chlorine, fluorine, and carbon.

(23) HYDROFLUOROCARBON or HFC means or is a class of compounds primarily used as refrigerants, consisting of only hydrogen, fluorine, and carbon.

(24) INDIRECT EMISSIONS are emissions that are a consequence of the activities of a facility, but occur at sources owned or controlled by another person, related to energy consumed for electricity, heat, steam, and cooling.

(25) INDUSTRIAL PROCESS REFRIGERATION means complex customized appliances used in the chemical, pharmaceutical, petrochemical and manufacturing industries that are directly linked to the industrial process. Industrial process refrigeration includes, but is not limited to, industrial ice machines, appliances used directly in the generation of electricity, and ice rinks. Where one appliance is used for both industrial process

refrigeration and other applications, it will be considered industrial process refrigeration equipment if 50 percent or more of its operating capacity is used for industrial process refrigeration.

(26) INDUSTRIAL PROCESS SHUTDOWN means that an industrial process or facility temporarily ceases to operate or manufacture whatever is being produced at that facility.

(27) INITIAL REFRIGERANT CHARGE means or is the quantity, in pounds, of high global warming potential refrigerant added to a refrigeration system or appliance in order to bring the system to a full charge upon initial installation of a refrigeration system or appliance.

(28) INITIAL VERIFICATION TEST means or is a leak test that is conducted as soon as practicable after the repair is completed. Initial verification test, with regard to leak repairs that require the evacuation of the refrigeration system or portion of the refrigeration system, means a test conducted prior to the replacement of the full charge and before the refrigeration system or portion of the refrigeration system has reached normal operating characteristics and conditions of temperature and pressure. Initial verification test, with regard to repairs conducted without the evacuation of the full charge, means a test conducted as soon as practicable after the conclusion of the repair work.

(29) INTENDED TO BE OPERATED YEAR ROUND means a refrigeration system at a facility that is not a seasonal facility.

(30) LEAK INSPECTION means or is an inspection of a refrigeration system to detect a leak of a high global warming potential refrigerant.

(31) LOW TEMPERATURE REFRIGERATION SYSTEM means or is a commercial or industrial refrigeration system used for frozen products.

(32) MEDIUM TEMPERATURE REFRIGERATION SYSTEM means or is a commercial or industrial refrigeration system used for chilled products.

(33) NEWLY CONSTRUCTED means or is a facility that is not yet operational, or that has been operational for less than 6 months.

(34) NON-REFILLABLE CYLINDER means or is a cylinder with a refrigerant capacity of two pounds or greater that is designed not to be refilled and is

used in the servicing, maintenance or filling of a refrigeration system, appliance, motor vehicle air conditioning system, or heat pump equipment.

(35) NORMAL OPERATING CHARACTERISTICS AND CONDITIONS mean or are refrigeration system operating temperatures, pressures, fluid flows, speeds, and other characteristics, including full charge of the refrigeration system that would be expected for a given process load and ambient condition during operation. Normal operating characteristics and conditions are marked by the absence of atypical conditions affecting the operation of the refrigeration system.

(36) OTHER REFRIGERATION means or is any stationary, non-residential appliance that is used for an application other than industrial process refrigeration, commercial refrigeration, or air conditioning, or is used for two or more applications including industrial process refrigeration, commercial refrigeration, or air conditioning.

(37) PERFLUOROCARBON or PFC means or is a class of compounds consisting only of carbon and fluorine.

(38) PERSON means or is any individual, firm, association, organization, partnership, business trust, corporation, company, contractor, supplier, installer, user or owner, or any state or local governmental agency or public district or any other officer or employee thereof. PERSON also means the United States or its agencies to the extent authorized by Federal law.

(39) RECLAIM means or is to reprocess refrigerant to a level equivalent to new product specifications in accordance with applicable requirements of the U.S. Environmental Protection Agency contained in Title 40, Code of Federal Regulations, Part 82, Subpart F, §82.152.

(40) RECOVER means or is to remove refrigerant in any condition from a system and to store it in an external container without necessarily testing or processing it in any way.

(41) RECYCLE means or is to extract refrigerant from an appliance and to clean the refrigerant for reuse by oil separation and single or multiple passes through moisture-absorption devices, such as replaceable core

filter-driers which reduce moisture, acidity, and particulate matter, without meeting all of the requirements for reclamation.

(42) REFRIGERANT CIRCUIT means the parts of a refrigeration system that are normally connected to each other (or are separated by isolation valves) and are designed to contain a high global warming potential refrigerant. A single refrigerant circuit is defined by all piping and components that use refrigerant from a common reservoir of a high global warming potential refrigerant.

(43) REFRIGERANT DISTRIBUTOR OR WHOLESALER means or is a person to whom a product is delivered or sold for purposes of export, subsequent resale, or delivery to a certified technician, employer of a certified technician, appliance manufacturer, or another refrigerant distributor or wholesaler. Refrigerant distributor or wholesaler includes any person who imports refrigerant from outside of this state to distribute or sell refrigerant to a certified technician, employer of a certified technician, appliance manufacturer, or another refrigerant distributor or wholesaler, or who acts as an agent or broker in buying refrigerant.

(44) REFRIGERANT LEAK means or is any discharge of refrigerant into the atmosphere from a refrigeration system, refrigerant recovery or recycling equipment, refrigerant cylinder, or other container.

(45) REFRIGERANT LEAK DETECTION DEVICE means or is a device that can be calibrated to accurately detect and measure the ambient concentration of refrigerant at a minimum concentration level of 10 parts per million of vapor of a specific refrigerant or selection of refrigerants.

(46) REFRIGERATION SYSTEM means or is a stationary, non-residential equipment that is an industrial process refrigeration, a commercial refrigeration, or other refrigeration appliance with a single refrigerant circuit that requires more than 50 pounds of any combination of high global warming potential refrigerant to maintain normal operating characteristics and conditions. Refrigeration system does not include an air-conditioning appliance. A single refrigeration system is defined by a single refrigerant circuit.

(47) RESIDENTIAL means or is a residential dwelling containing four or fewer dwelling units on one lot or parcel.

(48) RETIRE means or is the permanent removal from service of a refrigeration system or component rendering it unfit for use by the current or any future owner or operator.

(49) RETROFIT means or is the replacement of the refrigerant used in a refrigeration system with a refrigerant approved under the SNAP program pursuant to Title 40 of the Code of Federal Regulation, Part 82, Subpart G, §82.170, or a refrigerant approved by the Executive Officer, and related refrigeration system changes required to maintain the refrigeration system operation and reliability following refrigerant replacement.

(50) SEASONAL ADJUSTMENT means or is the need to add refrigerant to a refrigeration system due to a change in ambient conditions caused by a change in season, followed by the subsequent removal of refrigerant in the corresponding change in season, where both the addition and removal of refrigerant occurs within one consecutive 12-month period after the initial installation of a refrigeration system or a repair of a refrigeration system requiring evacuation or partial evacuation of the refrigerant circuit.

(51) SEASONAL FACILITY means or is a facility where the purpose of the refrigeration system(s) at a facility ceases to be required during certain seasons of the year.

(52) STATIONARY means or is meeting at least one of the following conditions:

(A) Is installed in a building, structure, or facility.

(B) Is attached to a foundation, or if not so attached, will reside at the same location for more than 12 consecutive months.

(C) Is located at the same single location on a permanent basis (at least two consecutive years) and that operates at that single location at three months each year.

(53) SYSTEM IDENTIFICATION NUMBER means or is a unique identification number for each refrigeration system at a facility. It is comprised of the facility identification number followed by a hyphen, followed by a three digit number starting at 001 sequentially assigned to each unique refrigeration system at a facility. For example, if a facility has a facility identification number of ARB000001, then the system

identification number for the first refrigeration system would be ARB000001-001.

(54) SYSTEM MOTHBALLING means or is the intentional shutting down of a refrigeration system for a period of time greater than 60 days by the owners or operators of that facility, where the refrigerant has been evacuated from the refrigeration system or the affected component of the refrigeration system, at least to atmospheric pressure.

(55) TACTICAL SUPPORT EQUIPMENT means or is equipment that meets military specifications, owned by the U.S. Department of Defense, the U.S. military services, or its allies, and used in combat, combat support, combat service support, tactical or relief operations, or training for such operations.

(56) TOPPING OFF means or is adding refrigerant to a refrigeration system or appliance in order to bring the system to a full charge.

(d) Requirements

(1) Registration

(A) The owner or operator of a refrigeration system subject to this rule shall submit to the Executive Officer, at start of operation and every year thereafter, a Registration Plan for the entire facility. Such plan shall contain the following information:

(i) facility name and address;

(ii) name and title of contact person;

(iii) type of business;

(iv) number of refrigeration systems in operation;

(v) manufacturer name, model and serial number for the refrigeration system;

(vi) type of refrigerant in each refrigeration system;

(vii) full charge of refrigerant in each refrigeration system, in pounds;

(viii) date of last annual audit or maintenance performed for each refrigeration system; and

(ix) amount of additional refrigerant charge every year, in pounds.

(B) The owner or operator of a refrigeration system shall comply with the provision in (d)(1)(A) until such time that registration of the refrigeration system with the California Air Resources Board (CARB) is required pursuant to the CARB Refrigerant Management Program registration schedule as follows:

(i) Refrigeration System with a Full Charge Greater Than or Equal to 2000 Pounds.

Beginning January 1, 2012, the owner or operator of such refrigeration system shall submit registration to CARB by providing the information specified in subparagraph (d)(1)(C). Refrigeration systems that begin operation before January 1, 2012 shall be registered with the CARB Executive Officer on or before March 1, 2012. Refrigeration systems that begin operation on or after January 1, 2012, shall be registered with the CARB Executive Officer by March 1 of the year following commencement of operation.

(ii) Refrigeration System with a Full Charge Greater Than or Equal to 200 Pounds but Less Than 2,000 Pounds.

Beginning January 1, 2014, the owner or operator of such refrigeration system shall submit registration to CARB by providing the information specified in subparagraph (d)(1)(C). Refrigeration systems that begin operation before January 1, 2014 shall be registered with the CARB Executive Officer on or before March 1, 2014. Refrigeration systems that begin operation on or after January 1, 2014, shall be registered with the CARB Executive Officer by March 1 of the year following commencement of operation.

(iii) Refrigeration System with a Full Charge Greater Than 50 Pounds but Less Than 200 Pounds.

Beginning January 1, 2016, the owner or operator of such refrigeration system shall submit registration to CARB by providing the information specified in subparagraph (d)(1)(C). Refrigeration systems that begin operation before January 1, 2016 shall be registered with the CARB Executive Officer on or before March 1, 2016. Refrigeration systems that begin operation on or after January 1, 2016, shall be registered with the CARB Executive Officer by March 1 of the year following commencement of operation.

(C) A person submitting registration to CARB pursuant to the provisions of subparagraph (d)(1)(B) shall provide the following information:

(i) Facility Information

(I) Name of operator.

(II) Operator Federal Tax Identification Number.

(III) Facility North American Industry Classification System (NAICS) Business Type Code based on the 2007 NAICS United States structure.

(IV) Facility Standard Industrial Classification (SIC) Code.

(V) Name of facility, including a facility identifier such as store number, if applicable.

(VI) Facility mailing address including a street address, city, state, and zip code.

(VII) Facility physical location address including a street address, city, state, and zip code.

(VIII) Facility contact person name, phone number, and e-mail address.

(ii) Refrigeration System Information (provided for each refrigeration system)

(I) System identification number (assigned by the facility owner or operator).

(II) Equipment information such as equipment type, equipment manufacturer, equipment model or description, equipment model year and serial number. The serial number(s) of the affected equipment or component must be recorded when present and accessible. When the affected equipment or component is part of an assembly without a serial number, or does not have an individual serial number, or is not accessible after assembly, the physical location of the affected equipment must be recorded in enough detail to permit positive identification.

(III) Physical location of the refrigeration through schematic or floor plan with equipment locations clearly noted.

(IV) Temperature classification (e.g. low temperature refrigeration system, medium temperature refrigeration system, or other);

(V) Full charge of the refrigeration system, in pounds.

(VI) Type of high global warming potential refrigerant(s) used.

(D) If there is a change of ownership of a facility that is required to be registered pursuant to subparagraph (d)(1)(B), the new owner or operator shall register the refrigeration system with CARB by March 1 of the calendar year after the change of ownership has occurred.

(E) Before any change of ownership, the owner or operator of a refrigeration system subject to subparagraph (d)(1)(B) shall ensure that the refrigeration system is free of refrigerant leaks through a leak inspection performed by a certified technician. In addition, a person selling a refrigeration system that is required to have been

registered with CARB shall inform the buyer of the registration requirements, and submit a change of ownership notification to the CARB Executive Officer. The change of ownership notification shall include the following information:

(i) Seller Information

(I) Facility identification number;

(II) Name of owner or operator; and

(III) Name of facility, including a facility identifier such as store number; and

(ii) Buyer Information

(I) Name of owner or operator;

(II) Name of facility, including a facility identifier such as store number;

(III) Facility mailing address including a street address, city, state, and zip code; and

(IV) Facility contact person including phone number and e-mail address.

(F) The owner or operator of a refrigeration system subject to this rule shall pay a registration fee for the entire facility as follows:

(i) Refrigeration systems that are required to be registered with the District pursuant to (d)(1)(A) shall pay a plan filing fee pursuant to Rule 306 – Plan Fees.

(ii) Refrigeration systems that are required to be registered with CARB pursuant to (d)(1)(B)(i) and (d)(1)(B)(ii) shall pay to CARB an initial implementation fee at time of registration and an annual implementation fee in accordance with the fee schedule established by CARB. If a facility has more than one refrigeration system, the amount of fee shall be based on the refrigeration system with the largest full charge that is operating at the facility.

(2) Leak Detection and Monitoring

(A) Prior to January 1, 2011, the owner or operator of a refrigeration system that operates or is intended to be operated year round shall conduct an annual audit of the refrigeration system to determine whether such system is operating pursuant to manufacturer's specifications and does not have refrigerant leaks. At a minimum, the annual audit shall require a leak inspection conducted by a certified technician.

(B) Beginning January 1, 2011, the owner or operator of a refrigeration system that operates or is intended to be operated year round shall comply with the following requirements:

(i) Refrigeration Systems with a Full Charge Greater Than or Equal to 2,000 Pounds.

(I) A monthly leak inspection of the refrigeration system shall be conducted if the refrigerant circuit is located entirely within an enclosed building or structure, or the compressor, evaporator, condenser, or any other component of the refrigeration system with a high potential for a refrigerant leak is located inside an enclosed building or structure. However, a monthly leak inspection is not required if the refrigeration system is equipped with an automatic leak detection system.

(II) A quarterly leak inspection of the refrigeration system shall be conducted if the refrigerant circuit is not located entirely within an enclosed building or structure and is not monitored for leaks using an automatic leak detection system.

(III) By January 1, 2012, an automatic leak detection system shall be installed for the refrigeration system if the refrigerant circuit is located entirely within an enclosed building or structure, or the compressor, evaporator, condenser, or any other component of the refrigeration system with a high potential for a

refrigerant leak is located inside an enclosed building or structure.

(ii) Refrigeration Systems with a Full Charge Greater Than or Equal to 200 Pounds but Less Than 2,000 Pounds.

A quarterly leak inspection shall be conducted for the refrigeration system. A leak inspection is not required if an automatic leak detection system is used to monitor the refrigeration system.

(iii) Refrigeration Systems with a Full Charge Greater Than 50 Pounds but Less Than 200 Pounds.

An annual leak inspection shall be conducted for the refrigeration system. A leak inspection is not required if an automatic leak detection system is used to monitor the refrigeration system.

(C) Beginning January 1, 2011, the owner or operator of a refrigeration system that does not operate or is not intended to be operated year round shall conduct a leak inspection within 30 days after starting each operation of the refrigeration system, and once every three months thereafter, until the refrigeration system is shut down. A leak inspection is not required after starting operation if there has been a leak inspection of the refrigeration system conducted within the preceding 90 days.

(D) Beginning January 1, 2011, the owner or operator of a refrigeration system subject to this rule shall conduct a leak inspection each time an additional refrigerant charge equal to or greater than 5 pounds or one percent of the refrigeration system full charge, whichever amount is greater, is added to such refrigeration system.

(E) All refrigerant leak inspections shall be conducted using one or more of the following methods:

(i) Refrigerant leak detection device used in accordance with the manufacturer's specifications; or

(ii) A bubble test; or

(iii) Observation of oil residue; or

(iv) An alternate method approved by the Executive Officer.

In addition, any time oil residue is observed indicating a refrigerant leak, a leak inspection shall be conducted using a leak detection device or a bubble test to confirm a refrigerant leak.

(F) The owner or operator of a refrigeration system equipped with an automatic leak detection system that directly detects the presence of high global warming potential refrigerant in the air shall comply with the following requirements:

(i) Sensors or intakes of the automatic leak detection system shall be placed in the proximity of the compressor, evaporator, condenser, and other areas with a high potential for a refrigerant leak.

(ii) An annual audit and calibration of the automatic leak detection system shall be conducted using the manufacturer's recommended procedures to ensure that the system accurately detects a concentration level of 10 parts per million of vapor of the specific refrigerant used in the refrigeration system, and alerts the operator when a refrigerant concentration of 100 parts per million of vapor of the specific refrigerant used in the refrigeration system is reached.

(G) The owner or operator of a refrigeration system equipped with an automatic leak detection system that automatically interprets measurements (e.g. temperature and pressure) within a refrigeration system to indicate a refrigerant leak shall annually audit and calibrate the system, so that it automatically alerts the operator when measurements indicate a loss of refrigerant of 50 pounds or 10 percent of the refrigeration system full charge, whichever is less.

(H) If an automatic leak detection system alerts the owner or operator of a refrigerant leak, the owner or operator shall ensure that a leak

inspection of the refrigeration system is conducted within 24 hours after the system alert.

(3) Leak Repair

(A) Any person who owns or operates a refrigeration system that has a refrigerant leak shall ensure that the leak is repaired no later than 14 calendar days after the leak has been discovered, except in situations when a longer time period is allowed as provided in subparagraphs (d)(3)(B) and (d)(3)(C). The owner or operator shall maintain a log of repair activities beginning at the time the leak is discovered and ending at the time when the leak has been repaired. The refrigeration system shall be verified by a certified technician to be leak free before any refrigerant is added to the system.

(B) The owner or operator of a refrigeration system has 45 days to repair a refrigerant leak if one or more of the following conditions exist:

(i) A certified technician is not available to complete the repair. A written record shall be kept to document that no certified technician is available within 14 days of the initial leak detection; or

(ii) The parts necessary to repair a refrigerant leak are unavailable within 14 days of the initial leak detection. A written statement verifying that the parts are unavailable from the refrigeration system or component manufacturer or distributor shall be obtained; or

(iii) The refrigerant leak repair requires an industrial process shutdown that results in a process temporarily ceasing to manufacture the intermediate or final product that is produced when the industrial process refrigeration appliance is in operation.

(C) The owner or operator of a refrigeration system has 120 days to repair a refrigerant leak if all of the following conditions exist:

(i) The facility owner or operator is an entity subject to Mandatory Greenhouse Gas Emissions Reporting requirements pursuant to section 95101 of the California Code of Regulations; and

(ii) The refrigeration system is an industrial process refrigeration appliance; and

(iii) The refrigerant leak repair requires an industrial process shutdown; and

(iv) Written records are maintained to document that all the conditions in clauses (d)(3)(C)(i) thru (d)(3)(C)(iii) are met.

(D) The owner or operator of a refrigeration system shall ensure that an initial verification test and a follow-up verification test, as defined in subdivision (c), are conducted by a certified technician upon completion of refrigerant repairs. For a refrigeration system that has been evacuated during the refrigerant repair leak, the follow-up verification shall be conducted when the system is operating at normal operating conditions. If the system was not evacuated during leak repair, the follow-up verification test requirement is satisfied once required changes are made to return the refrigeration system to normal operating conditions.

(E) If verification tests indicate that a refrigerant leak has not been successfully repaired within the allowable time period specified in subparagraphs (d)(3)(A), (d)(3)(B), or (d)(3)(C), and no exemption has been granted by the Executive Officer pursuant to paragraph (d)(5), then the owner or operator shall comply with the following applicable requirements:

(i) For refrigeration systems that fail to meet the 14-day leak repair allowance in subparagraph (d)(3)(A), the owner or operator shall successfully repair the refrigerant leak within 45 days of the initial refrigerant leak detection, or prepare a retrofit or retirement plan pursuant to paragraph (d)(4) within 60 days of the initial refrigerant leak detection.

(ii) For refrigeration systems that fail to meet the 45-day leak repair allowance in subparagraph (d)(3)(B), the owner or operator shall prepare a retrofit or retirement plan pursuant to paragraph (d)(4) within 60 days of the initial refrigerant leak detection.

(iii) For refrigeration systems that fail to meet the 120-day leak repair allowance in subparagraph (d)(3)(C), the owner or operator shall prepare a retrofit or retirement plan pursuant to paragraph (d)(4) within 135 days of the initial refrigerant leak detection.

(4) Retrofit or Retirement Plan

(A) The plan shall establish a schedule to retrofit or retire a leaking refrigeration system no later than six months after the initial detection of the refrigerant leak. All work shall be completed during this six-month period.

(B) A retrofit or retirement plan shall include the following information:

(i) The system identification number of the refrigeration system being retired or retrofitted;

(ii) Equipment type, manufacturer, model number or description;

(iii) Physical location of the refrigeration system through schematic or floor plan with locations clearly noted;

(iv) Temperature classification of the refrigeration system;

(v) Full charge of the refrigeration system including the type of high global warming potential refrigerant(s) used;

(vi) A plan to dispose of the retired refrigeration system if the refrigeration system is to be retired and replaced;

(vii) A timetable which includes, at a minimum, the start date and completion date of installation, construction, or retrofit of the refrigeration system; and

(viii) A signature by a representative of the facility, including the date signed.

(5) Approval of Exemptions

(A) The owner or operator of a refrigeration system may submit a request to the Executive Officer for an exemption from the requirements of paragraphs (d)(3) and (d)(4) provided that the owner or operator demonstrates that one or more of the criteria below have been satisfied:

(i) Emissions Life Cycle Exemption

The Executive Officer may allow the continuation of a refrigerant leak for up to three years if the Executive Officer determines that the applicant has provided clear and convincing documentation that the refrigerant leak cannot be repaired, and that allowing the refrigerant leak to continue will result in less combined direct and indirect emissions than replacing the leaking refrigeration system. The documentation shall include information quantifying the lifecycle direct and indirect emissions, including energy use, and must include a calculation of these emissions based on the average lifetime of the refrigeration system or facility. The applicant shall also provide a mitigation plan that includes a list of proposed actions to minimize emissions. The plan shall include an analysis of options to minimize usage, reduce leaks or venting, and recycle or destroy high global warming potential refrigerant.

(ii) Economic Hardship Exemption

The Executive Officer may allow the continuation of a refrigerant leak for a specified time period of no longer than three years if the Executive Officer determines that the applicant has provided clear and convincing documentation that all of the following criteria are met:

(I) Compliance would result in extraordinary economic hardship, such as closure of the entire facility or a

large portion of the facility, or loss of a large portion of the revenue from the facility; and

(II) The applicant has prepared a compliance report that can be implemented and can achieve compliance as expeditiously as possible. The compliance report shall reasonably detail when compliance will be achieved and the method by which compliance will be achieved.

(iii) Natural Disaster Exemption

The Executive Officer may allow the continuation of a refrigerant leak for a specified time period of no longer than three years if the Executive Officer determines that the applicant has provided clear and convincing documentation that failure to repair the refrigerant leak was due to a natural disaster such as an earthquake or flood, an act of war or an act by a public enemy, or a civil disorder or riot.

(B) Any exemption granted may be extended for one or more additional periods of up to three years if the Executive Officer determines that the demonstrations made pursuant to clauses (d)(5)(A)(i), (d)(5)(A)(ii), or (d)(5)(A)(iii) remain valid.

(C) The owner or operator requesting an exemption as provided in subparagraph (d)(5)(A) shall submit a written application demonstrating that one or more of the exemption criteria have been met. Within 30 days of receipt of the exemption application, the Executive Officer shall determine whether the application is complete, and shall notify the applicant of this determination. If the exemption application is determined to be incomplete, the Executive Officer shall notify the applicant and specify the information needed to make the application complete. Within 90 days after an application is determined to be complete, the Executive Officer shall determine whether and under what conditions an exemption will be granted. The applicant and the Executive Officer may agree to a longer time period for the Executive Officer to take action on the exemption application.

(D) The exemption shall cease to be effective upon the failure of the person to whom the exemption was granted to comply with any term or condition of the exemption.

(E) If the Executive Officer determines that an exemption no longer meets the criteria specified in subparagraph (d)(5)(A), the Executive Officer may revoke the exemption or modify it as necessary to insure that the exemption continues to meet the criteria.

(F) If an application for an exemption is denied or an existing exemption is revoked, the owner or operator of a refrigeration system shall comply with the following:

(i) From the time a notice of denial or revocation is issued, the refrigerant leak shall be repaired within the allowable repair period in paragraph (d)(3); or

(ii) Within 30 days of a notice of such denial or revocation, the owner or operator of the facility shall prepare a retrofit or retirement plan pursuant to paragraph (d)(4). The plan shall establish a schedule to retrofit or retire a leaking refrigeration system no later than six months after a notice of denial or revocation, and all work shall be completed during this six-month period.

(e) Required Service Practices and Prohibitions

(1) No person shall install, maintain, service, repair, relocate, or dispose of any refrigeration system, regardless of charge size, that may cause the release of high global warming potential refrigerants unless that person meets all of the following applicable requirements:

(A) The person has a current, valid, and applicable U.S. Environmental Protection Agency technician certificate issued in accordance with Title 40 of the Code of Federal Regulations, Part 82, Subpart F, §82.161.

(B) The certified technician conducting leak repair holds a current and active California contractor's license in the C-38-Refrigeration Contractor licensing classification, or is an employee of a

contractor with the same qualifications. If the refrigeration system requiring service is also used in an air conditioning application, the refrigerant leak may be repaired by a certified technician holding a current and active California contractor's license in the C-20-Warm Air Heating, Ventilating and Refrigeration Contractor licensing classification, or by an employee of a contractor with the same qualifications.

(C) The person recovers, recycles, or reclaims the refrigerant, using certified refrigerant recovery or recycling equipment for that type of refrigeration system, and employs procedures for which the certified refrigerant recovery or recycling equipment was approved by the U.S. Environmental Protection Agency. Attempts to recover refrigerant shall be made even if the person believes that all refrigerant has been removed or has previously leaked from the refrigeration system. Refrigerant may be returned to the refrigeration system from which it is recovered, or to another refrigeration system owned by the same person, without being recycled or reclaimed.

(D) The refrigerant added to a refrigeration system during manufacture or service is:

(i) A Class I or Class II substance, as identified by section 602 of the federal Clean Air Act; or

(ii) An alternative that has been found acceptable under the SNAP program pursuant to Title 40 of the Code of Federal Regulations, Part 82, Subpart G, §82.170; or

(iii) Approved by the Executive Officer for the specific refrigeration end-use in which it is being employed.

(E) No refrigerant charge is added to any refrigeration system known to have a refrigerant leak, except that it is permissible to add additional refrigerant charge required to maintain operations during leak repair.

(F) Job site evacuation of refrigerants during recycling, recovering, reclaiming, or disposing is done in accordance with Title 40 of the

Code of Federal Regulations, Part 82, Subpart F, §82.156. De minimis refrigerant releases associated with a good faith attempt to recycle or recover refrigerants are allowed. Refrigerant releases shall be considered de minimis only if they occur when the required practices or requirements contained in Part 82, Subpart F, §§82.156 and 82.158, and Part 82, Subpart B of Title 40 of the Code of Federal Regulation are followed.

(2) Any person who owns or operates a certified refrigerant recovery or recycling equipment shall:

(A) Ensure the equipment has been tested for and been determined to have no leaks within the past six months. Leaks in recycling, recovering, or charging equipment shall be repaired within 2 working days after the leak is first detected, unless the equipment does not leak if its use is discontinued, and use is discontinued.

(B) Not alter the design of a certified recovery and recycling equipment in a manner that would affect the equipment's ability to meet the certification standards set by the U.S. Environmental Protection Agency without resubmitting the altered design to an approved equipment testing facility for certification testing. Until such altered equipment is tested by a U.S. Environmental Protection Agency approved equipment testing facility, and is shown to meet the certification standards set forth by the U.S. Environmental Protection Agency, the altered equipment shall not be considered approved, and shall not be used.

(C) Use the refrigerant recovery and recycling equipment used as specified by the certified refrigerant recovery or recycling equipment manufacturer, unless the manufacturer's specifications are in conflict with the procedures approved by the U.S. Environmental Protection Agency for the certified refrigerant recovery or recycling equipment.

(D) Provide proof of certification for the recovery and recycling equipment from the U.S. Environmental Protection Agency to the Executive Officer upon request.

(3) No person shall sell, supply, offer for sale or distribute any high global warming potential refrigerant for use as a refrigerant unless:

(A) The buyer is a certified technician; or

(B) The buyer is an authorized representative of a person employing at least one certified technician, and the buyer has provided evidence that at least one technician is properly certified; or

(C) The refrigerant is sold only for eventual resale to a certified technician, an employer of a certified technician, or an refrigeration system manufacturer; or the refrigerant is being sent for reclamation; or

(D) The refrigerant is contained in a refrigeration appliance.

(4) No person shall sell, supply, offer for sale or distribute any high global warming potential refrigerant for use as a refrigerant unless such refrigerant is a Class I or Class II substance identified by section 602 of the federal Clean Air Act; or is an alternative that has been found acceptable under the SNAP program pursuant to Title 40 of the Code of Federal Regulations, Part 82, Subpart G, §82.170; or is approved by the Executive Officer for the specific refrigeration end-use in which it is being employed.

(5) No person shall sell, offer for sale, supply, or distribute, any high-global warming refrigerant consisting wholly or in part of used refrigerant unless the refrigerant has been reclaimed by a certified reclaimer.

(6) No person shall distribute or sell a refrigerant recovery or recycling equipment unless such equipment meets the levels of evacuation to be achieved by recovery or recycling equipment as specified in Title 40 of the Code of Federal Regulations, Part 82, §82.158.

(7) No person reclaiming refrigerants shall release into the atmosphere more than 1.5 percent of the refrigerant received for reclamation.

(8) No person shall recycle or dispose of a non-refillable cylinder unless the refrigerant from such cylinder has been evacuated to a vacuum of 15 inches of mercury, relative to standard atmospheric pressure of 29.9 inches of mercury.

(9) No person shall refill a non-refillable cylinder or use it as a temporary receiver during service.

(10) No person shall repair or modify a non-refillable cylinder in any way that allows the non-refillable cylinder to be refilled.

(f) Reporting

(1) A person operating a refrigeration system with a full charge greater than or equal to 200 pounds of a high global warming potential refrigerant shall submit annually to CARB a Facility Stationary Refrigeration Report (Annual Report) that contains the information specified in paragraph (f)(2). Each Annual Report shall provide this information for the previous calendar year and shall be submitted as follows:

(A) By March 1, 2012, the owner or operator of a facility with a refrigeration system that begins operation before January 1, 2012, and with a full charge greater than or equal to 2,000 pounds of a high global warming potential refrigerant, shall submit an Annual Report for the 2011 calendar year. By March 1, 2013, and each calendar year thereafter, the owner or operator shall submit an Annual Report providing information for the previous calendar year.

(B) The owner or operator of a facility with a refrigeration system that begins operation on or after January 1, 2012, and with a full charge greater than or equal to 2,000 pounds of a high global warming potential refrigerant shall submit an Annual Report for the previous calendar year by March 1 of the year following commencement of operation. Subsequent Annual Reports for the previous calendar year shall be submitted by March 1 of each year thereafter.

(C) By March 1, 2014, the owner or operator of a facility with a refrigeration system that begins operation before January 1, 2014, and with a full charge greater than or equal to 200 pounds but less than 2,000 pounds of a high global warming potential refrigerant, shall submit an Annual Report for the 2013 calendar year. By March 1, 2015, and each calendar year thereafter, the owner or

operator shall submit an Annual Report providing information for the previous calendar year.

(D) The owner or operator of a facility with a refrigeration system that begins operation on or after January 1, 2014, and with a full charge greater than or equal to 200 pounds but less than 2,000 pounds of a high global warming potential refrigerant, shall submit an Annual Report for the previous calendar year by March 1 of the year following commencement of operation. Subsequent Annual Reports for the previous calendar year shall be submitted by March 1 of each year thereafter.

(2) The Annual Report required in paragraph (f)(1) shall include the following information:

(A) Refrigeration System

The following data shall be provided for each refrigeration system:

(i) System identification number;

(ii) Equipment type;

(iii) Equipment manufacturer;

(iv) Equipment model or description, model year, and serial number. The serial number(s) of the affected equipment or component must be recorded when present and accessible. When the affected equipment or component is part of an assembly without a serial number, or does not have an individual serial number, or is not accessible after assembly, the physical location of the affected equipment must be recorded in enough detail to permit positive identification;

(v) Physical location of a refrigeration system through schematic or floor plan with equipment locations clearly noted;

(vi) Temperature classification;

(vii) Full charge of the refrigeration system, in pounds;

(viii) Type of high global warming potential refrigerant used; and

(ix) Date of initial installation.

(B) Refrigeration System Service and Leak Repair

The following information shall be provided for each automatic leak detection system audit, leak inspection, and refrigeration system service or refrigerant leak repair that required an additional refrigerant charge of five pounds or more, or an additional refrigerant charge equal to or greater than one percent of the full charge, whichever amount is greater:

(i) Date leak detected, if applicable;

(ii) Date of service provided or leak repair completed;

(iii) Cause of refrigerant leak, if applicable;

(iv) Description of service provided or leak repair completed;

(v) Date(s) of initial verification test(s), if applicable;

(vi) Date(s) of follow-up verification test(s), if applicable;

(vii) Total additional refrigerant charge (in pounds) of each type of high global warming potential refrigerant, if applicable;

(viii) Purpose for additional refrigerant charge (leak repair, topping off, initial refrigerant charge, or seasonal adjustment), if applicable;

(ix) Name of certified technician completing leak repair, if applicable; and

(x) The certified technician's identification number and certification type issued by an approved technician certification program pursuant to Title 40 of the Code of Federal Regulation, Part 82, §82.161, if applicable.

(C) Refrigerant Purchases and Use Information

The following information shall be provided on refrigerant purchase and use:

(i) The total weight in pounds of each type of high global warming potential refrigerant that was purchased during the calendar year;

(ii) The total weight in pounds of each type of high global warming potential refrigerant that was charged into a refrigeration system during the calendar year;

(iii) The total weight in pounds of each type of high global warming potential refrigerant that was recovered from a refrigeration system during the calendar year;

(iv) The total weight in pounds of each type of high global warming potential refrigerant that was stored in inventory at the facility, or stored at a different location for use by the facility, on the last day of the calendar year; and

(v) The total weight in pounds of high global warming potential refrigerant that was shipped by the owner or operator for reclamation and destruction during the calendar year.

(3) A person operating a refrigeration system with a full charge greater than 50 pounds but less than 200 pounds of a high global warming potential refrigerant is not required to submit annual reports. However, the owner or operator of such refrigeration system shall report the information specified in paragraph (f)(2) within 60 days of receipt of a request from CARB or the District.

(4) By March 1, 2012, and every year thereafter, a refrigerant distributor or wholesaler shall submit an annual report to CARB providing information for the previous calendar year. The annual report shall cover all California facilities under the operational control of the refrigerant distributor or wholesaler, and shall include the following information:

(A) Name and mailing address of the refrigerant distributor or wholesaler;

(B) Contact person name, phone number, and e-mail address for the refrigerant distributor or wholesaler;

(C) The total statewide annual aggregated weight in pounds of each type of high global warming potential refrigerant that was purchased or received for the purpose of subsequent resale or delivery for any purpose other than reclamation or destruction;

(G) The total statewide annual aggregated weight in pounds of each type of high global warming potential refrigerant that was sold or distributed, excluding all sales to facilities outside of California or to a refrigerant distributor or wholesaler for eventual resale;

(H) The total statewide annual aggregated weight in pounds of high global warming potential refrigerant that was shipped to a certified reclaimer;

(I) Name of all refrigerant distributor or wholesaler facilities under the operational control of the refrigerant distributor or wholesaler;

(J) Address of each refrigerant distributor or wholesaler facility under the operational control of the refrigerant distributor or wholesaler; and

(K) Contact person name, phone number, and e-mail address for each refrigerant distributor or wholesaler facility under the operational control of the refrigerant distributor or wholesaler.

(5) By March 1, 2012, and every year thereafter, a person reclaiming any high global warming potential refrigerant in California shall submit an annual report to CARB providing information for the previous calendar year. The annual report shall cover all California facilities under the operational control of the certified reclaimer, and shall include the following information:

(A) Name and mailing address of the certified reclaimer;

(B) Contact person name, phone number, and e-mail address for the certified reclaimer;

(C) The total statewide annual aggregated weight in pounds of high global warming potential refrigerant that was received by the certified reclaimer for reclamation or destruction;

(D) The total statewide annual aggregated weight in pounds of each type of high global warming potential refrigerant that was reclaimed in California;

(E) The total statewide annual aggregated weight in pounds of high global warming potential refrigerant that was shipped out of California for reclamation;

(F) The total statewide annual aggregated weight in pounds of high global warming potential refrigerant that was destroyed or shipped out of California for destruction;

(G) Name and address of all certified reclaimer facilities under the operational control of the certified reclaimer; and

(H) Contact person name, phone number, and e-mail address for each certified reclaimer facility under the operational control of the certified reclaimer.

(g) Recordkeeping

(1) Any person owning or operating any refrigeration system subject to this rule shall maintain records for each refrigeration system for a minimum of five years. The following records shall be kept at the facility where the refrigeration system is in operation, and shall be made available to the Executive Officer upon request:

(A) All registration information for the refrigeration systems;

(B) Documentation of all leak detection systems, leak inspections, annual audit and calibration of automatic leak detection system;

(C) Records of refrigeration system service and leak repairs, including documentation of any conditions allowing leak repair of more than 14 days after leak detection pursuant to subparagraphs (d)(3)(B) and (d)(3)(C);

(D) Any retrofit or retirement plans, or records on application for exemption submitted pursuant to paragraph (d)(4), if applicable;

(E) Name(s) of the person(s) who completed the inspection and repair, including the name, address, and telephone number of the company the person is representing, and technician certificate number;

(F) A log of the quantity of each additional high global warming refrigerant charged to the refrigeration system and the date of each charge;

(G) The quantity (in pounds) of high-global warming refrigerants purchased or used in the District in a calendar year, including invoices of all refrigerant purchases;

(H) Annual Reports submitted pursuant to paragraph (f)(1);

(I) Records of all shipments of refrigerants for reclamation or destruction, which include the following information:

(i) Name and address of refrigerant shipment destination;

(ii) Weight in pounds of refrigerant shipped;

(iii) Date of shipment; and

(iv) Purpose of shipment, e.g. reclamation, destruction, etc.

(J) Records of all refrigeration systems component data, measurements, calculations and assumptions used to determine full charge.

(2) A refrigerant distributor, wholesaler, or certified reclaimer shall maintain records for a minimum of five years. The following records shall be kept at the facility of each distributor, wholesaler, or certified reclaimer, and shall be made available to the Executive Officer upon request, as follows:

(A) Annual reports submitted pursuant to paragraphs (f)(4) and (f)(5);

(B) Invoices of all high-global warming refrigerants received through sale or transfer and all high-global warming refrigerants distributed through sale or transfer. These invoices must indicate the name of the purchaser, the date of sale, and the quantity and the type of high-global warming refrigerant purchased, sold, or transferred;

(C) Documents required pursuant to subparagraph (e)(3)(B); and

(D) Records of all shipments of refrigerant received for reclamation.

(3) Any person owning and operating a certified refrigerant recovery or recycling equipment shall maintain records to determine compliance with the requirements of paragraph (e)(2), which includes the following information:

(A) Date of semi-annual inspection;

(B) All work completed for each recycling or recovery system to prevent or repair leaks, including results of leak testing and leak determinations; and

(C) Name(s) of the person(s) who completed the inspection and repair, including the name, address, and telephone number of the company the person is representing.

(h) Exemption

(1) The provisions of this rule do not apply to tactical support equipment.

(2) An owner or operator shall not pay fees as required in clause (d)(1)(F)(ii) for any calendar year if during the previous calendar year all of the refrigeration systems at the facility have been maintained using the following advanced strategies and practices to reduce refrigerant charges and emissions of ozone-depleting substances and greenhouse gases:

(A) The facility uses only refrigerants with zero ozone-depleting potential; and

(B) The facility uses only refrigerants found acceptable by the U.S EPA SNAP program pursuant to Title 40 of the Code of Federal Regulation, Part 82, Subpart G, §82.170 for the specific end use; and

(C) The facility achieves an average hydrofluorocarbon full charge equal to or less than 1.25 lbs. of refrigerant per 1000 Btu per hour total evaporator cooling load; and

(D) If the facility is not newly constructed, the facility achieves a facility-wide annual refrigerant leak rate, as defined in Title 40 of the Code of Federal Regulation, Part 82, §82.152, of 10% or less; and

(E) The owner or operator swears under penalty of perjury that the criteria specified in subparagraphs (h)(2)(A) thru (h)(2)(D) have been met.

(2) The requirements in paragraphs (d)(3) and (d)(4) shall not apply to the following conditions:

(A) During the time the refrigeration system is undergoing or is in system mothballing, as defined in subdivision (c), and until the refrigeration system resumes operation at a facility; or

(B) The owner or operator of a refrigeration system has received an exemption from the Executive Officer pursuant to paragraph (d)(5); or

(C) The owner or operator of a refrigeration system has submitted a request for an exemption and until a final determination is made by the Executive Officer pursuant to paragraph (d)(5).

Written records must be kept pursuant to subdivision (g) to document that the owner or the operator has requested or received an exemption.

(3) The contractor's license requirements in subparagraph (e)(1)(B) shall not apply if one or more conditions apply:

(A) The refrigeration system service or refrigerant leak repair is performed by the facility owner or operator or its employees with wages as sole compensation; or

(B) The refrigeration system service or refrigerant leak repair is performed by the facility owner or operator through one undertaking or by one or more contracts, and the aggregate contract price for labor, materials, and all other items is less than five hundred dollars ($500); or

(C) The refrigeration system service or refrigerant leak repair is performed pursuant to a contract entered into before January 1, 2011 by any political subdivision of the United States government, or the State of California, or by any incorporated town, city, county, irrigation district, reclamation district, or other municipal or political corporation.

(i) Violations

(1) Each day or portion thereof that any leak inspection or leak repair is not completed after the date such leak inspection or leak repair is required to be completed, or each day or portion thereof that any registration, report, or plan required by this rule remains unsubmitted, is submitted late, or

contains incomplete or inaccurate information, shall constitute a single, separate violation of this rule.

(2) Failure to pay the full amount of any fee required by this rule shall constitute a single, separate rule violation for each day or portion thereof that the fee has not been paid after the date the fee is due.

(j) Severability

If any provision of this rule is held by judicial order to be invalid, or inapplicable to any person or circumstance, such order shall not affect the validity of the remainder of this rule, or the validity or applicability of such provision to other persons or circumstances. In the event any of the exceptions to this rule is held by judicial order to be invalid, the persons or circumstances covered by the exception shall instead be required to comply with the remainder of this rule.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Draft Staff Report

Proposed Amended Rule 1143 - Consumer Paint Thinners & Multi-Purpose Solvents

December 2010

Deputy Executive Officer,
Planning, Rule Development, & Area Sources
Elaine Chang, DrPH

Assistant Deputy Executive Officer,
Planning, Rule Development, & Area Sources
Laki Tisopulos, Ph.D., P.E.

Planning and Rules Manager, VOC Rules
Naveen Berry

AUTHOR:	Don Hopps	Air Quality Specialist
REVIEWED BY:		
	David Ono	Program Supervisor
	William Wong	Principal Deputy District Counsel
	Lauren Nevitt	District Deputy Counsel I

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD

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Speaker of the Assembly Appointee

Vice Chairman: DENNIS YATES
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Councilmember, Rolling Hills Estates
Cities of Los Angeles County/Western Region

JAN PERRY
Councilmember, Ninth District
Cities Representative, Los Angeles County, Western Region

MIGUEL A. PULIDO
Mayor, Santa Ana
Cities of Orange County

EXECUTIVE OFFICER:

BARRY R. WALLERSTEIN, D.Env.

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I. EXECUTIVE SUMMARY

Rule 1143 - Consumer Paint Thinners & Multi-Purpose Solvents, was adopted on March 6, 2009, to implement Control Measure CTS-04 from the 2007 AQMP ("Air Quality Management Plan") which calls for further Volatile Organic Compound (VOC) emission reductions from categories not regulated by CARB, including paint thinners and multi-purpose solvents. The adopted rule has a two-tier VOC concentration limit beginning with the 300 grams per liter (g/L) VOC limit, effective January 1, 2010, and followed by the final limit of 25 g/L VOC, effective January 1, 2011. The expected emission reduction will be 5.94 tons per day (tpd) by the year 2011, and an additional 3.81 tpd by January 1, 2012, resulting in a total VOC reduction of 9.75 tpd by January 1, 2012, when the rule will be fully implemented.

The rule was amended on June 4, 2010, to rescind the final VOC limit of 25 g/L, to comply with a court order by the Los Angeles County Superior Court.

On July 9, 2010, Rule 1143 was amended to reinstate the final VOC limit of 25 g/L of VOC, effective January 1, 2011 along with a one year sell-through provision allowing consumer paint thinners and multi-purpose solvents to be sold in the AQMD jurisdiction through December 31, 2011, provided that the products were manufactured prior to January 1, 2011. Additionally, Rule 1143 was also amended to allow consumer paint thinners and multi-purpose solvents containing 300 g/L or more of VOC to be sold and used until April 1, 2011, provided that the product container showed product uses that included the thinning of industrial maintenance coatings, and the product was manufactured prior to July 9, 2010.

During the latter part of the July 2010 rule amendment process, staff received comments regarding the need for an exemption relating to the solvents and thinners used by artists. During the July 9, 2010 public hearing, staff committed to explore and evaluate the request and come back with an amendment prior to the end of the year, if necessary. Staff recognizes that Rule 1143 currently does not take into consideration the artist materials industry. Artist solvents and thinners specifically manufactured for artistic uses have been formulated, refined and purified to eliminate impurities, specifically intended for artist applications. These niche products do not fall into the general category of consumer paint thinners and multi-purpose solvents used for architectural coating thinning and clean-up.

The California Air Resources Board (CARB) exempted the artist solvents and thinners, which they call "Artist's Solvent/Thinner," from their Consumer Products Regulations (CPR) provided that they are labeled to meet ASTM D4236-94 (Reapproved 2005) and packaged in containers with a capacity less than or equal to 32 fluid ounces (one quart). At a subsequent public workshop for this project that was held on September 15, 2010, CARB staff stated in those discussions that they would be changing their Consumer Product Regulation language to exempt Artist's Solvent/Thinner sold in containers with a capacity of 32 fluid ounces to accommodate 1 liter containers. On September 29, 2010, CARB posted a proposed modification to their definition of Artist's Solvent/Thinner to replace the 32 (fluid) ounces with 34 (fluid) ounces which will include 1 liter containers (1 liter = 33.8 fluid ounces).

Staff is proposing an amendment to the rule that would provide an exemption to artist solvents and thinners from adhering to the VOC requirements set forth in the rule. Staff believes the amendment is necessary because artist solvent and thinner products are designed to be used specifically with artist solvent-based oil paints. Staff is currently unaware of low-VOC solvents that may be successfully reformulated for artist solvent and thinner products. In order to monitor the usage of the exemptions and minimize rule abuse, staff proposes to clarify that recordkeeping and reporting requirements are applicable to all exempt usage including artist solvents and thinners. Staff is also proposing to clarify that any consumer paint thinner or multi-purpose solvent that is manufactured prior to the effective date, of the applicable limit specified in paragraph (d)(1) in the rule, and that has a VOC content above that limit (but not above the limit in effect on the date of manufacture), may be sold, supplied, offered for sale, or used for up to one year after the specified effective date.

Therefore, staff is proposing the following amendment to Rule 1143:

- Exempting artist solvents and thinners that are properly labeled and sold in containers that are one liter or less from applicable VOC limits
- Defining artist solvents and thinners
- Making changes to the rule to clarify that all exempt products shall be subject to recordkeeping and reporting requirements
- Making changes to the rule to clarify that the sell-through provisions for the final VOC limit do not apply to products that do not meet the interim VOC limit

The proposed amendment will result in 114 pounds per day of VOC emissions foregone, which equates to approximately 18.5 gallons per day. The VOC emissions foregone due to this proposed amendment will represent 0.6% of the total existing VOC emission reductions applied to Rule 1143. No socioeconomic impacts are anticipated from this current proposal.

II. BACKGROUND

Consumer Products are the largest source of VOC emissions in the South Coast Air Basin (Basin). The California Air Resources Board (CARB) estimates that consumer products in the state of California account for approximately 245 tons per day (tpd) of VOC emissions[1]. Approximately forty-five percent (45%) of that estimate or 110.3 tpd of VOC emissions[2] can be attributed to the Basin.

The 2007 AQMP highlights the growing impact of VOC emissions from consumer products. Taking into account population growth and planned VOC reductions by CARB, the AQMP estimates that the annual average VOC emissions for the consumer product category will be 107 tpd by the year 2014, and will likely increase to 112.1 tpd by the year 2020[3]. Rule 1143 implements Control Measure CTS-04 from the 2007 AQMP.

Consumer multi-purpose solvents work very well for cleaning deposits such as grease, oil, paint, carbon deposits, residues from tools, equipment, and general household uses, whereas consumer paint thinners are used to thin traditional solvent-based architectural coatings. However, based on staff's market assessment, traditional high-VOC containing consumer paint thinners and multi-purpose solvents are typically used interchangeably. PAR1143 changes this practice, since both consumer paint thinners and multi-purpose solvents are required to meet similar VOC limits prescribed in the rule.

III. RULE HISTORY

Rule 1143 - Consumer Paint Thinners & Multi-Purpose Solvents, was adopted on March 6, 2009, by the Governing Board and is currently in effect regulating consumer paint thinners and multi-purpose solvent products offered for sale and use within the Basin. Rule 1143 limits the VOC content in a two tier approach for products sold to consumers and these VOC limits apply to suppliers, distributors and retailers of consumer paint thinners and multi-purpose solvents. No public comments pertaining to artist solvents and thinners were received by staff during this nine-month rulemaking process.

On April 1, 2009, W.M. Barr filed a petition for writ of mandate and declaratory relief, challenging Rule 1143, primarily based on alleged inadequacies of the environmental assessment, including its analysis of safety issues, regarding the increased flammability as a result of compliant formulations that use acetone as an exempt solvent.

On September 24, 2009, CARB amended the Consumer Products Regulations (CPR), with virtually the same VOC limits for consumer paint thinners and multi-purpose solvents, but with implementation dates of January 1, 2011 for the interim VOC limit and January 1, 2014 for the final VOC limit. Additionally, CARB also included other provisions with statewide applicability, including the limitation of aromatic content, prohibition of the use of trichloroethylene, and limiting the use of products that exceed the 150 Global Warming Potential

[1] See http://www.arb.ca.gov/consprod/geninfo/cpsmog.htm
[2] This estimate does not reflect additional VOC reductions proposed by CARB
[3] See Final 2007 Air Quality Management Plan, Chapter 3

("GWP"). CARB also included a sell-through provision for 3 years and when combined with implementation dates, the 30% by weight VOC limit will not be fully implemented until January 1, 2014 and the 3% by weight VOC limit will not be fully implemented until January 1, 2017. CARB also provided language in their CPR to exempt artist solvents and thinners provided they were sold in containers with a capacity of 32 fluid ounces (one quart) or less and they were properly labeled to meet the labeling requirements as specified in ASTM D4236-94 (Reapproved 2005).

On December 7, 2009, the court upheld the AQMD's environmental assessment except on the flammability issue. Subsequently, the AQMD filed a motion to limit the court's remedy.

On April 1, 2010, the AQMD's motion was granted in part, but the judgment and writ required the AQMD to vacate the final VOC limits of the 25 g/L VOC limit, and prepare an Environmental Assessment (EA) that considers the fire hazard issue.

On June 4, 2010, the AQMD Governing Board amended Rule 1143 to comply with the court's decision by rescinding the final 25 g/L VOC limit. The rescinding of the final 25 g/L VOC limit resulted in foregoing 3.81 tons per day of VOC emission reductions.

On July 9, 2010, Rule 1143 was amended to readopt the final 25 g/L VOC limit, effective January 1, 2011, and recover the foregone 3.81 tpd of VOC emissions. In addition, a supplemental environmental assessment was completed that focused only on the fire hazard issue, as directed by the court.

During the latter part of the July 2010 rule amendment process, staff received comments regarding the need for an exemption relative to the solvents and thinners used by artists. On July 9, 2010, during the public hearing for the rule, staff committed to explore and evaluate the request and come back with an amendment prior to the end of the year, if necessary. Staff recognizes that Rule 1143 currently does not take into consideration the artist materials industry. Artist solvents and thinners specifically manufactured for artists have been formulated, refined and purified to eliminate impurities specifically for artist applications. These niche products do not fall into the general category of consumer paint thinners and multi-purpose solvents used for architectural coating thinning and clean-up.

On September 15, 2010, a public workshop for this project was held where CARB staff stated, in their discussions, that they would be changing their Consumer Product Regulation language to exempt Artist's Solvents/Thinners sold in containers with a capacity of 34 fluid ounces to accommodate 1 liter containers.

IV. AFFECTED FACILITIES

Artist solvents and thinners have been formulated and refined to eliminate impurities from paint thinners and solvents specifically for artist applications, and do not fall into the general category of consumer paint thinners and multi-purpose solvents. AQMD staff has worked with CARB in

regard to consumer paint thinners and multi-purpose solvents and is aware that CARB surveyed artist solvents and thinners during their 2006 Consumer and Commercial Products Survey (ARB 2007f)[4]. CARB found the emissions from the artist solvents and thinners category had a minuscule effect on VOC reductions. In fact, CARB estimated that consumer artist solvent and thinner products in the state of California accounted for approximately 252.7 pounds per day (ppd) of VOC emissions. Approximately forty-five percent (45%) of that estimate or 114 (113.7) ppd of VOC emissions can be attributed to the Basin. CARB also found that artist solvents and thinners are required to meet the Labeling of Hazardous Art Materials Act (LHAMA) within the Federal Hazardous Substances Act which requires that any art material, including solvents, must meet the requirements in ASTM D4236-94 (Reapproved 2005), the standard Practice for Labeling Art Materials for Chronic Health Hazards, to protect consumers of any age from potential health hazards of these products. CARB exempted the artist solvents and thinners, which they call "Artist's Solvents/Thinners[5]," from the requirements of their CPR, provided said products are labeled to meet ASTM D4236-94 (Reapproved 2005) and packaged in containers with a capacity of 32 fluid ounces or less. At a subsequent public workshop for this project that was held on September 15, 2010, CARB staff stated in those discussions that they would be changing their Consumer Product Regulation language to exempt Artist's Solvents/Thinners sold in containers with a capacity of 32 fluid ounces to accommodate 1 liter containers. On September 29, 2010, CARB posted a proposed modification to their definition of Artist's Solvent/Thinner to replace the 32 (fluid) ounce container capacity limit with a 34 (fluid) ounce container capacity limit which will include 1 liter containers (1 liter = 33.8 fluid ounces).

There are approximately 19 manufacturers of artist solvents and thinners products exclusively for the artist industry. The artist industry also includes support organizations and AQMD staff has had several discussions and correspondences with both the Artist Creative Materials Institute (ACMI) and the National Art Materials and Trade Association (NAMTA) to further understand their specific uses. Artist solvents and thinners are typically sold through hobby, craft, and art material store outlets and through internet sales.

V. DISCUSSION OF TECHNOLOGY TYPES FOR ARTIST SOLVENTS AND THINNERS

Artist solvents and thinners are manufactured specifically for a variety of art-related uses; the most common is oil on canvas painting. Although there are products with a VOC content less than 25 g/L available and in use for consumer paint thinners and multi-purpose solvents, those may not be sufficient replacements for the currently used artist-related materials including turpentine, mineral spirits, odorless mineral spirits, and artist mediums. To meet the VOC limits in Rule 1143, consumer paint thinners and multi-purpose solvents have been reformulated using the following technologies: 1) Aqueous technology which includes formulations made from water, detergents, chelating agents, alkaline builders and various blends of surfactants and is typically used for multi-purpose cleaning agents; 2) Exempt solvents including acetone, PCBTF, and methyl acetate, as well as blends of the three; and; 3) Bio-based technology including methyl

[4] CARB, 2006 Consumer and Commercial Products Survey, 2009, http://www.arb.ca.gov/consprod/regact/2006surv/2006surv.htm
[5] CARB, Consumer Products Regulations, August 7, 2009, http://www.arb.ca.gov/regact/2009/cpmthd310/cpmthdisor.pdf

esters is currently available for a variety of uses, including lowering the volatility of exempt solvents. The artist solvents and thinners are used specifically for arts and crafts and are broken down into the following solvent and thinner variants.

Turpentine

Turpentine is the traditional solvent that is manufactured from tree resins and has been used for oil on canvas painting for many years. Artist quality turpentines are further refined to remove the impurities commonly found in products sold at hardware stores for general consumer use. Turpentine is also known as Spirit of Turpentine, Oil of Turpentine, Genuine Turpentine, English Turpentine, Distilled Turpentine, Double Rectified Turpentine, and simply "Turps".

Mineral Spirits

Mineral Spirits are a commonly used solvent that are manufactured from petroleum products. Mineral Spirits are generally less expensive than turpentine and are a stronger solvent than Odorless Mineral Spirits. Mineral Spirits are used to reduce the viscosity of various acrylic resins to a range needed for application. Mineral Spirits are also used to remove (resolubilize) the varnish in case the artist is unhappy with the outcome of the painting and can be used for periodic cleaning or restoration of the work. Mineral Spirits are also known as White Spirits.

Odorless Mineral Spirits

Odorless Mineral Spirits are also a commonly used solvent that is manufactured from petroleum products. Odorless Mineral Spirits are marginally more expensive than Mineral Spirits but have been manufactured with less of the harmful aromatic solvents found in Mineral Spirits. As in the case of Mineral Spirits, Odorless Mineral Spirits are used to reduce the viscosity of various acrylic resins to a range needed for application. Odorless Mineral Spirits are also used to remove (resolubilize) the varnish in case the artist is unhappy with the outcome of the painting and can be used for periodic cleaning or restoration of the work.

Citrus-Based Thinners

Citrus-based thinners are manufactured from food-grade and technical-grade citrus oils and are nontoxic, nonflammable solvents that are used in some arts and crafts applications. The major component used in citrus-based thinners is d-Limonene, which is the oil extracted from citrus and citrus peels. The oil separated from the juice after the juicing process is the food-grade d-Limonene and the citrus peels that are sent to a steam extractor to extract the oil from the peel becomes the technical-grade d-Limonene. In Technical-grade d-Limonene, the oil is collected after the steam is condensed by capturing the layer of oil floating on the surface of the condensed water. D-Limonene is known to have more than 95% per volume of VOC.

Artist Mediums

Artist mediums are used to modify artist oil paint straight from the tube. The mediums can be used to lengthen the drying time of the paint, make it thinner, or alter the character of the paint from what comes out of the tube. Mediums can also be used to make the paint transparent or opaque and can also be used to alter gloss or matte sheen of the paint. Mediums are used for oil on canvas paintings to influence the color of a pigment.

Brush Cleaners

The most common application technique for an artist using paint is simply to apply the paint with a paint brush. There are several artist brush cleaners that are currently available to clean artist paint brushes after they were used to apply oil-based paint. Artist paint brush bristles are made from animal hair such as hog's bristles, mongoose hair, red sable (weasel hair), and Siberian mink. The hair possesses several important properties for the artist such as maintaining a superfine point, smooth handling, and good memory (where the bristles return to their original point between brush strokes). There are also synthetic brushes available which can offer durability and cost effectiveness. The artist brush cleaners have been formulated specifically for these types of paint brushes.

VI. ARTIST INDUSTRY'S CONCERNS

Staff had a meeting with several members from the artist industry to hear their concerns with Rule 1143 and the need for an exemption for artist solvents and thinners. One of the major concerns is the ability to continue the use of artist solvents and thinners which are specifically formulated, refined, and purified to eliminate impurities for artist applications. Antique oil paintings normally found in the museums are restored by using specially formulated artist solvents designed specifically for painting restoration. These antique paintings are protected by a coating of varnish, however, the varnish ages and must be removed before a new coat of varnish can be applied. This requires specialty artist solvents that will remove the varnish but will not attack the original painting oils. Other artist uses include using turpentine, tinted with paint, to make the special layering effects on an oil painting. Turpentine is also used for dissolving Damar varnish which is an essential solvent for an artist. The Damar resin will only dissolve in Gum Turpentine. The other main concern from the artist industry is that artists use handmade brushes that can cost $50 to $150 per brush. The brush is cleaned with turpentine and then oil, typically vegetable oil, is used to preserve the brush while it's not in use. The brush is cleaned with turpentine to clean the hairs of the oil before it is used again. The artist industry contends that an artist oil painting brush cannot be cleaned using soap and water mainly due to the oil paint chemistry and the soap will dry out the hairs. Cleaning a paint brush using mechanical means will cause the brush hairs to break.

VII. OVERVIEW: PROPOSED AMENDMENT TO RULE

Staff is proposing an amendment to the rule that would provide an exemption for artist solvents and thinners from the VOC requirements set forth in the rule. Staff believes this provision is necessary because artist solvent and thinner products are designed to be used with specific-to-artist solvent-borne paints, and successful low-VOC technology is currently unavailable.

AQMD staff researched the costs of artist solvents and thinners and compared them to equivalent products sold at home improvement, paint and hardware stores. AQMD staff found that for a common quart size, the artist products cost 67.6% more than the general use consumer paint thinners and multi-purpose solvents, whereas for the gallon size, the artist products cost 54.1% more than the general use consumer paint thinners and multi-purpose solvents. CARB exempted the artist solvents and thinners, which they call "Artist's Solvents/Thinners," from their CPR

provided that they are labeled to meet ASTM D4236-94 (Reapproved 2005) and packaged in containers with a capacity less than or equal to 32 fluid ounces (the language in their CPR is expected to change the 32 fluid ounces maximum capacity to accommodate 1 liter maximum capacity).

Staff is proposing a new definition to be added to Rule 1143 for "ARTIST SOLVENTS/THINNERS." This amendment proposes to exclude artist solvents and thinners that meet the above mentioned criteria from adhering to the VOC requirements set forth in the rule for Consumer Paint Thinners & Multi-Purpose Solvents.

Staff is proposing to make changes to the rule that will clarify that recordkeeping and reporting requirements are applicable for the following exempted products:

- Solvents provided that they are labeled and designated exclusively for the clean-up of polyaspartic and polyurea coatings application equipment
- Thinners, provided that they are labeled and designated exclusively for the thinning of Industrial Maintenance coatings, Zinc-Rich IM Primers, and High Temperature Coatings
- Artist solvents and thinners, provided that they are labeled and designated exclusively to reduce the viscosity of, or remove, art coating compositions or components and are individually packaged in containers having a total capacity equal to or less than 1 liter.

AQMD staff believes that these measures will discourage possible circumvention by non-exempted product users and will allow staff to monitor and assess if use of these exempt products has substantially increased, which could imply that they are being purchased for non-labeled non-compliant uses.

Staff is also proposing to clarify that any consumer paint thinner or multi-purpose solvent that is manufactured prior to the effective date, of the applicable limit specified in paragraph (d)(1) in the rule, and that has a VOC content above that limit (but not above the limit in effect on the date of manufacture) may be sold, supplied, offered for sale, or used for up to one year after the specified effective date.

Therefore, staff is proposing to amend Rule 1143 by:

- Exempting artist solvents and thinners that are properly labeled and sold in containers that are one liter or less from applicable VOC limits
- Defining artist solvents and thinners
- Making changes to the rule to clarify that all exempt products shall be subject to recordkeeping and reporting requirements
- Making changes to the rule to clarify that the sell-through provisions for the final VOC limit do not apply to products that do not meet the interim VOC limit

VIII. EMISSION IMPACTS

Rule 1143 was developed to have two different VOC limit reductions. The interim limit, currently in effect, as of January 1, 2010, limits any consumer paint thinner and multi-purpose solvent to 300 g/L VOC but offers a sell-through provision up to December 31, 2010 to allow sales and use of high-VOC traditional solvents provided they were manufactured prior to January 1, 2010. When fully implemented, the interim reduction limit will reduce VOC emissions by 5.94 tons per day. The second reduction, the final limit, will commence on January 1, 2011 and the VOC limit will be reduced to 25 g/L. In addition, any consumer paint thinner and multi-purpose solvent manufactured prior to January 1, 2011 will have a one-year sell-through allowance for products containing up to 300 g/L VOC. Furthermore, any consumer paint thinner and consumer multi-purpose solvent that exceeds 300 g/L VOC but also displays multiple uses on the container label including the thinning of industrial maintenance coatings and was manufactured prior to July 9, 2010, will be allowed a sell-through until April 1, 2011. When fully implemented, the 25 g/L VOC limit will reduce VOC emissions by another 3.81 tons per day thus resulting in a composite VOC emissions reduction of 9.75 tons per day. To recap, CARB's 2006 Consumer and Commercial Products Survey found that the statewide VOC emissions contribution for artist solvent and thinners was 252.7 pounds per day. AQMD staff uses a 45% factor of the statewide emissions inventory based on population distribution to determine the South Coast AQMD jurisdiction emissions contribution,

*252.7 lbs/day * 0.45 = 113.7 lbs/day;*

*113.7 lbs/day * 1 ton/2000 lbs = 0.057 tons per day*

Thus, the emissions foregone in the South Coast AQMD jurisdiction will be 113.7 lbs/day and is summarized in Table VIII-1 below.

TABLE VIII-1: BREAKDOWN OF EMISSIONS

INVENTORY DESCRIPTION	VOC EMISSIONS (tpd)
Rule 1143 Interim VOC Limit (300 g/L)	5.94
Rule 1143 Final VOC Limit (25 g/L)	3.81
Total Existing Emission Reductions Applied to Rule1143	**9.75**
Artist Solvent/Thinner Exemption	-0.057
Total Emission Reduction Applied to Rule 1143	**9.69**

The proposed amendments would result in an increase of 0.62% of VOC emissions foregone.

(9.75 tpd – 9.69 tpd)/9.75 tpd = 0.0062 = 0.62%

IX. COST ANALYSIS

PAR1143 results in a cost savings to the industry, since they will be able to continue business as usual.

X. INCREMENTAL COST-EFFECTIVENESS

Under Health and Safety Code § 40920.6, the AQMD is required to perform an incremental cost analysis when adopting a Best Available Retrofit Control Technology (BARCT) rule or feasible measure required by the California Clean Air Act. To perform this analysis, the AQMD must (1) identify one or more control options achieving the emission reduction objectives for the proposed rule, (2) determine the cost effectiveness for each option, and (3) calculate the incremental cost effectiveness for each option. To determine incremental costs, the AQMD must "calculate the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option."

The proposed amendments to Rule 1143 do not implement a more restrictive BARCT or feasible control measure, and therefore § 40920.6 is inapplicable.

XI. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Pursuant to California Environmental Quality Act (CEQA) and AQMD Rule 110, the AQMD staff has prepared a Draft Environmental Assessment (EA) and circulated it for a 45-day public review and comment period from September 30, 2010 to November 16, 2010. The only topic identified in the Draft EA that may be adversely affected by the proposed project is air quality. Comments on the Draft EA received within the public comment period will be included with response to comments in the Final EA. Copies of the Draft EA are available at AQMD Headquarters, by calling the AQMD Public Information Center at (909) 396-2039, or by accessing AQMD's CEQA website at: www.aqmd.gov/ceqa.

XII. SOCIOECONOMIC ASSESSMENT

PAR 1143 allows for an artist solvents and thinners exemption that provides regulatory relief because low-VOC artist solvents and thinners are currently not available on the market. Therefore, no socioeconomic impacts are anticipated from this proposal.

XIII. DRAFT FINDINGS

Health and Safety Code § 40727 requires that prior to adopting, amending or repealing a rule or regulation, the AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the hearing. The draft findings are as follows:

Necessity – The proposed amendment to Rule 1143 is necessary to allow the availability and use of certain types of solvents and thinners that are of vital importance to the artist industry. In addition, an exemption for artist solvents and thinners is required since no low-VOC alternatives have been identified for this niche category.

Authority - The AQMD Governing Board obtains its authority to adopt, amend, or repeal rules and regulations from Health and Safety Code §§ 39002, 40000, 40001, 40440, 40441, 40702, 41508, and 41700.

Clarity - The AQMD Governing Board has determined that Proposed Amended Rule 1143 - Consumer Paint Thinners & Multi-purpose Solvents, is written and displayed so that the meaning can be easily understood by persons directly affected by it.

Consistency - The AQMD Governing Board has determined that Proposed Amended Rule 1143 - Consumer Paint Thinners & Multi-purpose Solvents, is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, federal or state regulations.

Non-Duplication - The AQMD Governing Board has determined that Proposed Amended Rule 1143 - Consumer Paint Thinners & Multi-purpose Solvents, does not impose the same requirement as any existing state or federal regulation, and the proposed amendments are necessary and proper to execute the powers and duties granted to, and imposed upon, the AQMD.

Reference - In adopting this regulation, the AQMD Governing Board references the following statutes which the AQMD hereby implements, interprets or makes specific: California Health and Safety Code §§ 40001, 40440, and 40702.

XIV. COMPARATIVE ANALYSIS

Health and Safety Code Section 40727.2

As required by Health and Safety Code § 40727.2, the purpose of this analysis is to identify and compare any other AQMD, state, or federal regulations that apply to the same equipment or source type contained in this rule proposal. Staff identified one regulation authored by the California Air Resources Board (CARB) that shares regulatory language with AQMD's Proposed Amended Rule (PAR) 1143 – Consumer Paint Thinners and Multi-Purpose Solvents. CARB's Consumer Products Regulations (CPR) is a multi-faceted regulation that regulates the consumer product industry including standards for multi-purpose solvents and paint thinners. Staff has worked extensively with CARB to make PAR 1143 as consistent as possible with CARB's CPR. This amendment seeks to further align AQMD's PAR 1143 with CARB's CPR by proposing an amendment to include an Artist Solvents/Thinners exemption that are properly labeled and sold in containers that are one liter or less from applicable VOC limits and to clarify that all exempt products shall be subject to recordkeeping and reporting.

Affected sources under CARB's CPR include multiple categories of consumer products, including multi-purpose solvents and paint thinners. The proposed amendment to PAR 1143 will result in minor VOC emissions foregone but do not affect existing VOC limits. Therefore, PAR 1143 does not impose a new emission limit or standard, make an existing emission limit or standard more stringent, or impose new or more stringent monitoring, reporting or recordkeeping requirements [See California Health & Safety Code § 40727.2(g)].

Table XIV.1 immediately follows and shows a comparative analysis between AQMD PAR 1143 and CARB's CPR, for the multi-purpose and paint thinners categories only.

TABLE XIV-1: COMPARISON OF AQMD PAR 1143 TO CARB'S CPR

CATEGORY	SCAQMD PAR 1143 Consumer Paint Thinners & Multi-Purpose Solvents	CARB Consumer Products Regulations Sections: 94508, 94509, 94510, 94512, 94513, and 94515
Adoption Date	March 9, 2009	August 6, 2010
Purpose	Reduce VOC emissions from the use, storage and disposal of consumer paint thinners & multi-purpose solvents commonly used in thinning of coating materials, cleaning of application equipment, or other solvent cleaning operations by limiting their VOC content	Reduce VOC emissions for a wide variety of consumer products including multi-purpose solvent and paint thinner products which will partially fulfill the consumer product reduction commitment contained in the State Strategy for California's 2007 SIP
Applicability (to whom)	Rule 1143 applies to any person who sells, offers for sale, or manufactures, or any person who uses or solicits the use of any consumer paint thinners & multi-purpose solvents in the District	Except as provided in Sections 94509(i) and 95510, this article shall apply to any person who sells, supplies, offers for sale, or manufactures consumer products for use in the State of California.
Applicability (jurisdiction)	South Coast Air Quality Management District Jurisdiction **Statewide Provisions:** SCAQMD will recognize the statewide provisions set forth in the CPR, see "Other Elements" under General Prohibitions, shown in the CARB column, for details	Applicable in all areas of California outside the South Coast Air Quality Management District **Statewide Provisions:** See "Other Elements" under General Prohibitions for details
Averaging Provisions	Not Applicable	Not Applicable
Units	**VOC Limit (Unit: Mass/Volume):** Grams/Liter (g/L) or Pounds/Gallon (lb/G) Tier 1 – 300 g/L (2.50 lb/Gal), {Eff 1/1/10} Tier 2 – 25 g/L (0.21 lb/Gal), {Eff 1/1/11}	**VOC Limit (Unit: %/Wt.):** Percent by Weight VOC Determination Tier 1 – 30% by weight, {Eff 12/31/10} Tier 2 – 3% by weight, {Eff 12/31/13}
Operating Parameters	See Work Practices	See Work Practices
Work Practices	Any solvent container subject to the rule shall be closed when not in use. Solvent containers include: drums, buckets, cans, pails, trays or other application containers	No work practices cited in CPR
Method to Determine VOC	U.S.EPA Method 24 – or – SCAQMD Method 304	CARB Method 310
Monitoring	Not Applicable	Not Applicable

TABLE XIV-1: COMPARISON OF AQMD PAR 1143 TO CARB'S CPR, continued

CATEGORY	SCAQMD PAR 1143 Consumer Paint Thinners & Multi-Purpose Solvents	CARB Consumer Products Regulations Sections: 94508, 94509, 94510, 94512, 94513, and 94515
Reporting	All manufacturers and distributors subject to the rule shall report annually, a list of all their US distributors and on April 1 and each subsequent year thereafter, submit an Annual Quantity and Emissions Report. Proposed Amended Rule 1143 will clarify that all exempt products shall be subject to recordkeeping and reporting requirements	All responsible parties for multi-purpose solvent and paint thinner products shall report data regarding product sales and composition for the year 2011. Additional reporting requirements for Consumer Products that contain perchloroethylene or methylene chloride
Recordkeeping	On or before April 1, 2010 and each subsequent April each manufacturer subject to the rule shall maintain records for 5 years and such records shall be made available to the Executive Officer upon request **Records to include:** Product Formulation Records, Production Records, Distribution Records and Sales Records	On or before June 30, 2012, all responsible parties for multi-purpose solvent and paint thinner products shall submit reports to the Executive Officer **Records to include:** Company name, product name, category, product label, applicable product forms, and California sales

TABLE XIV-1: CONTINUES ON NEXT PAGE

TABLE XIV-1: COMPARISON OF AQMD PAR 1143 TO CARB'S CPR, continued

CATEGORY	SCAQMD PAR 1143 Consumer Paint Thinners & Multi-Purpose Solvents	CARB Consumer Products Regulations Sections: 94508, 94509, 94510, 94512, 94513, and 94515
Exemptions	**General Exemptions:** None	**General Exemptions:** Until December 31, 2013, the VOC limits and the prohibition of Aromatic Compounds shall not apply to paint thinners with a capacity less than or equal to 8 fluid ounces
	VOC Limit Exemptions: Solvents provided that they are labeled and designated exclusively for the clean-up of polyaspartic and polyurea coatings application equipment	**VOC Limit Exemptions:** The CPR does not have a specific exemption for the clean-up of application equipment used for polyaspartic or polyurea coatings however, the definition for Multi-purpose Solvent, paragraph B, has language that states "Multi-purpose solvent does not include solvents used exclusively for the clean-up of polyaspartic and polyurea coatings"
	Thinners provided that they are labeled and designated exclusively for the thinning of Industrial Maintenance (IM) coatings, Zinc-Rich IM primers, and High Temperature IM coatings	The CPR does not have a specific exemption for the thinning of Industrial Maintenance (IM) coatings however, the definition for Paint Thinners has language the states "products that are sold in containers of 5 gallons or more and labeled exclusively for the thinning of Industrial Maintenance Coatings, Zinc-Rich Primers, or High Temperature Coatings" are not included in the definition of "Paint Thinner"
	Artist solvents/thinners provided that they meet and are labeled to meet ASTM D4236-94 and designated exclusively to reduce the viscosity of, or remove, art coating compositions or components and are individually packaged in containers having a total capacity equal to or less than 1 liter	Artist's Solvent/Thinner provided they are labeled to meet ASTM D4236-95 (sic) and packaged in a container equal to or less than 32 fluid ounces (CARB has submitted an amendment to the CPR to increase the capacity to 34 fluid ounces)
	No Small Container Exemption	Temporary exemption for paint thinners sold and packaged in small containers less than or equal to 8 fluid ounces until December 31, 2013
	No Low-Vapor Pressure Provision in Proposed Amended Rule 1143	The VOC limits shall not apply to any Low–Vapor Pressure VOC

TABLE XIV-1: COMPARISON OF AQMD PAR 1143 TO CARB'S CPR, continued

CATEGORY	SCAQMD PAR 1143 Consumer Paint Thinners & Multi-Purpose Solvents	CARB Consumer Products Regulations Sections: 94508, 94509, 94510, 94512, 94513, and 94515
Other Elements	General Prohibition: No person shall supply, sell, offer for sale, manufacture, blend, package, or repackage any Consumer Paint Thinners & Multi-Purpose Solvents subject to Rule 1143 that contain in the excess of 0.1% by weight any Group II exempt compounds listed in Rule 102. Cyclic, branched, or linear methylated siloxanes (VMS) are not subject to this prohibition SCAQMD will recognize the statewide provisions set forth in the CPR, see adjacent column	General Prohibition: The CPR has state-wide requirements that will be effective on December 31, 2010, when no person shall sell, supply, offer for sale, or manufacture for use in California any multi-purpose solvent or paint thinning that contains: Chemical compounds that have a Global Warming Potential (GWP) Value of 150 or greater Methylene Chloride, Perchloroethylene, or trichloroethylene Greater than 1% "Aromatic Compounds" by weight
	Sell-through Provision: Tier 1 – One year (until January 1, 2011), allows sale and use of high–VOC solvents and thinners if manufactured prior to January 1, 2010 Tier 2 – One year (until January 1, 2012), allows sale and use of solvents and thinners that have more than 25 g/L VOC but less than 300 g/L VOC if manufactured prior to January 1, 2011 An additional sell-through provision for consumer paint thinners manufactured prior to July 9, 2010 and labeled for more than one use including industrial maintenance coating thinning, may be sold, supplied, offered for sale, or used up to April 1, 2011	Sell-through Provision: Tier 1 – Three years (until December 31, 2013, allows sale and use of high-VOC solvents and thinners if manufactured prior to December 31, 2010 Tier 2 – Three years (until December 31, 2016, allows sale and use of solvents and thinners that have more than 3 percent by weight VOC but less than 30 g/L percent by weight VOC if manufactured prior to December 31, 2013 Multi-purpose solvents and paint thinners that contain any chemical compound that has a GWP Value of 150 or greater; methylene chloride, perchloroethylene, or trichloroethylene; or greater than 1% aromatic compounds by weight and were manufactured before December 31, 2010, may be sold, supplied, or offered for sale until December 31, 2013

XV. DRAFT CONCLUSIONS AND RECOMMENDATIONS

Staff recommends that Rule 1143 be amended as proposed to align the artist solvents and thinners exemption with CARB's CPR.

XVI. PUBLIC COMMENTS AND RESPONSES

This section presents the comment letter that was received after the Wednesday, September 15, 2010 public workshop. The comment letter shows the paragraphs numbered which will correlate to staff responses following the reproduction of the comment letter. The public commenting period started on September 15, 2010 and continued up to the deadline September 24, 2010.

The following comment letter was received on September 24, 2010 from Charles H. Pomeroy, Partner with McKenna Long and Aldridge, Attorneys at Law, LLP, representing ACMI, the Art & Creative Materials Institute. The letter also included an attachment of a reproduced printed version of ASTM D4236-94 (Reapproved 2005) which is not reproduced in this report due to copyright laws.

McKenna Long & Aldridge LLP
Attorneys at Law

Albany
Atlanta
Brussels
Denver
Los Angeles

New York
Philadelphia
San Diego
San Francisco
Washington, D.C.

300 South Grand Avenue • 14th Floor • Los Angeles, CA 90071-3124
Tel: 213.688.1000 • Fax: 213.243.6330
www.mckennalong.com

CHARLES H. POMEROY
(213) 243-6256

EMAIL ADDRESS
cpomeroy@mckennalong.com

September 24, 2010

Via Email and U.S. Mail

Mr. Don Hopps
Air Quality Specialist
Planning, Rule Development and Area Sources
South Coast Air Quality Management District
21865 E. Copely Drive
Diamond Bar, CA 91765

Re: Public Workshop: Proposed Rule 1143 Rulemaking for Artists

Dear Mr. Hopps:

Again, my client, the Art & Creative Materials Institute ("ACMI"), wishes to thank you and SCAQMD for holding the September 15, 2010 Public Workshop concerning the proposed amendment of Rule 1143 exempting Artist Solvent/Thinner. As we heard, you believe this amendment will be presented to the SCAQMD Governing Board on December 3rd. ACMI fully endorses the proposed amendment to Rule 1143. We concur with SCAQMD's position that the Rule 1143 modification remain consistent with the language provided by the California Air Resources Board ("CARB") definition of Artist's Solvent/Thinner in its Consumer Product Regulation. We further present this letter in support of the proposed amendment and also to confirm and clarify two issues discussed during the Workshop. **1-1**

Following the SCAQMD Workshop presentation, representatives present from the coatings industry raised a concern regarding potential circumvention of the recently amended Rule 1143 through use of the proposed artist's exemption. One company representative specifically raised the question whether other companies could go through the D4236-94 testing and thereafter sell the product at Home Depot, Lowes or other large commercial hardware stores. In response, both CARB and SCAQMD suggested the container size and cost would preclude use by non-artists of the solvents. CARB also stated that it would be monitoring sales to determine if circumvention was occurring (and would modify the rule in the future if needed).

We agree with the statements made by SCAQMD and CARB, but also believe the proposed Artist Solvent/Thinner definition offers additional protection against **1-2**

LA:17767484.1

circumvention. The D4236-94 protocol that is part of both the proposed Rule 1143 amendment and CARB rule (available on the CARB website and attached hereto), is a labeling practice for chronic health hazards limited to art materials sold exclusively for artist use. *See* D4236-94, sections 2.1.2 and 2.1.12. With this designated labeling, a product sold in a commercial hardware store would have to be sold solely for the purpose of artistic use. Presently, the large retail chains, such as Home Depot and Lowes, do not have an area designated for artistic products. Generally, it would appear unusual for a large commercial hardware store to identify exclusive shelf space for artistic products, which are inconsistent with the company business (i.e., home repair and improvement). Further, to meet D4236-94 and thus be specially identified for artistic use, the product presence at a commercial hardware store should be readily identifiable, thus permitting both SCAQMD and CARB a means to effectively monitor sales. Finally, artists are unlikely to purchase artist solvent at commercial hardware stores since specialty art stores are their traditional source and the quality of the product would potentially be less trustworthy (even if it came with D4236-94 labeling). Thus, the consumer artist acquiring D4236-94-labeled products is unlikely to buy these products at a hardware store, thereby reducing the economic incentive to stock a product that is unlikely to be purchased by the targeted consumer.

1-2

A second issue also discussed at the Workshop concerned the recent ACMI submission to CARB requesting that CARB's Artist's Solvent/Thinner definition be modified to allow for a maximum one liter container rather than a 32 ounce limit. Industry representatives present at the Workshop expressed support with ACMI's proposal, stating that the metric system conversion was consistent with their current business development and noting that the metric system was already used in Rule 1143 for the measurement of VOCs (i.e., grams per liter). Based on the general discussion, we understand that both CARB and the District support the change to a maximum one liter size (or perhaps 34 ounces to accommodate the one liter volume). We appreciate that support and await the final revised language for both CARB and SCAQMD.

1-3

On behalf of ACMI, I wish to thank you again for the opportunity to participate in this important subject. Please contact me should you require further information.

Sincerely,

Charles H. Pomeroy

CHP/cp
Enclosures
cc: Deborah M. Fanning, CAE, ACMI
Martin Neville, Esq.

LA:17767484.1

Response to Comment #1-1

Staff agrees with the comment that an Artist Solvent/Thinner exemption should be included in Rule 1143 but with the criteria of a size requirement, where any individual packaged container having a total capacity less than or equal to 1 liter and is labeled and designated exclusively to reduce the viscosity of, or remove, art coating compositions or components, and meets and is labeled to meet the requirements of ASTM D4236-94 (Reapproved 2005) the Standard Practice for Labeling Art Materials for Chronic Health Hazards. Staff has worked extensively with CARB staff to make the proposed rule language for the Artist Solvents/Thinners as consistent as possible with the language in their Consumer Products Regulation.

Response to Comment #1-2

Staff recalls the comment made during the public workshop regarding potential circumvention of the proposed rule language for Artist Solvents/Thinners and that non-artist companies could go through the ASTM D4236-94 testing and thereafter sell the products at home improvement stores such as Home Depot, Lowes, and other commercial hardware stores. The comment also points out that CARB and AQMD staff both commented at the public workshop that the container size of less than 1 liter and cost of the product would preclude use by the non-artists of the solvents. Staff has had discussions with CARB and was informed that solvents and thinners manufactured exclusively for artists can cost 4 to 5 times the price a similar size (capacity) product commonly found at a Home Depot would cost. Staff verified these costs and found that for a common quart size, the artist products cost 67.6% more than the general use consumer paint thinners and multi-purpose solvents commonly found in Home Depot, Lowes, and other commercial hardware stores, whereas for the gallon size, the artist products cost 54.1% more than the general use consumer paint thinners and multi-purpose solvents. Staff believes that these higher costs, even though much lower than CARB's estimates, and the 1 liter or less capacity requirement, will discourage circumvention by solvent and thinner users that do not use these types of products for non-artistic uses. Further, staff has reinforced the proposed definition by adding the following: "*Artist Solvents/Thinners do not include commercial-grade solvents or thinners*". Finally, staff believes that monitoring sales trends would be a viable tool to detect circumvention. Staff has revised the rule language in Rule 1143 to exempt Artist Solvents/Thinners from the VOC requirements in paragraph (d)(1). This clarification will require recordkeeping for all manufacturing and distribution facilities, artist and non-artist, as described in the rule, which will provide AQMD with data to monitor the sales trends for Artist Solvents/Thinners, in addition to the other exempt products in the rule that are labeled and designated exclusively for the clean-up of polyaspartic and polyurea coatings, and thinners that are labeled and designated exclusively for the thinning of Industrial Maintenance coatings, zinc-rich primers, and high temperature coatings. AQMD believes that all of these measures will discourage circumvention and allow staff to monitor and assess whether the exempt solvents are possibly being used improperly.

Staff also agrees with the comment that ASTM D4236-94 does indeed have language in sections 2.1.2 and 2.1.12 where section 1.2 of the ASTM states "*This practice applies exclusively to art materials packaged in sizes intended for individual users of any age or those participating in a small group.*" This language in ASTM D4236-94 and the language in proposed Rule 1143 paragraph (c)(1) both have language to require solvents and thinners that will be used for artist use shall be labeled and meet the requirements in ASTM D4236-94.

Response to Comment #1-3

Staff agrees. Staff has revised the proposed rule language and replaced 32 fluid ounces with 1 liter. The new language will read "Artist solvents/thinners provided that they are labeled and designated exclusively to reduce the viscosity of, or remove, art coating compositions or components and are individually packaged in containers having a total capacity equal to or less than 1 liter."

XVII. REFERENCES

ASTM D4236-94 (Reapproved 2005), Standard Practice for Labeling Art Materials for Chronic Health Hazards

CARB, 2006 Consumer and Commercial Products Survey, 2009, http://www.arb.ca.gov/consprod/regact/2006surv/2006surv.htm

CARB, Consumer Products Regulations, August 7, 2009, http://www.arb.ca.gov/regact/2009/cpmthd310/cpmthdisor.pdf

AQMD Rule 1143 - Consumer Paint Thinners & Multi-Purpose Solvents, amended on June 4, 2010

AQMD Rule 1143 - Consumer Paint Thinners & Multi-Purpose Solvents, Current Amendment, amended on July 9, 2010

AQMD, Preliminary Draft Staff Report for Proposed Amended Rule 1143 - Consumer Paint Thinners & Multi-Purpose Solvents, posted on AQMD website on August 24, 2010

AQMD, Proposed Amended Rule 1143 - Consumer Paint Thinners & Multi-Purpose Solvents, posted on AQMD website on August 24, 2010

(Adopted March 6, 2009)(Amended June 4, 2010)(Amended July 9, 2010)
(Proposed Amended Rule December 2010)

RULE 1143. CONSUMER PAINT THINNERS & MULTI-PURPOSE SOLVENTS

(a) Purpose

The purpose of this rule is to reduce emissions of volatile organic compounds (VOCs) from the use, storage and disposal of consumer paint thinners and multi-purpose solvents commonly used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations by limiting their VOC content.

(b) Applicability

This rule is applicable to any person who supplies, sells, offers for sale, or manufactures consumer paint thinners and multi-purpose solvents for sale in the District, as well as any person who uses or solicits the use of any consumer paint thinner and multi-purpose solvent within the District.

(c) Definitions

For the purpose of this rule, the following definitions shall apply:

(1) ARTIST SOLVENTS/THINNERS are any liquid products that meet and are labeled to meet the requirements of ASTM D4236-94 (Reapproved 2005) Standard Practice for Labeling Art Materials for Chronic Health Hazards, which is incorporated by reference herein, and have been refined to remove impurities for artistic use for the purpose of reducing the viscosity of, or removing, art coating compositions or components. Artist Solvents/Thinners do not include commercial-grade solvents or thinners.

(2) CONSUMER MULTI-PURPOSE SOLVENTS are any liquid products designed or labeled to be used for dispersing or dissolving or removing contaminants or other organic materials for personal, family, household, or institutional use including but not limited to the following: (1) products that do not display specific use instructions on the product container or packaging, (2) products that do not specify an end-use function or application on the product container or packaging, (3) solvents used in institutional facilities, except for laboratory reagents used in analytical, educational, research, scientific or other laboratories, (4) “Paint clean-up” products, and (5) products labeled to prepare surfaces for painting. For the purpose of this definition only, “Paint clean-up” means any liquid product labeled

for cleaning oil-based or water-based paint, lacquer, varnish, or related coatings from, but not limited to, painting equipment or tools, plastics or metals.

"Consumer Multi-purpose Solvents" do not include solvents used in cold cleaners, vapor degreasers, conveyorized degreasers or film cleaning machines, or solvents that are incorporated into, or used exclusively in the manufacture or construction of, the goods or commodities at the site of the establishment. "Multi-purpose Solvents" also do not include any products making any representation that the product may be used as, or is suitable for use as a consumer product which qualifies under another definition in California Code of Regulations Title 17, § 94508 as of the date of adoption.

(3) CONSUMER PAINT THINNERS are any liquid products used for reducing the viscosity of coating compositions or components for personal, family, household, or institutional use, including, but not limited to, products that prominently display the term "Paint Thinner," "Lacquer Thinner," "Thinner," or "Reducer" on the front panel of its packaging.

(4) DISTRIBUTOR means any person to whom consumer products are sold or supplied for the purposes of resale or distribution in commerce, except that manufacturers, retailers, and consumers are not distributors.

(5) EXEMPT COMPOUND is as defined in Rule 102.

(6) FORMULATION DATA is the actual product recipe which itemizes all the ingredients contained in a product including VOCs and the quantities thereof used by the manufacturer to create the product. Material Safety Data Sheets (MSDS) are not considered formulation data.

(7) GRAMS OF VOC PER LITER OF MATERIAL is the weight of VOC per volume of material and can be calculated by the following equation:

$$\text{Grams of VOC per Liter of Material} = \frac{W_s - W_w - W_{es}}{V_m}$$

Where:

W_s = weight of volatile compounds in grams

W_w = weight of water in grams

W_{es} = weight of exempt compounds in grams

V_m = volume of the material in liters

(8) INDUSTRIAL MAINTENANCE COATINGS are coatings, including primers, sealers, undercoaters, intermediate coatings and topcoats, formulated for or

applied to substrates, including floors that are exposed to one or more of the following extreme environmental conditions:

(A) immersion in water, wastewater, or chemical solutions (aqueous and non-aqueous solutions), or chronic exposure of interior surfaces to moisture condensation;

(B) acute or chronic exposure to corrosive, caustic or acidic agents, or similar chemicals, chemical fumes, chemical mixtures, or solutions;

(C) repeated exposure to temperatures in excess of 250 degrees Fahrenheit;

(D) repeated heavy abrasion, including mechanical wear and repeated scrubbing with industrial solvents, cleaners, or scouring agents; or

(E) exterior exposure of metal structures.

(9) LACQUER THINNERS are solvents that are manufactured for the purpose of thinning, diluting, dissolving, and for clean-up of lacquer coatings.

(10) MANUFACTURER means any person, company, firm, or establishment who imports, manufactures, blends, assembles, produces, packages, repackages, or re-labels a consumer paint thinner or multi-purpose solvent. The manufacturers listed on the product's label shall be primarily responsible for compliance with applicable provisions of this rule. If the label lists two or more manufacturers, they may mutually designate in writing a manufacturer responsible for compliance with this rule. That writing shall be filed with the Executive Officer.

(11) PERSON means any individual, firm, association, organization, partnership, business trust, corporation, company, contractor, supplier, installer, user or owner, or any state or local governmental agency or public district or any other officer or employee thereof. "Person" also means the United States or its agencies to the extent authorized by Federal law.

(12) RESPONSIBLE PARTY for a corporation is a corporate officer or an authorized representative so delegated by a corporate officer. Delegation of an authorized representative must be made in writing to the Executive Officer. A responsible party for a partnership or sole proprietorship is the general partner or proprietor, respectively.

(13) RETAIL OUTLET means any establishment at which consumer products are sold, supplied, or offered for sale directly to consumers.

(14) SOLICIT is to require for use or to specify, by written or oral contract.

(15) SOLVENTS include diluents and thinners and are defined as organic materials which are liquids at standard conditions and which are used as dissolvers, viscosity reducers or cleaning agents.

(16) SOLVENT CLEANING is the removal of adhesives, inks, coatings, and contaminants which include, but are not limited to, dirt, soil, and grease from parts, products, tools, machinery, equipment, and general work areas.

(17) SOLVENT FLUSHING is the use of a solvent to remove adhesives, inks, coatings, or contaminants from the internal surfaces and passages of the equipment by inducing a rapid flow of solvent through the equipment.

(18) VOC (VOLATILE ORGANIC COMPOUND) is as defined in Rule 102.

(19) VOC CONTENT means the total weight of VOC in a product expressed as a percentage of the product weight or as a mass-based concentration expressed in grams per liter of material (g/L) or pounds per gallon (lb/Gal).

(d) Requirements

(1) Except as provided in paragraph (d)(2), no person shall supply, sell, offer for sale, manufacture, blend, package or repackage any consumer paint thinner or multi-purpose solvent for use in the District unless the consumer paint thinner or multi-purpose solvent complies with the applicable VOC content limits set forth in the table below:

CATEGORY	EFFECTIVE 1/1/2010 VOC Content g/L or (lb/Gal)	EFFECTIVE 1/1/2011 VOC Content g/L or (lb/Gal)
Consumer Paint Thinner	300 (2.50)	25 (0.21)
Consumer Multi-Purpose Solvent	300 (2.50)	25 (0.21)

(2) Sell-Through Provision

(A) Any consumer paint thinner or multi-purpose solvent that is manufactured prior to the effective date of the applicable limit specified in paragraph (d)(1), and that has a VOC content above that limit (but not above the limit in effect on the date of manufacture), may be sold, supplied, offered for sale, or used for up to one year after the specified effective date.

(B) Consumer paint thinners manufactured prior to July 9, 2010 and labeled for more than one use including industrial maintenance coating thinning, may be sold, supplied, offered for sale, or used up to April 1, 2011.

(3) The prohibition of sale specified in paragraphs (d)(1) and (d)(5) shall not apply to any manufacturer of consumer paint thinners or multi-purpose-solvents provided

that the product was sold to an independent distributor that was informed in writing by the manufacturer about the compliance status of the product in the District.

(4) Any solvent container in which the contents therein are applied directly to a surface from said container by pouring, siphoning, brushing, rolling, padding, rag application or other means, shall be closed when not in use. These solvent containers include, but shall not be limited to: drums, buckets, cans, pails, trays or other application containers.

(5) General Prohibition

No person shall supply, sell, offer for sale, manufacture, blend, package, or repackage any consumer paint thinner or multi-purpose solvent for use in the District subject to the provisions of this rule with any materials that contain in the excess of 0.1% by weight any Group II exempt compounds listed in Rule 102. Cyclic, branched, or linear, completely methylated siloxanes (VMS) are not subject to this prohibition.

(e) Administrative Requirements

(1) No person shall sell, supply, offer for sale, manufacture, blend, package, or repackage for use in the District any "Flammable" or "Extremely Flammable" Consumer Paint Thinner or Multi-purpose Solvent named, on the Principal Display Panel as "Paint Thinner", "Multi-purpose Solvent", "Clean-up Solvent", or "Paint Clean-up".

(2) Paragraph (e)(1) does not apply to products that meet any of the following criteria:

(A) Products which include an attached "hang tag" or sticker that displays, at a minimum, the following statement: "Formulated to meet low VOC limits: see warnings on label".

(B) Products which include an attached "hang tag" or sticker that displays, at a minimum, the following statement: "Formulated to meet low VOC limits with [the common name of the chemical compound (e.g., 'Acetone', 'Methyl Acetate', etc.) that results in the product meeting the criteria for 'Flammable' or 'Extremely Flammable']".

(C) Products which include an attached "hang tag" as a second Principal Display Panel that displays, at a minimum, the following statement: "Formulated to meet low VOC limits" placed adjacent to and associated with the required Consumer Product Safety Commission (CPSC) warning.

(D) Products where the Principal Display Panel displays, in a font size as large as, or larger than, the largest font size of any other words on the panel, the following statement: "Formulated to meet low VOC limits" placed adjacent to and associated with the required CPSC warning.

(E) Products where the Principal Display Panel displays, in a font size as large as, or larger than, the largest font size of any other words on the panel, the common name of the chemical compound (e.g., "Acetone," "Methyl Acetate," etc.) that results in the product meeting the criteria for "Flammable" or "Extremely Flammable."

(F) Products that meet the labeling requirements of the CARB Consumer Product Regulation specified in title 17, CCR, section 94512(e) as adopted.

(G) Products that are manufactured on or before July 9, 2010.

None of the above labeling or notice requirements preclude the use of any additional labeling or notice for consumer education.

(3) For the purposes of paragraphs (e)(1) and (e)(2) a product is "Flammable" or "Extremely Flammable" if it is labeled as "Flammable" or "Extremely Flammable" on the product container, or if the product meets the criteria for these specified in title 16, Code of Federal Regulations, section 1500.3 (c)(6).

(4) Each product container shall clearly display the VOC content as determined from the actual product formulation data.

(5) The information required by paragraphs (e)(1) through (e)(3) shall be displayed on the product container such that it is readily observable without removing or disassembling any portion of the product container or packaging.

(6) No person shall remove, alter, conceal, or deface the information required by paragraphs (e)(1) through (e)(3) prior to final sale of the product.

(7) In conjunction with the changes in VOC content limits, the Executive Officer shall develop a public education and outreach program to inform consumers of potential product changes that use more flammable substances by jointly working with the local fire departments to include, but not be limited to: public service announcements in both English and Spanish to be aired on television and radio from October 2010 to January 2012; training retailers, including big box retailers at their corporate headquarters, in November 2010 about these potential changes so that they may alert their consumers; dissemination of 25,000 hardcopy brochures in several languages from November 2010 to January 2012; alerts through Twitter, and placement of electronic brochures and Public Service

Announcements (PSAs) on AQMD, CARB, YouTube, local fire department and local city websites from November 2010 to January 2012. The Executive Officer shall report the status of the public education and outreach program to the Stationary Source Committee in November 2010 and in November 2011. The Executive Officer may extend the public education and outreach program beyond January 2012, if he determines that additional consumer education is needed.

(8) Point of sale containers, for sale or distribution, of any consumer paint thinner or multi-purpose solvent subject to this rule shall display the maximum VOC content, as supplied, and the maximum VOC content after any dilution as recommended by the manufacturer.

(9) Point of sale containers, for sale or distribution, of any consumer paint thinner and multi-purpose solvent subject to this rule shall display the date of manufacture of the contents or a code indicating the date of manufacture. The manufacturers of such consumer paint thinners and multi-purpose solvents shall file with the Executive Officer an explanation of each code.

(10) Any manufacturer that supplies consumer paint thinners and multi-purpose solvents with intent to sell in the District shall submit an application as specified by the Executive Officer to apply for a manufacturer identification (ID) number by the applicable date in subdivision (g). The application form shall be signed by the responsible party for manufacturer certifying that all information submitted (including electronic submittals) is true and correct. The Executive Officer shall be notified in writing within 30 days of any change in the responsible party for the manufacturer.

(11) On or before May 1, 2010, and each subsequent January 1 thereafter, all manufacturers subject to this rule shall provide to the District a list of all their U.S. distributors to whom they supply products subject to this rule, including but not limited to private label and toll manufactured products. The list shall be in a format determined by the Executive Officer and shall include the distributor's name, address, contact person and phone number.

(12) On or before April 1, 2010, and every subsequent April 1 (the official due date), each manufacturer subject to this rule shall submit an annual quantity and emissions report to the Executive Officer.

(f) Recordkeeping

(1) Manufacturers shall maintain a copy of the application receipt from the District. The receipt shall be maintained for five (5) years and made available upon request by the Executive Officer.

(2) Manufacturers shall maintain records to verify data necessary to determine annual consumer paint thinner and multi-purpose solvent sales subject to this rule and VOC emissions in the District, and compliance with applicable rules and regulations. The records shall be maintained for five (5) years and made available upon request by the Executive Officer. Such records shall include but not be limited to:

(A) Product formulation records (to include VOC content):

(i) Laboratory reports [including percent weight of non-volatiles, water, and exempts (if applicable); density of the product; and raw laboratory data] of test methods conducted as specified in paragraph (i)(1), or

(ii) Product formulation data, including physical properties analyses, as applicable, with a VOC content calculation demonstration; and

(B) Production records including batch tickets with the date of manufacture, batch weight and volume; and

(C) Distribution records:

(i) Customer lists or store distribution lists or both (as applicable) and

(ii) Shipping manifests or bills of lading or both (as applicable); and

(D) Sales records consisting of point of sale receipts or invoices to local distributors or both, as applicable.

(g) Compliance Dates

(1) Consumer paint thinner and multi-purpose solvent manufacturers that begin to manufacture, supply, sell or offer for sale consumer paint thinners and multi-purpose solvents subject to this rule and for use in the District after July 1, 2009 shall submit the application required in paragraph (e)(10) no later than thirty (30) calendar days prior to manufacturing, supplying, selling, or offering for sale, any consumer paint thinner and multi-purpose solvent subject to this rule and for use in the District.

(2) Within thirty (30) calendar days after a change of consumer paint thinner and multi-purpose solvent manufacturer, the new consumer paint thinner and multi-purpose solvent manufacturer shall submit the application for a company ID

number as required in paragraph (e)(10). That filing shall include the previous consumer paint thinner and multi-purpose solvent manufacturer's ID number.

(h) Information exempt from Disclosure

Information submitted to the Executive Officer may be designated as exempt from disclosure consistent with District guidelines implementing the California Public Records Act (Govt. Code §§ 6250-6276.48).

(i) Test Methods

For the purpose of this rule, the following test methods shall be used:

(1) Determination of VOC Content

The VOC content of materials subject to the provisions of this rule shall be determined by:

(A) U.S. EPA Reference Test Method 24 (Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings, Code of Federal Regulations Title 40, Part 60, Appendix A) with the exempt compound content determined by Method 303 (Determination of Exempt Compounds) in the SCAQMD "Laboratory Methods of Analysis for Enforcement Samples" manual; or

(B) Method 304 [Determination of Volatile Organic Compounds (VOC) in Various Materials] in the SCAQMD "Laboratory Methods of Analysis for Enforcement Samples" manual.

(C) Exempt Perfluorocarbon Compounds

The following classes of compounds:

cyclic, branched, or linear, completely fluorinated alkanes

cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;

cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and

sulfur-containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine

will be analyzed as exempt compounds for compliance with subdivision (d), only when manufacturers specify which individual compounds are used in the solvent formulations. In addition, the manufacturers must identify the U.S. EPA, CARB, and SCAQMD approved test methods, which can be used to quantify the amount of each exempt compound.

(2) Equivalent Test Methods

Other test methods determined to be equivalent upon approval in writing by the Executive Officer, CARB, and the U.S. EPA may also be used.

(3) Multiple Test Methods

When more than one test method or set of test methods are specified for any testing, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of the rule.

(4) All test methods referenced in this subdivision shall be the version most recently approved by the appropriate governmental entities.

(j) Exemptions

(1) The provisions of this rule shall not apply to:

(A) Solvents sold in this District for shipment outside of this District or for shipment to other manufacturers for repackaging.

(2) Paragraph (d)(1) of this rule shall not apply to:

(A) Solvents provided that they are labeled and designated exclusively for the clean-up of polyaspartic and polyurea coatings application equipment. This exemption does not apply if there are any additional use claims on the label or any other product literature. This exemption does not apply to any person selling or using the otherwise exempt solvent for a non-exempt purpose.

(B) Thinners provided that they are labeled and designated exclusively for the thinning of Industrial Maintenance (IM) coatings, Zinc-Rich IM Primers, and High Temperature IM Coatings. This exemption does not apply if there are any additional use claims on the label or any other product literature. This exemption does not apply to any person selling or using the otherwise exempt thinner for a non-exempt purpose.

(C) Artist solvents/thinners provided that they are labeled and designated exclusively to reduce the viscosity of, or remove, art coating compositions or components and are individually packaged in containers having a total capacity equal to or less than 1 liter.

(k) Severability

If any provision of this rule is held by judicial order to be invalid, or invalid or inapplicable to any person or circumstance, such order shall not affect the validity of the remainder of this rule, or the validity or applicability of such provision to other persons or circumstances. In the event any of the exceptions to this rule is held by judicial order to

be invalid, the persons or circumstances covered by the exception shall instead be required to comply with the remainder of this rule.

Back to Agenda

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 3

PROPOSAL: Advertising and Public Outreach Initiative to Chinese-American Communities to Increase Awareness of the Impacts of Air Pollution

SYNOPSIS: Staff has developed a proposal for an advertising and public outreach program focused on Chinese-American communities in the South Coast Air Basin. The goals of the program include raising awareness of the health impacts of poor air quality; demonstrating how AQMD is protecting public health by improving air quality; and urging residents to be more involved in efforts to improve air quality. The 26-week initiative will include paid advertising in print, TV, radio and online media at a cost not to exceed $400,000.

COMMITTEE: Administrative, October 8, 2010, Recommended for Approval

RECOMMENDED ACTIONS

1. Appropriate $400,000 from the Undesignated Fund Balance to Executive Office, FY 2010-11, Services and Supplies Major Object, Professional and Special Services Account for the Chinese-American advertising initiative.

2. Authorize the Executive Officer to execute contracts with Chinese-American media outlets for advertising initiative.

Barry R. Wallerstein, D.Env.
Executive Officer

SA

Background

AQMD and its partner air quality agencies have made significant strides in recent years in reducing urban smog, fine particulates and toxic air contaminants through regulations and programs, but pollution levels still are unacceptably high. As we continue to push forward to meet clean air goals, public involvement still remains key to the overall effort. Focused outreach to the various communities throughout the Southland,

especially ethnic minorities, can help increase understanding of the air pollution problem, and encourage individual actions to get involved in the clean air goal.

AQMD currently is engaged in a 52-week advertising initiative in African-American newspapers. As a next step in increasing awareness of air quality challenges among ethnic minority communities in the Southland, AQMD staff propose a 26-week advertising and public outreach initiative targeting Chinese-American residents. The goal of this public outreach initiative is to:

1. Increase awareness among Chinese-American communities of the many ways in which air quality impacts public health.

2. Providing information about AQMD programs to reduce air pollution and protect residents' health.

3. Demonstrate AQMD's forward-thinking in the development of technologies that create new "green" jobs.

4. Promote individual decisions and community involvement that help reduce urban air pollution and climate change.

Proposal

A 26-week advertising and public outreach initiative will target the Chinese-American audience in Southern California via TV, radio, and print/online media. AQMD's Media Office will work closely with Nakatomi & Associates, one of its subcontractors specializing in Asian/Pacific Islander public relations, to plan, coordinate and execute the initiative.

The budget of $400,000 to be allocated as follows:

- $350,000 will be split 50% for TV, 30% for print/online, and 20% for radio. This split is based on surveys of Chinese-American media consumption patterns, as well as staff/contractor recommendations.
- $50,000 will be allocated for special supplements and promotions, including newspaper inserts on air quality.

Print/Online advertising will include:

- Quarter-page color ads for 26 weeks in Chinese-language newspapers, and one English-language paper that reaches the Chinese residential population
- Special supplement(s) on air quality

TV advertising will include:

- 30-second commercials five times a week during the prime-time hours for 26 weeks on Chinese-language television station
- Special TV Promotions/Sponsorship such as America's Chinese New Year Celebration

Radio advertising will include:

- A combination of 30- and 60-second commercials every day for 26 weeks on Chinese-language radio stations.

Ad Content

AQMD staff has already developed some proposed content for TV and print ads targeting the Chinese-American market. In addition, some of the newspaper ads developed for the African-American advertising initiative may have messages appropriate for a Chinese-American audience. Staff will build on these ads and concepts to develop all content for the 26-week advertising initiative.

Message Testing

The Media Office and its subcontractor will conduct focus groups or messaging roundtables to test messages and determine which resonate best with the target audience of Chinese Americans. Staff recommends working with a community-based organization, such as Chinatown Service Center, to complete this process in a timely and cost-effective manner. Nakatomi & Associates will develop the discussion guide, manage the process and draft the focus group report and recommendations.

Ad Production

Print/Online Production

AQMD has already translated 12 English-language print ads into Chinese. Staff will select which of the 12 ads are most suitable, test the messages with the target audience, and tailor and produce them for print ad placements.

TV Production

The Media Office and its subcontractor will negotiate with a Chinese TV station for a promotion package that includes TV ad production. AQMD will provide storyboards, scripts and graphics and the TV station will provide Mandarin and/or Cantonese talent and all production. In addition, AQMD will seek to negotiate with the station to waive customary licensing fees when spots are shared with other TV outlets since these spots are PSAs and their message is educational.

Radio Production

Staff will negotiate with a radio station to provide all production, as well as Cantonese/Mandarin voice talent as part of a promotional package.

Assessing AQMD Language Capacity
Before the initiative is launched, staff will assess AQMD's Chinese-language public information capacity to ensure that consumer inquiries and requests can be fulfilled in an efficient, culturally and linguistically efficient manner. Any necessary upgrades to AQMD's website and/or Chinese-language public information capacity will be completed prior to initiative launch.

Sponsorship Recommendation
Following preliminary discussions, Chinese-American media outlets are offering added value, discounts and special rates given the environmental and educational focus and AQMD's mission. To benefit from this added value, $30,000 of the budget will be used for sponsorship and partnership with key outlets for a possible environmental supplement, Chinese New Year events, festivals and other promotional events.

Timeline
Concluding ad negotiations, developing and testing messages and producing ads will take a minimum of 30 days, with a 60-day lead time preferable to ensure that our messages have a maximum impact on Chinese-American communities. In addition, ad costs are higher in December due to the holidays and limited inventory. Staff recommends the following timeline:

- November 2010: Ad content development, testing and refining; final negotiations with media outlets; ad production; and assessment and upgrades if necessary to AQMD's Chinese-language public information capacity.
- December 2010: Initiative "soft" launch
- January 2010: Initiative full-scale launch
- May 2011: Initiative highlights National Clean Air Month and National Asthma Month
- June 2011: Initiative concludes

Resource Impacts
Sufficient funding is available in the Undesignated Reserves account for this program.

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 4

TITLE: Execute Contract for Security Guard Services at Diamond Bar Headquarters

SYNOPSIS: The current contract for Diamond Bar headquarters security guard services expires on November 30, 2010. On July 9, 2010 the Board approved release of an RFP to solicit proposals from firms interested in providing these services. This action is to execute a two-year contract with Contact Security Inc., for a total amount not to exceed $887,245. Funding has been included in the FY 2010-11 Budget and will be requested in successive fiscal years.

COMMITTEE Administrative, October 8, 2010, Recommended for Approval

RECOMMENDED ACTION:
Authorize the Chairman to execute a two-year contract with Contact Security Inc., for security guard services, for the period of December 1, 2010 through November 30, 2012; for a total amount not to exceed $887,245.

Barry R. Wallerstein, D.Env.
Executive Officer

WJ:SO

Background
AQMD contracts with a security guard service firm to provide armed and unarmed security guard services at the Diamond Bar headquarters. The contract term with the current contractor, Contact Security Inc., expires November 30, 2010. On July 9, 2010, AQMD released RFP # 2011-03 to solicit proposals from security guard service providers interested in contracting with AQMD for a three-year period. The Administrative Committee, at its October meeting, voted to revise the length of the contract, reducing the term from three years to two years.

In addition to routine guard services, AQMD requires occasional enhanced services to provide adequate coverage for highly attended conferences, certain Board meetings and other types of special events.

While it is difficult to anticipate what these special-need costs will be, experience indicates they typically increase guard costs by about five percent. As a consequence, the costs listed in this Board letter include an added five percent beyond proposal costs submitted, as a contingency amount to meet special-occasion needs.

Outreach
In accordance with AQMD's Procurement Policy and Procedure, a public notice advertising the RFP and inviting bids was published in the Los Angeles Times, the Orange County Register, the San Bernardino Sun, and Riverside County Press Enterprise newspapers to leverage the most cost-effective method of outreach to the entire South Coast Basin.

Additionally, potential bidders may have been notified utilizing AQMD's own electronic listing of certified minority vendors. Notice of the RFP has been mailed to the Black and Latino Legislative Caucuses and various minority chambers of commerce and business associations, and placed on the Internet at AQMD's Web site (http://www.aqmd.gov/). Information was also available on AQMD's bidder's 24-hour telephone message line (909) 396-2724.

Proposal Evaluation
Eighty copies of the RFP were mailed out and 57 vendors attended the mandatory bidders' conference held on July 28, 2010. Twenty-seven proposals were received when final bidding closed at 2:00 p.m., August 11, 2010. Eighteen of the proposals received were complete and met RFP requirements.

The panel evaluating proposals included a retired AQMD Building Maintenance Manager and three AQMD employees—a Business Services Manager, a Risk Manager and a Facilities Services Technician. Of these four panel members, one is Caucasian and three are Hispanic; two are female and two are male.

The panel evaluated the 18 qualified and responsive proposals based on criteria specified in the RFP, which included completeness of response, cost, understanding of the requirements, contractor qualifications, and references regarding past experience. Although the proposals received and scored were based on a three-year contract, per the direction given by the Administrative Committee on October 8, 2010, the contract term has been reduced to two years.

The current contractor, Contact Security Inc., submitted four options, with one including medical insurance for the contractor's full-time employees at the level specified by the Board for receiving additional points (shown as number 4 below, and number 7 on Attachment A).

Contact Security's four options are:
(Note: reference to the third year of the contract is no longer applicable.)

1. Pay increases for guards of $0.50 per hour in both the second and third years of the contract (i.e., guards, whose last increase was December 2009, would have their first pay increase in December 2011).
2. Pay increases of $0.25 per hour at the initiation of the contract and every six months throughout the remainder of the contract.
3. Pay increases of $0.50 per hour in the second and third years of the contract (as in option 1), and one additional week of paid vacation.
4. Pay increases of $0.50 per hour in the second and third years of the contract (as in option 1) and medical insurance coverage that meets criteria specified in AQMD's contracting policy for earning additional points in the evaluation process.

Options 1, 2 and 3 also give the full-time guards the option of participating in the company health insurance plan and provide a one-week paid vacation after one year of employment.

The attachment summarizes scores of the qualified bids. Contact Security Inc., was the firm that submitted the highest-rated qualified bid, which included excellent references for comparable public-sector security guard services. Staff recommends the contract be awarded to Contact Security Inc., for their Option 2 proposal. This option provides the best value to AQMD while providing flexibility to the employed guards.

Resource Impacts
Sufficient funds in the amount of $252,390 are available in the approved FY 2010-11 Budget for the remainder of this fiscal year. Since this will be a two-year contract, continuing funding will need to be included in the budgets for each of the remaining fiscal years of the contract. Annual costs are $445,448 for FY 2011-12, and $189,407 for the five months of the contract that fall within for FY 2012-13.

Attachment
Security Guard Services Bid Evaluation Summary

ATTACHMENT A

SECURITY GUARD SERVICES
BID EVALUATION SUMMARY

Note: Although the proposals received and scored were based on a three-year contract, per the direction given by the Administrative Committee on October 8, 2010, the contract term has been reduced to two years.

NO.	COMPANY NAME	3-Year Cost Plus 5%	Total Points
1	CONTACT SECURITY INC. *Option1*	$1,319,775	109.51
2	**CONTACT SECURITY INC. *Option 2***	**$1,354,710**	**109.13**
3	CONTACT SECURITY INC. *Option 3*	$1,381,383	107.08
4	ABSOLUTE INTERNATIONAL SECURITY INC.	$1,269,308	103.10
5	ALLIED BARTON SECURITY SERVICES LP	$1,295,847	101.80
6	NATIONWIDE GUARD SERVICES INC.	$1,294,117	100.37
7	CONTACT SECURITY INC. *Option 4*	$1,594,074	98.71
8	GENERAL SECURITY SERVICE INC.	$1,407,026	97.92
9	PUBLIC SECURITY INC.	$1,395,764	97.77
10	U.S. SECURITY ASSOCIATES INC.	$1,285,329	97.11
11	ANDREWS INTERNATIONAL INC.	$1,363,797	94.82
12	SP PLUS SECURITY SERVICES	$1,401,021	93.36
13	LIBERTY PROTECTION & INVESTIGATION SERVICES	$1,476,507	92.14
14	RMI INTERNATIONAL INC.	$1,325,307	89.29
15	SECURITY PATROL MANAGEMENT CORP.	$1,430,144	81.21
16	FIRST ALARM SECURITY & PATROL INC.	$1,486,316	79.95
17	COMMONWEALTH INTERNATIONAL INC.	$1,546,510	73.68
18	CISCO SECURITY AND PATROL	$1,666,482	67.85

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 5

PROPOSAL: Authorize Executive Officer to Waive Late Fees Incurred by State Agencies Due to Delay in Adoption of State Budget

SYNOPSIS: As the result of the late approval of the State budget, approximately 40 State agencies are subject to late fees related to permit renewal and emissions fees. As the result of operation of the District's fee rules, the State agencies now owe a total of approximately $10,000 in late fees. This action is to authorize the Executive Officer to waive those fees.

COMMITTEE: Not Applicable

RECOMMENDED ACTION:
Authorize the Executive Officer to waive late fees incurred by state agencies due to the delay in the adoption of the State budget.

Barry R. Wallerstein, D.Env.
Executive Officer

MBO:DP:lg

Background
As the result of the delayed approval of the State budget, approximately 40 State agencies are subject to late fees related to AQMD fees because these agencies have no authority to expend funds until the budget is approved. As the result of operation of the District's fee rules, the State agencies now owe collectively a total of approximately $10,000 in additional fees. This action is to authorize the Executive Officer to waive those additional fees.

The only State agencies affected are those with fees due between July 1 and November 1, 2010.

Resource Impact
Finance has analyzed the data regarding outstanding fees owed by State agencies and determined the amount of late fees assessed or soon to be assessed for failure to pay on time is approximately $10,000.

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 6

PROPOSAL: Execute Contract for Biennial Audit of Motor Vehicle Registration Revenues for FYs 2007-08 and 2008-09

SYNOPSIS: Health and Safety Code Section 44244.1 requires any agency receiving fee revenues pursuant to Section 44243 or 44244 to be subject to an audit of each program or project funded at least once every two years. On July 9, 2010, the Board approved release of an RFP to select an auditor to perform the biennial audit for FYs 2007-08 and 2008-09. An evaluation panel of representatives from the MSRC and AQMD staff evaluated the proposals. This action is to award a contract to the firm of Thompson, Cobb, Bazilio and Associates, PC. Local governments, the MSRC and AQMD will pay the cost of their own audits in the amounts of $71,393, $10,450, and $6,626 respectively.

COMMITTEE: Administrative, October 8, 2010, Recommended for Approval

RECOMMENDED ACTION:
Authorize the Chairman to execute a contract with Thompson, Cobb, Bazilio and Associates, PC for performance of the biennial audit of Motor Vehicle Registration revenues for FYs 2007-08 and 2008-09 at a total cost not to exceed $88,469.

Barry R. Wallerstein, D.Env.
Executive Officer

MBO:JK:lg

Background
AB 2766, chaptered into law as Health and Safety Code Sections 44220-44247, was enacted to authorize air pollution control districts to impose fees on motor vehicles. Fees are expended on mobile source air pollution reduction measures pursuant to the California Clean Air Act of 1988 or the AQMD's AQMP pursuant to Article 5 of Chapter 5.5 of Part 3 of the Health and Safety Code. Health and Safety Code Section 44244.1(a)

states that any agency receiving fee revenues pursuant to Section 44243 or 44244 shall, at least once every two years, be subject to an audit of each program or project funded. The audit is to be conducted by an independent auditor selected by the AQMD in accordance with Division 2 (commencing with Section 1100) of the Public Contract Code. Audit program guidelines for local government recipients of fee revenues under Health and Safety Code Sections 44220-44247 were prepared by the AQMD with input from the Technical Advisory Committee Audit Subcommittee of the Interagency AQMP Implementation Committee (IAIC), representatives of the Finance Committee of the League of California Cities and with CPA firms whose clients include local governments. These audit guidelines were approved by the IAIC, MSRC and by the Board on December 4, 1992 and further revised and approved in January 1995, and again in August 2003. This is the eighth biennial audit of these fee revenues and covers FYs 2007-08 and 2008-09.

Proposal

On July 9, 2010, the Board approved an RFP to conduct the biennial audit of recipients of AB 2766 fee revenues. The audit will cover recipients in all three segments of the AB 2766 fee distribution to determine whether the fee revenues collected in FYs 2007-08 and 2008-09 were spent on the reduction of pollution from motor vehicles as described above. The primary purpose of the audit is to set forth an opinion regarding the propriety of the expenditures incurred, not the degree of efficacy in reducing air pollution.

Outreach

In accordance with AQMD's Procurement Policy and Procedure, a public notice advertising the RFP/RFQ and inviting bids was published in the Los Angeles Times, the Orange County Register, the San Bernardino Sun, and Riverside County Press Enterprise newspapers to leverage the most cost-effective method of outreach to the entire South Coast Basin.

Additionally, potential bidders may have been notified utilizing AQMD's own electronic listing of certified minority vendors. Notice of the RFP/RFQ have been mailed to the Black and Latino Legislative Caucuses and various minority chambers of commerce and business associations, and placed on the Internet at AQMD's Web site (http://www.aqmd.gov where it can be viewed by making menu selections "Inside AQMD"/"Employment and Business Opportunities"/"Business Opportunities" or by going directly to http://www.aqmd.gov/rfp/index.html). Information is also available on AQMD's bidder's 24-hour telephone message line (909) 396-2724.

Bid Evaluation

The AQMD received a total of five proposals from CPA firms that are qualified to perform audits in the State of California. All of the proposals were received by the 1:00 p.m., September 10, 2010 deadline. These proposals were evaluated by a technically qualified panel in accordance with criteria contained in the RFP.

Panel Composition
The evaluation panel convened to evaluate the proposals consisted of: MSRC Contract Administrator; Senior Accountant; and two Financial Analysts. Of the four panelists that scored the proposals all four are Caucasian and female.

Of the five proposals received, two had to be rejected due to incomplete submissions and three were rated technically qualified to perform the audit of the AB 2766 program and were scored for cost. The evaluation results for the three proposals are:

BIDDER	TECHNICAL SCORE	BID AMOUNT	COST	SMALL/ LOCAL BUSINESS	TOTAL POINTS	OVERALL RANK
Thompson, Cobb, Bazilio & Associates, PC	65.75	$88,469	30.0	12	107.75	1st
Simpson & Simpson, Certified Public Accountants	60.75	$95,290	27.85	15	103.60	2nd
Zuehls, Legaspi & Company	56.25	$96,266	27.36	15	98.61	3rd

The selection criteria used to rank the proposals included responsiveness to the RFP; technical expertise; qualifications and experience; past performance; cost; and SB/SBJV/DVBE/DVBEJV/DVBE/SB subcontractors/local business designation (non-EPA). Based on the panel's assessment of the criteria, Thompson, Cobb, Bazilio and Associates, PC was selected to be recommended to the full Board.

Resource Impacts:
The maximum audit cost is $88,469. The total audit costs will be borne by the entities being audited as follows:

- The cost of the audit of the AQMD's portion of motor vehicle registration revenues is $6,626. Sufficient funds are included in the FY 2010-11 Budget;
- The cost of the audit of ten projects of the Mobile Source Air Pollution Reduction Trust Fund is $10,450 and shall be deducted from the FY 2010-11 revenues subvened to the Mobile Source Air Pollution Reduction Review Committee; and
- The total cost of the audit of local governments is up to a maximum of $71,393. The average cost for a non-compliant local government is $929 and the average cost for a compliant local government is $650. This cost will be borne by the entities being audited in the manner set forth in the audit program guidelines and will be deducted from quarterly fee revenues prior to distribution.

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 7

PROPOSAL: Appropriate Funds for PAMS and Lead Monitoring Programs from U.S. EPA Section 105, Recognize and Appropriate Funds for Section 103 Monitoring Programs, and Authorize Purchases and Release of RFQ Under These Programs

SYNOPSIS: U.S. EPA has allocated Section 105 funding for the 19th Year PAMS Program and the Lead Monitoring Program. Section 105 revenue for these two programs has been included in the FY 2010-11 Budget. Supplemental Section 103 PM2.5 funding from U.S. EPA is also being provided for fixed assets to meet the NCore Program monitoring requirements and an ultrafine monitor testing project. This action is to: (1) appropriate funds to the FY 2010-11 Budget for the 19th year PAMS Program; (2) appropriate funds to the FY 2010-11 Budget for the Lead Monitoring Program; (3) recognize revenue and appropriate funds for Section 103 monitoring programs; and (4) authorize purchases and the release of an RFQ.

COMMITTEE: Administrative, October 8, 2010, Recommended for Approval

RECOMMENDED ACTIONS:

1. Appropriate $882,800 of the total U.S. EPA Section 105 19th year (FY 2010-11) PAMS award of $1,239,542 from the Undesignated Fund balance to the Major Objects in the Science & Technology Advancement and Planning, Rule Development & Area Sources FY 2010-11 Budgets as set forth in Attachment 1. Upon receipt of the grant final award, appropriate the remaining balance. (Expenditure appropriations exclude $216,742 in Salary and Employee Benefits which are already included in the FY 2010-11 Budget.) Revenue associated with this grant has been included in the FY 2010-11 Budget.
2. Appropriate $47,500 of the total U.S. EPA Section 105 FY 2010-11 Lead Monitoring award of $134,542 from the Undesignated Fund balance to the Major Objects in Science & Technology Advancement's FY 2010-11 Budget as set forth in Attachment 2. (Expenditure appropriations exclude $87,042 in Salary and Employee Benefits which is already included in the FY 2010-11 Budget.) The revenue associated with this grant has been included in the FY 2010-11 Budget.

3. Recognize $66,000 in revenue for NCore monitoring and ultrafine monitor testing funded under the U.S. EPA Section 103 PM2.5 Monitoring award in the FY 2010-11 Budget.
4. Upon receipt of award, appropriate from the Undesignated Fund balance $66,000 to the Major Objects in Science & Technology Advancement's FY 2010-11 Budget as set forth in Attachment 3 for NCore monitoring and ultrafine monitor testing funded under the U.S. EPA Section 103 PM2.5 Monitoring Program.
5. Authorize the Procurement Manager to:
    a. Issue a sole source purchase order with Bios International for an amount not to exceed $17,000 for the purchase of one (1) Primary Flow Standard Cell as budgeted in the 19th year PAMS award,
    b. Issue a purchase order with Teledyne Advanced Pollution Instrumentation, Inc. for an amount not to exceed $27,000 for the purchase of four (4) Clean Air Generators as budgeted in the 19th year PAMS award,
    c. Issue a sole source purchase order with Vaisala, Inc. for extended warranty services for five upper air radar profiler systems at a total cost not to exceed $97,000 as budgeted in the 19th year PAMS award,
    d. Issue a sole source purchase order with Atmospheric Systems Corporation for extended warranty services for four upper air Sodar profiling systems at a total cost not to exceed $28,000 as budgeted in the 19th year PAMS award,
    e. Amend an existing contract with Technical & Business Systems, Inc. for an additional amount not to exceed $60,000 to conduct performance audits of upper air and surface meteorological measurements as budgeted in the 19th year PAMS award,
    f. Amend an existing contract with Sonoma Technology, Inc. in an amount not to exceed $150,000 for data management support and air quality data analysis as budgeted in the 19th year PAMS award,
    g. Issue a sole source purchase order with Elemental Scientific, LLC for an amount not to exceed $25,000 for the purchase of one (1) ICP-MS Auto Sampler as budgeted in the Lead Monitoring award,
    h. Issue a sole source purchase order with Met One Instruments for an amount not to exceed $40,700 for the purchase of two (2) Beta Attenuation PM10 Monitors for NCore monitoring as budgeted in the PM2.5 Monitoring award,
    i. Issue a sole source purchase order with TSI, Inc. for an amount not to exceed $25,300 for the purchase of one (1) Model 3783 Water-based Environmental Particle Counter for ultrafine monitor testing as budgeted in the PM2.5 Monitoring award.

6. Release RFQ #Q2011-03 for six (6) Gas Calibration Systems at a cost not to exceed $106,000 as budgeted in the 19th year PAMS award.

Barry R. Wallerstein, D.Env.
Executive Officer

CSL: PMF:cv

Background

PAMS Program

In February 1993, the U.S. EPA promulgated the PAMS regulations for areas classified as serious, severe or extreme nonattainment. These regulations require AQMD to conduct monitoring for ozone precursors with enhanced monitoring equipment at a total of seven sites. The PAMS program is also funding the meteorological upper air profilers sited at LAX and Ontario airports, the upper air site installed at Moreno Valley in Riverside County, and a new upper air site in Orange County. Since the onset of the PAMS program, U.S. EPA has annually allocated Section 105 supplemental grant funds in support of this requirement.

Lead Monitoring Program

AQMD has been awarded U.S. EPA Section 105 funds for the Lead Monitoring Program as required by new federal regulations promulgated in November 2008. Along with tightening the National Ambient Air Quality Standard for lead to 0.15 $\mu g/m^3$, the U.S. EPA requires enhanced source-oriented monitoring as well as the traditional population-oriented monitoring. U.S. EPA is providing funding to state and local agencies to establish this monitoring network, and last year AQMD established near-source monitors at four facilities in the South Coast Air Basin. AQMD already operates a sufficient number of population-oriented lead monitoring sites to meet the new monitoring requirements. The funding will therefore be used primarily for operation and maintenance of the AQMD lead monitoring network.

Supplemental Section 103 Monitoring Program Funding

New federal regulations require a national network of fully instrumented air monitoring stations known as the NCore Network. Two of these sites are to be located at existing AQMD air monitoring stations at Central Los Angeles and Rubidoux. AQMD will be awarded supplemental U.S. EPA Section 103 funding to purchase two continuous PM10 monitors to pair with existing continuous PM2.5 monitors to provide Coarse PM mass measurements as required for NCore sites. Coarse PM is defined as the difference between PM10 and PM2.5. AQMD will also be awarded U.S. EPA Section 103 funding to purchase a newly available ultrafine particle monitor for the purpose of testing in a near-roadway environment. The new instrument is designed to be more robust and

reliable than previous particle monitors and is intended for wide-scale deployment in air monitoring networks. Funding for both the NCore and the ultrafine monitor testing is being provided under the current U.S. EPA Section 103 PM2.5 Monitoring award.

Proposal

PAMS Program

U.S. EPA estimated that the 19th year PAMS Program (FY 2011) will be funded at $1,239,542 and the funds have already been recognized in the FY 2010-11 Budget. The proposed allocation of the 19th year PAMS funds is provided in Attachment 1. The U.S. EPA concurs with staff's proposed allocation. To ensure that the AQMD is able to continue program activities prior to receiving the award, staff is recommending that a portion of the award ($882,800) be appropriated to the specified Major Objects in Science & Technology Advancement's and Planning, Rule Development & Area Sources' FY 2010-11 Budgets. The balance will be appropriated upon receipt of the award.

Lead Monitoring Program

The U.S. EPA has awarded Section 105 funding in the amount of $134,542 for the Lead Monitoring Program and the funds have already been recognized in the FY 2010-11 Budget. The proposed allocation of the funds is provided in Attachment 2, and the U.S. EPA concurs with the staff's proposed allocation. To ensure that the AQMD is able to continue program activities prior to receiving the award, staff is recommending that $47,500 be appropriated to the Major Objects in Science & Technology Advancement's FY 2010-11 Budget.

Supplemental Section 103 Monitoring Program Funding

The U.S. EPA has provided supplemental funding in the amount of $66,000 to purchase equipment for the NCore program as well as an ultrafine monitor testing project. The funding is being provided under the current U.S. EPA Section 103 PM2.5 Monitoring award. This action is to recognize $66,000 in revenue for NCore monitoring and ultrafine monitor testing funded under the PM2.5 Monitoring award in the FY 2010-11 Budget, and appropriate that same amount to the Major Objects in Science & Technology Advancement's FY 2010-11 Budget as set forth in Attachment 3.

Issue a Sole Source Purchase Order for One (1) Primary Flow Standard Cell Under the PAMS Award

A critical part of operating and maintaining air monitoring equipment is measuring air flow through multiple devices reliably and accurately. A primary flow calibration standard is a critical tool for ensuring that all flow measurement devices used by Air Monitoring staff are accurate and correctly calibrated. AQMD currently employs a primary flow standard in the instrument calibration shop. However, the range of flow rates that can be measured by the primary flow standard is limited by the specific range of each particular flow cell, an interchangeable accessory to the primary flow standard.

Newer air quality instrumentation has raised the need to calibrate flow devices within flow ranges not measurable by the current flow cells, and an additional flow cell is available to address this. The cell must be compatible with the existing primary flow standard and thus purchased from the same manufacturer. Therefore, staff is recommending that the Board authorize the Procurement Manager to issue a sole source purchase order with Bios International for an amount not exceed $17,000 for the purchase of one (1) Primary Flow Standard Cell as budgeted in the 19th year PAMS award.

Issue Purchase Order for Four (4) Clean Air Generators Under the PAMS Award

Clean Air Generators, also known as Zero Air Generators, serve an essential function in Monitoring & Analysis. In the AQMD Air Monitoring Stations, Clean Air Generators provide a flow of clean, pollutant-free air to the air quality instruments to check their "zero" readings. The Clean Air Generators also provide clean air to dilute standard gases to their span and precision check levels. Such checks are done automatically on a daily or weekly basis to ensure accurate measurements of gaseous pollutants. Clean Air Generators are similarly used for instrument calibration, for Quality Assurance functions, for instrument testing and repair, and for laboratory analyses requiring clean air dilution. The current AQMD inventory of Clean Air Generators is aging and in need of replacement. Some are no longer supported by the manufacturers. This purchase is part of a longer term plan to replace the older equipment.

The vendor and purchase price for the Clean Air Generators is based on RFQ #Q2010-1 released in June, 2009. In October, 2009, the Board authorized a purchase order based on the proposal evaluation results. The selected vendor, Teledyne Advanced Pollution Instrumentation, Inc., has agreed to honor the pricing in their previous bid. Therefore, staff is recommending that the Board authorize the Procurement Manager to issue a purchase order with Teledyne Advanced Pollution Instrumentation, Inc. for an amount not to exceed $27,000 for the purchase of four (4) Clean Air Generators as budgeted in the 19th year PAMS award.

Issue a Sole Source Purchase Order for Extended Warranty Services for Five Profiler Systems and Four Sodar Systems Under the PAMS Program

Currently, there are five Model LAP-3000 radar wind and temperature profilers manufactured by Vaisala, Inc. in operation in the South Coast Air Basin. In addition, four acoustic profiling systems (Sodars) are also in operation. These instruments reduce the need for balloon-borne soundings and help fulfill upper air monitoring requirements of the PAMS Program and data needs for air quality analysis, modeling and forecasting. After the initial one-year warranty period, annual extended warranty services have been purchased from the instrument manufacturers, Vaisala, Inc. and Atmospherics Systems Corp., to cover repairs and parts replacement. The extended warranties cover contact with Vaisala programmers, engineers and technicians for system analysis and operational advice; priority for response when further testing, part replacement or repairs are needed;

and the cost of all replacement parts and repairs. The warranty service assures that electronics, hardware and software problems will be resolved in a timely manner, without the need to separately obtain funding for individual tests and parts. Therefore, staff is recommending that the Board authorize the Procurement Manager to issue a sole source purchase order with Vaisala, Inc. for an amount not to exceed $97,000 for extended warranty services for five upper air profiler systems as budgeted in the 19th year PAMS award. Furthermore, staff is recommending that the Board authorize the Procurement Manager to issue a sole source purchase order with Atmospheric Systems Corporation for an amount not to exceed $28,000 for extended warranty services for four upper air Sodar systems as budgeted in the 19th year PAMS award.

Amend Existing Contract to Conduct Performance Audits of Meteorological Measurements Under the PAMS Program

New U.S. EPA quality assurance guidelines call for annual audits of all surface meteorological instruments. Furthermore, the upper air meteorology profiler systems also require periodic audits to check their accuracy. The contractor Technical & Business Systems is currently providing these auditing services to the AQMD, but with the new U.S. EPA guidelines, there will be many more audits to perform of the surface meteorological stations. Technical & Business Systems also provides auditing services for the PM samplers throughout the AQMD Monitoring Network, and there are considerable cost savings to be realized if meteorological and PM auditing could be performed concurrently at each site by the same contractor. Therefore, staff recommends that the Board authorize the Procurement Manager to extend and amend an existing contract with Technical & Business Systems, Inc. for an additional amount not to exceed $60,000 to conduct performance audits of upper air and surface meteorological measurements as budgeted in the 19th year PAMS award.

Amend Existing Contract for Data Management Support and Air Quality Data Analysis Under the PAMS Program

Sonoma Technologies, Inc. is currently under contract to develop an enhanced Air Quality Data Management System to store, validate, analyze and archive data from the AQMD monitoring network. As the system is implemented in FY 2010-11, there is a need for continuing technical support as well as some additional tasks related to improving functionality. There is also a need for technical support in the analysis of air quality data, and Sonoma Technologies is uniquely positioned to provide this support given their familiarity with AQMD's data systems as well as their experience with similar analysis efforts on a national scale. Therefore, staff recommends that the Board authorize the Procurement Manager to extend and amend an existing contract with Sonoma Technology, Inc. in an amount not to exceed $150,000 for data management support and air quality data analysis as budgeted in the 19th year PAMS award.

Issue a Sole Source Purchase Order for One (1) ICP-MS Auto Sampler Under the Lead Monitoring Award

The AQMD Laboratory has identified the need to replace the older ICP-MS auto sampler with the Elemental Scientific® microFAST SC-2DX auto sampler. This micro-volume sample analysis system has several unique advantages over other auto samplers. Sample throughput is increased at least two fold due to the fast injection and rinsing cycle of the SC-2DX auto sampler. Potential carry-over contamination from one sample to the next is significantly reduced due to a patented dual rinse station. Furthermore, this auto sampler permits the analysis of samples as small as 3 ml or triplicate analysis from a single 15-ml sampling tube eliminating a time-consuming need to re-dilute samples. The microFast SC-DX is the only auto sampler that is designed to work seamlessly with the existing high-sensitivity APEX® Desolvating sample introduction unit for the ICP-MS. Therefore, staff is recommending that the Board authorize the Procurement Manager to issue a sole source purchase order with Elemental Scientific, LLC for an amount not to exceed $25,000 for the purchase of one (1) ICP-MS Auto Sampler as budgeted in the Lead Monitoring award.

Issue a Sole Source Purchase Order for Two (2) Beta Attenuation PM10 Monitors Under the PM2.5 Monitoring Award

U.S. EPA NCore monitoring requirements call for Coarse PM measurements at all NCore sites. Both AQMD NCore sites at Central Los Angeles and Rubidoux currently include continuous PM2.5 measurements using a Beta Attenuation Monitor manufactured by Met One Instruments. Pairing a Met One Beta Attenuation Monitor for PM10 with a Met One PM2.5 monitor has been designated a federal equivalent method for the measurement of Coarse PM. Thus, the Coarse PM measurement requirement can be cost-effectively satisfied by utilizing the existing PM2.5 monitors and adding the compatible PM10 monitors. This purchase has been specifically funded and approved by U.S. EPA. Therefore, staff is recommending that the Board authorize the Procurement Manager to issue a sole source purchase order with Met One Instruments for an amount not to exceed $40,700 for the purchase of two (2) Beta Attenuation PM10 Monitors for NCore monitoring as budgeted in the PM2.5 Monitoring award.

Issue a Sole Source Purchase Order for One (1) Environmental Particle Counter Under the PM2.5 Monitoring Award

AQMD and U.S EPA have an interest in the issues involving ultrafine particles. Although there is no ambient air quality standard for ultrafine particles, an important issue to be resolved is the reliable and accurate measurement of ultrafine particles in an ambient air quality monitoring network. Although several instruments exist to measure ambient ultrafines by counting particles, these systems have not been reliable enough to deploy in ambient network applications requiring very frequent maintenance and factory service. A newly developed instrument manufactured by TSI, Inc. has been designed specifically for ambient network deployment. While initial testing has shown promise, there is a need for additional long-term testing in challenging environments such as near a

busy freeway. U.S. EPA has approached AQMD and offered to provide funds for the purchase of one of these new instruments for testing at the I-710 monitoring location. TSI, Inc. has agreed to provide additional units for side-by-side testing over several months of deployment. This purchase has been specifically funded and approved by U.S. EPA. Therefore, staff is recommending that the Board authorize the Procurement Manager to issue a sole source purchase order with TSI, Inc. for an amount not to exceed $26,000 for the purchase of one (1) Model 3783 Water-based Environmental Particle Counter for ultrafine monitor testing as budgeted in the PM2.5 Monitoring award.

Issue RFQ for Six (6) Gas Calibration Systems Under the PAMS Award

Gas Calibration Systems are deployed in all air monitoring stations to dilute the standard gases to known levels in order to perform automated span and precision checks of air quality monitoring equipment. They are also utilized by staff in calibration, repair, quality assurance, and the laboratory. The current inventory of Gas Calibration Systems includes many aging systems that are no longer supported by the manufacturers, and these systems are in need of replacement. Furthermore, at least two more sophisticated Gas Calibration Systems are needed to meet the new U.S. EPA NCore monitoring requirements. This RFQ will solicit bids for systems with a variety of specifications to meet the various objectives of AQMD's monitoring programs. Therefore, staff is requesting the Board to release RFQ #Q2011-03 for six (6) Gas Calibration Systems at a cost not to exceed $106,000 as budgeted in the 19th year PAMS award.

Sole Source Justifications

A sole source award is authorized under Sections IV.B. of the Procurement Policy and Procedure when a purchase does not lend itself to substitution. Section VIII, B.2 of the Procurement Policy and Procedure identifies four major provisions under which a sole source award may be justified.

The requests for sole source purchases of the Primary Flow Standard Cell, the ICP-MS Auto Sampler, and the Beta Attenuation PM10 Monitors are made under Section VIII, B.2.d (6) of the Procurement Policy and Procedure. The equipment must be compatible with existing specialized equipment. The Primary Flow Standard Cell is an additional accessory to an existing Primary Flow Standard and is only manufactured by one source. Similarly, there is only one ICP-MS Auto Sampler with the specified capabilities that is compatible with the existing APEX® Desolvating sample introduction unit for the ICP-MS in the Laboratory. Finally, the Beta Attenuation PM10 Monitors must be paired with PM2.5 monitors from the same manufacturer in order to create the required federal equivalent method system for Coarse PM measurements under NCore.

The request for a sole source purchase of the Environmental Particle Counter is made under Section IV.B.4 and Section VIII, B.2.c (2) of the Procurement Policy and Procedure. The item is available from only one source as it involves the use of

proprietary technology. This particular ultrafine measurement instrument is targeted for testing and has been specified by the funding source, U.S. EPA, for purchase.

The requests for sole source purchases of the extended warranty services are made under Section VIII, B.2.c of the Procurement Policy and Procedure: The desired services are available from only the sole source based upon the unique experience and capabilities of the proposed contractor or contractor team; (2) The project involves the use of proprietary technology; and (3) The contractor has ownership of key assets required for project performance. Vaisala, Inc. and Atmospheric Systems Inc. are the only companies capable of providing repair parts and services for the equipment they manufacture.

Resource Impacts

U.S. EPA Section 105 Grant funding will support the 19th year operation of the PAMS Program and the Lead Monitoring Program, including equipment, temporary services, supplies and services necessary to meet the objectives of the programs.

Supplemental Section 103 monitoring program funding will fully support the purchase of equipment to meet the NCore Program's Coarse PM monitoring requirements and the needs of the ultrafine monitor testing project.

Attachments

1. Proposed PAMS 19th Year Expenditures
2. Proposed Lead Monitoring Program Expenditures FY 2010-11
3. Proposed Supplemental Section 103 Monitoring Program Expenditures FY 2010-11
4. RFQ #Q2011-03 for Calibration Gas Dilution Systems

ATTACHMENT 1

PROPOSED PAMS 19th YEAR EXPENDITURES

	Budget Code	Program Code	Quantity	Estimated Expenditure	Initial Appropriation
A. Fixed Assets				**$219,000**	**$219,000**
CNG Vehicles	77000	44530	2	$60,000	$60,000
Clean Air Generators	77000	44530	4	$27,000	$27,000
Primary Ozone Standard	77000	44530	1	$9,000	$9,000
Primary Flow Standard Cell	77000	44530	1	$17,000	$17,000
Gas Calibration Systems	77000	44530	6	$106,000	$106,000
B. Temporary Agency Services				**$78,000**	**$0**
A.Q. Instrument Specialist	67460	44530	2	$40,000	$0
Chemist	67460	44530	1	$22,000	$0
Lab Technician	67460	44530	1	$16,000	$0
C. Laboratory Supplies				**$100,000**	**$50,000**
Misc. Supplies	68050	44530		$100,000	$50,000
D. Maintenance of Equipment				**$45,000**	**$45,000**
Misc. Parts	67600	44530		$30,000	$30,000
Misc. Parts	67600	26530		$15,000	$15,000
E. Office Expense				**$25,000**	**$25,000**
Office Supplies	68100	44530		$10,000	$10,000
Office Supplies	68100	26530		$15,000	$15,000
F. Building Maintenance Operation				**$25,000**	**$25,000**
Building Maintenance	67650	44530		$20,000	$20,000
Building Maintenance	67650	26530		$5,000	$5,000
G. Contracts				**$435,000**	**$435,000**
Upper Air Warranties	67450	26530		$125,000	$125,000
Data Management and Analysis	67450	44530		$150,000	$150,000
Technical Support	67450	26530		$100,000	$100,000
Program Audits	67450	44530		$60,000	$60,000
H. Small Tools				**$31,000**	**$31,000**
Miscellaneous Tools	68300	44530		$30,000	$30,000
Miscellaneous Tools	68300	26530		$1,000	$1,000
I. Communications				**$10,000**	**$7,000**
Communications Expenses	67900	26530		$10,000	$7,000
J. Travel				**$6,000**	**$6,000**
Travel Expenses	67800	44530		$3,000	$3,000
Travel Expenses	67800	26530		$3,000	$3,000
K. Rents and Leases of Structures				**$18,000**	**$18,000**
Upper Air Leases	67350	26530		$16,000	$16,000

	Budget Code	Program Code	Quantity	Estimated Expenditure	Initial Appropriation
Station Leases	67350	44530		$2,000	$2,000
L. Training				**$1,000**	**$1,000**
Training Expenses	69500	26530		$1,000	$1,000
M. Conference Registration				**$1,000**	**$1,000**
Conference Registration	69500	26530		$1,000	$1,000
N. Demurrage				**$20,000**	**$15,000**
Demurrage Expenses	67550	44530		$20,000	$15,000
O. Postage				**$100**	**$100**
Misc. Postage	68060	26530		$100	$100
P. Taxes				**$200**	**$200**
Misc. Taxes	69600	44530		$200	$200
Q. Rents and Leases of Equipment				**$1,500**	**$1,500**
Misc. Equipment	67300	26530		$500	$500
Misc. Equipment	67300	44530		$1,000	$1,000
R. Auto Mileage				**$7,000**	**$3,000**
Auto Mileage - Temporary Staff	67700	44530		$7,000	$3,000
Subtotal				**$1,022,800**	**$882,800**
S. Salaries and Benefits				**$216,742**	**$0**
Salaries and Benefits	51000	44530		$169,742	$0
Salaries and Benefits	51000	26530		$47,000	$0
Total (EPA 18th Year 105 Grant)				**$1,239,542**	**$882,800**

ATTACHMENT 2

PROPOSED LEAD MONITORING PROGRAM EXPENDITURES FY 2010-11
(EPA SECTION 105 GRANT FUNDED)

	Budget Code	Program Code	Quantity	Estimated Expenditure	Initial Appropriation
A. Fixed Assets				**$32,500**	**$32,500**
ICP-MS Auto Sampler	77000	44067	1	$25,000	$25,000
HEPA Filter Sampler Cover	77000	44067	1	$7,500	$7,500
B. Laboratory Supplies				**$4,000**	**$4,000**
Misc. Supplies	68050	44067		$4,000	$4,000
C. Maintenance of Equipment				**$3,000**	**$3,000**
Misc. Parts	67600	44067		$3,000	$3,000
D. Small Tools				**$4,000**	**$4,000**
Miscellaneous Tools	68300	44067		$4,000	$4,000
E. Rents and Leases of Structures				**$4,000**	**$4,000**
Station Leases	67350	44067		$4,000	$4,000
Subtotal				**$47,500**	**$47,500**
F. Salaries and Benefits				**$87,042**	**$0**
Salaries and Benefits	51000	44067		$87,042	$0
Total				**$134,542**	**$47,500**

ATTACHMENT 3

PROPOSED SUPPLEMENTAL SECTION 103 MONITORING PROGRAM EXPENDITURES FY 2010-11

	Budget Code	Program Code	Quantity	Estimated Expenditure
A. Fixed Assets				**$66,000**
PM10 Beta Attenuation Monitors	77000	44500	2	$40,700
Environmental Particle Monitor	77000	44500	1	$25,300
Total				**$66,000**

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

REQUEST FOR QUOTATION (RFQ) FOR CALIBRATION GAS DILUTION SYSTEMS

RFQ #Q2011-03

PURPOSE

The South Coast Air Quality Management District (AQMD) invites sealed quotes from qualified firms interested in providing up to 6 Calibration Gas Dilution Systems to dilute superblend concentrations of gas, generate precise amounts of ozone, and perform NOX gas phase titration's for use in ambient and NCORE air monitoring stations. In the preparation of this Request for Quotes (RFQ), the word "Proposer," "Contractor," "Vendor," and "Consultant" are used interchangeably.

INDEX - The following are contained in this RFQ.

SECTION I: BACKGROUND/INFORMATION/SCHEDULE OF EVENTS

The South Coast Air Quality Management District (AQMD) is a regional governmental agency responsible for meeting air quality health standards in Orange County and parts of Los Angeles, Riverside and San Bernardino counties.

The AQMD has the need to procure Calibration Gas Dilution Systems for the ambient/NCORE air monitoring network to precisely generate concentrations of O3, NO, NO2, CO, and SO2.

AQMD CONTACT PERSONS:

Questions regarding the content or intent of this RFQ or on procedural matters should be addressed to:

Administrative:	Technical:
Procurement Unit	David Sawyer, Principal Air Quality Instrument Specialist
South Coast Air Quality Management District	South Coast Air Quality Management District
21865 Copley Drive	21865 Copley Drive
Diamond Bar, CA 91765	Diamond Bar, CA 91765
909-396-3520	909-396-2112

SCHEDULE OF EVENTS

November 5, 2010	Release of RFQ
December 7, 2010	RFQ Closes, 2:00 P.M.
December 17, 2010	Quotation Evaluation
February 4, 2011	Governing Board Approval

SECTION II: PARTICIPATION IN THE PROCUREMENT PROCESS

A. It is the policy of the AQMD to ensure that all businesses including minority business enterprises, women business enterprises, disabled veteran business enterprises, and small businesses have a fair and equitable opportunity to compete for and participate in AQMD contracts.

B. Definitions:

The definition of minority or women business enterprise set forth below is included for purposes of determining compliance with the affirmative steps requirement described in Paragraph F below on procurements funded in whole or in part with U.S. EPA grant funds which involve the use of subcontractors. The definition provided for disabled veteran business enterprise, local business, and small business enterprise, low-emission vehicle business and off-peak hours delivery business are provided for purposes of determining eligibility for point or cost considerations in the evaluation process.

1. "Minority-or-women business enterprise" (MBE/WBE) as used in this policy means a business enterprise that meets all the following criteria:

   a. a business that is at least 51 percent owned by one or more minority persons or women, or in the case of any business whose stock is publicly held, at least 51 percent of the stock is owned by one or more minority persons or women.

   b. a business whose management and daily business operations are controlled by one or more minority persons or women.

   c. a business which is a sole proprietorship, corporation, or partnership with its primary headquarters office located in the United States, which is not a branch or subsidiary of a foreign corporation, foreign firm, or other foreign-based business.

2. "Minority person" for purposes of this policy, means a Black American, Hispanic American, Native American (including American Indian, Eskimo, Aleut, and Native Hawaiian), Asian-Indian American (including a person whose origins are from India, Pakistan, and Bangladesh), Asian-Pacific American (including a person whose origins are from Japan, China, the Philippines, Vietnam, Korea, Samoa, Guam, the United States Trust Territories of the Pacific, Northern Marianas, Laos, Cambodia, and Taiwan).

3. "Disabled veteran" as used in this policy is a United States military, naval, or air service veteran with at least 10 percent service-connected disability who is a resident of California.

4. "Disabled veteran business enterprise" (DVBE) as used in this policy means a business enterprise that meets all of the following criteria:

   a. is a sole proprietorship or partnership of which is at least 51 percent owned by one or more disabled veterans or, in the case of a publicly owned business, at least 51 percent of its stock is owned by one or more disabled veterans; a subsidiary which is wholly owned by a parent corporation but only if at least 51 percent of the voting stock of the parent corporation is owned by one or more disabled veterans; or a joint venture in which at least 51 percent of the joint venture's management and control and earnings are held by one or more disabled veterans.

   b. the management and control of the daily business operations are by one or more disabled veterans. The disabled veterans who exercise management and control are not required to be the same disabled veterans as the owners of the business.

   c. is a sole proprietorship, corporation, or partnership with its primary headquarters office located in the United States, which is not a branch or subsidiary of a foreign corporation, firm, or other foreign-based business.

5. "Local business" as used in the Procurement Policy and Procedure means a company that has an on-going business within the boundaries of the South Coast AQMD at the time of bid or proposal submittal and performs 90% of the work related to the contract within the boundaries of the AQMD and satisfies the requirements of Paragraph H below.

6. "Small business" as used in this policy means a business that meets the following criteria:

   a. 1) an independently owned and operated business; 2) not dominant in its field of operation; 3) together with affiliates is either:

   - A service, construction, or non-manufacturer with 100 or fewer employees, and average annual gross receipts of ten million dollars ($10,000,000) or less over the previous three years, or
   - A manufacturer with 100 or fewer employees.

   b. Manufacturer means a business that is both of the following:

      1) Primarily engaged in the chemical or mechanical transformation of raw materials or processed substances into new products.

      2) Classified between Codes 311000 and 339000, inclusive, of the North American Industrial Classification System (NAICS) Manual published by the United States Office of Management and Budget, 2007 edition.

7. "Joint ventures" as defined in this policy pertaining to certification means that one party to the joint venture is a DVBE or small business and owns at least 51

percent of the joint venture.

8. "Low-Emission Vehicle Business" as used in this policy means a company or contractor that uses low-emission vehicles in conducting deliveries to the AQMD. Low-emission vehicles include vehicles powered by electric, compressed natural gas (CNG), liquefied natural gas (LNG), liquefied petroleum (LPG), ethanol, methanol, hydrogen and diesel retrofitted with particulate matter (PM) traps.

9. "Off-Peak Hours Delivery Business" as used in this policy means a company or contractor that commits to conducting deliveries to the AQMD during off-peak traffic hours defined as between 10:00 a.m. and 3:00 p.m.

C. Under Request for Quotations (RFQ), DVBEs, DVBE joint ventures, small businesses, and small business joint ventures shall be granted a preference in an amount equal to 5% of the lowest cost responsive bid. Low-Emission Vehicle Businesses shall be granted a preference in an amount equal to 5% of the lowest cost responsive bid. Off-Peak Hours Delivery Businesses shall be granted a preference in the amount equal to 2% of the lowest cost responsive bid. Local businesses (if the procurement is not funded in whole or in part by U.S. EPA grant funds) shall be granted a preference in an amount equal to 2% of the lowest cost responsive bid.

D. Under Request for Proposals (RFP), DVBEs, DVBE joint ventures, small businesses, and small business joint ventures shall be awarded ten (10) points in the evaluation process. A non-DVBE or large business shall receive seven (7) points for subcontracting at least twenty-five (25%) of the total contract value to a DVBE or small business. Low-Emission Vehicle Businesses shall be awarded five (5) points in the evaluation process. On procurements which are not funded in whole or in part by U.S. EPA grant funds local businesses shall receive five (5) points. Off-Peak Hours Delivery Businesses shall be awarded two (2) points in the evaluation process.

E. AQMD will ensure that discrimination in the award and performance of contracts does not occur on the basis of race, color, sex, national origin, marital status, sexual preference, creed, ancestry, medical condition, or retaliation for having filed a discrimination complaint in the performance of AQMD contractual obligations.

F. When contracts are funded in whole or in part by U.S. EPA grant funds and if subcontracts are to be let, the Contractor must comply with the following, evidencing a good faith effort to solicit minority and women owned enterprises. Contractor shall submit a certification signed by an authorized official affirming compliance with the steps below at the time of proposal submission. The AQMD reserves the right to request documentation demonstrating compliance with these steps prior to contract execution.

1. Place qualified small and minority businesses and women's business enterprises on solicitation lists;

2. Ensure that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources including advertising at least ten days in advance of the bid in a variety of media directed to minority-and women-owned business audiences;

3. Divide total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority business, and women's business enterprises;

4. Establish delivery schedules, where requirements permit, which encourage participation by small and minority business, and women's business enterprises; and

5. Use the services and assistance of the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

G. To the extent that any conflict exists between this policy and any requirements imposed by federal and state law relating to participation in a contract by a certified MBE, WBE, and/or DVBE as a condition of receipt of federal or state funds, the federal or state requirements shall prevail.

H. When contracts are not funded in whole or in part by U.S. EPA grant funds, a local business preference will be awarded. For such contracts that involve the purchase of commercial off-the-shelf products, local business preference will be given to suppliers or distributors of commercial off-the-shelf products who maintain an on-going business within the geographical boundaries of the AQMD. However, if the subject matter of the RFP or RFQ calls for the fabrication or manufacture of custom products, only companies performing 90% of the manufacturing or fabrication effort within the geographical boundaries of the AQMD shall be entitled to the local business preference.

I. In compliance with federal fair share requirements set forth in 40 CFR 35.6580, the AQMD shall establish a fair share goal annually for expenditures covered by its procurement policy.

DISPOSITION: The AQMD reserves the right to reject any or all quotations. All materials and documents submitted with the quote will become the property of the AQMD.

SECTION III: RESPONSE SUBMITTAL REQUIREMENTS

QUOTES - All quotes must be submitted according to specifications set forth in this RFQ.

SIGNATURE- Quotes must be signed by an authorized representative of the vendor.

DUE DATE - **Four (4) complete copies of the quotes must be submitted.** Quotes must be typewritten and submitted in a sealed envelope, plainly marked in the upper, left-hand corner with the name and address of the vendor with the words, "Request for Quotation #Q2011-03". It should be addressed to:

Procurement Unit
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Quotes are due no later than 2:00 p.m. on December 7, 2010. Any corrections or resubmissions of the quote will not be sufficient reason to extend the deadline.

No late quotations will be accepted under any circumstances.

Grounds for rejection: A quote may be rejected if:

1. It is not prepared in the format described, or

2. It is signed by an individual not authorized to represent the firm.

FORMAT - the content and format of the quote will adhere to the specifications listed below. Failure to follow this format may result in quote disqualification.

1. The name and address of the vendor must be typed on the title page of the RFQ. An authorized signature is also required.

2. Include completed documents contained in Certifications and Representations attachment.

3. **Submit four (4) complete copies of the RFQ response.**

SECTION IV: EVALUATION AND SELECTION CRITERIA

Award will be made to the vendor submitting the lowest cost quotation which is most fully responsive to the specifications set forth in the RFQ. For purposes of determining lowest cost, cost shall be determined based upon the following factors which comprise the AQMD's Cost of Ownership:

1) Base price of system.
2) Annual cost of spare parts after warranty expires based on vendor-supplied failure rates for individual instruments and sub-systems comprising the total system. Vendor must supply documented data to support the failure rates quoted.

Staff will also award points based on the evaluation of analyzer reliability, performance, features, reputation, and ease of service.

Disabled Veteran Business Enterprises (DVBE's), Small Businesses, Low-Emission Vehicle Businesses, Off-Peak Hours Delivery Businesses, and Local Businesses meeting the definitions contained in Section II of this RFQ shall be granted a preference in an amount equal to the percentage listed below of the lowest cost responsive quote. Since the funds for is procurement is partially funded by U.S. EPA grant funds, Section II,C (pertaining to local business) is not applicable and no local business preference will be awarded.

Small Business or Small Business Joint Venture	5%
DVBE or DVBE Joint Venture	5%
Low-Emission Vehicle Business	5%
Local Business (Non-EPA Funded Projects only)	2%
Off-Peak Hours Delivery Business	2%

To receive additional points in the evaluation process for the categories of Small Business or Small Business Joint Venture, DVBE or DVBE Joint Venture or Local Business (for non-EPA funded projects), the bidder must submit a self-certification or certification from the State of California Office of Small Business Certification and Resources at the time of proposal submission certifying that the bidder meets the requirements set forth in Section III. To receive points for the use of DVBE and/or Small Business subcontractors, at least 25 percent of the total contract value must be subcontracted to DVBEs and/or Small Businesses. To receive points as a Low-Emission Vehicle Business, the bidder must demonstrate to the Executive Officer, or designee, that supplies and materials delivered to the AQMD are delivered in vehicles that operate on either clean-fuels or if powered by diesel fuel, that the vehicles have particulate traps installed. To receive points as an Off-Peak Hours Delivery Business, the proposer must submit,

at proposal submission, certification of its commitment to delivering supplies and materials to AQMD between the hours of 10:00 a.m. and 3:00 p.m. The cumulative points awarded for Small Business, DVBE, use of Small Business or DVBE Subcontractors, Local Business, Low-Emission Vehicle Business and Off-Peak Hour Delivery Business shall not exceed 15 points.

Note: The award of these additional points shall be contingent upon Proposer completing the Self-Certification section of Attachment B – Certifications and Representations and/or inclusion of a statement in the quotation self-certifying that Proposer qualifies for additional points as detailed above.

The Procurement Section will be responsible for monitoring compliance of suppliers awarded purchase orders based upon use of low-emission vehicles or off-peak traffic hour delivery commitments through the use of vendor logs which will identify the contractor awarded the incentive. The purchase order shall incorporate terms which obligate the supplier to deliver materials in low-emission vehicles or deliver during off-peak traffic hours. The Receiving department will monitor those qualified supplier deliveries to ensure compliance to the purchase order requirements. Suppliers in non-compliance will be subject to a two percent of total purchase order value penalty. The Procurement Manager will adjudicate any disputes regarding either low-emission vehicle or off-peak hour deliveries.

SECTION V: RFQ/TITLE PAGE

REQUEST FOR QUOTATION (RFQ) FOR CALIBRATION GAS DILUTION SYSTEMS

TO: South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Attention: Procurement Manager

The undersigned, having carefully examined AQMD's specifications attached hereto, hereby proposed and agrees to the conditions stated in this quotation. If this quote is accepted by the AQMD, the undersigned agrees to the conditions as stated.

Company Name_____

Company Address_____

_____

_____

_____

Authorized by _____
(print name)

Authorized Signature_____

Title_____

Telephone No._____ Fax No._____

NOTE: FOUR (4) COMPLETE COPIES OF RFQ RESPONSE MUST BE SUBMITTED.

REQUEST FOR QUOTATION #Q2011-03
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

DESCRIPTION	QTY	BRAND/MFG./MODEL	UNIT PRICE	EXTENDED
Calibration Dilution System--per attached specifications which are an integral part of this Request for Quotation	6			
Options				
Annual cost of spare parts				
Cost of warranty for first year - includes all units				
Training Cost				
Unit shipping cost/Delivery (F.O.B. Destination)				
		Total		

Annual unit cost of spare parts after warranty expires: _____

COMPLETE DELIVERY WILL BE MADE IN _____ DAYS FROM RECEIPT OF ORDER.

CASH DISCOUNT _____% IN _____ DAYS.

QUOTATIONS ARE SUBJECT TO ACCEPTANCE AT ANY TIME WITHIN 90 CALENDAR DAYS AFTER OPENING OF QUOTE, UNLESS OTHERWISE STIPULATED.

AQMD PAYMENT TERMS: NET 30*

*Where acceptance testing is applicable, payment will be made within thirty (30) days after the completion of the acceptance test as stated in RFQ specifications.

FIRM NAME _____

AUTHORIZED SIGNATURE _____ DATE _____

REQUEST FOR QUOTATION (RFQ) FOR CALIBRATION GAS DILUTION SYSTEMS
RFQ #Q2011-03

November 5, 2010

GENERAL

These specifications cover the requirements of the South Coast Air Quality Management District for Calibration Gas Dilution Systems for the ambient air monitoring network to continuously monitor levels of nitric oxide and nitrogen dioxide in ambient air.

MANUFACTURER QUALIFICATIONS

The manufacturer of the instrument offered shall have been engaged for a period of three or more years in the fabrication of Calibration Gas Dilution Systems of the type being sought and shall supply evidence of his/her financial and technical capabilities. The vendor shall supply the names, addresses and phone numbers or point of contact of at least four users of the instrument being offered.

EQUIPMENT AND SERVICES TO BE FURNISHED BY THE VENDOR

The vendor shall provide with the dilution system the following:

1. All accessories and specialized tools required for operation and necessary servicing of each dilution system for a period of one year after completion of acceptance testing.
2. One operating manual for each dilution system, twelve (12) additional operating manuals, twelve (12) service manuals and twelve (12) sets of electronic schematics and flow diagrams. In addition, electronic versions of all these should be provided.
3. One (1) copy of the report of calibration by the manufacturer for each dilution system.
4. Four (4) copies of a complete list of spare parts, including current prices.
5. A list of vendor's standard rates for time and travel of his/her service personnel.
6. The vendor shall provide delivery and training schedules within 30 days of contract approval.

TRAINING

Vendor shall provide a one-day training to include operation, routine servicing, calibration, repair, and non-routing servicing, using dilution system schematics, flow diagrams and written trouble shooting guidelines. Training must be itemized in the quoted price.

WARRANTY

1. Specifications: The vendor shall provide a written warranty that, for a period of a least one year following its acceptance, each dilution system, including its components, will meet the requirements listed above and will comply with the physical and performance specifications listed hereinafter. If there is a failure of any component or part in any dilution system during the warranty period, the vendor shall agree to replace such component or part at no cost in time to arrive at the South Coast Air Quality Management District within 72 hours of notification of the vendor.

2. Field Service: In the event a dilution system develops a malfunction which cannot be solved by the application of routine servicing procedures described in the operating and

service manual or by replacement of a part supplied under the warranty, the vendor shall agree to place the dilution system into proper operating condition within seven days after the arrival of service personnel or to provide an operational, equivalent dilution system within the same seven-day period for use as a substitute until the original dilution system has been repaired. During the first year following acceptance by the AQMD, the vendor shall agree to make no charge for this service at any location within the jurisdiction of the AQMD and to provide this service in time to comply with the terms of the warranty concerning total operating hours per year.

3. Spare Parts: The vendor shall agree to supply, on request, spare parts for dilution system for at least ten years following the date of acceptance by the AQMD. The vendor shall agree to place parts vendor manufactured in the hands of the AQMD within 15 days of receipt of the order. In the case of spare parts which the vendor does not manufacture, the vendor shall agree to either of the following: (1) place the parts requested in the hands of the AQMD within 45 days of receipt of the first order and within 15 days of receipt of subsequent orders, or (2) find and identify to the AQMD, within 15 days a convenient, reliable source of supply which will place parts in the hands of the AQMD within 30 days of the receipt of the order.

   The vendor shall warrant all replacement parts to be of quality equal or superior to the components in the original dilution system. Repairs or replacements accomplished under the warranty during the last 90 days of the warranty year shall be further warranted for a minimum period of 90 days following completion of the work or delivery of replacement parts.

   The vendor shall agree not to make any unreasonable increases in the prices of spare parts and in no case more than those necessary to offset actual increases in costs of labor and materials. The vendor shall warrant that the price charged the AQMD for spare parts are no higher than the prices charged the vendor's most favored customer.

   As part of the response to this RFQ, vendor shall provide an annual estimated cost of spare parts after expiration on the warranty period. The annual estimated cost shall be based on an anticipated 10-year life and vendor supplied failure rates. Vendors must provide supporting documentation to substantiate the failure rates quoted.

ACCEPTANCE TESTING

The dilution system(s) will be required to pass acceptance testing. Within ten days after the equipment delivery, the acceptance test shall be initiated. The acceptance test shall consist of checking the dilution system for compliance with the requirements listed above and those listed under "PHYSICAL SPECIFICATIONS" and "PERFORMANCE SPECIFICATIONS". The duration of the acceptance test shall be 30 days minimum and 60 days maximum. Representatives of the vendor shall have the option, but not the requirement, of setting up the dilution system and making it ready for acceptance testing.

If the dilution system does not meet the specifications listed, the dilution system will be rejected and the vendor will have one opportunity to repair or replace the dilution system to cure all defects. The dilution system will be returned to the vendor freight collect. If the dilution system fails, except for external causes, within a 30-day period, the vendor shall be given the opportunity to make any necessary corrections or replacements, including the entire dilution system, if necessary, after which another 30-day test shall be initiated. If, by the end of 70 days after the beginning of the first 30-day test, the dilution system has not met all specifications, including a 30-day period of continuous operation (with allowance for shut-downs due to external causes)

followed by compliance with the performance specifications and the acceptance tests, the dilution system shall be rejected and the order canceled.

PAYMENT:

Payment will be made within thirty (30) days after the completion of the acceptance test.

SHIPMENT:

The dilution system ordered, assembled and complete with all accessories, specialized tools, manuals, calibration reports and parts lists, shall be shipped, transportation prepaid, to:

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, Ca. 91765-4182

Science and Technology Advancement
Attn.: David Sawyer
Principal Air Quality Instrument Specialist
Monitoring & Source Test Engineering Branch
Monitoring & Analysis Division

SPECIFICATIONS

The dilution system will be expected to meet the specifications listed below. Minor deviations to the specifications may be acceptable if the AQMD determines that the performance of the dilution system meets the AQMD's requirements. Any deviations from these specifications must be listed in detail by the vendor in the space provided or on a separate page.

Specifications for a Continuous Calibration Dilution System	
FUNCTIONAL REQUIREMENTS:	**Exceptions or Alternatives [(a)]**
FLOW SYSTEM 1. Shall be a microprocessor based unit capable of delivering and mixing precise blends of gases. 2. Shall include a clean air dilution MFC capable of delivering 0 to 20 SLPM with an accuracy of 1% full scale. 3. Shall include a cylinder gas MFC capable of delivering 0 to 100 SCCM with an accuracy of 1% full scale. 4. (optional) Shall include a second cylinder gas MFC capable of delivering 0 to 10 SCCM with an accuracy of 1% full scale. This option may be listed and itemized in the final quote. 5. Shall be capable of calculating dilution and span gas flows based on command concentration or by manual mode. 6. Response time for flows shall be <= 60 seconds (98%) 7. Shall be equipped with digital control inputs/ outputs (opto-isolated). 8. Shall be equipped with digital status outputs (opto-isolated).	

[(a)] Where no exceptions are taken or alternatives proposed, and the space provided is left blank, it is assumed that bidder does not take any exceptions to the specification. Should an exception be later found, where none was taken by the bidder, this may constitute grounds for disqualification

Specifications for a Continuous Calibration dilution system	
FUNCTIONAL REQUIREMENTS (cont.)	**Exceptions or Alternatives [(a)]**
9. Shall meet or exceed all EPA requirements for air monitoring gas dilution systems. 10. Shall be equipped with multi-event programming functionality to perform unattended automatic operation of the instrument over a seven-day schedule. 11. Shall be entirely user calibratible for MFC operation and ozone generator. Ozone Generator 1. Shall include a reliable ozone generator for providing precise ozone calibrations and NO2 gas phase titrations. 2. Shall be equipped with optical feedback control. 3. (optional) Shall be equipped with O3 photometer for O3 generator control. This item may be listed and itemized in the final bid. 4. Generator performance must meet or exceed U.S. EPA criteria for ozone transfer standards. 5. Shall be equipped with pressure compensation. 6. Ozone generator control shall be user selectable for voltage control, lamp feedback control, or photometer control modes*. 7. Preferred ozone concentration range should be 0.1-2 PPM. 8. Response time should be <= 180 seconds (98%)	

*If equipped with a photometer.

[(a)] Where no exceptions are taken or alternatives proposed, and the space provided is left blank, it is assumed that bidder does not take any exceptions to the specification. Should an exception be later found, where none was taken by the bidder, this may constitute grounds for disqualification

Specifications for a Continuous Calibration dilution system	
FUNCTIONAL REQUIREMENTS (cont.)	**Exceptions or Alternatives [(a)]**
PHYSICAL SPECIFICATIONS: 1. The front panel of each dilution system shall include all the controls and displays necessary to operate and calibrate the dilution system. 2. Shall have at least four cylinder gas input ports and one clean air (diluent) input port. 3. (optional) Shall have two output ports. Instrument should be capable of switching between the two ports through the use of a three way valve controlled by the instrument's firmware. This item may be listed and itemized in the final bid. 4. Shall have a digital read-out on the front panel that has the capability to continuously display the current status of gas dilutions and all relevant operational and diagnostic parameters. 5. All tubing in each dilution system shall have connections, controls and fittings that are designed for rapid, easy and repeated disassembly and reassembly as may be required for cleaning, repair, and installations. All tubing, connections, fittings and controls shall be constructed of materials that will not react with atmospheric or higher concentrations of NO, NO2, ozone or hydrocarbons. All ports must be of type 316 stainless steel 1/4 inch Swagelock - NO EXCEPTIONS. The materials, design and construction of tube fittings shall be such that no leaks will develop as a result of repeated disassembly and reassembly. All gas handling dilution system and components will be free of leaks.	

[(a)] Where no exceptions are taken or alternatives proposed, and the space provided is left blank, it is assumed that bidder does not take any exceptions to the specification. Should an exception be later found, where none was taken by the bidder, this may constitute grounds for disqualification

Specifications for a Continuous Calibration dilution system	
FUNCTIONAL REQUIREMENTS (cont.)	**Exceptions or Alternatives [(a)]**
6. Each dilution system shall be equipped with an RS-232 data communications port and an Ethernet data communications port. 7. Communication software shall be provided allowing for remote communication and operation of dilution system. 8. All components in each dilution system shall be mounted so that they can be easily and quickly serviced, removed and installed. All units and subunits shall be interchangeable and shall be of modular construction. 9. Rack Mount: with slides and brackets that are necessary for mounting in 19" wide by 25" deep instrument rack. 10. Power Requirements: 105 - 125 VAC, 60 Hz, less than 400 watts. 11. Operating Temperature Range: 15 - 35 deg. The dilution system shall meet all performance specifications when operated in this temperature range. Safe Operating Temperature Range: 5 - 40 deg. C. The dilution system shall not suffer any damage or require extraordinary maintenance when operated within this range. 12. Dilution system shall be unaffected by normal vibration associated with air monitoring instrument operation and vibration of normal transport. 13. Shall meet all performance specifications when operated at any elevation between sea level and 8000 feet. .	

[(a)] Where no exceptions are taken or alternatives proposed, and the space provided is left blank, it is assumed that bidder does not take any exceptions to the specification. Should an exception be later found, where none was taken by the bidder, this may constitute grounds for disqualification

ATTACHMENT A

TERMS AND CONDITIONS

TERMS AND CONDITIONS

1. Cash Discount Cash discount period will be computed either from the date of delivery and acceptance of the goods ordered or the date of receipt of correct and proper invoices, prepared in accordance with the terms of the purchase order, whichever is later.

2. Sales or Use Taxes Unless otherwise definitely specified, the prices quoted herein do not include sales or use
taxes.

3. Transportation Charges No charges for transportation, unloading, containers, packing, etc., will be allowed unless specified in vendor's quotation.

4. Infringement Indemnity Vendor shall defend at its expense any suit against the District based on a claim that any item furnished under this agreement or the normal sale thereof infringes any United States Letters Patent or copyright and shall pay costs and damages finally awarded in any such suit provided Vendor is notified in writing of the suit and given authority, information, and assistance at Vendor's expense for defense of same if the use of said item is enjoined as a result of such suit. Vendor at no expense to District shall obtain for District the right to use and sell said item or shall substitute an equivalent item acceptable to District and extend this patent indemnity thereto.

5. Force Majeure Neither District nor Vendor shall be liable or deemed to be in default for any delay or failure in performance under this agreement or interruption of services resulting, directly or indirectly, from acts of God, civil or military authority, acts of public enemy, war, strikes, labor disputes, shortages of suitable parts, materials, labor or transportation, or any similar cause beyond the reasonable control of District or Vendor.

6. Non-Discrimination In the performance of this agreement , Vendor shall not discriminate in recruiting, hiring, promotion, demotion, or termination practices on the basis of race, religious creed, color, national origin, ancestry, sex, age, or physical or mental disability and shall comply with the provisions of the California Fair Employment & Housing Act (Government Code Section 12900 et. seq.), the Federal Civil Rights Act of 1964 (P.L. 88-352) and all amendments thereto, Executive Order no. 11246 (30 Federal Register 12319), and all administrative rules and regulations issued pursuant to said Acts and Order. Vendor shall likewise require each subcontractor to comply with this paragraph and shall include in each subcontract language similar to this paragraph.

7. Federal, State, and Local Laws Vendor warrants that in the performance of this agreement it shall comply with all applicable Federal, State and local laws and ordinances and all lawful orders, rules and regulations hereunder.

8. Assignments and Subcontractors Neither this agreement or any interest herein nor claim hereunder may be assigned by Vendor voluntarily or by operation of law, nor may all or substantially all of this agreement be further subcontracted by Vendor without the prior written consent of District . Consent by District shall not be deemed to relieve Vendor of its obligations to comply with the requirements hereof.

9. Indemnification Vendor agrees to hold harmless, indemnify, and defend District, its officers, employees, agents, representatives, and successors-in-interest against any and all loss, damage, cost, or expenses which District, its officers, employees, agents, representatives, and successors-in-interest may incur or be required to pay by reason of any injury or property damage caused or incurred by Vendor, its employees, contractors, or agents in the performance of this agreement.

10. Termination In the event Vendor fails to comply with any term or condition of this agreement, or fails to provide the supplies or services in the manner agreed upon by the parties, this failure shall constitute a breach of the agreement. District at its sole discretion shall either notify the Vendor that it must cure this breach within fifteen (15) days of notice of breach or provide written notification of its intention to terminate this agreement.

District reserves the right to terminate this agreement for its convenience and will reimburse Vendor for actual costs incurred in performance of this agreement through the effective date of termination. Upon receipt of notice of termination, Vendor shall immediately take action not to incur any further obligations, cost, or expenses except as may be reasonably necessary to termination activities. All finished or unfinished materials procured or produced by Vendor hereunder shall, at the option of District, become District property upon the date of such termination.

11. Changes By written notice, District may, from time to time, order work suspension or make changes in quantities, drawings, specifications, place of delivery or delivery schedules, methods of shipment and packaging and/or property and services to be furnished by District. If a change causes an increase or decrease in the price of this agreement or in the time required for its performance, Vendor shall promptly notify District and assert its claim for adjustment within thirty (30) days after the change is ordered and an equitable adjustment shall be made to the agreement. However, nothing in this clause shall excuse Vendor from proceedings immediately with the agreement as changed.

12. Title and Risk of Loss Unless otherwise provided in this agreement, Vendor shall have title to and bear the risk of any loss of or damage to items purchased hereunder until they are delivered in conformity with this agreement at the F.O. B. point specified herein. Upon such delivery, title shall pass from Vendor to District and Vendor's responsibility for loss or damage shall cease, except for loss or damage resulting from Vendor's negligence. Passing of title upon such delivery shall not constitute acceptance of the item by the District.

13. Inspection and Acceptance All items are subject to final inspection and acceptance by District at destination notwithstanding any payment or prior inspection at Vendor's facilities. Final inspection will be made within a reasonable time after receipt of items hereunder.

14. Payment Unless otherwise provided in this agreement, terms are net 30 days.

ATTACHMENT B

CERTIFICATIONS AND REPRESENTATIONS

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

Business Information Request

Dear SCAQMD Contractor/Supplier:

The South Coast Air Quality Management District (SCAQMD) is committed to ensuring that our contractor/supplier records are current and accurate. If your firm is selected for award of a purchase order or contract, it is imperative that the information requested herein be supplied in a timely manner to facilitate payment of invoices. In order to process your payments, we need the enclosed information regarding your account. **Please review and complete the information identified on the following pages, complete the enclosed W-9 form, remember to sign both documents for our files, and return them as soon as possible to the address below:**

Attention: Accounts Payable, Accounting Department
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

If you do not return this information, we will not be able to establish you as a vendor. This will delay any payments and would still necessitate your submittal of the enclosed information to our Accounting department before payment could be initiated. Completion of this document and enclosed forms would ensure that your payments are processed timely and accurately.

If you have any questions or need assistance in completing this information, please contact Accounting at (909) 396-3777. We appreciate your cooperation in completing this necessary information.

Sincerely,

Michael B. O'Kelly
Chief Financial Officer

DH:LV:CW:tm

Enclosures: Business Information Request
Disadvantaged Business Certification
W-9
Federal Contract Debarment Certification

REV 4/10

South Coast
Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

BUSINESS INFORMATION REQUEST

Business Name	
Division of:	
Subsidiary of:	
Website Address	
Type of Business	

REMITTING ADDRESS INFORMATION

Address			
City/Town			
State/Province		Zip	
Phone	( ) - Ext	Fax	( ) -
Contact		Title	
E-mail Address			
Payment Name if Different			

All invoices must reference the corresponding Purchase Order Number(s)/Contract Number(s) if applicable and mailed to:

Attention: Accounts Payable, Accounting Department
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

DISADVANTAGED BUSINESS CERTIFICATION

Federal guidance for utilization of disadvantaged business enterprises allows a vendor to be deemed a small business enterprise (SBE), minority business enterprise (MBE) or women business enterprise (WBE) if it meets the criteria below.

- is certified by the Small Business Administration or
- is certified by a state or federal agency or
- is an independent MBE(s) or WBE(s) business concern which is at least 51 percent owned and controlled by minority group member(s) who are citizens of the United States.

Statements of certification:

As a prime contractor to the SCAQMD,_____(name of business) will engage in good faith efforts to achieve the fair share in accordance with 40 CFR Section 31.36(e), and will follow the six affirmative steps listed below **for contracts or purchase orders funded in whole or in part by federal grants and contracts.**

1. Place qualified SBEs, MBEs, and WBEs on solicitation lists.
2. Assure that SBEs, MBEs, and WBEs are solicited whenever possible.
3. When economically feasible, divide total requirements into small tasks or quantities to permit greater participation by SBEs, MBEs, and WBEs.
4. Establish delivery schedules, if possible, to encourage participation by SBEs, MBEs, and WBEs.
5. Use services of Small Business Administration, Minority Business Development Agency of the Department of Commerce, and/or any agency authorized as a clearinghouse for SBEs, MBEs, and WBEs.
6. If subcontracts are to be let, take the above affirmative steps.

Self-Certification Verification: Also for use in awarding additional points, as applicable**, in accordance with SCAQMD Procurement Policy and Procedure:**

Check all that apply:

☐ Small Business Enterprise/Small Business Joint Venture ☐ Women-owned Business Enterprise
☐ Local business ☐ Disabled Veteran-owned Business Enterprise/DVBE Joint Venture
☐ Minority-owned Business Enterprise

Percent of ownership: _____ %

Name of Qualifying Owner(s): _____ _____

I, the undersigned, hereby declare that to the best of my knowledge the above information is accurate. Upon penalty of perjury, I certify information submitted is factual.

_____ _____

NAME ***TITLE***

_____ _____

TELEPHONE NUMBER ***DATE***

Definitions

Disabled Veteran-Owned Business Enterprise means a business that meets all of the following criteria:

- is a sole proprietorship or partnership of which is at least 51 percent owned by one or more disabled veterans, or in the case of any business whose stock is publicly held, at least 51 percent of the stock is owned by one or more disabled veterans; a subsidiary which is wholly owned by a parent corporation but only if at least 51 percent of the voting stock of the parent corporation is owned by one or more disabled veterans; or a joint venture in which at least 51 percent of the joint venture's management and control and earnings are held by one or more disabled veterans.
- the management and control of the daily business operations are by one or more disabled veterans. The disabled veterans who exercise management and control are not required to be the same disabled veterans as the owners of the business.
- is a sole proprietorship, corporation, partnership, or joint venture with its primary headquarters office located in the United States and which is not a branch or subsidiary of a foreign corporation, firm, or other foreign-based business.

Joint Venture means that one party to the joint venture is a DVBE and owns at least 51 percent of the joint venture. In the case of a joint venture formed for a single project this means that DVBE will receive at least 51 percent of the project dollars.

Local Business means a business that meets all of the following criteria:

- has an ongoing business within the boundary of the SCAQMD at the time of bid application.
- performs 90 percent of the work within SCAQMD's jurisdiction.

Minority-Owned Business Enterprise means a business that meets all of the following criteria:

- is at least 51 percent owned by one or more minority persons or in the case of any business whose stock is publicly held, at least 51 percent of the stock is owned by one or more minority persons.
- is a business whose management and daily business operations are controlled or owned by one or more minority person.
- is a business which is a sole proprietorship, corporation, partnership, joint venture, an association, or a cooperative with its primary headquarters office located in the United States, which is not a branch or subsidiary of a foreign corporation, foreign firm, or other foreign business.

"Minority" person means a Black American, Hispanic American, Native American (including American Indian, Eskimo, Aleut, and Native Hawaiian), Asian-Indian American (including a person whose origins are from India, Pakistan, or Bangladesh), Asian-Pacific American (including a person whose origins are from Japan, China, the Philippines, Vietnam, Korea, Samoa, Guam, the United States Trust Territories of the Pacific, Northern Marianas, Laos, Cambodia, or Taiwan).

Small Business Enterprise means a business that meets the following criteria:

a. 1) an independently owned and operated business; 2) not dominant in its field of operation; 3) together with affiliates is either:

   - A service, construction, or non-manufacturer with 100 or fewer employees, and average annual gross receipts of ten million dollars ($10,000,000) or less over the previous three years, or
   - A manufacturer with 100 or fewer employees.

b. Manufacturer means a business that is both of the following:

   1) Primarily engaged in the chemical or mechanical transformation of raw materials or processed substances into new products.

   2) Classified between Codes 311000 to 339000, inclusive, of the North American Industrial Classification System (NAICS) Manual published by the United States Office of Management and Budget, 2007 edition.

Small Business Joint Venture means that one party to the joint venture is a Small Business and owns at least 51 percent of the joint venture. In the case of a joint venture formed for a single project this means that the Small Business will receive at least 51 percent of the project dollars.

Women-Owned Business Enterprise means a business that meets all of the following criteria:

- is at least 51 percent owned by one or more women or in the case of any business whose stock is publicly held, at least 51 percent of the stock is owned by one or more women.
- is a business whose management and daily business operations are controlled or owned by one or more women.
- is a business which is a sole proprietorship, corporation, partnership, or a joint venture, with its primary headquarters office located in the United States, which is not a branch or subsidiary of a foreign corporation, foreign firm, or other foreign business.

Form **W-9**
(Rev. January 2005)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give form to the requester. Do not send to the IRS.

Print or type
See Specific Instructions on page 2.

Name (as shown on your income tax return)

Business name, if different from above

Check appropriate box: ☐ Individual/ Sole proprietor ☐ Corporation ☐ Partnership ☐ Other ► _____ ☐ Exempt from backup withholding

Address (number, street, and apt. or suite no.) | Requester's name and address (optional)

City, state, and ZIP code

List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on Line 1 to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. *If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.*

Social security number
___ ___ ___ – ___ ___ – ___ ___ ___ ___

or

Employer identification number
___ ___ – ___ ___ ___ ___ ___ ___ ___

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. person (including a U.S. resident alien).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. (See the instructions on page 4.)

Sign Here Signature of U.S. person ► Date ►

Purpose of Form

A person who is required to file an information return with the IRS, must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

U.S. person. Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee.

Note. *If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.*

For federal tax purposes you are considered a person if you are:

- An individual who is a citizen or resident of the United States,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States, or
- Any estate (other than a foreign estate) or trust. See Regulations sections 301.7701-6(a) and 7(a) for additional information.

Foreign person. If you are a foreign person, do not use Form W-9. Instead, use the appropriate Form W-8 (see Publication 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the recipient has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items:

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.

4. The type and amount of income that qualifies for the exemption from tax.

5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity not subject to backup withholding, give the requester the appropriate completed Form W-8.

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 28% of such payments (after December 31, 2002). This is called "backup withholding." Payments that may be subject to backup withholding include interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester, or

2. You do not certify your TIN when required (see the Part II instructions on page 4 for details), or

3. The IRS tells the requester that you furnished an incorrect TIN, or

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See the instructions below and the separate Instructions for the Requester of Form W-9.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of $50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a $500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Name

If you are an individual, you must generally enter the name shown on your social security card. However, if you have changed your last name, for instance, due to marriage without informing the Social Security Administration of the name change, enter your first name, the last name shown on your social security card, and your new last name.

If the account is in joint names, list first, and then circle, the name of the person or entity whose number you entered in Part I of the form.

Sole proprietor. Enter your individual name as shown on your social security card on the "Name" line. You may enter your business, trade, or "doing business as (DBA)" name on the "Business name" line.

Limited liability company (LLC). If you are a single-member LLC (including a foreign LLC with a domestic owner) that is disregarded as an entity separate from its owner under Treasury regulations section 301.7701-3, enter the owner's name on the "Name" line. Enter the LLC's name on the "Business name" line. Check the appropriate box for your filing status (sole proprietor, corporation, etc.), then check the box for "Other" and enter "LLC" in the space provided.

Other entities. Enter your business name as shown on required Federal tax documents on the "Name" line. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on the "Business name" line.

Note. You are requested to check the appropriate box for your status (individual/sole proprietor, corporation, etc.).

Exempt From Backup Withholding

If you are exempt, enter your name as described above and check the appropriate box for your status, then check the "Exempt from backup withholding" box in the line following the business name, sign and date the form.

Generally, individuals (including sole proprietors) are not exempt from backup withholding. Corporations are exempt from backup withholding for certain payments, such as interest and dividends.

Note. If you are exempt from backup withholding, you should still complete this form to avoid possible erroneous backup withholding.

Exempt payees. Backup withholding is not required on any payments made to the following payees:

1. An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2),

2. The United States or any of its agencies or instrumentalities,

3. A state, the District of Columbia, a possession of the United States, or any of their political subdivisions or instrumentalities,

4. A foreign government or any of its political subdivisions, agencies, or instrumentalities, or

5. An international organization or any of its agencies or instrumentalities.

Other payees that may be exempt from backup withholding include:

6. A corporation,

7. A foreign central bank of issue,

8. A dealer in securities or commodities required to register in the United States, the District of Columbia, or a possession of the United States,

9. A futures commission merchant registered with the Commodity Futures Trading Commission,

10. A real estate investment trust,

11. An entity registered at all times during the tax year under the Investment Company Act of 1940,

12. A common trust fund operated by a bank under section 584(a),

13. A financial institution,

14. A middleman known in the investment community as a nominee or custodian, or

15. A trust exempt from tax under section 664 or described in section 4947.

The chart below shows types of payments that may be exempt from backup withholding. The chart applies to the exempt recipients listed above, 1 through 15.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt recipients except for 9
Broker transactions	Exempt recipients 1 through 13. Also, a person registered under the Investment Advisers Act of 1940 who regularly acts as a broker
Barter exchange transactions and patronage dividends	Exempt recipients 1 through 5
Payments over $600 required to be reported and direct sales over $5,000 [1]	Generally, exempt recipients 1 through 7 [2]

[1] See Form 1099-MISC, Miscellaneous Income, and its instructions.

[2] However, the following payments made to a corporation (including gross proceeds paid to an attorney under section 6045(f), even if the attorney is a corporation) and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees; and payments for services paid by a Federal executive agency.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are a single-owner LLC that is disregarded as an entity separate from its owner (see *Limited liability company (LLC)* on page 2), enter your SSN (or EIN, if you have one). If the LLC is a corporation, partnership, etc., enter the entity's EIN.

Note. See the chart on page 4 for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local Social Security Administration office or get this form online at *www.socialsecurity.gov/online/ss-5.pdf*. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at *www.irs.gov/businesses/* and clicking on Employer ID Numbers under Related Topics. You can get Forms W-7 and SS-4 from the IRS by visiting *www.irs.gov* or by calling 1-800-TAX-FORM (1-800-829-3676).

If you are asked to complete Form W-9 but do not have a TIN, write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note. Writing "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: *A disregarded domestic entity that has a foreign owner must use the appropriate Form W-8.*

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if items 1, 4, and 5 below indicate otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). Exempt recipients, see *Exempt From Backup Withholding* on page 2.

Signature requirements. Complete the certification as indicated in 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account)	The actual owner of the account or, if combined funds, the first individual on the account [1]
3. Custodian account of a minor (Uniform Gift to Minors Act)	The minor [2]
4. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee [1]
b. So-called trust account that is not a legal or valid trust under state law	The actual owner [1]
5. Sole proprietorship or single-owner LLC	The owner [3]
For this type of account:	**Give name and EIN of:**
6. Sole proprietorship or single-owner LLC	The owner [3]
7. A valid trust, estate, or pension trust	Legal entity [4]
8. Corporate or LLC electing corporate status on Form 8832	The corporation
9. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
10. Partnership or multi-member LLC	The partnership
11. A broker or registered nominee	The broker or nominee
12. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity

[1] List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

[2] Circle the minor's name and furnish the minor's SSN.

[3] You must show your individual name and you may also enter your business or "DBA" name on the second name line. You may use either your SSN or EIN (if you have one). If you are a sole proprietor, IRS encourages you to use your SSN.

[4] List first and circle the name of the legal trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.)

Note. If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons who must file information returns with the IRS to report interest, dividends, and certain other income paid to you, mortgage interest you paid, the acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA, or Archer MSA or HSA. The IRS uses the numbers for identification purposes and to help verify the accuracy of your tax return. The IRS may also provide this information to the Department of Justice for civil and criminal litigation, and to cities, states, and the District of Columbia to carry out their tax laws. We may also disclose this information to other countries under a tax treaty, to federal and state agencies to enforce federal nontax criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism.

You must provide your TIN whether or not you are required to file a tax return. Payers must generally withhold 28% of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to a payer. Certain penalties may also apply.

United State Environmental Protection Agency
Washington, DC 20460

Certification Regarding
Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies to the best of its knowledge and belief that it and the principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgement rendered against them or commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction: violation of Federal or State antitrust statute or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property:

(c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

_____

Typed Name & Title of Authorized Representative

_____

Signature of Authorized Representative Date

❑ I am unable to certify to the above statements. My explanation is attached.

CAMPAIGN CONTRIBUTIONS DISCLOSURE

California law prohibits a party, or an agent, from making campaign contributions to AQMD Governing Board Members or members/alternates of the Mobile Source Pollution Reduction Committee (MSRC) of $250 or more while their contract or permit is pending before the AQMD; and further prohibits a campaign contribution from being made for three (3) months following the date of the final decision by the Governing Board or the MSRC on a donor's contract or permit. Gov't Code §84308(d). For purposes of reaching the $250 limit, the campaign contributions of the bidder or contractor *plus* contributions by its parents, affiliates, and related companies of the contractor or bidder are added together. 2 C.C.R. §18438.5.

In addition, Board Members or members/alternates of the MSRC must abstain from voting on a contract or permit if they have received a campaign contribution from a party or participant to the proceeding, or agent, totaling $250 or more in the 12-month period prior to the consideration of the item by the Governing Board or the MSRC. Gov't Code §84308(c). When abstaining, the Board Member or members/alternates of the MSRC must announce the source of the campaign contribution on the record. *Id*. The requirement to abstain is triggered by campaign contributions of $250 or more in total contributions of the bidder or contractor, *plus* any of its parent, subsidiary, or affiliated companies. 2 C.C.R. §18438.5.

In accordance with California law, bidders and contracting parties are required to disclose, at the time the application is filed, information relating to any campaign contributions made to Board Members or members/alternates of the MSRC, including: the name of the party making the contribution (which includes any parent, subsidiary or otherwise related business entity, as defined below), the amount of the contribution, and the date the contribution was made. 2 C.C.R. §18438.8(b).

The list of current AQMD Governing Board Members can be found at the AQMD website (www.aqmd.gov). The list of current MSRC members/alternates can be found at the MSRC website (http://www.cleantransportationfunding.org).

SECTION I. Please complete Section I.

Contractor: **RFP #:** Q2011-03

_____

List any parent, subsidiaries, or otherwise affiliated business entities of Contractor: ***(See definition below).***

_____

_____

_____

_____

SECTION II

Has contractor and/or parent, subsidiary, or affiliated company, or agent thereof, made a campaign contribution(s) totaling $250 or more in the aggregate to a current member of the South Coast Air Quality Management Governing Board or members/alternates of the MSRC in the 12 months preceding the date of execution of this disclosure?

☐ Yes ☐ No **If YES, complete Section II below and then sign and date the form. If NO, sign and date below. Include this form with your submittal.**

Campaign Contributions Disclosure, *continued:*

Name of Contributor_____

Governing Board Member or MSRC Member/Alternate	Amount of Contribution	Date of Contribution

Name of Contributor_____

Governing Board Member or MSRC Member/Alternate	Amount of Contribution	Date of Contribution

Name of Contributor_____

Governing Board Member or MSRC Member/Alternate	Amount of Contribution	Date of Contribution

Name of Contributor_____

Governing Board Member or MSRC Member/Alternate	Amount of Contribution	Date of Contribution

Name of Contributor_____

Governing Board Member or MSRC Member/alternate	Amount of Contribution	Date of Contribution

I declare the foregoing disclosures to be true and correct.

By:_____

Title:_____

Date:_____

DEFINITIONS

Parent, Subsidiary, or Otherwise Related Business Entity.

(1) Parent subsidiary. A parent subsidiary relationship exists when one corporation directly or indirectly owns shares possessing more than 50 percent of the voting power of another corporation.

(2) Otherwise related business entity. Business entities, including corporations, partnerships, joint ventures and any other organizations and enterprises operated for profit, which do not have a parent subsidiary relationship are otherwise related if any one of the following three tests is met:

(A) One business entity has a controlling ownership interest in the other business entity.

(B) There is shared management and control between the entities. In determining whether there is shared management and control, consideration should be given to the following factors:

- ***(i) The same person or substantially the same person owns and manages the two entities;***
- ***(ii) There are common or commingled funds or assets;***
- ***(iii) The business entities share the use of the same offices or employees, or otherwise share activities, resources or personnel on a regular basis;***
- ***(iv) There is otherwise a regular and close working relationship between the entities; or***

(C) A controlling owner (50% or greater interest as a shareholder or as a general partner) in one entity also is a controlling owner in the other entity.

2 Cal. Code of Regs., §18703.1(d).

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 8

PROPOSAL: Execute Contracts to Conduct Conceptual Feasibility Studies for Reduction of Near Roadway Pollutant Exposures

SYNOPSIS: Numerous air monitoring and health studies document elevated pollution levels and health risks in areas immediately adjacent to busy roadways and freeways. In addition to reducing on-road tailpipe emissions, other mitigation measures may be effective in reducing the pollution exposure of those living, working or playing in these affected areas. On March 5, 2010, an RFP was released for conceptual research studies to assess the feasibility and cost-effectiveness of roadside pollution mitigation measures, and six proposals were received. Based on the results of the technical evaluation process, this action is to execute three contracts in a total amount not to exceed $250,000 to study the reduction of pollutant exposures using near roadway mitigation measures.

COMMITTEE: Technology, October 15, 2010, Recommended for Approval

RECOMMENDED ACTION:
Authorize the Chairman to execute the following contracts to study near roadway pollutant exposure mitigation measures:

1. University of California, Riverside in an amount not to exceed $113,268;
2. Sierra Research, Inc. in an amount not to exceed $84,900; and
3. The Planning Center in an amount not to exceed $51,832

for a total not to exceed $250,000 from the Rule 1309.1 Priority Reserve Fund (Fund 36).

Barry R. Wallerstein, D.Env.
Executive Officer

CSL:PMF:cv

Background
Numerous air monitoring studies near freeways have demonstrated significantly elevated pollutants in immediately adjacent areas. Population exposure to diesel particulate matter and ultrafine particles can be 2-10 times higher near freeways and busy roadways. Recent health studies have shown that living or going to school next to these busy roads leads to an increased risk of adverse health effects.

The primary and most obvious approach to reducing these elevated exposures and health impacts is to reduce tailpipe emissions from on-road vehicles. However, other technologies and mitigation measures have the potential to also reduce exposure to roadway pollution. Sound walls and vegetation barriers have been shown to have some effect on lowering pollutant levels immediately downwind of freeways. Elevated or sunken roadways also have effects on downwind pollution levels. Enhanced filtration systems have been shown to reduce ultrafine and black carbon particle levels indoors. There may be other solutions which act to remove or deflect pollutants after they are emitted, but before they are inhaled by affected populations. However, much more work needs to be done to explore, assess, and develop solutions of this type.

Request for Proposals
On March 5, 2010, the Board authorized the release of RFP #P2010-18 soliciting bids to conduct conceptual research studies on the feasibility, design, cost, and benefits of one or more solutions to reduce near roadway exposure to pollutants. Both active and passive designs were to be assessed and compared. Passive designs include construction of sound walls, tree-lines, sunken roadways, or raised roadways that act to reduce near roadway exposure to emission from on-road vehicles. Active designs include roadside filtration, absorption, or scrubbing devices, installing enhanced filtration systems within roadside residences and schools, or air active flow diversion solutions. Pollutants of interest include ultrafine particles, PM2.5, PM10, Diesel PM, air toxics, and NOx.

Bidders were asked to describe in detail conceptual feasibility studies that include background research, proposed designs, calculated/modeled effectiveness, and cost/benefit analyses relative to more standard solutions (such as tailpipe controls). It was anticipated that several proposals would be selected, with the total amount awarded to all successful bids not exceeding $250,000 from the Rule 1309.1 Priority Reserve Fund (Fund 36).

Evaluation of Proposals
Six proposals were received by the RFP deadline of April 9, 2010. Proposals were evaluated for their technical merit by a panel consisting of two AQMD Air Quality Specialists, one from Science & Technology Advancement and one from Planning & Rules; a Division Chief from the California Air Resources Board, and a Senior

Transportation Engineer from the California Department of Transportation. The panel makeup relative to ethnicity and gender is as follows: two Asian, one Hispanic and one Caucasian; four males. The evaluation process was conducted according to the criteria described in the RFP. Scoring was based on the bidder's qualifications, technical approach, and management plan. A minimum of 56 technical points was required for a proposal to qualify for funding. The proposal evaluation results are given in Attachment A.

Of the six proposals received, two did not meet the minimum technical score according to the panel's evaluation. These two were not given scores for cost-effectiveness as they were disqualified from consideration based on their technical merits.

The study proposed by Sierra Research will identify multiple roadside barrier designs, model the effects with dispersion models, and then perform a multiday field monitoring study at a roadside location. The study proposed by Professor Princevac at UC Riverside will employ advanced fluid mechanics modeling to multiple roadside barrier configurations in conjunction with laboratory-scale models of the barriers. The study proposed by the Planning Center will use dispersion modeling to evaluate the impact of sound walls, vegetation lines, and other mitigation measures on the pollution levels of multiple pollutants indoors and outdoors downwind of freeways and perform a cost-benefit analysis compared to tail-pipe controls. The study proposed by Professor Venkatram at UC Riverside will develop a semi-empirical dispersion model to evaluate the effectiveness of roadside barriers and validate the model with wind tunnel experiments. Given the overlap between the two UC Riverside proposals and the fact that both investigators are in the same department at UC Riverside, the investigators were asked whether they could collaborate under one contract at a cost less than the sum of the two proposals. Both UC Riverside investigators have agreed to this approach.

The majority of the work in the proposed studies involves the evaluation of passive measures such as roadside barriers or roadway configurations. Staff will continue to evaluate the feasibility of active filtration approaches to reduce near roadway exposures, and may propose future RFPs for research and design of active pollution removal methods.

Recommendation

Staff recommends that AQMD fund all proposed projects that met the minimum technical score in a total amount not to exceed $250,000. With the combination of the two UC Riverside proposals, staff proposes awarding a total of three contracts: University of California, Riverside in an amount not to exceed $113,268; Sierra Research, Inc. in an amount not to exceed $84,900; and The Planning Center in an amount not to exceed $51,832.

Benefits to AQMD
These research contracts will advance the AQMD's mission of reducing the exposure of southern Californians to harmful air pollution. An evaluation of roadside mitigation measures will provide a basis for AQMD to inform and make recommendations to the public and transportation design agencies on the effectiveness and feasibility of such measures.

Resource Impacts
The total amount of AQMD funding for the program will not exceed $250,000. Sufficient funds are available in the Rule 1309.1 Priority Reserve Fund (Fund 36).

Attachment
Attachment A – Proposal Evaluation Results for RFP #P2010-18

ATTACHMENT A

PROPOSAL EVALUATION RESULTS
for RFP #P2010-18

Bidder	Technical Points (70)	Cost-Effectiveness Points (30)	Additional Points (Small Business) (10)	Total Points
California State University – Long Beach	35	-	-	-
Sierra Research	56	12	10	78
University of California – Riverside, Prof. Princevac	57	24	0	81
National Air Bureau	26	-	-	-
The Planning Center	58	30	0	88
University of California – Riverside, Prof. Venkatram	57	6	0	63

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 9

PROPOSAL: Execute Contract To Provide Technical Assistance for Alternative-Fueled Trucks Funded Under AQMD's Heavy-Duty Diesel Truck Replacement Program

SYNOPSIS: The AQMD has received grant awards from the Department of Energy and Environmental Protection Agency for LNG truck projects approved under AQMD's Heavy-Duty Diesel Truck Replacement Program, including administrative funds. AQMD's administration of the program consists of project outreach and solicitation, project evaluation, inspections, contracting, invoice processing, project monitoring and other activities to comply with all program requirements. AQMD is required to monitor the operation of each LNG truck on a quarterly basis for a period of two years. This action is to execute a contract with Clean Fuel Connection to provide technical assistance for quarterly reporting and other program administrative activities in an amount not to exceed $80,000.

COMMITTEE: Technology, October 15, 2010, Recommended for Approval

RECOMMENDED ACTIONS:
Authorize the Chairman to execute a contract with Clean Fuel Connection to provide technical assistance for quarterly reporting and other program administrative activities in an amount not to exceed $80,000 from the Proposition 1B–Goods Movement Program Fund (81), comprised of $40,000 each from the Department of Energy's (DOE) and the U.S. Environmental Protection Agency's (U.S. EPA) portion of the administrative funds.

Barry R. Wallerstein, D.Env.
Executive Officer

CSL:MMM:FM:VW

Background
The AQMD has received grant awards from the DOE and U.S. EPA, including administrative funds, to help fund the replacement of older heavy-duty diesel trucks used for goods movement with newer, low-emitting alternative fueled trucks. AQMD's program administration includes, but is not limited to, project outreach and solicitation, project evaluation, inspections, contracting, invoice processing, and project monitoring. Under both federal grants, AQMD is required to monitor the operation of each LNG truck on a quarterly basis for a period of two years. This involves the collection of operational information from the truck owners/operators, such as fuel usage and mileage data, after the end of each quarter for a period of two years. AQMD is also responsible for other administrative tasks, such as monitoring the overall performance of the program and keeping track of any changes in ownership of the alternative-fueled vehicles, to insure full compliance with the terms and conditions of the grant awards.

Proposal
AQMD requires technical assistance to help administer grant requirements affecting the alternative-fueled trucks funded under AQMD's Heavy-Duty Truck Replacement Program, including trucks funded by the Proposition 1B Program. AQMD was awarded grant funds from the DOE and U.S. EPA, including administrative funds, for this program. Both federal grants require AQMD to submit quarterly and annual reports documenting actual miles traveled by each alternative-fueled vehicle and other operational information. AQMD is also required to track ownership changes for each vehicle and monitor the overall performance of the program. This action is to execute a contract with Clean Fuel Connection to provide technical assistance for program administrative activities in an amount not to exceed $80,000 from the Proposition 1B-Goods Movement Program Fund (81), comprised of $40,000 each from the DOE's and the U.S. EPA's portion of the administrative funds.

Sole Source Justification
Section VIII.B.2 of the Procurement Policy and Procedures identifies four major provisions under which a sole source award may be justified. This request is for a sole source award pursuant to the provision B.2.d: Other circumstances exist which in the determination of the Executive Officer require such waiver in the best interest of the AQMD. Specifically, the circumstances that apply to this sole source award are: B.2.d. (4) Level-of-effort expert consultation services. Clean Fuel Connection has assisted AQMD with implementing a wide-array of incentive programs to deploy lower-emitting heavy-duty vehicles and advanced transportation technologies. Clean Fuel Connection's Principal, Ms. Enid Joffe, has over 15 years of experience with zero-emission and low-emission technologies and has extensive experience and professional knowledge about the feasibility and inner workings of AQMD's incentive programs. Specifically, Clean Fuel Connection assisted the AQMD in the evaluation, ranking, and contracting of the trucks under the Proposition 1B Program. Contractor's familiarity and solid foundation

of knowledge with respect to incentive programs is needed to help AQMD continue to develop and implement a wide array of incentive programs.

Benefits to AQMD

The successful implementation of this program will reduce NOx, PM and other pollutant emissions in a cost-effective and expeditious manner which will help achieve the goals of the 2007 AQMP. The new vehicles funded under this program are expected to operate for many years and provide long-term emission reduction benefits at the ports and in the region.

Resource Impacts

Total funding for this contract award to provide technical assistance for alternative-fueled trucks shall not exceed $80,000 from the Proposition 1B–Goods Movement Program Fund (81), comprised of $40,000 in administrative funds from the DOE grant and $40,000 in administrative funds from the U.S. EPA grant. Sufficient funds are available in the Proposition 1B–Goods Movement Program Fund (81).

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 10

PROPOSAL: Execute Sole Source Contract for Buy-Down Incentive Program for CNG Home Refueling Appliance

SYNOPSIS: Since May 6, 2005, the AQMD has implemented a buy-down incentive program for the *Phill* natural gas home refueling appliance (HRA) manufactured by FuelMaker Corporation to broaden the consumer base of light-duty natural gas vehicles. In April 2009, FuelMaker Corporation filed bankruptcy and was acquired by Fuel Systems Solutions, Inc. In July 2010, sale of the HRA in California resumed through an exclusive distributor, Gas Equipment Systems, Inc. (GESI). This action is to execute a sole source contract with GESI for an amount not to exceed $60,000 from the Clean Fuels Fund to provide a buy-down incentive of $1,000 per HRA.

COMMITTEE: Technology, October 15, 2010, Recommended for Approval

RECOMMENDED ACTION:
Authorize the Chairman to execute a sole source contract with Gas Equipment Systems, Inc. in an amount not to exceed $60,000 from the Clean Fuels Fund (Fund 31) for a buy-down incentive program for the purchase and installation of a home refueling appliance (HRA) at $1,000 incentive per HRA.

Barry R. Wallerstein, D.Env.
Executive Officer

CSL:HH:DKS:PMB

Background
In May 2005, the AQMD and MSRC started a buy-down incentive program for consumers to purchase or lease, and install within the jurisdictional boundaries of the AQMD, the CNG home refueling appliance manufactured by FuelMaker Corporation, and marketed under the name *Phill*. Overwhelming response to the buy-down incentive and the purchase of the *Phill,* resulted in the Board reapportioning and approving additional funds in February 2007 and July 2008. More than 260 consumers purchased

and installed the *Phill* with AQMD sponsored buy-down incentives as of April 2009. In April 2009, the buy-down incentive program was unexpectedly interrupted when FuelMaker Corporation filed bankruptcy. FuelMaker was acquired by another company and production was moved from Canada to Italy. Production of the *Phill* was resumed under the new owner, Fuel Systems Solutions, Inc., and reintroduced to the market in the latter part of July 2010. The contract between the AQMD and FuelMaker Corporation to implement the purchase buy-down incentive program was subsequently closed leaving a balance of $60,000 in contract funds for the incentive program. There have been general interest and inquiries from the public regarding the buy-down program after the reintroduction of the HRA into the California market.

Proposal

Staff is requesting the Board's approval to reinstate the buy-down incentive program for purchase of the compressed natural gas (CNG) home refueling appliance, marketed under the name *Phill*, and enter into a contract with Gas Equipment Systems, Inc., the exclusive dealer for the HRA in California for an amount not to exceed $60,000. Staff is proposing the buy-down incentive program provide $1,000 per HRA customer to purchase and install a *Phill* within the jurisdictional boundaries of the AQMD. The objective of the buy-down program is to facilitate the expansion and use of alternative fuel vehicles in the general consumer market.

Benefits to AQMD

Gasoline and diesel fueled mobile sources are a significant source of emissions in the AQMD and alternative fueled vehicles are a means of reducing these emissions. This project will continue the momentum for the expansion of natural gas home refueling appliances and passenger car alternative fuel vehicles.

Sole Source Justification

Section VIII.B.2 of the Procurement Policy and Procedure identifies four major provisions under which a sole source award may be justified. This request for a sole source award is made under provision c (3) "*the contractor has ownership of key assets required for project performance*". Gas Equipment Systems, Inc. is the sole distributor of the home refueling appliance in California.

Resource Impacts

In July 2008, the Board awarded $146,000 to the HRA purchase incentive program from the Clean Fuels Fund (31) through a contract modification with FuelMaker Corporation. FuelMaker Corporation subsequently changed ownership which resulted in closing out their contract with a balance of $60,000. Staff is requested this amount of $60,000 funded from the Clean Fuels Fund (31) be applied to a new contract with Gas Equipment System, Inc. to continue the incentive program.

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 11

PROPOSAL: Execute Contracts to Support Electric Charging Infrastructure

SYNOPSIS: Southern California has an established but obsolete network of public charging for electric vehicles. State and federal funds are being invested in our region to support the deployment of plug-in electric vehicles including charging infrastructure. This action is to execute contracts with Clipper Creek, Coulomb Chargepoint and ETEC ECOtality to cofund the upgrade of existing chargers and install new chargers in high priority locations for a total cost not to exceed $210,000 from the Clean Fuels Fund.

COMMITTEE: Technology, October 15, 2010, Recommended for Approval

RECOMMENDED ACTIONS:

1. Authorize the Chairman to execute contracts from the Clean Fuels Fund (31) for electric charging infrastructure projects with:
   a. Clipper Creek, to upgrade existing chargers in an amount not to exceed $70,000;
   b. Coulomb Chargepoint, to install chargers at existing and new locations in an amount not to exceed $70,000; and
   c. ETEC ECOtality, to install chargers at existing and new locations in an amount not to exceed $70,000.
2. Authorize the Executive Officer to redistribute (add or reduce) funding among the participating contractors to address the demand and selection criteria for electric charging infrastructure for a total amount not to exceed $210,000 from the Clean Fuels Fund.

Barry R. Wallerstein, D.Env.
Executive Officer

CSL:MMM:DS:LHM

Background
There are currently about 1,800 chargers at approximately 500 sites in the South Coast Air Basin. Although some of these chargers remain to serve vehicles already in operation, many are good candidates for installation of new chargers compatible with new battery electric, plug-in hybrid, and extended range electric vehicles (PEV) that will be sold in our region starting this year.

The U.S. Department of Energy's (DOE) American Recovery and Reinvestment Act – Transportation Electrification funds were awarded to prepare communities for new PEVs. ETEC ECOtality was awarded $99.8 million for national efforts to increase electric charging infrastructure involving Nissan and General Motors, and this effort is expected to result in approximately $15 million for charging infrastructure in California. Coulomb Chargepoint was awarded $37 million for national efforts with General Motors, Ford, and Smart, and this amount of funding is expected to result in approximately $15 million for electric charging infrastructure in California.

In addition, the California Energy Commission (CEC) released solicitations for electric charging infrastructure, and through this effort the CEC awarded $8 million to ETEC ECOtality, $3.4 million to Coulomb Chargepoint, and $1.9 million to Clipper Creek to upgrade and install new chargers in California.

Proposal
This proposal would provide cofunding to the three charger manufacturers that have been awarded federal or state funding. Staff recommends providing up to $1,000 in cofunding for each charger. Cofunding above $1,000 per charger will be considered on a case-by-case basis. AQMD staff will provide a status update on electric vehicle charging including location, number of chargers and any signage replaced with this funding.

The AQMD will work with stakeholders including SoCalEV Ready participants, PEV drivers, auto manufacturers, charger manufacturers, charging equipment distributor, local electric utilities, public charging site providers, and other government agencies to prioritize public and workplace charger placement in the South Coast Air Basin.

Staff recommends upgrading existing chargers and installing new chargers using the following selection criteria: located within the South Coast Air Basin, publicly accessible, sites having SoCal EV Ready stakeholder interest, previous MSRC or Clean Fuels funded sites to ensure high utility, and sites with owner cooperation.

Electric Vehicle Support Equipment (EVSE) will be required to comply with SAE J1772 2010 recommended practice, be UL listed, and include adequate signage. AQMD funding will be used to install chargers additional to those funded with state

and federal funds; or will be used to reduce the actual cost to the site owner, as demonstrated on a case-by-case basis.

This action is to execute contracts with Clipper Creek, Coulomb Chargepoint and ETEC ECOtality in amounts not to exceed $70,000 each from the Clean Fuels Fund. This action further seeks authorization to allow the Executive Officer to reallocate money between the contracts in order to ensure funds are expended.

Benefits to AQMD
AQMD's Clean Fuels Program has been active in funding the development and demonstration of electric vehicles and electric charging infrastructure. The proposed electric charging infrastructure projects are included in the *Technology Advancement Office 2010 Plan Update* under "Electric/Hybrid Technologies."

Sole Source Justification
Section VII.C.2. of the Policy for Clean Air Incentive Contracts identifies provisions under which a sole source award may be justified. This request for three sole source awards is made under provision C.2.d.: Other circumstances exist which in the determination of the Executive Officer require such waiver in the best interest of the AQMD. Specifically, these circumstances are C.2.d.(1): Projects involving cost sharing by multiple sponsors and B.2.c.(3): Contractor has ownership of key assets required for project performance."

In addition to the AQMD's proposed funding, the DOE and the CEC will provide funding for the electric infrastructure projects with ECOtality, Coulomb Chargepoint and Clipper Creek.

ETEC ECOtality, Coulomb Chargepoint and Clipper Creek have extensive experience in the construction and deployment of electric charging stations and have received significant amounts of funding from the DOE and the CEC to expand the network of electric charging stations on a national basis and in California.

Resource Impacts
AQMD's proposed funding for ETEC ECOTality, Coulomb Chargepoint and Clipper Creek shall not exceed $210,000 from the Clean Fuels Fund. The funding partners and the proposed funding amounts are as follows:

Contractor	DOE ARRA	CEC AB 118	AQMD
ETEC ECOtality	$99.8 million in U.S. $15.0 million in California	$8.0 million in California $3.2 million in AQMD	$70,000
Coulomb Chargepoint	$37.0 million in U.S. $15.0 million in California	$3.4 million in California $1.4 million in AQMD	$70,000
Clipper Creek	N/A	$1.9 million in California $760,000 in AQMD	$70,000
Total	$136.8 million in U.S. $30.0 million in California	$13.3 million in California $5.4 million in AQMD	$210,000

Staff recommends providing up to $1,000 in cofunding for each charger. Cofunding above $1,000 per charger will be considered on a case-by-case basis.

Sufficient funds for the proposed projects are available from the Clean Fuels Fund, established as a special revenue fund resulting from the state-mandated Clean Fuels Program. The Clean Fuels Program, under Health and Safety Code Sections 40448.5 and 40512 and Vehicle Code Section 9250.11, establishes mechanisms to collect revenues from mobile sources to support projects to increase the utilization of clean fuels, including the development of the necessary advanced enabling technologies. Funds collected from motor vehicles are restricted, by statute, to be used for projects and program activities related to mobile sources that support the objectives of the Clean Fuels Program.

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 12

PROPOSAL: Authorize Purchase of Desktop Computer Hardware Upgrades

SYNOPSIS: AQMD operational efficiency is dependent on staff's desktop computer systems, and many software applications (both off-the-shelf and in-house developed applications) are exceeding the capacity of the present desktop systems. This action is to authorize the purchase of new desktop computer systems, with adequate capacity to support current software applications, to replace older desktop systems. These replacements are in accord with AQMD's Information Management Strategic Plan. Funds ($150,000) for this purchase are included in the FY 2010-11 Budget.

COMMITTEE: Administrative, October 8, 2010, Recommended for Approval

RECOMMENDED ACTION:
Authorize the Procurement Manager to purchase 225 new desktop computer systems from JPK Micro Supply, Inc. at a cost not to exceed $150,000, and to execute all documents for this purchase.

Barry R. Wallerstein, D.Env.
Executive Officer

JCM:MAH:RG:agg

Background
The AQMD has become increasingly dependent on desktop computers for its operational efficiency. Each desktop computer uses a suite of standard desktop applications (word processing, spreadsheets, graphics, presentation, and desktop database management), and utilization of these components has steadily increased to the point that maximum capacity has been reached. Furthermore, many of the desktop systems are required to run the AQMD's Finance/Human Resource applications (PeopleSoft), Record Services imaging, and workflow automation applications. Computing capacity of older desktop computers hampers the performance of these applications.

Therefore, in accordance with Information Management's Strategic Plan and to efficiently support staff, all Pentium 4 single core processor systems (and below) will be replaced.

Bid Evaluation
In accordance with the AQMD Purchasing Policy and Procedure No. 35, bids for desktop computer hardware with the following configuration were solicited from the firms on the List of Prequalified Vendors to Provide Computer, Network, and Printer Hardware and Software, and Desktop Computer Hardware Upgrades; master agreements; cooperative agreements; and other interagency agreements with governmental entities, in order to achieve the best available price.

- Case: Antec New Solution VSK2450 Black Computer Case w/450W power supply
- Motherboard: Intel BOXDH57DD Micro ATX Intel Motherboard
- CPU: Intel Core i5-660 3.33GHz LGA 1156 73W Dual-Core Desktop Processor
- RAM: CORSAIR XMS 4GB (2 x 2GB) 240-Pin DDR3 SDRAM DDR3 1333 Ultra Stable Desktop Memory
- Hard Drives (Qty=2): Seagate Barracuda 7200.11 160GB 3.5" SATA 3.0Gb/s Internal Hard Drive
- DVD Writer: LG 22X DVD Burner - Bulk Black SATA Model GH22NS40
- Keyboard/Mouse: Microsoft Black PS/2 Wired Standard Business Hardware Pack
- 3 Year (On-Site Replacement) Warranty

The prequalified vendor list was approved by the Board on January 8, 2010, and is in effect for a period ending February 8, 2012. Of the fourteen vendors on the list, one was from a disabled veteran-owned business enterprise, three were from women-owned business enterprises, seven were from certified minority-owned businesses, and none were from non-certified minority-owned business enterprises.

Six complete bids and one "No Bid" for desktop computer hardware were received (see Attachment). JPK Micro Supply, Inc. submitted the lowest bid at $585 per unit. The total cost of 225 new desktop computer hardware systems, including tax of 9.75%, is $144,459. Staff recommends that the Board award the contract to JPK Micro Supply, Inc. for the purchase of 225 desktop computer hardware systems.

Resource Impacts
Sufficient funds are included in the FY 2010-11 Budget, under District General Office Expense Account.

Attachment
Evaluation of Bids from Prequalified Vendor List

Attachment

Evaluation of Bids from Prequalified Vendor List

Vendor Name	Complete Bid	Unit Cost	Extended Cost*
JPK Micro Supply, Inc.	Yes	$585.00	$144,458.44
Sigmanet, Inc.	Yes	$647.00	$159,768.56
En Pointe Technologies	Yes	$699.34	$172,693.27
Aprisa Technology	Yes	$748.00	$184,709.25
Intelli-Tech	Yes	$790.00	$195,080.63
New Day Computer	Yes	$993.17	$245,250.92

* Sales tax (9.75%) is included in the extended cost.

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 13

PROPOSAL: Authorize Purchase of Ingres Relational Database Management System Software Support

SYNOPSIS: The Ingres Relational Database Management System is used for the implementation of the Central Information Repository database. This database is used by most enterprise-level software applications at the AQMD and currently supports a suite of client/server and web-based applications known collectively as the Clean Air Support System (CLASS). The CLASS applications are used to support all of the AQMD core activities. Maintenance support for this software expires November 29, 2010. This action is to obtain approval for the purchase of Ingres Database software maintenance support for another year. Funds in the amount of $115,831 for this expense are included in the FY 2010-11 Budget.

COMMITTEE: Administrative, October 8, 2010, Recommended for Approval

RECOMMENDED ACTION:
Authorize the Executive Officer to execute contracts to purchase Ingres Relational Database Management System software maintenance support for one year from Ingres Corporation in an amount not to exceed $115,831, which is allocated in the FY 2010-11 Budget.

Barry R. Wallerstein, D.Env.
Executive Officer

JCM: MH:agg

Background
In November 2006, the AQMD entered into an annual support and maintenance agreement for Ingres Relational Database Management System (RDBMS) software. The RDBMS software runs on three database servers for production, development, and

ad hoc reporting. The production server hosts the Central Information Repository database (DBCIR). This database supports a collection of more than 30 client/server and web-based applications known as the Clean Air Support System (CLASS). The CLASS application suite supports permits administration and processing of command-and-control and facility-based permits; emissions offsetting, monitoring and inventory management for New Source Review, RECLAIM and annual emission reporting operations; compliance-related complaint, inspection, assignment, notification, investigation and settlement operations; and financial accounts receivable operations. The development server supports software development for the CLASS and for other mini-computers and micro-computers accessing the Central Information Repository. The decision support server supports CLASS system ad-hoc query and reporting; and web-based inquiry applications. These applications are an integral component of the AQMD's day-to-day responsibilities. The Ingres software maintenance support expires on November 29, 2010.

Ingres maintenance includes the following services:

Software Maintenance	Licensed product updates, enhancements, and repairs; and
Software Support	Assistance in resolving online operating difficulties, system failures, Ingres application-related problems, potential system bugs, and installation and upgrade issues.

Sole-Source Justification
Section VIII.B.2 of the Procurement Policy and Procedure identifies circumstances under which a sole-source purchase award may be justified. These requests for a sole-source award are made under provision VIII.B.2.c.(2) the project involves the use of proprietary technology, and (3) the contractor has ownership of key assets required for project performance. Ingres Corporation is the sole manufacturer and provider of this software and therefore the only source for its maintenance and support licensing agreements.

Proposal
Staff recommends the purchase of one year of Ingres Relational Database Management System Software maintenance support to provide continued support for AQMD's CLASS applications in an amount not to exceed $115,831.

Resource Impacts
Sufficient funds are included in the FY 2010-11 Budget, under Information Management Professional and Special Services.

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 14

PROPOSAL: Issue RFP for GHG Reduction Projects

SYNOPSIS: This action is to issue an RFP soliciting bids for proposed projects to generate certified GHG reductions. Projects proposed under this RFP must follow one of the GHG reduction protocols adopted under AQMD Reg. XXVII – Climate Change. Funding for these proposed projects will not exceed $300,000 from Chevron's CEQA mitigation fees.

COMMITTEE: Climate Change, October 13, 2010. Less than a quorum was present for the discussion of this item. The Committee Members present expressed their concurrence that this item be recommended for approval by the Board.

RECOMMENDED ACTION:
Approve issuance of RFP #P2011-10 to solicit proposals to develop GHG reduction projects within AQMD's jurisdiction.

Barry R. Wallerstein, D.Env.
Executive Officer

EC:JW:AK:af

Background

The AQMD has established the SoCal Climate Solutions Exchange to ensure the development of real, surplus, quantifiable, and verifiable GHG reductions through projects undertaken in Southern California. Focusing these projects within Southern California provides incentives for local investments, aids local businesses and communities, and also provides co-pollutant reductions. GHG projects developed under the SoCal Climate Solutions Exchange must follow an adopted GHG reduction protocol. Currently these protocols include projects for forestry, urban forestry, manure management, and boiler efficiency improvements. Under this RFP, only projects developed in accordance with the four protocols under AQMD Rule XXVII- Climate Change will be considered.

Funding for the GHG reduction projects will be from $300,000 that Chevron paid as additional mitigation funds for their Chevron Product Reliability (PRO) project at their existing El Segundo refinery. Previously, Chevron paid $1.5 million towards mitigation to the AQMD. These funds are currently being used to develop GHG reductions through the reforestation of areas within the Station Fire in the Angeles National Forest. The AQMD requested Chevron to pay an additional $300,000, to further mitigate GHG emissions, which was received in August 2010. AQMD has elected to use this $300,000 to seek other GHG projects.

Under the RFP, proposals will be received to develop certified GHG reductions within AQMD's jurisdiction following any of the approved protocols in Reg. XXVII – Climate Change.

Proposals
Staff requests the Board to authorize the issuance of an RFP to solicit bids from qualified contractors to develop and undertake GHG reduction projects following one or more of the protocols adopted under AQMD Reg. XXVII – Climate Change.

Outreach
In accordance with AQMD's Procurement Policy and Procedure, a public notice advertising the RFP/RFQ and inviting bids will be published in the Los Angeles Times, the Orange County Register, the San Bernardino Sun, and Riverside County Press Enterprise newspapers to leverage the most cost-effective method of outreach to the entire South Coast Basin.

Additionally, potential bidders may be notified utilizing AQMD's own electronic listing of certified minority vendors. Notice of the RFP/RFQ will be mailed to the Black and Latino Legislative Caucuses and various minority chambers of commerce and business associations, and placed on the Internet at AQMD's website (http://www.aqmd.gov where it can be viewed by making menu selections "Inside AQMD"/"Employment and Business Opportunities"/"Business Opportunities" or by going directly to http://www.aqmd.gov/rfp/index.html). Information is also available on AQMD's bidder's 24-hour telephone message line (909) 396-2724.

Bid Evaluation
Proposals will be reviewed and evaluated by a diverse, technically qualified panel in accordance with criteria contained in the attached RFP. Points will be awarded in the RFP evaluation process to proposals that meet the technical requirements and are cost effective. Points are also available for quantifiable co-pollutant reductions and projects that will occur within five miles of the Chevron El Segundo refinery.

Schedule of Events
The anticipated schedule of events for the RFP is as follows:

Date	Event
November 5, 2010	RFP Released
November 19, 2010	Bidder's Conference (optional)
December 10, 2010	Proposals Due – no later than 5:00 p.m.
January 2011	Proposal Evaluations
February 4, 2011	Board Award Consideration

Resource Impacts
The funds for these projects have already been obtained from Chevron and will not exceed $300,000 out of the CEQA Green House Gas Mitigation Fund (Rule 2702) (Fund 49). Existing staff resources will be adequate to administer and review the RFP.

Attachment
RFP #P2011-10 - Greenhouse Gas Reduction Projects

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

REQUEST FOR PROPOSALS

Greenhouse Gas Reduction Projects

#P2011-10

The South Coast Air Quality Management District (AQMD) requests proposals for the following purpose according to terms and conditions attached. In the preparation of this Request for Proposals (RFP) the words "Proposer," "Contractor," and "Consultant" are used interchangeably.

PURPOSE

The South Coast AQMD is soliciting proposals for projects to develop greenhouse gas reductions (also known as GHG offsets). Projects developed under this solicitation must be developed in accordance to GHG reduction protocols adopted under the AQMD SoCal Climate Solutions Exchange, Reg. XXVII – Climate Change; AQMD's program for generation and certification of GHG reductions (http://www.aqmd.gov/rules/reg/reg27_tofc.html) . Protocols under the SoCal Climate Solutions Exchange include urban tree planting, forestry, manure management, and boiler efficiency (http://www.aqmd.gov/prdas/climate-change/climate_change_gateway.html). All proposed GHG reductions developed under this solicitation must be considered additional under the criteria in Section V - Statement of Work.

Total funding for this RFP will be a maximum of $300,000 with anticipated contract terms ranging from one to five years depending upon the project. The intent of this RFP is to develop high quality verified GHG reductions that will be permanently retired.

INDEX - The following are contained in this RFP:

SECTION I: BACKGROUND/INFORMATION

The AQMD has established the SoCal Climate Solutions Exchange to ensure the development of real, surplus, verifiable GHG reductions through projects undertaken in Southern California. Focusing these projects within Southern California provides incentives for local investments, aids local businesses and communities, and also provides co-pollutant reductions. GHG projects developed under the SoCal Climate Solutions Exchange must follow an adopted GHG reduction protocol. Currently these protocols include projects for forestry, urban forestry, manure management, and boiler efficiency improvements. Future adoption of other protocols is anticipated. **Under this RFP only projects developed in accordance with the four protocols under AQMD Rule XXVII- Climate Change will be considered (http://www.aqmd.gov/prdas/climate-change/climate_change_gateway.html).** Under this announcement $300,000 for GHG reduction project(s) is available.

SECTION II: CONTACT PERSON:

Questions regarding the content or intent of this RFP or on procedural matters should be addressed to:

Aaron Katzenstein
SCAQMD – PRDAS
21865 Copley Drive
Diamond Bar, CA 91765-4178
(909) 396-2219 (akatzenstein@aqmd.gov)

SECTION III: SCHEDULE OF EVENTS

November 5, 2010	RFP Released
November 19, 2010	Bidder's Conference*
December 10, 2010	Proposals Due (no later than 5:00PM)
January 2011	Proposal Evaluations
February 4, 2011	Governing Board Approval
March 2011	Anticipated Contract Execution

*Participation in the Bidder's Conference is optional. The Bidder's Conference will be held in Room CC-6 at the AQMD Headquarters in Diamond Bar, California at 2:00 pm on Friday, November 19, 2010. Please contact Rachael Palos at (909) 396-2337 by close of business on Wednesday November 17, 2010 if you plan to attend.

SECTION IV: PARTICIPATION IN THE PROCUREMENT PROCESS

A. It is the policy of the South Coast Air Quality Management District to ensure that all businesses including minority business enterprises, women business enterprises, disabled veteran business enterprises and small businesses have a fair and equitable opportunity to compete for and participate in AQMD contracts.

Definitions:

The definition of minority or women business enterprise set forth below is included for purposes of determining compliance with the affirmative steps requirement described in Paragraph F below on procurements funded in whole or in part with EPA grant funds which involve the use of subcontractors. The definition provided for disabled veteran business enterprise, local business, small business enterprise, low-emission vehicle business and off-peak hours delivery business are provided for purposes of determining eligibility for point or cost considerations in the evaluation process.

1. "Minority-or-women business enterprise" as used in this policy means a business enterprise that meets all the following criteria:

    a. a business that is at least 51 percent owned by one or more minority persons or women, or in the case of any business whose stock is publicly held, at least 51 percent of the stock is owned by one or more minority persons or women.

    b. a business whose management and daily business operations are controlled by one or more minority persons or women.

    c. a business which is a sole proprietorship, corporation, or partnership with its primary headquarters office located in the United States, which is not a branch or subsidiary of a foreign corporation, foreign firm, or other foreign-based business.

2. "Minority person" for purposes of this policy, means a Black American, Hispanic American, Native American (including American Indian, Eskimo, Aleut, and Native Hawaiian), Asian-Indian American (including a person whose origins are from India, Pakistan, and Bangladesh), Asian-Pacific American (including a person whose origins are from Japan, China, the Philippines, Vietnam, Korea, Samoa, Guam, the United States Trust Territories of the Pacific, Northern Marianas, Laos, Cambodia, and Taiwan).

3. "Disabled veteran" as used in this policy is a United States military, naval, or air service veteran with at least 10 percent service-connected disability who is a resident of California.

4. "Disabled veteran business enterprise" as used in this policy means a business enterprise that meets all of the following criteria:

    a. is a sole proprietorship or partnership of which is at least 51 percent owned by one or more disabled veterans or, in the case of a publicly owned business, at least 51 percent of its stock is owned by one or more disabled veterans; a subsidiary which is wholly owned by a parent corporation but only if at least 51 percent of the voting stock of the parent corporation is owned by one or more disabled veterans; or a joint venture in which at least 51 percent of the joint venture's management and control and earnings are held by one or more disabled veterans.

    b. the management and control of the daily business operations are by one or more disabled veterans. The disabled veterans who exercise management and control are not required to be the same disabled veterans as the owners of the business.

c. is a sole proprietorship, corporation, or partnership with its primary headquarters office located in the United States, which is not a branch or subsidiary of a foreign corporation, firm, or other foreign-based business.

5. "Local business" as used in the Procurement Policy and Procedure means a company that has an ongoing business within the boundaries of the South Coast AQMD at the time of bid application and performs 90% of the work related to the contract within the boundaries of the AQMD and satisfies the requirements of Paragraph I below.

6. “Small business” as used in this policy means a business that meets the following criteria:

   a. 1) an independently owned and operated business; 2) not dominant in its field of operation; 3) together with affiliates is either:

      - A service, construction, or non-manufacturer with 100 or fewer employees, and average annual gross receipts of ten million dollars ($10,000,000) or less over the previous three years, or

      - A manufacturer with 100 or fewer employees.

   b. Manufacturer means a business that is both of the following:

      1) Primarily engaged in the chemical or mechanical transformation of raw materials or processed substances into new products.

      2) Classified between Codes 311000 and 339000, inclusive, of the North American Industrial Classification System (NAICS) Manual published by the United States Office of Management and Budget, 2007 edition.

7. "Joint ventures" as defined in this policy pertaining to certification means that one party to the joint venture is a DVBE or a small business and owns at least 51 percent of the joint venture.

8. "Low-Emission Vehicle Business" as used in this policy means a company or contractor that uses low-emission vehicles in conducting deliveries to the AQMD. Low-emission vehicles include vehicles powered by electric, compressed natural gas (CNG), liquefied natural gas (LNG), liquefied petroleum gas (LPG), ethanol, methanol, hydrogen and diesel retrofitted with particulate matter (PM) traps.

9. “Off-Peak Hours Delivery Business” as used in this policy means a company or contractor that commits to conducting deliveries to the AQMD during off-peak traffic hours defined as between 10:00 a.m. and 3:00 p.m.

B. Under Request for Quotations (RFQ), DVBEs, DVBE business joint ventures, small businesses, and small business joint ventures shall be granted a preference in an amount equal to 5% of the lowest cost responsive bid. Low-Emission Vehicle Businesses shall be granted a preference in an amount equal to 5 percent of the lowest cost responsive bid. Off-Peak Hours Delivery Businesses shall be granted a preference in an amount equal to 2 percent of the lowest cost responsive bid. Local businesses (if the procurement is not

funded in whole or in part by EPA grant funds) shall be granted a preference in an amount equal to 2% of the lowest cost responsive bid.

C. Under Request for Proposals, DVBEs, DVBE joint ventures, small businesses, and small business joint ventures shall be awarded ten (10) points in the evaluation process. A non-DVBE or large business shall receive seven (7) points for subcontracting at least twenty-five (25%) of the total contract value to a DVBE and/or small business. Low-Emission Vehicle Businesses shall be awarded five (5) points in the evaluation process. On procurements which are not funded in whole or in part by EPA grant funds local businesses shall receive five (5) points. Off-Peak Hours Delivery Businesses shall be awarded two (2) points in the evaluation process.

D. AQMD will ensure that discrimination in the award and performance of contracts does not occur on the basis of race, color, sex, national origin, marital status, sexual preference, creed, ancestry, medical condition, or retaliation for having filed a discrimination complaint in the performance of AQMD contractual obligations.

E. AQMD requires Contractor to be incompliance with all state and federal laws and regulations with respect to its employees throughout the term of any awarded contract, including state minimum wage laws and OSHA requirements.

F. When contracts are funded in whole or in part by EPA grant funds and if subcontracts are to be let, the Contractor must comply with the steps listed below, which demonstrate a good faith effort to solicit minority and women owned enterprises. Contractor shall submit a certification signed by an authorized official affirming compliance with the steps below at the time of proposal submission. The AQMD reserves the right to request documentation demonstrating compliance with these steps prior to contract execution.

    1. Place qualified small-and-minority businesses and women's business enterprises on solicitation lists;

    2. Ensure that small-and-minority businesses, and women's business enterprises are solicited whenever they are potential sources including advertising at least ten days in advance of the bid in a variety of media directed to minority-and women-owned business audiences;

    3. Divide total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small-and-minority business, and women's business enterprises;

    4. Establish delivery schedules, where requirements permit, which encourage participation by small-and-minority business, and women's business enterprises; and

    5. Use the services and assistance of the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

G. To the extent that any conflict exists between this policy and any requirements imposed by federal and state law relating to participation in a contract by a certified MBE/WBE/DVBE as a condition of receipt of federal or state funds, the federal or state requirements shall prevail.

H. When contracts are not funded in whole or in part by EPA grant funds, a local business preference will be awarded. For such contracts that involve the purchase of commercial off-the-shelf products, local business preference will be given to suppliers or distributors of commercial off-the-shelf products who maintain an ongoing business within the geographical boundaries of the AQMD. However, if the subject matter of the RFP or RFQ

calls for the fabrication or manufacture of custom products, only companies performing 90% of the manufacturing or fabrication effort within the geographical boundaries of the AQMD shall be entitled to the local business preference.

I. In compliance with federal fair share requirements set forth in 40 CFR 35.6580, the AQMD shall establish a fair share goal annually for expenditures covered by its procurement policy.

SECTION V: STATEMENT OF WORK/SCHEDULE OF DELIVERABLES

Contractor(s) awarded funds under this RFP will develop and undertake a GHG reduction project that will be verified. GHG reduction credits developed under this project will be verified and permanently retired. It is anticipated that contract terms will range from one to five years depending upon the type of project awarded funds. **Under this RFP only projects developed following the four currently adopted protocols under AQMD Reg. XXVII – Climate Change will be considered.** All projects must occur within the area under AQMD jurisdiction and will require project reports on a periodic basis.

Contractor(s) awarded funds under this solicitation are expected to expand and provide more details for each task included below:

Task 1: Project Plan

Under Task 1, proposers will be required to develop a GHG reduction project plan. The project plan will outline the technical details of the GHG reduction project and be developed to comply with the GHG protocol being followed. Included within the plan will be the location(s) the project will occur, specific actions taken to achieve GHG reductions, a detailed baseline GHG inventory, detailed calculations showing the anticipated GHG reductions, project timeline, and periods for verification. A project lifetime for the reductions to occur should be clearly stated. A discussion of any anticipated problems and/or risks to the GHG reductions that will be developed under this project should be addressed.

The project plan must also address work being conducted with relevant authorities (local, state, and/or federal) to acquire the necessary permits and/or permissions for the project. Depending upon the type of project, it may be necessary to have a signed MOU with a business or landowner on which the project may occur.

The project will proceed to the next task only upon successful completion of Task 1.

Task 2: Project Implementation

Under Task 2, the project outlined in Task 1 will be implemented. Any unanticipated project modifications will need prior AQMD approval.

Task 3: Monitoring

The implemented project will be monitored to ensure it is operational and GHG reductions will be realized within the project lifetime.

Task 4: Verification

Depending upon the type of project verification may occur as frequently as year. Verification will be conducted by either AQMD staff or a third party that has appropriate qualifications and/or accreditations. The frequency of verification and how verification is conducted will be determined by the AQMD. Verification will serve to determine the GHG reductions achieved by completion of the project. In addition, verification may also be used to help refine GHG reductions that will occur in future.

Task 5: Final Report
The final report will describe the project and show what the project accomplished, including the best estimate of GHG reductions achieved through the project.

SECTION VI: REQUIRED QUALIFICATIONS

Contractors proposing to bid on this RFP must be qualified in undertaking the type of project being proposed. The contractor must have familiarity of the GHG reduction protocol being followed and developing high quality GHG reductions. A summary of the contractor's qualifications along with any subcontractors is required and should be presented within the *Technical Proposal* under Qualifications.

SECTION VII: PROPOSAL SUBMITTAL REQUIREMENTS

Submitted proposals must follow the format outlined below and all requested information must be supplied. Failure to submit proposals in the required format will result in elimination from proposal evaluation. Several different proposals may be submitted from one applicant.

Each proposal must submit the following sections:

- Cover Letter
- Technical Proposal
- Cost Proposal
- Certifications and Representations - included in Attachment A to this RFP, should be executed by an authorized official of the Contractor.

Cover Letter

A separate cover letter including the name, address, and telephone number of the contractor, and signed by the person or persons authorized to represent the contractors business must accompany the proposal submission.

TECHNICAL PROPOSAL

DO NOT INCLUDE ANY COST INFORMATION IN THE TECHNICAL VOLUME

Project Description – Provide a detailed description of the proposed project, the sequence of activities, location(s) of the project, GHG reduction protocol being followed, and participation of each contractor(s), vendor or others. Also describe the permanence of the GHG reductions that will occur through the project and recommended periods for project verification to occur.

Points will be awarded for projects within five miles of the Chevron El Segundo Refinery (Section IX).

Anticipated GHG Reductions –Clearly present the anticipated GHG reductions from the project, in bold, at the top of this section and the time period required to achieve these reductions. The GHG reductions should be presented in metric tons of CO_2 equivalents.

Include a clear and concise presentation of the calculations, assumptions, baselines, and methods used to determine the estimated GHG reductions from undertaking the project. Clearly indicate any assumptions used in the calculations that may result in GHG reductions from the project being higher or lower. Using conservative assumptions and presenting a range of likely GHG reductions is acceptable, however, a best estimate is required to be presented at the top of this section in bold. Also reference the GHG protocol being followed when necessary.

When reviewing proposals, cost effectiveness of the proposal will be considered. The cost effectiveness will be based upon the proposal cost, the amount of GHG reductions achieved, and the time period for the GHG reductions to occur. If the GHG reductions developed in this section are not reasonable, further information may be required of the applicant and a lower cost effectiveness score may be given.

Points will be awarded for projects also having quantifiable criteria and/or toxic air pollutant reductions (Section IX).

Project Schedule - Provide project milestones or benchmarks for submitting reports within the total time allowed. Include a multiple period timeframe showing how GHG reductions accumulate over the projects crediting lifetime.

Additionality – Statement on how the proposed project would not occur under business-as-usual. Include an assurance of the permanent retirement of GHG reductions developed under this project and that no other environmental credits will be developed from the project (double counting) that could be sold or used for other purposes.

Qualifications – Describe the applicants' qualifications in developing and undertaking projects similar to that being proposed. References of other similar projects performed during the last five years demonstrating ability to successfully complete the project may be included. Include contact name, title, and telephone number for any references listed.

Subcontractors - This project may require expertise in multiple technical areas. List any subcontractors that may be used and the work to be performed by them.

Additional Information (Optional) - Provide other information that may assist in the evaluation of this proposal.

COST PROPOSAL

Cost Proposal – AQMD anticipates awarding a fixed price contract. Cost information must be provided as listed below:

1. Detail must be provided by the following categories:

    A. Labor - List the total number of hours and the hourly billing rate for each level of staff. A breakdown of the proposed billing rates must identify the direct labor rate, overhead

rate and amount, fringe benefit rate and amount, General and Administrative rate and amount, and proposed profit or fee. Provide a basis of estimate justifying the proposed labor hours and proposed labor mix.

B. Subcontractor Costs - List subcontractor costs and identify subcontractors by name. Itemize subcontractor charges per hour or per day.

C. Material and Supplies – Provide information for all material and supply costs to successfully complete the proposed project. These costs need to also include applicable shipping costs, administrative fees, taxes, etc.

D. Travel Costs - Indicate amount of travel cost and basis of estimate to include trip destination, purpose of trip, length of trip, airline fare or mileage expense, per diem costs, lodging and car rental.

E. Other Direct Costs -This category may include such items as postage and mailing expense, printing and reproduction costs, etc. Provide a basis of estimate for these costs.

CERTIFICATIONS AND REPRESENTATIONS (see Attachment A to this RFP)

SECTION VIII: PROPOSAL SUBMISSION

All proposals must be submitted according to specifications set forth in the section above. Failure to adhere to these specifications may be cause for rejection of proposal.

Signature - All proposals should be signed by an authorized representative of the Proposer within the cover letter.

Due Date - The Proposer shall submit eight (8) complete copies of the proposal in a sealed envelope, plainly marked in the upper left-hand corner with the name and address of the Proposer and the words "Request for Proposals #P2011-10." **All proposals are due no later than 5:00 p.m. on December 10, 2010**, and should be directed to:

Procurement Unit
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178
(909) 396-3520

Late bids/proposals will not be accepted under any circumstances. Any correction or resubmission done by the Proposer will not extend the submittal due date.

Grounds for Rejection - A proposal may be immediately rejected if:
- It is not prepared in the format described, or
- It is signed by an individual not authorized to represent the firm.

Disposition of Proposals - AQMD reserves the right to reject any or all proposals. All responses become the property of AQMD. One copy of the proposal shall be retained for AQMD files. Additional copies and materials will be returned only if requested and at the proposer's expense.

Modification or Withdrawal - Once submitted, proposals cannot be altered without the prior written consent of AQMD. All proposals shall constitute firm offers and may not be withdrawn for a period of ninety (90) days following the last day to accept proposals.

SECTION IX: PROPOSAL EVALUATION/CONTRACTOR SELECTION CRITERIA

A. Proposals will be evaluated by a panel of three to five AQMD staff members familiar with the subject matter of the project. The panel shall be appointed by the Executive Officer or his designee. In addition, the evaluation panel may include such outside public sector or academic or community expertise as deemed desirable by the Executive Officer. The panel will make a recommendation to the Executive Officer and/or the Governing Board of the AQMD for final selection of a contractor and negotiation of a contract.

B. Each member of the evaluation panel shall be accorded equal weight in his or her rating of proposals. The evaluation panel members shall evaluate the proposals according to the specified criteria and numerical weightings set forth below.

Evaluation Criteria

Technical/Management Approach ---------- 35

Contractor Qualifications ---------- 20

Previous Experience on Similar Projects ---------- 5

Project occurs within 5 miles of the

Chevron El Segundo Refinery ---------- 5

Project has quantifiable reductions of

criteria and/or toxic air pollutants ---------- 5

Cost Effectiveness* ---------- 30

TOTAL ---------- 100

*- Cost Effectiveness will be based upon the GHG reductions anticipated from the project, time period for reductions to occur and normalized to the project cost.

Additional Points

Small Business or Small Business Joint Venture	10
DVBE or DVBE Joint Venture	10
Use of DVBE or Small Business Subcontractors	7
Low-Emission Vehicle Business	5
Local Business (Non-EPA Funded Projects Only)	5
Off-Peak Hours Delivery Business	2

The cumulative points awarded for small business, DVBE, use of small business or DVBE subcontractors, low-emission vehicle business, local business, and off-peak hours delivery business shall not exceed 15 points.

Note: The award of these additional points shall be contingent upon Proposer completing the Self-Certification section of Attachment A – Certifications and Representations and/or inclusion of a statement in the proposal self-certifying that Proposer qualifies for additional points as detailed above.

2. To receive additional points in the evaluation process for the categories of Small Business or Small Business Joint Venture, DVBE or DVBE Joint Venture or Local Business (for non-EPA funded projects), the proposer must submit a self-certification or certification from the State of California Office of Small Business Certification and Resources at the time of proposal submission certifying that the proposer meets the requirements set forth in Section III. To receive points for the use of DVBE and/or Small Business subcontractors, at least 25 percent of the total contract value must be subcontracted to DVBEs and/or Small Businesses. To receive points as a Low-Emission Vehicle Business, the proposer must demonstrate to the Executive Officer, or designee, that supplies and materials delivered to the AQMD are delivered in vehicles that operate on either clean-fuels or if powered by diesel fuel, that the vehicles have particulate traps installed. To receive points as an Off-Peak Hours Delivery Business, the proposer must submit, at proposal submission, certification of its commitment to delivering supplies and materials to AQMD between the hours of 10:00 a.m. and 3:00 p.m. The cumulative points awarded for small business, DVBE, use of Small Business or DVBE Subcontractors, Local Business, Low-Emission Vehicle Business and Off-Peak Hour Delivery Business shall not exceed 15 points.

   The Procurement Section will be responsible for monitoring compliance of suppliers awarded purchase orders based upon use of low-emission vehicles or off-peak traffic hour delivery commitments through the use of vendor logs which will identify the contractor awarded the incentive. The purchase order shall incorporate terms which obligate the supplier to deliver materials in low-emission vehicles or deliver during off-peak traffic hours. The Receiving department will monitor those qualified supplier deliveries to ensure compliance to the purchase order requirements. Suppliers in non-compliance will be subject to a two percent of total purchase order value penalty. The Procurement Manager will adjudicate any disputes regarding either low-emission vehicle or off-peak hour deliveries.

3. For procurement of Research and Development (R & D) projects or projects requiring technical or scientific expertise or special projects requiring unique

knowledge and abilities, technical factors including past experience shall be weighted at 70 points and cost shall be weighted at 30 points. A proposal must receive at least 56 out of 70 points on R & D projects and projects requiring technical or scientific expertise or special projects requiring unique knowledge and abilities, in order to be deemed qualified for award.

4. The lowest cost proposal will be awarded the maximum cost points available and all other cost proposals will receive points on a prorated basis. For example if the lowest cost proposal is $1,000 and the maximum points available are 30 points, this proposal would receive the full 30 points. If the next lowest cost proposal is $1,100 it would receive 27 points reflecting the fact that it is 10% higher than the lowest cost (90% of 30 points = 27 points).

C. During the selection process the evaluation panel may wish to interview some proposers for clarification purposes only. No new material will be permitted at this time.

D. The Executive Officer or Governing Board may award the contract to a proposer other than the proposer receiving the highest rating in the event the Governing Board determines that another proposer from among those technically qualified would provide the best value to AQMD considering cost and technical factors. The determination shall be based solely on the Evaluation Criteria contained in the Request for Proposal (RFP), on evidence provided in the proposal and on any other evidence provided during the bid review process. Evidence provided during the bid review process is limited to clarification by the Proposer of information presented in his/her proposal.

E. Selection will be made based on the above-described criteria and rating factors. The selection will be made by and is subject to Executive Officer or Governing Board approval. All proposers will be notified of the results by letter.

F. The Executive Officer or Governing Board may award contracts to more than one proposer if in (his or their) sole judgment the purposes of the (contract or award) would best be served by selecting multiple proposers.

G. If additional funds become available, the Executive Officer or Governing Board may increase the amount awarded. The Executive Officer or Governing Board may also select additional proposers for a grant or contract if additional funds become available.

H. Upon mutual agreement of the parties of any resultant contract from this RFP, the original contract term may be extended.

SECTION X: FUNDING

The maximum funding of $300,000 is available for completion of projects awarded funds under this RFP. The AQMD may choose to fund one project in this entire amount or several lesser amount projects. Section IX shows the evaluation criteria that will be used for proposals.

SECTION XI: DRAFT CONTRACT (Provided as a sample only)

South Coast
Air Quality Management District South Coast Air Quality Management District (referred to here as "AQMD") whose address is 21865 Copley Drive, Diamond Bar, California 91765-4178, and *** (referred to here as "CONTRACTOR") whose address is ***.

2. RECITALS
   A. AQMD is the local agency with primary responsibility for regulating stationary source air pollution in the South Coast Air Basin in the State of California. AQMD is authorized to enter into this Contract under California Health and Safety Code Section 40489. AQMD desires to contract with CONTRACTOR for services described in Attachment 1 - Statement of Work, attached here and made a part here by this reference. CONTRACTOR warrants that it is well-qualified and has the experience to provide such services on the terms set forth here.
   B. CONTRACTOR is authorized to do business in the State of California and attests that it is in good tax standing with the California Franchise Tax Board.
   C. All parties to this Contract have had the opportunity to have this Contract reviewed by their attorney.
   D. CONTRACTOR agrees to obtain the required licenses, permits, and all other appropriate legal authorizations from all applicable federal, state and local jurisdictions and pay all applicable fees.

3. PERFORMANCE REQUIREMENTS
   A. CONTRACTOR warrants that it holds all necessary and required licenses and permits to provide these services. CONTRACTOR further agrees to immediately notify AQMD in writing of any change in its licensing status.
   B. CONTRACTOR shall submit reports to AQMD as outlined in Attachment 1 - Statement of Work. All reports shall be submitted in an environmentally friendly format: recycled paper; stapled, not bound; black and white, double-sided print; and no three-ring, spiral, or plastic binders or cardstock covers. AQMD reserves the right to review, comment, and request changes to any report produced as a result of this Contract.
   C. CONTRACTOR shall perform all tasks set forth in Attachment 1 - Statement of Work, and shall not engage, during the term of this Contract, in any performance of work that is in direct or indirect conflict with duties and responsibilities set forth in Attachment 1 - Statement of Work.
   D. CONTRACTOR shall be responsible for exercising the degree of skill and care customarily required by accepted professional practices and procedures subject to AQMD's final approval which AQMD will not unreasonably withhold. Any costs incurred due to the failure to meet the foregoing standards, or otherwise defective services which require re-performance, as directed by AQMD, shall be the responsibility of CONTRACTOR. CONTRACTOR's failure to achieve the performance goals and objectives stated in Attachment 1- Statement of Work, is not a basis for requesting re-performance unless work conducted by CONTRACTOR is deemed by AQMD to have failed the foregoing standards of performance.
   E. CONTRACTOR shall post a performance bond in the amount of *** Dollars ($***) from a surety authorized to issue such bonds within the State. [USE IF REQUIRED]
   F. AQMD has the right to review the terms and conditions of the performance bond and to request modifications thereto which will ensure that AQMD will be compensated in the event CONTRACTOR fails to perform and also provides AQMD with the opportunity to review the qualifications of the entity designated by the issuer of the performance bond to perform in CONTRACTOR's absence and, if necessary, the right to reject such entity. [USE IF REQUIRED]

G. CONTRACTOR shall ensure, through its contracts with any subcontractor(s), that employees and agents performing under this Contract shall abide by the requirements set forth in this clause.

4. TERM - The term of this Contract is from the date of execution by both parties **(or insert date)** to ***, unless further extended by amendment of this Contract in writing. No work shall commence until this Contract is fully executed by all parties.

5. TERMINATION

A. In the event any party fails to comply with any term or condition of this Contract, or fails to provide services in the manner agreed upon by the parties, including, but not limited to, the requirements of Attachment 1 – Statement of Work, this failure shall constitute a breach of this Contract. The non-breaching party shall notify the breaching party that it must cure this breach or provide written notification of its intention to terminate this contract. Notification shall be provided in the manner set forth in Clause 11. The non-breaching party reserves all rights under law and equity to enforce this contract and recover damages.

B. AQMD reserves the right to terminate this Agreement, in whole or in part, without cause, upon thirty (30) days' written notice. Once such notice has been given, CONTRACTOR shall, except as and to the extent or directed otherwise by AQMD, discontinue any Work being performed under this Agreement and cancel any of CONTRACTOR's orders for materials, facilities, and supplies in connection with such Work, and shall use its best efforts to procure termination of existing subcontracts upon terms satisfactory to AQMD. Thereafter, CONTRACTOR shall perform only such services as may be necessary to preserve and protect any Work already in progress and to dispose of any property as requested by AQMD.

C. CONTRACTOR shall be paid in accordance with this Agreement for all work performed before the effective date of termination under Clause 5.B. Before expiration of the thirty (30) days' written notice, CONTRACTOR shall promptly deliver to AQMD all copies of documents and other information and data prepared or developed by CONTRACTOR under this Agreement with the exception of a record copy of such materials, which may be retained by CONTRACTOR.

6. INSURANCE

A. CONTRACTOR shall furnish evidence to AQMD of workers' compensation insurance for each of its employees, in accordance with either California or other states' applicable statutory requirements prior to commencement of any work on this Contract.

B. CONTRACTOR shall furnish evidence to AQMD of general liability insurance with a limit of at least $1,000,000 per occurrence, and $2,000,000 in a general aggregate prior to commencement of any work on this Contract. AQMD shall be named as an additional insured on any such liability policy, and thirty (30) days written notice prior to cancellation of any such insurance shall be given by CONTRACTOR to AQMD.

C. CONTRACTOR shall furnish evidence to AQMD of automobile liability insurance with limits of at least $100,000 per person and $300,000 per accident for bodily injuries, and $50,000 in property damage, or $1,000,000 combined single limit for bodily injury or property damage, prior to commencement of any work on this Contract. AQMD shall be named as an additional insured on any such liability policy, and thirty (30) days written notice prior to cancellation of any such insurance shall be given by CONTRACTOR to AQMD.

D. CONTRACTOR shall furnish evidence to AQMD of Professional Liability Insurance with an aggregate limit of not less than $5,000,000. [OPTIONAL FOR PROFESSIONAL SERVICES]

E. If CONTRACTOR fails to maintain the required insurance coverage set forth above, AQMD reserves the right either to purchase such additional insurance and to deduct the cost thereof from any payments owed to CONTRACTOR or terminate this Contract for breach.

F. All insurance certificates should be mailed to: AQMD Risk Management, 21865 Copley Drive, Diamond Bar, CA 91765-4178. **The AQMD Contract Number must be included on the face of the certificate.**
G. CONTRACTOR must provide updates on the insurance coverage throughout the term of the Contract to ensure that there is no break in coverage during the period of contract performance. Failure to provide evidence of current coverage shall be grounds for termination for breach of Contract.

7. INDEMNIFICATION - CONTRACTOR agrees to hold harmless and indemnify AQMD, its officers, employees, agents, representatives, and successors-in-interest against any and all loss, damage, cost, lawsuits, demands, judgments, legal fees or any other expenses which AQMD, its officers, employees, agents, representatives, and successors-in-interest may incur or be required to pay by reason of any injury or property damage arising from the negligent or intentional conduct or omission of CONTRACTOR, its employees, its subcontractors, or its agents in the performance of this Contract.

8. CO-FUNDING [USE IF REQUIRED]

A. CONTRACTOR shall obtain co-funding as follows: ***, *** Dollars ($***); ***, *** Dollars ($***); ***, *** Dollars ($***); ***, *** Dollars ($***); ***, *** Dollars ($***); and ***, *** Dollars ($***).
B. If CONTRACTOR fails to obtain co-funding in the amount(s) referenced above, then AQMD reserves the right to renegotiate or terminate this Contract.
C. CONTRACTOR shall provide co-funding in the amount of *** Dollars ($***) for this project. If CONTRACTOR fails to provide this co-funding, then AQMD reserves the right to renegotiate or terminate this Contract.

9. PAYMENT

[FIXED PRICE]-use this one or the T&M one below.

A. AQMD shall pay CONTRACTOR a fixed price of *** Dollars ($***) for work performed under this Contract in accordance with Attachment 2 - Payment Schedule, attached here and included here by reference. Payment shall be made by AQMD to CONTRACTOR within thirty (30) days after approval by AQMD of an invoice prepared and furnished by CONTRACTOR showing services performed and referencing tasks and deliverables as shown in Attachment 1 - Statement of Work, and the amount of charge claimed. Each invoice must be prepared in duplicate, on company letterhead, and list AQMD's Contract number, period covered by invoice, and CONTRACTOR's social security number or Employer Identification Number and submitted to: South Coast Air Quality Management District, Attn: ***.
B. An amount equal to ten percent (10%) shall be withheld from all charges paid until satisfactory completion and final acceptance of work by AQMD. *[OPTIONAL]*
C. AQMD reserves the right to disallow charges when the invoiced services are not performed satisfactorily in AQMD sole judgment.

[T & M]-use this one or the Fixed Price one above.

A. AQMD shall pay CONTRACTOR a total not to exceed amount of *** Dollars ($***), including any authorized travel-related expenses, for time and materials at rates in accordance with Attachment 2 – Cost Schedule, attached here and included here by this reference. Payment of charges shall be made by AQMD to CONTRACTOR within thirty (30) days after approval by AQMD of an itemized invoice prepared and furnished by CONTRACTOR referencing line item expenditures as listed in Attachment 2 and the amount of charge claimed. Each invoice must be prepared in duplicate, on company letterhead, and list AQMD's Contract number, period covered by invoice, and CONTRACTOR's social security number or Employer Identification Number and submitted to: South Coast Air Quality Management District, Attn: ***.
B. CONTRACTOR shall adhere to total tasks and/or cost elements (cost category) expenditures as listed in Attachment 2. Reallocation of costs between tasks and/or cost category expenditures is permitted up to

One Thousand Dollars ($1,000) upon prior written approval from AQMD. Reallocation of costs in excess of One Thousand Dollars ($1,000) between tasks and/or cost category expenditures requires an amendment to this Contract.

C. AQMD's payment of invoices shall be subject to the following limitations and requirements:

i) Charges for equipment, material, and supply costs, travel expenses, subcontractors, and other charges, as applicable, must be itemized by CONTRACTOR. Reimbursement for equipment, material, supplies, subcontractors, and other charges shall be made at actual cost. Supporting documentation must be provided for all individual charges (with the exception of direct labor charges provided by CONTRACTOR). AQMD's reimbursement of travel expenses and requirements for supporting documentation are listed below.

ii)CONTRACTOR's failure to provide receipts shall be grounds for AQMD's non-reimbursement of such charges. AQMD may reduce payments on invoices by those charges for which receipts were not provided.

iii)AQMD shall not pay interest, fees, handling charges, or cost of money on Contract.

D. AQMD shall reimburse CONTRACTOR for travel-related expenses only if such travel is expressly set forth in Attachment 2 – Cost Schedule of this Contract or pre-authorized by AQMD in writing.

i)AQMD's reimbursement of travel-related expenses shall cover lodging, meals, other incidental expenses, and costs of transportation subject to the following limitations:

Air Transportation - Coach class rate for all flights. If coach is not available, business class rate is permissible.

Car Rental - A compact car rental. A mid-size car rental is permissible if car rental is shared by three or more individuals.

Lodging - Up to One Hundred Fifty Dollars ($150) per night. A higher amount of reimbursement is permissible if pre-approved by AQMD.

Meals - Daily allowance is Fifty Dollars ($50.00).

ii)Supporting documentation shall be provided for travel-related expenses in accordance with the following requirements:

Lodging, Airfare, Car Rentals - Bill(s) for actual expenses incurred.

Meals - Meals billed in excess of $50.00 each day require receipts or other supporting documentation for the total amount of the bill and must be approved by AQMD.

Mileage - Beginning each January 1, the rate shall be adjusted effective February 1 by the Chief Financial Officer based on the Internal Revenue Service Standard Mileage Rate

Other travel-related expenses - Receipts are required for all individual items.

E. AQMD reserves the right to disallow charges when the invoiced services are not performed satisfactorily in AQMD sole judgment.

10. INTELLECTUAL PROPERTY RIGHTS - Title and full ownership rights to any software, documents, or reports developed under this Contract shall at all times remain with AQMD. Such material is agreed to be AQMD proprietary information.

A. Rights of Technical Data - AQMD shall have the unlimited right to use technical data, including material designated as a trade secret, resulting from the performance of services by CONTRACTOR under this Contract. CONTRACTOR shall have the right to use technical data for its own benefit.

B. Copyright - CONTRACTOR agrees to grant AQMD a royalty-free, nonexclusive, irrevocable license to produce, translate, publish, use, and dispose of all copyrightable material first produced or composed in the performance of this Contract.

11. NOTICES - Any notices from either party to the other shall be given in writing to the attention of the persons listed below, or to other such addresses or addressees as may hereafter be designated in writing for notices

by either party to the other. Notice shall be given by certified, express, or registered mail, return receipt requested, and shall be effective as of the date of receipt indicated on the return receipt card.

AQMD: South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178
Attn: ***

CONTRACTOR: ***
***
***
Attn: ***

12. EMPLOYEES OF CONTRACTOR
    A. AQMD reserves the right to review the resumes of any of CONTRACTOR employees, and/or any subcontractors selected to perform the work specified here and to disapprove CONTRACTOR choices. CONTRACTOR warrants that it will employ no subcontractor without written approval from AQMD. CONTRACTOR shall be responsible for the cost of regular pay to its employees, as well as cost of vacation, vacation replacements, sick leave, severance pay and pay for legal holidays.
    B. CONTRACTOR, its officers, employees, agents, representatives or subcontractors shall in no sense be considered employees or agents of AQMD, nor shall CONTRACTOR, its officers, employees, agents, representatives or subcontractors be entitled to or eligible to participate in any benefits, privileges, or plans, given or extended by AQMD to its employees.
    C. AQMD requires Contractor to be incompliance with all state and federal laws and regulations with respect to its employees throughout the term of this Contract, including state minimum wage laws and OSHA requirements.

13. CONFIDENTIALITY - It is expressly understood and agreed that AQMD may designate in a conspicuous manner the information which CONTRACTOR obtains from AQMD as confidential. CONTRACTOR agrees to:
    A. Observe complete confidentiality with respect to such information, including without limitation, agreeing not to disclose or otherwise permit access to such information by any other person or entity in any manner whatsoever, except that such disclosure or access shall be permitted to employees or subcontractors of CONTRACTOR requiring access in fulfillment of the services provided under this Contract.
    B. Ensure that CONTRACTOR's officers, employees, agents, representatives, and independent contractors are informed of the confidential nature of such information and to assure by agreement or otherwise that they are prohibited from copying or revealing, for any purpose whatsoever, the contents of such information or any part thereof, or from taking any action otherwise prohibited under this clause.
    C. Not use such information or any part thereof in the performance of services to others or for the benefit of others in any form whatsoever whether gratuitously or for valuable consideration, except as permitted under this Contract.
    D. Notify AQMD promptly and in writing of the circumstances surrounding any possession, use, or knowledge of such information or any part thereof by any person or entity other than those authorized by this clause.
    E. Take at CONTRACTOR expense, but at AQMD's option and in any event under AQMD's control, any legal action necessary to prevent unauthorized use of such information by any third party or entity which has gained access to such information at least in part due to the fault of CONTRACTOR.

F. Take any and all other actions necessary or desirable to assure such continued confidentiality and protection of such information.
G. Prevent access to such information by any person or entity not authorized under this Contract.
H. Establish specific procedures in order to fulfill the obligations of this clause.
I. Notwithstanding the above, nothing herein is intended to abrogate or modify the provisions of Government Code Section 6250 et.seq. (Public Records Act).

14. PUBLICATION
A. AQMD shall have the right of prior written approval of any document which shall be disseminated to the public by CONTRACTOR in which CONTRACTOR utilized information obtained from AQMD in connection with performance under this Contract.
B. Information, data, documents, or reports developed by CONTRACTOR for AQMD, pursuant to this Contract, shall be part of AQMD public record unless otherwise indicated. CONTRACTOR may use or publish, at its own expense, such information provided to AQMD. The following acknowledgment of support and disclaimer must appear in each publication of materials, whether copyrighted or not, based upon or developed under this Contract.

> "This report was prepared as a result of work sponsored, paid for, in whole or in part, by the South Coast Air Quality Management District (AQMD). The opinions, findings, conclusions, and recommendations are those of the author and do not necessarily represent the views of AQMD. AQMD, its officers, employees, contractors, and subcontractors make no warranty, expressed or implied, and assume no legal liability for the information in this report. AQMD has not approved or disapproved this report, nor has AQMD passed upon the accuracy or adequacy of the information contained herein."

C. CONTRACTOR shall inform its officers, employees, and subcontractors involved in the performance of this Contract of the restrictions contained herein and require compliance with the above.

15. NON-DISCRIMINATION - In the performance of this Contract, CONTRACTOR shall not discriminate in recruiting, hiring, promotion, demotion, or termination practices on the basis of race, religious creed, color, national origin, ancestry, sex, age, or physical or mental disability and shall comply with the provisions of the California Fair Employment & Housing Act (Government Code Section 12900 et seq.), the Federal Civil Rights Act of 1964 (P.L. 88-352) and all amendments thereto, Executive Order No. 11246 (30 Federal Register 12319), and all administrative rules and regulations issued pursuant to said Acts and Order. CONTRACTOR shall likewise require each subcontractor to comply with this clause and shall include in each such subcontract language similar to this clause.

16. SOLICITATION OF EMPLOYEES - CONTRACTOR expressly agrees that CONTRACTOR shall not, during the term of this Contract, nor for a period of six months after termination, solicit for employment, whether as an employee or independent contractor, any person who is or has been employed by AQMD during the term of this Contract without the consent of AQMD.

17. PROPERTY AND SECURITY - Without limiting CONTRACTOR obligations with regard to security, CONTRACTOR shall comply with all the rules and regulations established by AQMD for access to and activity in and around AQMD premises.

18. ASSIGNMENT - The rights granted hereby may not be assigned, sold, licensed, or otherwise transferred by either party without the prior written consent of the other, and any attempt by either party to do so shall be void upon inception.

19. NON-EFFECT OF WAIVER - The failure of CONTRACTOR or AQMD to insist upon the performance of any or all of the terms, covenants, or conditions of this Contract, or failure to exercise any rights or remedies hereunder, shall not be construed as a waiver or relinquishment of the future performance of any such terms, covenants, or conditions, or of the future exercise of such rights or remedies, unless otherwise provided for herein.

20. ATTORNEYS' FEES - In the event any action is filed in connection with the enforcement or interpretation of this Contract, each party shall bear its own attorneys' fees and costs.

21. FORCE MAJEURE - Neither AQMD nor CONTRACTOR shall be liable or deemed to be in default for any delay or failure in performance under this Contract or interruption of services resulting, directly or indirectly, from acts of God, civil or military authority, acts of public enemy, war, strikes, labor disputes, shortages of suitable parts, materials, labor or transportation, or any similar cause beyond the reasonable control of AQMD or CONTRACTOR.

22. SEVERABILITY - In the event that any one or more of the provisions contained in this Contract shall for any reason be held to be unenforceable in any respect by a court of competent jurisdiction, such holding shall not affect any other provisions of this Contract, and the Contract shall then be construed as if such unenforceable provisions are not a part hereof.

23. HEADINGS - Headings on the clauses of this Contract are for convenience and reference only, and the words contained therein shall in no way be held to explain, modify, amplify, or aid in the interpretation, construction, or meaning of the provisions of this Contract.

24. DUPLICATE EXECUTION - This Contract is executed in duplicate. Each signed copy shall have the force and effect of an original.

25. GOVERNING LAW - This Contract shall be construed and interpreted and the legal relations created thereby shall be determined in accordance with the laws of the State of California. Venue for resolution of any disputes under this Contract shall be Los Angeles County, California.

26. CITIZENSHIP AND ALIEN STATUS
    A. CONTRACTOR warrants that it fully complies with all laws regarding the employment of aliens and others, and that its employees performing services hereunder meet the citizenship or alien status requirements contained in federal and state statutes and regulations including, but not limited to, the Immigration Reform and Control Act of 1986 (P.L. 99-603). CONTRACTOR shall obtain from all covered employees performing services hereunder all verification and other documentation of employees' eligibility status required by federal statutes and regulations as they currently exist and as they may be hereafter amended. CONTRACTOR shall have a continuing obligation to verify and document the continuing employment authorization and authorized alien status of employees performing services under this Contract to insure continued compliance with all federal statutes and regulations.
    B. Notwithstanding paragraph A above, CONTRACTOR, in the performance of this Contract, shall not discriminate against any person in violation of 8 USC Section 1324b.
    C. CONTRACTOR shall retain such documentation for all covered employees for the period described by law. CONTRACTOR shall indemnify, defend, and hold harmless AQMD, its officers and employees from employer sanctions and other liability which may be assessed against CONTRACTOR or AQMD, or both in connection with any alleged violation of federal statutes or regulations pertaining to the eligibility for employment of persons performing services under this Contract.

27. FEDERAL FAIR SHARE POLICY - As a recipient of Environmental Protection Agency (EPA) grant funds, AQMD is required to flow down to all of its contractors the provisions of 40 CFR Section 31.36(e) which addresses affirmative steps for contracting with small-and-minority firms, women's business enterprises, and labor surplus area firms. CONTRACTOR agrees to comply with these provisions.

28. REQUIREMENT FOR FILING STATEMENT OF ECONOMIC INTERESTS - In accordance with the Political Reform Act of 1974 (Government Code Sec. 81000 et seq.) and regulations issued by the Fair Political Practices Commission (FPPC), AQMD has determined that the nature of the work to be performed under this Contract requires CONTRACTOR to submit a Form 700, Statement of Economic Interests for Designated Officials and Employees, for each of its employees assigned to work on this Contract. These forms may be obtained from AQMD's District Counsel's office. [USE IF REQUIRED]

29. COMPLIANCE WITH SINGLE AUDIT ACT REQUIREMENTS *[OPTIONAL - TO BE INCLUDED IN CONTRACTS WITH FOR-PROFIT CONTRACTORS WHICH HAVE FEDERAL PASS-THROUGH FUNDING]* - During the term of the Contract, and for a period of three (3) years from the date of Contract expiration, and if requested in writing by the AQMD, CONTRACTOR shall allow the AQMD, its designated representatives and/or the cognizant Federal Audit Agency, access during normal business hours to all records and reports related to the work performed under this Contract. CONTRACTOR assumes sole responsibility for reimbursement to the Federal Agency funding the prime grant or contract, a sum of money equivalent to the amount of any expenditures disallowed should the AQMD, its designated representatives and/or the cognizant Federal Audit Agency rule through audit exception or some other appropriate means that expenditures from funds allocated to the CONTRACTOR were not made in compliance with the applicable cost principles, regulations of the funding agency, or the provisions of this Contract.

    [OPTIONAL - TO BE INCLUDED IN CONTRACTS WITH NON-PROFIT CONTRACTORS WHICH HAVE FEDERAL PASS-THROUGH FUNDING] - Beginning with CONTRACTOR's current fiscal year and continuing through the term of this Contract, CONTRACTOR shall have a single or program-specific audit conducted in accordance with the requirements of the Office of Management and Budget (OMB) Circular A-133 (Audits of States, Local Governments and Non-Profit Organizations), if CONTRACTOR expended Five Hundred Thousand Dollars ($500,000) or more in a year in Federal Awards. Such audit shall be conducted by a firm of independent accountants in accordance with Generally Accepted Government Audit Standards (GAGAS). Within thirty (30) days of Contract execution, CONTRACTOR shall forward to AQMD the most recent A-133 Audit Report issued by its independent auditors. Subsequent A-133 Audit Reports shall be submitted to the AQMD within thirty (30) days of issuance.

    CONTRACTOR shall allow the AQMD, its designated representatives and/or the cognizant Federal Audit Agency, access during normal business hours to all records and reports related to the work performed under this Contract. CONTRACTOR assumes sole responsibility for reimbursement to the Federal Agency funding the prime grant or contract, a sum of money equivalent to the amount of any expenditures disallowed should the AQMD, its designated representatives and/or the cognizant Federal Audit Agency rule through audit exception or some other appropriate means that expenditures from funds allocated to the CONTRACTOR were not made in compliance with the applicable cost principles, regulations of the funding agency, or the provisions of this Contract.

30. OPTION TO EXTEND THE TERM OF THE CONTRACT - AQMD reserves the right to extend the contract for a one-year period commencing *****(enter date) at the (option price or Not-to-Exceed Amount) set forth in Attachment 2. In the event that AQMD elects to extend the contract, a written notice of its intent to extend the contract shall be provided to CONTRACTOR no later than thirty (30) days prior to Contract expiration. [USE IF REQUIRED]

31. KEY PERSONNEL - *insert person's name* is deemed critical to the successful performance of this Contract. Any changes in key personnel by CONTRACTOR must be approved by AQMD. All substitute personnel must possess qualifications/experience equal to the original named key personnel and must be approved by AQMD. AQMD reserves the right to interview proposed substitute key personnel. [USE IF REQUIRED]

32. PREVAILING WAGES – [USE FOR INFRASTRUCTURE PROJECTS] CONTRACTOR is alerted to the prevailing wage requirements of California Labor Code section 1770 et seq. Copies of the prevailing rate of per diem wages are on file at the AQMD's headquarters, of which shall be made available to any interested party on request. Notwithstanding the preceding sentence, CONTRACTOR shall be responsible for determining the applicability of the provisions of California Labor Code and complying with the same, including, without limitation, obtaining from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work, making the same available to any interested party upon request, paying any applicable prevailing rates, posting copies thereof at the job site and flowing all applicable prevailing wage rate requirements to its subcontractors. CONTRACTOR shall indemnify, defend and hold harmless the South Coast Air Quality Management District against any and all claims, demands, damages, defense costs or liabilities based on failure to adhere to the above referenced statutes.

33. APPROVAL OF SUBCONTRACT

    A. If CONTRACTOR intends to subcontract a portion of the work under this Contract, written approval of the terms of the proposed subcontract(s) shall be obtained from AQMD's Executive Officer or designee prior to execution of the subcontract. No subcontract charges will be reimbursed unless such approval has been obtained.
    B. Any material changes to the subcontract(s) that affect the scope of work, deliverable schedule, and/or cost schedule shall also require the written approval of the Executive Officer or designee prior to execution.
    C. The sole purpose of AQMD's review is to insure that AQMD's contract rights have not been diminished in the subcontractor agreement. AQMD shall not supervise, direct, or have control over, or be responsible for, subcontractor's means, methods, techniques, work sequences or procedures or for the safety precautions and programs incident thereto, or for any failure of subcontractor to comply with any local, state, or federal laws, or rules or regulations.

34. ENTIRE CONTRACT - This Contract represents the entire agreement between the parties hereto related to CONTRACTOR providing services to AQMD and there are no understandings, representations, or warranties of any kind except as expressly set forth herein. No waiver, alteration, or modification of any of the provisions herein shall be binding on any party unless in writing and signed by the party against whom enforcement of such waiver, alteration, or modification is sought.

IN WITNESS WHEREOF, the parties to this Contract have caused this Contract to be duly executed on their behalf by their authorized representatives.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ***

By:_____ By:_____

Barry R. Wallerstein, D.Env., Executive Officer
Dr. William A. Burke, Chairman, Governing Board

Name:
Title:

Date:_____ Date:_____

ATTEST:
Saundra McDaniel, Clerk of the Board

By:_____

APPROVED AS TO FORM:
Kurt R. Wiese, General Counsel

By:_____

ATTACHMENT A

CERTIFICATIONS AND REPRESENTATIONS

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

Business Information Request

Dear SCAQMD Contractor/Supplier:

The South Coast Air Quality Management District (SCAQMD) is committed to ensuring that our contractor/supplier records are current and accurate. If your firm is selected for award of a purchase order or contract, it is imperative that the information requested herein be supplied in a timely manner to facilitate payment of invoices. In order to process your payments, we need the enclosed information regarding your account. **Please review and complete the information identified on the following pages, complete the enclosed W-9 form, remember to sign both documents for our files, and return them as soon as possible to the address below:**

Attention: Accounts Payable, Accounting Department
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

If you do not return this information, we will not be able to establish you as a vendor. This will delay any payments and would still necessitate your submittal of the enclosed information to our Accounting department before payment could be initiated. Completion of this document and enclosed forms would ensure that your payments are processed timely and accurately.

If you have any questions or need assistance in completing this information, please contact Accounting at (909) 396-3777. We appreciate your cooperation in completing this necessary information.

Sincerely,

Michael B. O'Kelly
Chief Financial Officer

DH:LV:CW:tm

Enclosures: Business Information Request
Disadvantaged Business Certification
W-9
Federal Contract Debarment Certification

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

BUSINESS INFORMATION REQUEST

Business Name	
Division of:	
Subsidiary of:	
Website Address	
Type of Business	

REMITTING ADDRESS INFORMATION

Address			
City/Town			
State/Province		Zip	
Phone	( ) - Ext	Fax	( ) -
Contact		Title	
E-mail Address			
Payment Name if Different			

All invoices must reference the corresponding Purchase Order Number(s)/Contract Number(s) if applicable and mailed to:

Attention: Accounts Payable, Accounting Department
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

DISADVANTAGED BUSINESS CERTIFICATION

Federal guidance for utilization of disadvantaged business enterprises allows a vendor to be deemed a small business enterprise (SBE), minority business enterprise (MBE) or women business enterprise (WBE) if it meets the criteria below.

- is certified by the Small Business Administration or
- is certified by a state or federal agency or
- is an independent MBE(s) or WBE(s) business concern which is at least 51 percent owned and controlled by minority group member(s) who are citizens of the United States.

Statements of certification:

As a prime contractor to the SCAQMD,_____(name of business) will engage in good faith efforts to achieve the fair share in accordance with 40 CFR Section 31.36(e), and will follow the six affirmative steps listed below **for contracts or purchase orders funded in whole or in part by federal grants and contracts.**

1. Place qualified SBEs, MBEs, and WBEs on solicitation lists.
2. Assure that SBEs, MBEs, and WBEs are solicited whenever possible.
3. When economically feasible, divide total requirements into small tasks or quantities to permit greater participation by SBEs, MBEs, and WBEs.
4. Establish delivery schedules, if possible, to encourage participation by SBEs, MBEs, and WBEs.
5. Use services of Small Business Administration, Minority Business Development Agency of the Department of Commerce, and/or any agency authorized as a clearinghouse for SBEs, MBEs, and WBEs.
6. If subcontracts are to be let, take the above affirmative steps.

Self-Certification Verification: Also for use in awarding additional points, as applicable**, in accordance with SCAQMD Procurement Policy and Procedure:**

Check all that apply:

☐ Small Business Enterprise/Small Business Joint Venture ☐ Women-owned Business Enterprise
☐ Local business ☐ Disabled Veteran-owned Business Enterprise/DVBE Joint Venture
☐ Minority-owned Business Enterprise

Percent of ownership: _____%

Name of Qualifying Owner(s): _____ _____

I, the undersigned, hereby declare that to the best of my knowledge the above information is accurate. Upon penalty of perjury, I certify information submitted is factual.

_____ _____

NAME ***TITLE***

_____ _____

TELEPHONE NUMBER ***DATE***

Definitions

Disabled Veteran-Owned Business Enterprise means a business that meets all of the following criteria:

- is a sole proprietorship or partnership of which is at least 51 percent owned by one or more disabled veterans, or in the case of any business whose stock is publicly held, at least 51 percent of the stock is owned by one or more disabled veterans; a subsidiary which is wholly owned by a parent corporation but only if at least 51 percent of the voting stock of the parent corporation is owned by one or more disabled veterans; or a joint venture in which at least 51 percent of the joint venture's management and control and earnings are held by one or more disabled veterans.
- the management and control of the daily business operations are by one or more disabled veterans. The disabled veterans who exercise management and control are not required to be the same disabled veterans as the owners of the business.
- is a sole proprietorship, corporation, partnership, or joint venture with its primary headquarters office located in the United States and which is not a branch or subsidiary of a foreign corporation, firm, or other foreign-based business.

Joint Venture means that one party to the joint venture is a DVBE and owns at least 51 percent of the joint venture. In the case of a joint venture formed for a single project this means that DVBE will receive at least 51 percent of the project dollars.

Local Business means a business that meets all of the following criteria:

- has an ongoing business within the boundary of the SCAQMD at the time of bid application.
- performs 90 percent of the work within SCAQMD's jurisdiction.

Minority-Owned Business Enterprise means a business that meets all of the following criteria:

- is at least 51 percent owned by one or more minority persons or in the case of any business whose stock is publicly held, at least 51 percent of the stock is owned by one or more minority persons.
- is a business whose management and daily business operations are controlled or owned by one or more minority person.
- is a business which is a sole proprietorship, corporation, partnership, joint venture, an association, or a cooperative with its primary headquarters office located in the United States, which is not a branch or subsidiary of a foreign corporation, foreign firm, or other foreign business.

"Minority" person means a Black American, Hispanic American, Native American (including American Indian, Eskimo, Aleut, and Native Hawaiian), Asian-Indian American (including a person whose origins are from India, Pakistan, or Bangladesh), Asian-Pacific American (including a person whose origins are from Japan, China, the Philippines, Vietnam, Korea, Samoa, Guam, the United States Trust Territories of the Pacific, Northern Marianas, Laos, Cambodia, or Taiwan).

Small Business Enterprise means a business that meets the following criteria:

a. 1) an independently owned and operated business; 2) not dominant in its field of operation; 3) together with affiliates is either:

- **A service, construction, or non-manufacturer with 100 or fewer employees, and average annual gross receipts of ten million dollars ($10,000,000) or less over the previous three years, or**
- A manufacturer with 100 or fewer employees.

b. Manufacturer means a business that is both of the following:

1) Primarily engaged in the chemical or mechanical transformation of raw materials or processed substances into new products.

2) Classified between Codes 311000 to 339000, inclusive, of the North American Industrial Classification System (NAICS) Manual published by the United States Office of Management and Budget, 2007 edition.

Small Business Joint Venture means that one party to the joint venture is a Small Business and owns at least 51 percent of the joint venture. In the case of a joint venture formed for a single project this means that the Small Business will receive at least 51 percent of the project dollars.

Women-Owned Business Enterprise means a business that meets all of the following criteria:

- is at least 51 percent owned by one or more women or in the case of any business whose stock is publicly held, at least 51 percent of the stock is owned by one or more women.
- is a business whose management and daily business operations are controlled or owned by one or more women.
- is a business which is a sole proprietorship, corporation, partnership, or a joint venture, with its primary headquarters office located in the United States, which is not a branch or subsidiary of a foreign corporation, foreign firm, or other foreign business.

Form **W-9**
(Rev. January 2005)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give form to the requester. Do not send to the IRS.

Print or type
See Specific Instructions on page 2.

Name (as shown on your income tax return)

Business name, if different from above

Check appropriate box: ☐ Individual/ Sole proprietor ☐ Corporation ☐ Partnership ☐ Other ► _____ ☐ Exempt from backup withholding

Address (number, street, and apt. or suite no.) | Requester's name and address (optional)

City, state, and ZIP code

List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on Line 1 to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. *If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.*

Social security number
___ ___ ___ – ___ ___ – ___ ___ ___ ___

or

Employer identification number
___ ___ – ___ ___ ___ ___ ___ ___ ___

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. person (including a U.S. resident alien).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. (See the instructions on page 4.)

Sign Here Signature of U.S. person ► Date ►

Purpose of Form

A person who is required to file an information return with the IRS, must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

U.S. person. Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee.

Note. *If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.*

For federal tax purposes you are considered a person if you are:

- An individual who is a citizen or resident of the United States,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States, or
- Any estate (other than a foreign estate) or trust. See Regulations sections 301.7701-6(a) and 7(a) for additional information.

Foreign person. If you are a foreign person, do not use Form W-9. Instead, use the appropriate Form W-8 (see Publication 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the recipient has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items:

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.

4. The type and amount of income that qualifies for the exemption from tax.

5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity not subject to backup withholding, give the requester the appropriate completed Form W-8.

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 28% of such payments (after December 31, 2002). This is called "backup withholding." Payments that may be subject to backup withholding include interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester, or

2. You do not certify your TIN when required (see the Part II instructions on page 4 for details), or

3. The IRS tells the requester that you furnished an incorrect TIN, or

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See the instructions below and the separate Instructions for the Requester of Form W-9.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of $50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a $500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Name

If you are an individual, you must generally enter the name shown on your social security card. However, if you have changed your last name, for instance, due to marriage without informing the Social Security Administration of the name change, enter your first name, the last name shown on your social security card, and your new last name.

If the account is in joint names, list first, and then circle, the name of the person or entity whose number you entered in Part I of the form.

Sole proprietor. Enter your individual name as shown on your social security card on the "Name" line. You may enter your business, trade, or "doing business as (DBA)" name on the "Business name" line.

Limited liability company (LLC). If you are a single-member LLC (including a foreign LLC with a domestic owner) that is disregarded as an entity separate from its owner under Treasury regulations section 301.7701-3, enter the owner's name on the "Name" line. Enter the LLC's name on the "Business name" line. Check the appropriate box for your filing status (sole proprietor, corporation, etc.), then check the box for "Other" and enter "LLC" in the space provided.

Other entities. Enter your business name as shown on required Federal tax documents on the "Name" line. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on the "Business name" line.

Note. You are requested to check the appropriate box for your status (individual/sole proprietor, corporation, etc.).

Exempt From Backup Withholding

If you are exempt, enter your name as described above and check the appropriate box for your status, then check the "Exempt from backup withholding" box in the line following the business name, sign and date the form.

Generally, individuals (including sole proprietors) are not exempt from backup withholding. Corporations are exempt from backup withholding for certain payments, such as interest and dividends.

Note. If you are exempt from backup withholding, you should still complete this form to avoid possible erroneous backup withholding.

Exempt payees. Backup withholding is not required on any payments made to the following payees:

1. An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2),

2. The United States or any of its agencies or instrumentalities,

3. A state, the District of Columbia, a possession of the United States, or any of their political subdivisions or instrumentalities,

4. A foreign government or any of its political subdivisions, agencies, or instrumentalities, or

5. An international organization or any of its agencies or instrumentalities.

Other payees that may be exempt from backup withholding include:

6. A corporation,

7. A foreign central bank of issue,

8. A dealer in securities or commodities required to register in the United States, the District of Columbia, or a possession of the United States,

9. A futures commission merchant registered with the Commodity Futures Trading Commission,

10. A real estate investment trust,

11. An entity registered at all times during the tax year under the Investment Company Act of 1940,

12. A common trust fund operated by a bank under section 584(a),

13. A financial institution,

14. A middleman known in the investment community as a nominee or custodian, or

15. A trust exempt from tax under section 664 or described in section 4947.

The chart below shows types of payments that may be exempt from backup withholding. The chart applies to the exempt recipients listed above, 1 through 15.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt recipients except for 9
Broker transactions	Exempt recipients 1 through 13. Also, a person registered under the Investment Advisers Act of 1940 who regularly acts as a broker
Barter exchange transactions and patronage dividends	Exempt recipients 1 through 5
Payments over $600 required to be reported and direct sales over $5,000 [1]	Generally, exempt recipients 1 through 7 [2]

[1] See Form 1099-MISC, Miscellaneous Income, and its instructions.

[2] However, the following payments made to a corporation (including gross proceeds paid to an attorney under section 6045(f), even if the attorney is a corporation) and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees; and payments for services paid by a Federal executive agency.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are a single-owner LLC that is disregarded as an entity separate from its owner (see *Limited liability company (LLC)* on page 2), enter your SSN (or EIN, if you have one). If the LLC is a corporation, partnership, etc., enter the entity's EIN.

Note. See the chart on page 4 for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local Social Security Administration office or get this form online at *www.socialsecurity.gov/online/ss-5.pdf*. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at *www.irs.gov/businesses/* and clicking on Employer ID Numbers under Related Topics. You can get Forms W-7 and SS-4 from the IRS by visiting *www.irs.gov* or by calling 1-800-TAX-FORM (1-800-829-3676).

If you are asked to complete Form W-9 but do not have a TIN, write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note. Writing "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: *A disregarded domestic entity that has a foreign owner must use the appropriate Form W-8.*

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if items 1, 4, and 5 below indicate otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). Exempt recipients, see *Exempt From Backup Withholding* on page 2.

Signature requirements. Complete the certification as indicated in 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account)	The actual owner of the account or, if combined funds, the first individual on the account [1]
3. Custodian account of a minor (Uniform Gift to Minors Act)	The minor [2]
4. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee [1]
b. So-called trust account that is not a legal or valid trust under state law	The actual owner [1]
5. Sole proprietorship or single-owner LLC	The owner [3]
For this type of account:	**Give name and EIN of:**
6. Sole proprietorship or single-owner LLC	The owner [3]
7. A valid trust, estate, or pension trust	Legal entity [4]
8. Corporate or LLC electing corporate status on Form 8832	The corporation
9. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
10. Partnership or multi-member LLC	The partnership
11. A broker or registered nominee	The broker or nominee
12. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity

[1] List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

[2] Circle the minor's name and furnish the minor's SSN.

[3] You must show your individual name and you may also enter your business or "DBA" name on the second name line. You may use either your SSN or EIN (if you have one). If you are a sole proprietor, IRS encourages you to use your SSN.

[4] List first and circle the name of the legal trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.)

Note. If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons who must file information returns with the IRS to report interest, dividends, and certain other income paid to you, mortgage interest you paid, the acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA, or Archer MSA or HSA. The IRS uses the numbers for identification purposes and to help verify the accuracy of your tax return. The IRS may also provide this information to the Department of Justice for civil and criminal litigation, and to cities, states, and the District of Columbia to carry out their tax laws. We may also disclose this information to other countries under a tax treaty, to federal and state agencies to enforce federal nontax criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism.

You must provide your TIN whether or not you are required to file a tax return. Payers must generally withhold 28% of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to a payer. Certain penalties may also apply.

United State Environmental Protection Agency
Washington, DC 20460

Certification Regarding
Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies to the best of its knowledge and belief that it and the principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgement rendered against them or commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction: violation of Federal or State antitrust statute or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property:

(c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

_____
Typed Name & Title of Authorized Representative

_____
Signature of Authorized Representative Date

❑ I am unable to certify to the above statements. My explanation is attached.

CAMPAIGN CONTRIBUTIONS DISCLOSURE

California law prohibits a party, or an agent, from making campaign contributions to AQMD Governing Board Members or members/alternates of the Mobile Source Pollution Reduction Committee (MSRC) of $250 or more while their contract or permit is pending before the AQMD; and further prohibits a campaign contribution from being made for three (3) months following the date of the final decision by the Governing Board or the MSRC on a donor's contract or permit. Gov't Code §84308(d). For purposes of reaching the $250 limit, the campaign contributions of the bidder or contractor *plus* contributions by its parents, affiliates, and related companies of the contractor or bidder are added together. 2 C.C.R. §18438.5.

In addition, Board Members or members/alternates of the MSRC must abstain from voting on a contract or permit if they have received a campaign contribution from a party or participant to the proceeding, or agent, totaling $250 or more in the 12-month period prior to the consideration of the item by the Governing Board or the MSRC. Gov't Code §84308(c). When abstaining, the Board Member or members/alternates of the MSRC must announce the source of the campaign contribution on the record. *Id*. The requirement to abstain is triggered by campaign contributions of $250 or more in total contributions of the bidder or contractor, *plus* any of its parent, subsidiary, or affiliated companies. 2 C.C.R. §18438.5.

In accordance with California law, bidders and contracting parties are required to disclose, at the time the application is filed, information relating to any campaign contributions made to Board Members or members/alternates of the MSRC, including: the name of the party making the contribution (which includes any parent, subsidiary or otherwise related business entity, as defined below), the amount of the contribution, and the date the contribution was made. 2 C.C.R. §18438.8(b).

The list of current AQMD Governing Board Members can be found at the AQMD website (www.aqmd.gov). The list of current MSRC members/alternates can be found at the MSRC website (http://www.cleantransportationfunding.org).

SECTION I. Please complete Section I.

Contractor: **RFP #:** P2011-10

_____

List any parent, subsidiaries, or otherwise affiliated business entities of Contractor: *(See definition below).*

_____

_____

_____

_____

SECTION II

Has contractor and/or parent, subsidiary, or affiliated company, or agent thereof, made a campaign contribution(s) totaling $250 or more in the aggregate to a current member of the South Coast Air Quality Management Governing Board or members/alternates of the MSRC in the 12 months preceding the date of execution of this disclosure?

☐ Yes ☐ No **If YES, complete Section II below and then sign and date the form. If NO, sign and date below. Include this form with your submittal.**

Campaign Contributions Disclosure, *continued:*

Name of Contributor_____

Governing Board Member or MSRC Member/Alternate	Amount of Contribution	Date of Contribution

Name of Contributor_____

Governing Board Member or MSRC Member/Alternate	Amount of Contribution	Date of Contribution

Name of Contributor_____

Governing Board Member or MSRC Member/Alternate	Amount of Contribution	Date of Contribution

Name of Contributor_____

Governing Board Member or MSRC Member/Alternate	Amount of Contribution	Date of Contribution

Name of Contributor_____

Governing Board Member or MSRC Member/alternate	Amount of Contribution	Date of Contribution

I declare the foregoing disclosures to be true and correct.

By:_____

Title:_____

Date:_____

DEFINITIONS

Parent, Subsidiary, or Otherwise Related Business Entity.

(1) Parent subsidiary. A parent subsidiary relationship exists when one corporation directly or indirectly owns shares possessing more than 50 percent of the voting power of another corporation.

(2) Otherwise related business entity. Business entities, including corporations, partnerships, joint ventures and any other organizations and enterprises operated for profit, which do not have a parent subsidiary relationship are otherwise related if any one of the following three tests is met:

- *(A) One business entity has a controlling ownership interest in the other business entity.*
- *(B) There is shared management and control between the entities. In determining whether there is shared management and control, consideration should be given to the following factors:*
  - *(i) The same person or substantially the same person owns and manages the two entities;*
  - *(ii) There are common or commingled funds or assets;*
  - *(iii) The business entities share the use of the same offices or employees, or otherwise share activities, resources or personnel on a regular basis;*
  - *(iv) There is otherwise a regular and close working relationship between the entities; or*
- *(C) A controlling owner (50% or greater interest as a shareholder or as a general partner) in one entity also is a controlling owner in the other entity.*

2 Cal. Code of Regs., §18703.1(d).

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 15

PROPOSAL: Appropriate Funds from Designation for Litigation and Enforcement and Authorize Amending/Initiating Contracts with Outside Counsel

SYNOPSIS: AQMD District Counsel is currently being assisted in several environmental lawsuits by outside law firms and in other matters requiring specialized legal counsel. This action is to appropriate $425,000 from the Designation for Litigation and Enforcement to the Legal Budget, Professional and Special Services account, and to authorize the Chairman or the Executive Officer, as appropriate, to amend or initiate contracts to expend these funds with prequalified counsel approved by the Board as well as specialized legal counsel with monies to be appropriated as the need arises.

COMMITTEE: Administrative, October 8, 2010, Recommended for Approval

RECOMMENDED ACTIONS:

1. Appropriate $425,000 from the Designation for Litigation and Enforcement to Legal's FY 2010-11 Budget, Professional and Special Services account.

2. Authorize the Chairman or the Executive Officer, depending on whether the amount exceeds $75,000, to amend or initiate contracts with prequalified counsel approved by the Board as well as specialized legal counsel in a total amount not to exceed $685,000 in FY 2010-11, as the need arises.

Barry R. Wallerstein, D.Env.
Executive Officer

KRW:vmr

Background

The FY 2010-11 Budget for Legal included $260,000 for litigation expenses in environmental law cases and specialized legal counsel. Several firms, principally Woodruff Spradlin & Smart and Shute Mihaly & Weinberger, have been assisting District Counsel with environmental litigation and special litigation matters. The monies for these matters have been and will be expended on lawsuits, including those involving

the Architectural Coatings Rules, the recently adopted rule for consumer paint thinners – Rule 1143, the lawsuit seeking to overturn Rule 433 – Natural Gas Quality, the appeal of the federal lawsuit challenging the District's internal offset accounts, and Communities for a Better Environment's request for attorneys' fees in the challenge to a ConocoPhillips permit. Although District Counsel has put cost-containment measures in place, it is expected that expenses in these matters, and the other matters handled by specialized legal counsel, will require an additional amount up to $425,000. Accordingly, District Counsel is requesting the appropriation of additional funds in the amount of $425,000, for a total expected expenditure of $685,000 this fiscal year.

Proposal

In order to defend ongoing and threatened litigation, it is necessary to appropriate additional funds for expenditure by outside counsel. It is expected that ongoing lawsuits, and new litigation that is possible, as well as matters requiring specialized legal counsel will require an additional $425,000 to be appropriated to prequalified counsel approved by the Board, as well as specialized legal counsel, as the need arises.

Resource Impacts

Sufficient funds will be available in Legal's FY 2010-11 Budget following the transfer of funds from the Designation for Litigation and Enforcement.

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Clean Transportation
Funding from the MSRC
Mobile Source Air Pollution Reduction Review Committee

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 16

PROPOSAL: Approve Contract Modifications and Award under FYs 2003-04, 2008-09 and 2010-11 AB 2766 Discretionary Fund Work Programs

SYNOPSIS: The MSRC approved a replacement contract for regional rideshare database enhancements as part of the FY 2003-04 AB 2766 Discretionary Fund Work Program, as well as a contract modification for BusWest providing additional funds for alternative fuel school buses as part of the FY 2008-09 Work Program. As the initial elements of their FY 2010-11 Work Program, the MSRC approved a $1,500 contract increase for upgrades to their existing website, a $100,000 set aside for development of a new website, and a $2,250,000 allocation for an off-road diesel exhaust after-treatment demonstration program. The MSRC seeks AQMD Board approval of the FY 2010-11 Work Program elements as well as the contract modifications and award under the FYs 2003-04, 2008-09 and 2010-11 AB 2766 Discretionary Fund Work Programs.

COMMITTEE: Mobile Source Air Pollution Reduction Review, October 21, 2010, Recommended for Approval

RECOMMENDED ACTIONS:

1. Approve new/replacement contract, as part of the FY 2003-04 Work Program, with Riverside County Transportation Commission in the amount of $225,000 to perform enhancements to the regional rideshare database, as described in this letter;
2. Approve a funding augmentation in an amount not to exceed $240,000, as part of the FY 2008-09 Work Program, to existing contract #MS09047 with BusWest under the Alternative Fuel School Bus Incentives Program, using funds previously allocated to this Program but not yet awarded, as described in this letter;
3. Approve Partial FY 2010-11 AB 2766 Discretionary Fund Work Program with the following elements:
   a. New MSRC Website Development, including hardware and subsequent two years' hosting, maintenance and upgrades, totaling $100,000;
   b. Off-Road Diesel Exhaust After-treatment Demonstration Program totaling $2,250,000;
   c. Website Upgrades totaling $1,500.

4. Approve a $1,500 funding augmentation to existing contract #MS05070 with Haaland Internet Productions, for MSRC website development and maintenance, under the FY 2010-11 Work Program, as described in this letter;
5. Authorize MSRC the authority to adjust contract awards up to five percent, as necessary and previously granted in prior work programs; and
6. Authorize the Chairman of the Board to execute new and modified contracts under FYs 2003-04, 2008-09, and 2010-11 AB 2766 Discretionary Fund Work Programs, as described above and within this letter.

Greg Winterbottom
Chair, MSRC

CSL:HH:CR

Background

In September 1990 Assembly Bill 2766 was signed into law (Health & Safety Code Sections 44220-44247) authorizing the imposition of an annual $4 motor vehicle registration fee to fund the implementation of programs exclusively to reduce air pollution from motor vehicles. AB 2766 provides that 30 percent of the annual $4 vehicle registration fee subvened to the AQMD be placed into an account to be allocated pursuant to a work program developed and adopted by the MSRC and approved by the Board.

FY 2003-04 Work Program

As an element of the FY 2003-04 Work Program, the Riverside County Transportation Commission (RCTC) was awarded a $225,000 contract to enhance the region's rideshare database systems through the creation of a direct communications link between RCTC's RidePro and the Los Angeles County Metropolitan Transportation Authority's (Metro's) TripMaster. Among other features, the communications link will facilitate the access of transit itineraries through the CommuteSmart.info website. In August 2010, RCTC requested a one-year contract term extension. Due to the contract's incipient termination, a two-month extension was prepared to allow time for the MSRC to consider the remainder of RCTC's request, but the modification to extend the term was not executed by all appropriate parties prior to the contract's August 31, 2010 expiration date. At its October 21, 2010 meeting, the MSRC considered a new/replacement contract for RCTC as part of the FY 2003-04 Work Program. Further details are provided below in the Proposals section.

FY 2008-09 Work Program

As part of the FY 2008-09 Work Program, the MSRC has allocated a total of $3,000,000 for the Alternative Fuel School Bus Incentives Program to provide buydown incentives for school districts. $2,520,000 of this funding was previously awarded to A-Z Bus Sales

and $240,000 to BusWest, leaving an available balance of $240,000. At its October 21, 2010 meeting, the MSRC considered a request from BusWest for an additional $240,000 for an order from the Rowland Unified School District; further details are provided below in the Proposals section.

FY 2010-11 Work Program

The MSRC maintains a website www.CleanTransportationFunding.org for outreach and assistance to contractors, proposers and others interested in clean transportation. Development of the website was done several years ago by Haaland Internet Productions (HiP Design), and HiP Design continues to provide maintenance and hosting services to the MSRC. The MSRC previously authorized the development of a website feature which would allow proposals and applications to be submitted online. This feature has been built, but has not yet been activated. Additional desired parameters have been identified which would help maintain consistency with AQMD's current procurement processes. At its October 21, 2010 meeting, the MSRC considered recommendations from its MSRC-TAC for two areas of improvement for the website's online submittal feature, and the funding required to implement these concepts. Further details are provided in the Proposals section.

Proposals

At its October 21, 2010 meeting, considered recommendations from its MSRC-TAC and unanimously approved the following:

FY 2003-04 Work Program

As mentioned in the Background section, RCTC was awarded a contract to create a direct communications link between Metro's TripMaster and RCTC's RidePro. The contract expired before all work could be completed. The MSRC unanimously approved a new/replacement twelve-month contract with RCTC in the amount of $225,000.

FY 2008-09 Work Program

As mentioned in the Background section, the MSRC previously awarded a total of $2,760,000 of the $3 million allocated for this Program to BusWest and another qualified vendor to continue the implementation of the Alternative Fuels School Bus Incentives Program, based on their pending orders. This $2,760,000 has already been expended or has purchase orders issued against it. BusWest has received an order from Rowland Unified School District for four CNG buses, for which the total incentive would be $240,000. BusWest requests an additional $240,000 to cover the buydown incentives for these buses. The MSRC has a balance of $240,000 remaining in this FY 2008-09 Alternative Fuel School Bus Incentives Program. The MSRC considered recommendations from its MSRC-TAC and awarded the remaining $240,000 of this allocation to BusWest to provide the full incentives for the buses for Rowland Unified School District.

FY 2010-11 Work Program

The MSRC established the initial elements of its FY 2010-11 AB 2766 Discretionary Fund Work Program, as follows:

a. New MSRC Website Development, to include hardware and two years' subsequent hosting, maintenance and upgrades, totaling $100,000;
b. Off-Road Diesel Exhaust After-treatment Demonstration Program totaling $2,250,000;
c. Website Upgrades totaling $1,500.

The MSRC approved a contract modification for one of these elements, which is delineated below for the AQMD Board's consideration. The MSRC is anticipated to approve and bring forward additional FY 2010-11 AB 2766 Discretionary Fund Work Program elements in the coming months.

As discussed in the Background section, the MSRC maintains a website www.CleanTransportationFunding.org which was designed and is still maintained and hosted by HiP Design on behalf of the MSRC. An online application submission feature has been built, but not yet activated. Two areas for improvement of the feature have been identified: 1) build in additional level of password protection to proposal submission area in back-end; and 2) add e-mail notification and attachment mechanism. HiP Design provided an estimate to perform these improvements under its existing contract, with an upper cost limit of $1,500. The MSRC-TAC recommended approval of the proposed upgrades. The MSRC considered the recommendations from its MSRC-TAC and approved an additional $1,500 for this work as part of its FY 2010-11 Work Program.

At this time the MSRC requests the AQMD Board to approve the FY 2010-11 Work Program elements, contract modifications and award under the FYs 2003-04, 2008-09 and 2010-11 Work Programs as outlined above. The MSRC also requests the Board to authorize the AQMD Chairman of the Board the authority to execute all agreements described in this letter. The MSRC further requests authority to adjust the funds allocated to each project specified in this Board letter by up to five percent of the project's recommended funding. The Board has granted this authority to the MSRC for all past Work Programs.

Resource Impacts

The AQMD acts as fiscal administrator for the AB 2766 Discretionary Fund Program (Health & Safety Code Section 44243). Money received for this program is recorded in a special revenue fund (Fund 23) and the contracts will be drawn from this fund. These contracts will have no fiscal impact on the AQMD's operational budget.

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 17

REPORT: Establish Board Meeting Schedule for Calendar Year 2011

SYNOPSIS: The proposed Board Meeting Schedule for Calendar Year 2011 (includes January 2012) is submitted for Board consideration. The Administrative Committee meeting schedule (second Friday of the month) is included for information only.

COMMITTEE: Administrative, October 8, 2010, Recommended for Approval

RECOMMENDED ACTION:
Adopt the 2011 Board Meeting Schedule.

Dr. William A. Burke, Chair
Administrative Committee

tc

Calendar Year 2011 Board Meeting Schedule
with CY 2011 Administrative Committee meetings

MONTH	DATE	TIME	ASSOCIATED ADMIN CMTE MEETING
January:	January 7	9:00 a.m. - end	December 10, 2010
February:	February 4	9:00 a.m. - end	January 14, 2011
March:	March 4	9:00 a.m. - end	February 11, 2011
April:	April 1	9:00 a.m. - end	March 11, 2011
May:	May 6	9:00 a.m. - end	April 8, 2011
June:	June 3	9:00 a.m. - end	May 13, 2011
July:	July 8*	9:00 a.m. - end	June 10, 2011
September:	September 9	9:00 a.m. - end	July 15, 2011*
October:	October 7	9:00 a.m. - end	September 16, 2011*
November:	November 4	9:00 a.m. - end	October 14, 2011
December:	December 2	9:00 a.m. - end	TBD
January 2012:	January 6, 2012	9:00 a.m. - end	December 9, 2011

* The July and September Board meetings have been moved to accommodate the holidays, which has moved the Administrative Committee meetings to the third Friday of those months. Also, there is no meeting scheduled in August.

Attachment
Resolution

RESOLUTION NO. 10-

A Resolution of the South Coast Air Quality Management Governing Board setting the time and place of regular meetings.

WHEREAS, the regular meetings of the South Coast Air Quality Management Governing Board have been established by Resolution in the past, and

WHEREAS, the Governing Board is establishing the regularly scheduled meetings for Calendar Year 2011.

NOW, THEREFORE, BE IT RESOLVED that, effective January 2011, the regular meetings of the Governing Board shall be held at 9:00 a.m. on the first Friday of each month, except for July and September to accommodate holidays and August where there is no meeting scheduled, in the Auditorium at AQMD Headquarters, 21865 Copley Dr., Diamond Bar, California.

AYES:

NOES:

ABSTAIN:

ABSENT:

Dated:_____ _____

Saundra McDaniel, Clerk of the Boards

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 18

PROPOSAL: Legislative and Public Affairs Report

SYNOPSIS: This report highlights September 2010 outreach activities of Legislative and Public Affairs, which include: Environmental Justice Update, Community Events/Public Meetings, Business Assistance, and Outreach to Business and Federal, State, and Local Government.

COMMITTEE: Not Applicable

RECOMMENDED ACTION:
Receive and file.

Barry R. Wallerstein, D.Env.
Executive Officer

OA:AG:MC:DA:jns

Background
This report summarizes the activities of Legislative and Public Affairs for September 2010. The report includes four major areas: Environmental Justice Update; Community Events/Public Meetings (including the Speakers Bureau/Visitor Services, Communications Center, and Public Information Center); Business Assistance; and Outreach to Business and Federal, State, and Local Governments.

Environmental Justice Update
The following are key environmental justice-related activities in which staff participated during September 2010. These events involved communities which suffer disproportionately from adverse air quality impacts.

- On September 2, staff met with the President of the Black Business Association (BBA) to discuss a presentation to BBA members from the health community on air quality and public health impacts of poor air quality.

- On September 7, staff met with representatives from the Los Angeles Metro Churches Council. The purpose of the meeting was to schedule a presentation to African-American pastors on the health impacts of poor air quality and how the AQMD can better educate and engage the community on air quality issues.

- On September 11, staff participated in the 25th Senate District School Readiness & Health Fair in South Los Angeles. Approximately 500 people mostly from environmental justice communities attended. Staff provided information on the health impacts of poor air quality and promoted Clean Air Connections.

- On September 11, staff met with the President of the National Council of Negro Women, Southern California to introduce the organization to the AQMD and to discuss potential partnership opportunities.

- On September 15, AQMD, in partnership with Mission Ebenezer Family Church, hosted an Air Quality Institute briefing. The briefing was given in English and Spanish and educated parishioners on general air quality and the health impacts of poor air quality.

- On September 17, staff attended the Hispanic Chamber of Orange County meeting and made a general air quality presentation and discussed legislation that affects their membership.

- On September 17-19, staff participated in the Taste of Holy Spirit event in Fountain Valley. There was significant representation from the Vietnamese and Latino communities. Staff provided general air quality information and promoted Clean Air Connections.

- On September 23, staff attended the Black Chamber of Orange County Gala. Staff had a booth at the event and distributed air quality information and promoted Clean Air Connections.

- On September 25, staff hosted a booth at the Community Health Expo in Anaheim to provide health and air quality information to low-income minority residents.

COMMUNITY EVENTS/PUBLIC MEETINGS

Each year, thousands of residents engage in valuable information exchanges through events and meetings that AQMD sponsors alone, or in partnership with others. Attendees typically receive the following information: tips on reducing their exposure to smog and its health effects; invitations or notices of conferences, seminars, workshops and other public events, ways to participate in AQMD rule and policy development; and

assistance in resolving air quality-related problems. The events that AQMD staff attended and provided information and updates include:

September 1-2	Women in Green Forum, Pasadena
September 8	Los Angeles Unified School District School Nurses Annual Meeting and Educational Symposium
September 11	25th Senate District School Readiness and Health Fair
September 11	Santa Clarita Environmental Expo and River Rally
September 15	La Quinta/Indio Chambers of Commerce Legislative Summit
September 15	City National Bank Health Fair, Los Angeles
September 15	Irwindale Chamber of Commerce Environmental Awards Luncheon
September 16-19	21st Annual Route 66 Rendezvous, San Bernardino
September 18	Huntington Beach Goes Green
September 22	Anaheim Transportation Fair
September 24	Charles Drew University Environmental Conference, Los Angeles
September 25	Monrovia Sustainability Fair
September 27	CleanTech OC Conference, Irvine

Speakers Bureau/Visitor Services
AQMD receives requests for staff to speak on a variety of air quality-related issues. The requests come from organizations such as trade associations, chambers of commerce, community-based groups, schools, hospitals and health-based organizations. AQMD also hosts visitors from around the world who meet with staff on a wide range of air quality issues.

On September 10, staff provided a briefing and tour of AQMD's facility and laboratory to the Bureau of Environmental Protection, Keelung City, Taiwan.

On September 16, staff provided a presentation on Rule 1147 and permit processing to the California Auto Body Association, Pasadena Foothill Chapter at Brookside Country Club, Pasadena.

Communication Center Statistics
The Communication Center handles calls on the AQMD main line, 1-800-CUT-SMOG® line and Spanish line. Calls received in the month of September 2010 are summarized below:

Main Line Calls	3,109
1-800-CUT-SMOG® Line	2,013
After Hours Calls*	565
Spanish Line Calls	29
Clean Air Connections	24
Total Phone Calls	5,740

*Saturday, Sunday, holidays and after 9:00 p.m., Monday through Friday.

Public Information Center Statistics
The Public Information Center (PIC) handles phone calls and walk-in requests for general information. Information for the month of September 2010 is summarized below:

Visitor Transactions	209
Packages Mailed Out	2
Calls Received by PIC Staff	57
Calls to Automated System	1,983
Total Phone Calls	2,040

BUSINESS ASSISTANCE

AQMD assists businesses by notifying them of proposed regulations so they can participate in the development of these rules. AQMD also works with other agencies and states to identify efficient, cost-effective ways to reduce air pollution and shares that information broadly. Additionally, staff provides personalized assistance to small businesses both over the telephone and by on-site consultation. The information is summarized below.

- Conducted six free on-site consultation
- Provided assistance in filing one request for variance
- Provided permit application assistance to 227 companies
- Issued 19 clearance letters

Types of business assisted:

- ✓ Food products manufacturing
- ✓ Auto body shops
- ✓ Gasoline stations
- ✓ Building/property management
- ✓ Concrete pumping
- ✓ Restaurants

- ✓ Medical center
- ✓ Metal products manufacturing and coating
- ✓ Dry cleaners
- ✓ Chemical products manufacturing

OUTREACH TO BUSINESS AND FEDERAL, STATE, AND LOCAL GOVERNMENT

Field visits and communications were conducted with staff from the following cities:

Alhambra, Aliso Viejo, Anaheim, Arcadia, Azusa, Baldwin Park, Bradbury, Buena Park, Burbank, Cerritos, Claremont, Coachella, Compton, Costa Mesa, Covina, Dana Point, Diamond Bar, Downey, Duarte, El Monte, Fountain Valley, Glendora, Hermosa Beach, Huntington Beach, Irvine, Irwindale, La Canada Flintridge, Lake Forest, La Palma, La Puente, La Quinta, Laguna Hills, Laguna Niguel, Laguna Woods, Long Beach, Los Angeles, Manhattan Beach, Mission Viejo, Monrovia, Monterey Park, Norwalk, Orange, Palm Desert, Pasadena, Pomona, Rancho Santa Margarita, Redondo Beach, Riverside, Rosemead, San Bernardino, San Dimas, San Gabriel, San Juan Capistrano, Santa Ana, Santa Clarita, Sierra Madre, Signal Hill, South El Monte, South Gate, South Pasadena, Temple City, Torrance, Villa Park, Walnut, West Covina, West Hollywood, Westminster and Whittier.

Visits and/or communications were conducted with elected officials or staff from the following offices:

- U.S. Senator Dianne Feinstein
- U.S. Representative Joe Baca
- U.S. Representative Xavier Becerra
- U.S. Representative Howard Berman
- U.S. Representative John Campbell
- U.S. Representative Judy Chu
- U.S. Representative David Dreier
- U.S. Representative Grace Napolitano
- U.S. Representative Laura Richardson
- U.S. Representative Ed Royce
- U.S. Representative Linda Sanchez
- U.S. Representative Brad Sherman
- Senator Bob Huff
- Senator Gilbert Cedillo
- Senator Lou Correa
- Senator Tom Harman
- Senator Alan Lowenthal
- Senator Alex Padilla
- Senator Anthony Portantino
- Senator Mimi Walters

- Senator Roderick Wright
- Assembly Speaker John A. Perez
- Assembly Member Anthony Adams
- Assembly Member Bob Blumenfield
- Assembly Member Hector De La Torre
- Assembly Member Mike Eng
- Assembly Member Mike Feuer
- Assembly Member Warren Furutani
- Assembly Member Curt Hagman
- Assembly Member Diane Harkey
- Assembly Member Ed Hernandez
- Assembly Member Tony Mendoza
- Assembly Member Jeff Miller
- Assembly Member Brian Nestande
- Assembly Member Anthony Portantino
- Assembly Member Cameron Smythe

Staff represented AQMD and/or provided a presentation to the following groups:

American Lung Association Air Quality Committee
Anaheim Chamber of Commerce
Annenberg School of Nursing
Archdiocese of Los Angeles' Creation Sustainability Committee
Asthma Coalition of Los Angeles County
Asthma and Allergy Foundation of America
Beach Cities Health District
Beverly Hills Chamber of Commerce
Black Business Association
Black Chamber of Commerce of Orange County
Brotherhood Crusade
California Black Women's Health Project
California School Nurses Organization
Carson Black Chamber of Commerce
Cathedral City Chamber of Commerce
Cedars-Sinai Medical Center
Charles Drew University
Children's Hospital of Los Angeles
Claremont Chamber of Commerce
Coachella Valley Association of Governments
Greater Los Angeles African American Chamber of Commerce
Healthy African-American Families
Independent Cities Association
Inland Empire Asthma Coalition

Irwindale Chamber of Commerce Environmental Committee
Kids are 1st
La Quinta Chamber of Commerce
Lake Arrowhead Communities Chamber of Commerce
Little Company of Mary
Long Beach Memorial Hospital
Los Angeles County Department of Public Health SPA 8
Los Angeles County Medical Association
Los Angeles Jewish Home
Los Angeles Lakers
Los Angeles Metropolitan Churches
Los Angeles Sparks
Los Angeles World Airports
Magic Johnson Foundation
Metropolitan Water District
Metro Interfaith Council
Mobility 21
National Council of Negro Women, Southern California
Orange County Council of Governments
Orange County Hispanic Chamber of Commerce
Orange/Tustin Chamber of Commerce Legislative Affairs Committee
Palm Springs Chamber of Commerce
Port of Long Beach
Providence Little Company of Mary Hospital
Redondo Beach Senior and Family Services
Redondo Beach Roundtable
Rim of the World Unified School District
Saddleback Unified School District
Saints Peter and Paul School, Wilmington
San Fernando Valley Council of Governments
San Gabriel Valley Economic Partnership
Santa Ana Unified School District
Santa Clarita High School
South Orange County Regional Chambers of Commerce
South Pasadena Chamber of Commerce
Southern California Gas Company
Torrance Memorial Medical Center
United Nurses Association of California
University of California, Los Angeles
Upland Chamber of Commerce
Warner Bros. Entertainment
Western Riverside Council of Governments
West San Gabriel Valley Health Council

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 19

REPORT: Hearing Board Report

SYNOPSIS: This reports the actions taken by the Hearing Board during the period of September 1 through September 30, 2010.

COMMITTEE: Not Applicable

RECOMMENDED ACTION:
Receive and file this report.

Edward Camarena
Chairman of Hearing Board

SM

Three summaries are attached: **Rules From Which Variances and Orders for Abatement Were Requested in 2010** and **September 2010 Hearing Board Cases**.

The total number of appeals filed during the period September 1 to September 30, 2010 is 1; and total number of appeals filed during the period of January 1 to September 30, 2010 is 11.

Rules from which Variances and Order for Abatements were Requested in 2010														
	2010	***Jan***	***Feb***	***Mar***	***Apr***	***May***	***Jun***	***Jul***	***Aug***	***Sep***	***Oct***	***Nov***	***Dec***	***Total Action***
# of HB Actions*														
Involving														
Rules														
109														0
109(c)								1	1					2
109(c)(1)														0
201							1			1				2
201.1														0
202														0
202(a)			1	2	1		1	1		2				8
202(b)			1	2	1		1	2						7
202(c)														0
203		3												3
203(a)		1		2			3	1	1	3				11
203(b)		12	4	10	10	6	7	8	3	7				67
204														0
208														0
218														0
218.1														0
218.1(b)(4)(C)														0
218(b)(2)														0
218(c)(1)(A)														0
218(d)(1)(A)														0
218(d)(1)(B)														0
218(f)(2)														0
221(b)														0
221(c)														0
221(d)														0
401														0
401(a)														0
401(b)							1							1
401(b)(1)				1										1
401(b)(1)(A)														0
401(b)(1)(B)										1				1
402				1				1						2
403(d)(1)														0
403(d)(1)(A)														0
403(d)(2)														0
404														0
404(a)														0
405														0
405(a)														0
407														0
407(a)														0
407(a)														0
407(a)(1)		1												1
407(a)(2)(A)														0
410(d)														0

Rules from which Variances and Order for Abatements were Requested in 2010														
	2010	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Total Action*
430(b)(3)(A)(iv)														0
431.1			1					1						2
431.1														0
431.1(c)(1)														0
431.1(c)(2)				1										1
431.1(c)(3)(C)														0
431.1(d)(1)				1										1
431.1(d)(1), Att A(1)														0
442														0
444														0
444(a)														0
444(c)														0
444(d)														0
461														0
461(c)(1)														0
461(c)(1)(A)														0
461(c)(1)(B)														0
461(c)(1)(C)														0
461(c)(1)(E)														0
461(c)(1)(F)(i)														0
461(c)(1)(F)(iv)														0
461(c)(1)(F)(v)														0
461(c)(1)(H)														0
461(c)(2)														0
461(c)(2)(A)														0
461(c)(2)(B)														0
461(c)(2)(C)														0
461(c)(3)														0
461(c)(3)(A)														0
461(c)(3)(B)														0
461(c)(3)(C)														0
461(c)(3)(D)(ii)														0
461(c)(3)(E)														0
461(c)(3)(H)														0
461(c)(3)(M)														0
461(c)(4)(B)														0
461(c)(4)(B)(ii)														0
461(d)(5)(A)														0
461(e)(1)														0
461(e)(2)														0
461(e)(2)(A)														0
461(e)(2)(A)(i)														0
461(e)(2)(B)(i)														0
461(e)(2)(C)														0
461(e)(3)														0
461(e)(3)(A)														0
461(e)(3)(C)(i)(I)														0
461(e)(3)(D)														0

Rules from which Variances and Order for Abatements were Requested in 2010														
	2010	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Total Action*
461(e)(3)(E)														0
461(e)(5)														0
461(e)(7)														0
462			1					1						2
462(c)(4)(B)(i)														0
462(c)(7)(A)(ii)														0
462(d)														0
462(d)(1)														0
462(d)(1)(A)														0
462(d)(1)(A)(i)														0
462(d)(1)(B)														0
462(d)(1)(C)														0
462(d)(1)(E)(ii)														0
462(d)(1)(F)														0
462(d)(1)(G)														0
462(d)(2)(A)(i)														0
462(e)(1)														0
462(e)(1)(E)														0
462(e)(1)(E)(ii)														0
462(e)(1)(E)(i)(II)										1				1
462(e)(2)(A)(i)														0
462(e)(4)														0
462(h)(1)														0
463														0
463(c)														0
463(c)(1)		1												1
463(c)(1)(A)(I)-(iv)														0
463(c)(1)(B)														0
463(c)(1)(C)														0
463(c)(1)(D)		1												1
463(c)(1)(E)														0
463(c)(2)														0
463(c)(2)(B)														0
463(c)(2)(C)														0
463(c)(3)														0
463(c)(3)(A)														0
463(c)(3)(B)														0
463(c)(3)(C)														0
463(d)														0
463(d)(2)														0
463(e)(3)(C)														0
463(e)(4)		1						1						2
463(e)(5)(C)														0
464(b)(1)(A)							1							1
464(b)(2)							1							1
468														0
468(a)														0
468(b)		1												1

Rules from which Variances and Order for Abatements were Requested in 2010														
	2010	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Total Action*
1102														0
1102(c)(2)														0
1102(c)(5)														0
1103(d)(2)														0
1105.1(d)(1)(A)(i)														0
1105.1(d)(1)(A)(iii)														0
1106(c)(1)														0
1106.1(c)(1)														0
1106.1(c)(1)(A)														0
1107(c)(1)														0
1107(c)(2)														0
1107(c)(7)														0
1107(d)														0
1110.1														0
1110.2				1					2					3
1110.2(c)(14)														0
1110.2(d)						1								1
1110.2(d)(1)(A)														0
1110.2(d)(1)(B)(ii)						1	1			2				4
1110.2(d)(1)(C)														0
1110.2(d)(1)(D)														0
1110.2(d)(1)(E)														0
1110.2(e)(1)(A)														0
1110.2(e)(1)(B)(i)(II)														0
1110.2(e)(1)(B)(i)(III)														0
1110.2(e)(4)(B)														0
1110.2(f)														0
1110.2(f)(1)(A)														0
1110.2(f)(1)(A)(iii)(I)														0
1113(c)(2)														0
1113(d)(3)														0
1118(c)(4)														0
1118(c)(5)														0
1118(d)(1)(2)														0
1118(d)(1)(2)														0
1118(d)(2)														0
1118(d)(3)														0
1118(d)(4)(B)														0
1118(d)(5)(A)														0
1118(d)(5)(B)														0
1118(d)(10)														0
1118(d)(12)														0
1118(e)														0
1118(g)(1)		1												1
1118(g)(3)														0
1118(i)(5)(B)(i)		1												1
1118(i)(5)(B)(ii)														0
1118(j)(1)(A)(ii)		1												1

Rules from which Variances and Order for Abatements were Requested in 2010														
	2010	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Total Action*
1118(j)(1)(B)(ii)		1												1
1118(j)(1)(C)														0
1121(c)(2)(C)														0
1121(c)(3)														0
1121(c)(6)														0
1121(c)(7)														0
1121(c)(8)														0
1121(e)(3)														0
1121(h)														0
1121(h)(1)														0
1121(h)(2)														0
1121(h)(3)														0
1122(c)(2)(A)														0
1122(c)(2)(E)														0
1122(d)(1)(A)														0
1122(d)(1)(B)														0
1122(d)(3)														0
1122(e)(2)(A)														0
1122(e)(2)(B)														0
1122(e)(2)(C)														0
1122(e)(2)(D)														0
1122(e)(3)														0
1122(e)(4)(A)														0
1122(e)(4)(B)														0
1122(g)(3)														0
1122(j)														0
1124														0
1124(c)(1)(A)														0
1124(c)(1)(E)														0
1124(c)(4)														0
1125(c)(1)														0
1125(c)(1)(C)														0
1125(c)(2)														0
1128(c)(1)														0
1128(c)(2)														0
1130														0
1130(c)(1)														0
1130(c)(4)														0
1131														0
1131(d)														0
1132(d)(2)														0
1132(d)(3)														0
1133(d)(8)														0
1133.2(d)(8)														0
1134(c)														0
1134(c)(1)														0
1134(d)														0
1134(d)(1)														0

Rules from which Variances and Order for Abatements were Requested in 2010														
	2010	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Total Action*
1134(d)(2)(B)(ii)														0
1134(f)														0
1134(g)(2)														0
1135(c)(3)														0
1135(c)(3)(B)														0
1135(c)(3)(C)														0
1135(c)(4)														0
1135(c)(4)(D)														0
1136														0
1145(c)(2)														0
1136(c)(1)(A)(i)														0
1137(d)(2)														0
1145(c)(1)														0
1145(c)(2)														0
1145(g)(2)														0
1145(h)(1)(E)														0
1146(c)(7)(B)														0
1146.1(e)(1)							1							1
1150.1(d)(5)														0
1150.1(d)(6)														0
1150.1(e)														0
1150.1(e)(1)(C)														0
1150.1(e)(2)														0
1150.1(e)(2)(C)														0
1146														0
1146(c)(3)(A)														0
1146(c)(5)														0
1146(d)(6)														0
1146.1														0
1146.1(a)(2)														0
1146.1(a)(8)														0
1146.1(b)														0
1146.1(c)(1)														0
1146.1(c)(2)(B)														0
1146.1(c)(3)														0
1146.1(e)														0
1146.1(e)(1)(B)														0
1146.2														0
1146.2(c)(1)														0
1148.1(d)(6)														0
1150.1		1		1										2
1150.1(d)(C)(i)														0
1150.1(d)(1)(C)(i)														0
1150.1(d)(4)					1				1					2
1150.1(d)(5)					1				1					2
1150.1(d)(6)					1				1					2
1150.1(d)(7)														0
1150.1(e)														0

Rules from which Variances and Order for Abatements were Requested in 2010														
	2010	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Total Action*
1150.1(e)(1)														0
1150.1(e)(2)														0
1150.1(e)(3)														0
1150.1(e)(1)(B)(C)														0
1150.1(e)(1)(C)				1										1
1151.1(e)(2)(B)(C)														0
1150.1(e)(2)(C)														0
1150.1(e)(3)(B)														0
1150.1(e)(3)(B)(C)														0
1150.1(e)(3)(C)														0
1150.1(e)(4)														0
1150.1(e)(6)(A)(I)														0
1150.1(e)(6)(A)(ii)														0
1150.1(f)(1)(A)(iii)(I)														0
1150.1(f)(1)(H)(i)														0
1151														0
1151(c)(8)														0
1151(2)														0
1151(5)														0
1151(d)(1)														0
1151(e)(1)														0
1151(e)(2)														0
1151(f)(1)														0
1153(c)(1)														0
1153(c)(1)(B)														0
1156(d)(5)(C)(i)														0
1158														0
1158(d)(2)														0
1158(d)(5)														0
1158(d)(7)														0
1158(d)(7)(A)(ii)														0
1158(d)(10)														0
1164(c)(1)(B)														0
1164(c)(2)														0
1166(c)(2)														0
1166(c)(2)(F)														0
1168														0
1168(c)(1)														0
1168(h)(2)														0
1171														0
1171(c)														0
1171(c)(1)														0
1171(c)(1)(A)(i)														0
1171(c)(1)(b)(i)														0
1171(c)(4)														0
1171(c)(5)														0
1171(c)(5)(A)(i)														0
1171(c)(6)														0

Rules from which Variances and Order for Abatements were Requested in 2010														
	2010	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Total Action*
1173														0
1173(c)														0
1173(d)														0
1173(e)(1)														0
1173(f)(1)														0
1173(g)														0
1175														0
1175(c)(2)		1												1
1175(c)(4)(B)														0
1175(c)(4)(B)(i)														0
1175(c)(4)(B)(ii)														0
1175(c)(4)(B)(ii)(I)														0
1175(b)(1) (C)				2										2
1175(d)(4)(ii)(II)														0
1176														0
1176(e)									1					1
1176(e)(1)							1							1
1176(e)(2)														0
1176(e)(2)(A)														0
1176(e)(2)(A)(ii)							1							1
1176(e)(2)(B)(v)							1							1
1178(d)(1)(A)(xiii)		1												1
1178(d)(1)(A)(xiv)		1												1
1178(d)(1)(B)		1												1
1176(f)(3)									1					1
1178(d)(1)(C)		1												1
1178(d)(3)(C)														0
1178(d)(3)(D)														0
1178(d)(3)(E)														0
1178(d)(4)(A)(i)														0
1178(g)														0
1186.1														0
1186.1														0
1189(c)(3)														0
1195														0
1195(d)(1)(D)														0
1303		1												1
1303(a)(1)														0
1303(a)(2)														0
1401		1		1										2
1401(d)(1)														0
1401(d)(1)(A)														0
1401(d)(1)(B)														0
1405(d)(3)(C)														0
1407(d)														0
1407(d)(1)														0
1407(d)(2)														0
1407(d)(4)														0

Rules from which Variances and Order for Abatements were Requested in 2010														
	2010	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Total Action*
1407(f)(1)														0
1415(d)(3)														0
1418(d)(2)(A)														0
1420								1						1
1420(g)														0
1421(d)														0
1421(d)(1)(C)														0
1421(d)(1)(G)														0
1421(d)(3)(A)														0
1421(e)(2)(c)														0
1421(e)(1)(A)(vii)														0
1421(e)(3)(B)														0
1421(h)(1)(A)														0
1421(h)(1)(B)														0
1421(h)(1)(C)														0
1421(h)(1)(E)														0
1421(h)(3)														0
1421(i)(1)(C)														0
1425(d)(1)(A)														0
1469														0
1469(c)														0
1469(c)(8)														0
1469(c)(11)(A)														0
1469(d)(5)														0
1469(e)(1)														0
1469(e)(2)														0
1469(g)(2)														0
1469(h)														0
1469(I)														0
1469(j)(4)(A)														0
1469(j)(4)(D)														0
1469(k)(3)(A)														0
1470														0
1470(c)(8)(c)(iii)(II)														0
1470(c)(2)(C)(iv)														0
1470(c)(3)(B)														0
1470(c)(3)(C)														0
1470(c)(9)														0
2004		1												1
2004(b)(1)														0
2004(b)(4)														0
2004(c)(1)														0
2004(c)(1)(C)														0
2004(f)(1)		10	3	7	3	4	1	3	1	3				35
2004(k)														0
2005														0
2009(b)(2)														0
2009(c)														0

Rules from which Variances and Order for Abatements were Requested in 2010														
2010	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Action	
2009(f)(1)													0	
2009(f)(2)													0	
2009.1													0	
2009.1(c)													0	
2009.1(f)(1)													0	
2009.1(f)(2)													0	
2009.1(f)(3)													0	
2011		1											1	
2011 Attachment C													0	
2011(c)(2)													0	
2011(c)(2)(A)													0	
2011(c)(2)(B)													0	
2011(c)(3)(A)													0	
2011(e)(1)													0	
2011(f)(3)													0	
2011(g)													0	
2011(g)(1)													0	
2011(k)													0	
2011(k) Appen. A, Chap. 2, except E & Attach C													0	
2011(k) Appen. A, Chap. 2, Section A.3 a-c, A.5 and B. 1-4													0	
and Appen. A, Chap. 2, Section C.2.a, c & d													0	
2011(k) Appen. A, Chap. 2, Sections A.3.,a.-c.,e.g. and B.1.-4													0	
2012	1				1								2	
2012 Attach. C, B.2.a													0	
2012 Appen. A, Attach. C, Section B.2.						1							1	
2012 Appen. A, Attach. C, Section B.2.a. & b.													0	
2012 Appen. A													0	
2012 Appen. A, Chap. 2													0	
2012 Appen A, Chap. 2, Sec. A													0	
2012 Appen A. Chap. 2. Sec. A1.g.													0	
2012 Appen A, Chap. 2, Sec. B													0	
2012 Appen A, Chap. 4.A.4													0	
2012(c)(2)													0	
2012(c)(2)(A)						1							1	
2012(c)(2)(B)													0	
2012(c)(3)													0	
2012(c)(3)(A)													0	
2012(c)(3)(B)													0	
2012(c)(10)													0	
2012(d)(2)													0	
2012(d)(2)(A)													0	
2012(d)(2)(D)													0	
2012(e)(2)(B)													0	
2012(g)(1)													0	
2012(g)(3)													0	
2012(h)(3)													0	
2012(h)(4)													0	
2012(h)(5)													0	

Rules from which Variances and Order for Abatements were Requested in 2010														
2010	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Action
2012(h)(6)													0
2012(i)													0
2012(j)(1)													0
2012(j)(2)													0
2012, Protocol (Appen. A) Chap. 2, Part A.1.a													0
2012, Protocol (Appen. A) Chap. 2, Part B.4													0
2012(m)													0
2012(m) Appen. A, Chp 2, except Sections E & Attach C.													0
2012(m) Appen. A, Attach. C													0
2012(m) Appen. A, Chap. 2, Sections 2.A.1 a-c, e.g,													
and B. 1-4 and Appendix A, Chapter 3, Section C.2 a, c & d													0
2012(m) Appen. A, Chap 3, Section (A)(6)													0
2012(m) Appen. A, Chap 5, Para G, Table 5B and Att. D													0
3002	2												2
3002(c)													0
3002(c)(1)	7		8	6	5	1	3	2	3				35
3002(c)(2)													0
Regulation II													0
Regulation IX			1										1
Regulation IX, 40 CFR Part 60, Subpart J		1							3				4
Regulation XI													0
Regulation XIII													0
H&S 39152(b)													0
H&S 41510													0
H&S 41700			1				1						2
H&S 41701						1			1				2
H&S 93115.6(c)(2)(C)(1)													0

Rules from which Variances and Order for Abatements were Requested in 2010													
2010	***Jan***	***Feb***	***Mar***	***Apr***	***May***	***Jun***	***Jul***	***Aug***	***Sep***	***Oct***	***Nov***	***Dec***	***Total Action***

Report of September 2010 Hearing Board Cases

Case Name and Case No.	Rules	Reason for Petition	District Position/ Hearing Board Action	Type and Length of Variance or Order	Excess Emissions
1. Eastern Municipal Water District Case No. 4937-43 K. Manwaring	203(b)	Biocube odor control failed. Petitioner must continue to operate equipment serving municipal water district pending delivery of replacement.	Not Opposed/Granted	Ex Parte EV granted commencing 9/23/10 and continuing for 30 days or until the SV hearing currently scheduled for 10/14/10, whichever comes first.	H2S: TBD by 10/8/10
2. EnerTech Environmental California, LLC Case No. 5778-1 K. Manwaring	202(a)	Startup problems have prevented petitioner from conducting compliance tests at full load as required.	Not Opposed/Granted	RV granted commencing 9/16/10 and continuing through 2/28/12, the FCD.	None
3. Prestone Products Corporation Case No. 5788-1 N. Sanchez	203(b)	Petitioner cannot comply with the VOC temperature limits for its container filling system.	Not Opposed/Granted	SV granted commencing 9/2/10 and continuing through 11/2/10.	None
4. San Diego Gas & Electric Company Case No. 3607-12 K. Manwaring	203(b) 1110.2(d)(1)(B)(ii) 2004(f)(1) 3002(c)(1)	Petitioner cannot comply with VOC limit for its ICEs and has not demonstrated that its equipment cannot meet the limit.	Not Opposed/Granted	RV granted commencing 9/8/10 and continuing through 11/2/10, the FCD.	ROG: TBD by 9/23/10
5. SCAQMD vs. Colton Avenue Auto Body, Inc. Case No. 5787-1 T. Barrera	203(a)	Respondent has been operating a paint spray booth for 21 months without a valid permit to operate.	Not stipulated/Issued	O/A issued commencing 9/30/10 and continuing until Status Report currently scheduled for 10/14/10. The Board shall retain jurisdiction over this matter until 9/30/12.	N/A
6. SCAQMD vs. Matrix Oil Corporation Case No. 5776-1 N. Sanchez	201 203(a) 203(b)	Respondent has exceeded hours and days limitation on operation of flare serving oil production operations.	Stipulated/No Action	Mod. O/A Status Report. No Action Taken by the Board.	N/A

Case Name and Case No.	Rules	Reason for Petition	District Position/ Hearing Board Action	Type and Length of Variance or Order	Excess Emissions
7. SCAQMD vs. Warren E & P, Inc. Case No. 5649-4 K. Manwaring	203(a) 203(b)	Respondent is operating six micro turbines in conjunction with a flare. Micro turbines are exceeding the heat input rate limits and are awaiting issuance of new permits.	Stipulated/Issued	O/A issued commencing 9/21/10 and continuing through 10/1/11. The Board shall retain jurisdiction over this matter until 10/1/11.	N/A
8. SFPP,LP Case No. 4215-11 K. Manwaring	202(a) 203(b) 462(e)(1)(E)(i)(II) 3002(c)(1)	CARB certification test of VRS was not done during the prescribed period.	Not Opposed/Granted	RV granted commencing 9/16/10 and continuing through 8/20/11, the FCD.	None
9. Southern California Gas Company Case No. 137-68 K. Manwaring	203(b) 1110.2(d)(1)(B)(ii) 2004(f)(1) 3002(c)(1)	Petitioner cannot comply with VOC limit for its ICEs and has not demonstrated that its equipment cannot meet the limit.	Not Opposed/Granted	RV granted commencing 9/8/10 and continuing through 11/2/10, the FCD.	ROG: TBD by 9/23/10
10. Universal City Studios LLC Case No. 4935-8 N. Feldman	401(b)(1)(B) H&S Code §41701	Petitioner will exceed opacity limits by use of fog generating machine for Halloween production at amusement park.	Not Opposed/Granted	SV granted commencing 9/20/10 and continuing through 11/2/10.	Opacity: TBD by 10/1/10
11. U.S. Government, Air Force Department, March AFB Case No. 2051-27 N. Sanchez	2004(f)(1)	Failure of uninterruptable power supply system forced petitioner to operate emergency backup generators beyond annual hour limit.	Not Opposed/ Granted	IV granted for 90 days or until the RV hearing currently scheduled for 10/21/10, whichever comes first.	NOx: 871.25 Total Variance period for each engine.

Acronyms

CARB: California Air Resources Board
CO: Carbon Monoxide
EV: Emergency Variance
FCCU: Fluid Catalytic Cracking Unit
FCD: Final Compliance Date
H2S: Hydrogen Sulfide
H&S: Health & Safety Code
ICE: Internal Combustion Engine
I/P: Increments of Progress
IV: Interim Variance
MFCD/EXT: Modification of a Final Compliance Date and Extension of a Variance
Mod. O/A: Modification of an Order for Abatement
NH3: Ammonia
NOV: Notice of Violation
NOx: Oxides of Nitrogen
N/A: Not Applicable
O/A: Order for Abatement
RECLAIM: Regional Clean Air Incentives Market
ROG: Reactive Organic Gas
RV: Regular Variance
SCR: Selective Catalytic Reduction
SOx: Oxides of Sulfur
SV: Short Variance
TBD: To be determined
VOC: Volatile Organic Compound
VRS: Vapor Recovery System

Back to Agenda

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 20

REPORT: Civil Filings and Civil Penalties Report

SYNOPSIS: This reports the monthly penalties from July 1 through August 31, 2010, and legal actions filed by the District Prosecutor during September 1 through September 30, 2010. An Index of District Rules is attached with the penalty report.

COMMITTEE: Stationary Source, September 24, 2010, Reviewed

RECOMMENDED ACTION:
Receive and file this report.

Kurt R. Wiese
General Counsel

KRW:lc

Violations	Civil Actions Filed
2	PADILLA'S COMPANY INC. North Central District – Burbank Courthouse Case No.BC445419; Filed 9.14.10 (TRB) P48394, P51215 R. 203 – Permit to Construct R. 403 – Fugitive Dust
2 Violations	1 Case

ATTACHMENTS
July and August 2010 Penalty Reports
Index of District Rules and Regulations

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
District Prosecutor's Office

July 2010 Penalty Report

Total Penalties

Civil Penalties:	**$392,950.00**
MSPAP Penalties:	**$68,813.00**
Hearing Board Penalties:	**$17,160.17**
Total Cash Penalties:	**$478,923.17**
Total SEP Value:	**$5,000.00**
Fiscal Year through July 2010 Cash Total:	**$478,923.17**
Fiscal Year through July 2010 SEP Value Only Total:	**$5,000.00**

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
CIVIL PENALTIES							
126527	A & R AUTOMOTIVE BODY	1151 109		07/28/2010	NAS	P55217	$1,500.00
131090	CALIFORNIA COMMUNITY NEWS CORP.	203 (A)		07/21/2010	KCM	P57101	$3,000.00
800362	CONOCOPHILLIPS COMPANY	463 203, 1176, 40 CFR, 2004 203, 2004(F)(1) 463 463, 1178, 2004 1118 203 (B), 2004(F)(1)	Y	07/02/2010	NSF	P52784 P26967 P26964 P52783 P26969 P26966 P26968	$125,000.00
23043	CSU, SAN BERNARDINO	203 (A) 1146		07/07/2010	NSF	P55424	$1,500.00
63180	DARLING INTERNATIONAL INC	2012 2004	Y	07/16/2010	NSF	P55505	$60,000.00
147770	EAGLE PETRO LA INC	461		07/27/2010	TRB	P54536	$250.00
159879	ERICKSON-HALL CONSTRUCTION CO Suspended penalty in the amount of $20,000 to be permanently suspended if facility does not violate Rule 1403 within 2 years beginning 6/10/10 thru 6/10/12.	1403 40 CFR		07/06/2010	JMP	P46778	$30,000.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
119411	FIRST WILSHIRE PARTNERS, LLC	203 (B) 1470		07/15/2010	JMP	P55162	$200.00
12876	FOAM FABRICATORS $20,000 suspended penalties permanently suspended if facility does not violate District rules from 7/30/10 to 7/30/11.	3002(C)(2)		07/27/2010	JMP	P53573	$5,000.00
138544	GUMREE IRON WORKS, VACHE KIRAKOSIAN $1,000 suspended penalty if facility does not violate rules and regulations from 6/26/10 to 6/26/11.	203 (B) 203 (A) 201		07/20/2010	KCM	P54436	$250.00
149300	HECTORS WELDING AND IRON WORKS	1107(C)(2)		07/21/2010	KCM	P56431	$800.00
151215	J.R. SANDOVAL ENTERPRISES	201 201 203(A)		07/28/2010	TRB	P54217 P54221 P54217	$1,000.00
16338	KAISER ALUMINUM FABRICATED PRODUCTS,	2004	Y	07/15/2010	NSF	P55652	$12,500.00
550	LA CO., INTERNAL SERVICE DEPT	2004(F)(1) 2012(C)(3)(A)	Y	07/30/2010	KCM	P54954	$1,000.00
115314	LONG BEACH PEAKERS LLC	42400	Y	07/30/2010	TRB	P56605	$1,000.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
151084	LOS ALAMITOS MEDICAL CENTER	1470		07/06/2010	NSF	P49545	$10,000.00
160683	M & M SERVICE	201		07/21/2010	NAS	P49591	$500.00
159877	MALIA CONSTRUCTION DBA WEST STAR $100,000 suspended penalties if facility does not violate District rules and regulations for a period of 2 years beginning 5/4/10 to 5/4/12.	1403 40 CFR		07/02/2010	JMP	P46779	$40,000.00
16211	MOTION PICTURE & TELEVISION FUND	203 (A)		07/15/2010	JMP	P51162	$200.00
129804	NOBLE CLEANERS-BIJAN GOLSHANI	201 203		07/06/2010	TRB	P55161	$250.00
89248	OLD COUNTRY MILLWORK INC	2004(F)(1)	Y	07/15/2010	TRB	P52559	$1,000.00
17437	PARAMOUNT PICTURES CORP	1470 203 (B) 203 (B) 1470		07/20/2010	KCM	P55959 P55960 P55959 P55960	$5,000.00
76977	PEBBLY BEACH BUILDING SUPPLY INC	461		07/28/2010	TRB	P54757	$5,000.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
141601	PERFECT FINISH BODY SHOP $2500 suspended penalties if facility does not violat District rules and regulations for a period beginning 6/17/10 to 6/17/11.	203 (A) 203 (A)		07/21/2010	JMP	P53715 P53743	$250.00
19917	PERVO PAINT CO INC	203 (B)		07/06/2010	NAS	P56426	$8,000.00
133987	PLAINS EXPLORATION & PRODUCTION CO,	2004(F)(1) 1173 1173 1173	Y	07/27/2010	JMP	P56554 P56556 P56555	$19,750.00
17272	POINT DUME CLUB OF MALIBU	203 (A) 201		07/15/2010	KCM	P51249	$2,500.00
152021	PRIORITY BUSINESS SERVICES	2202 308		07/02/2010	NAS	P43933	$10,000.00
84995	PRO-WASH INC	203 (A)		07/20/2010	KCM	P56440	$1,000.00
20604	RALPHS GROCERY CO	2004	Y	07/09/2010	KCM	P56304	$1,500.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
133588	SOUTHERN CALIFORNIA CREMATORY	203 (B)		07/01/2010	KCM	P30672	$1,500.00
96037	TEXTURE DESIGN FURNITURE INC	3002(C)(1)		07/06/2010	NSF	P53417	$4,000.00
18452	UNIVERSITY OF CALIFORNIA, LOS ANGELE	1146 1470 1146.1 218(C)(1)(A) 218 3002(C)(1)		07/07/2010	NAS	P55181	$10,000.00
800149	US BORAX INC	2004	Y	07/27/2010	TRB	P52560	$2,500.00
144846	VALLEY PRECISION METAL PROD & VALLEY $10,000 suspended penalties if facility does not viol District rules and regulations for a period beginning 7/14/10 to 7/14/12.	203 (B) 1469.1		07/15/2010	TRB	P55865	$3,000.00
159243	WEST COAST TRANSIT MIX, INC.	203		07/09/2010	JMP	P49134	$500.00
97019	WESTERN SUMMIT MANUFACTURING CORP	3002(C)(1)		07/02/2010	NSF	P52941	$1,000.00
132287	WINZLER & KELLY CONSULTING ENGINEERS	1403		07/27/2010	JMP	P46781	$22,500.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
		40 CFR					
							$392,950.00

TOTAL CIVIL PENALTIES: $392,950.00

SUPPLEMENTAL ENVIRONMENTAL PROJECTS:

160272	NOVA AUTOMOTIVE WAREHOUSE DISTRIBUTC Cash: $0; SEP: $5,000 Copy of Rule 1151 to all person/business entitites who purchase a product subject to the rule. Explain rule requirements to customers, obtain customer contact information and retain copies of the signed contract for a period of no less than two years (expires 7/12/12).	1151		07/12/2010	NSF	P53739	$5,000.00

TOTAL SEP: $5,000.00

MSPAP SETTLEMENTS:

144934	888 ENTERPRISES LTD.	222		07/02/2010		P55829	$880.00
136884	A B CABINETS	203 (A) 109		07/22/2010		P56446	$1,100.00
159342	ADVANCE SURGICAL PARTNERS, INC.	203 (A)		07/28/2010		P53465	$800.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
114627	ALESSANDRO AUTO BODY, N. KURDOGHLIAN	1151(E)(1)		07/01/2010		P55219	$1,150.00
142060	AMERICAN RED CROSS	222 203 (B)		07/28/2010		P49596	$1,650.00
150440	ANCO GAS AND MARKET	461 (E) (1)		07/14/2010		P56143	$1,265.00
162048	ANGELES NATIONAL FOREST CLEAR CREEK	203 (B)		07/30/2010		P56259	$450.00
58944	ARYA ENTERPRISES	203 (B)		07/01/2010		P55575	$350.00
162691	ATLANTIC AVIATION SERVICES	203 (A)		07/22/2010		P57102	$2,750.00
155597	BEADOR CONSTRUCTION COMPANY, INC	Title 13		S 07/14/2010		P55395	$1,300.00
155597	BEADOR CONSTRUCTION COMPANY, INC	Title 13		S 07/14/2010		P55391	$1,300.00
160976	BOFAR, LLC	203 (A)		07/14/2010		P55848	$1,000.00
34503	CARDLOCK FUELS SYSTEM, INC.	461		07/27/2010		P49215	$290.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
133654	CHEVRON PRODUCTS COMPANY	41960.2 461		07/07/2010		P58452	$550.00
2526	CHEVRON USA INC	3002(C)(2) 462(D)(1)(F)		07/01/2010		P55710	$1,800.00
163270	CINE POWER AND LIGHT	203(A)		07/27/2010		P54244	$550.00
161247	CITY OF INGLEWOOD	203(A)		07/28/2010		P56208	$400.00
140911	CITY OF REDLANDS MUNICIPAL UTILITIES	203 (B)		07/30/2010		P55417	$550.00
139373	CLASSIC VISION RESTORATION	109 203 (B)		07/22/2010		P54125	$495.00
163537	COLICH & SONS, L.P.	203 (A)		07/22/2010		P55962	$550.00
147779	COLIMA JR INC	203 (B) 461		07/01/2010		P54593	$1,375.00
684	COUNTY OF RIVERSIDE	203		07/30/2010		P56357	$1,860.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
75657	COUNTY OF RIVERSIDE	1146.2 203		07/30/2010	TRB	P53840	$50.00
684	COUNTY OF RIVERSIDE	203		07/30/2010	TRB	P53839	$400.00
83485	COUNTY OF RIVERSIDE	1110.2 1146		07/30/2010	TRB	P53343	$1,915.00
137927	CRENSHAW MEDICAL GROUP, LP	1146		07/22/2010		P55588	$3,850.00
162219	DISCOUNT TREE SERVICE	203(A)		07/07/2010		P56233	$550.00
119171	DYNAGUARD INC	203 (A)		07/30/2010	CLE	P52935	$550.00
15376	DYNASTY CLEANERS	1102		07/01/2010		P55571	$440.00
161389	EXPRESS PUMPING	203 (A)		07/28/2010		P52547	$300.00
139680	EXXONMOBIL OIL #12240, SUNSET E & S	461		07/22/2010		P57158	$725.00
147434	FAIRMONT NEWPORT BEACH	1110.2		07/30/2010		P53066	$1,608.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
135772	FREMONT BUILDING/CRESCENT ARMS	222		07/02/2010		P55818	$1,400.00
70323	GLENDALE CITY, POLICE DEPARTMENT	203 (B)		07/28/2010		P56262	$280.00
161920	HENKEL CORP	203 (A)		07/30/2010		P52944	$2,200.00
92642	HF & SJ INC, HUNTINGTON BEACH ARCO	461		07/02/2010		P49211	$250.00
121561	KEYSTONE AUTOMOTIVE INDUSTRIES INC	203 (A)		07/30/2010		P57113	$500.00
94742	LA CO., REGISTRARRECORDER/CTY CLERK	203 (A)		07/22/2010		P55774	$855.00
163492	LINDY'S COLD PLANING Also closed Anrak (P56237)	203(A) 203(A)		07/22/2010		P56235 P56237	$1,100.00
160208	LONG BEACH ARCO, JAY GANESH PETRO, I	461		07/28/2010		P46508	$550.00
133956	LOS ANGELES UNIFIED SCHOOL DISTRICT	1470 203 (B)		07/22/2010		P54807	$900.00
136141	MARTELL'S CLEANERS	203		07/07/2010		P52976	$275.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
85895	MARYMOUNT COLLEGE	222		07/22/2010		P55606	$550.00
162445	MILLER TREE SERVICES	203(A)		07/22/2010		P56228	$1,000.00
106943	MLADEN BUNTICH CONSTRUCTION CO INC	403		07/15/2010		P30677	$800.00
161196	NORTON LILLY INTERNATIONAL	401 41701		07/22/2010		P54783	$3,500.00
137329	PARKLANE CLEANERS, REMON ENT INC DBA	1102 203 (B)		07/07/2010		P56424	$400.00
160884	PATAGONIA TRADING CO	203 (A)		07/09/2010		P56434	$400.00
145069	POWER PLUS	PERP 2454		07/30/2010		P56164	$50.00
151086	RACHEL & BEN'S ARCO	206 461		07/13/2010		P54366	$430.00
152572	RALPHS GROCERY CO	203 (B)		07/30/2010		P55843	$550.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
113457	ROXY CLEANERS, ABE & SOLO POLADIAN	1402		07/30/2010		P53911	$330.00
23487	ROYAL PAPER BOX CO	3002(C)(1)		07/30/2010		P53868	$375.00
160982	SAFRDIG	PERP 2460		07/30/2010		P55416	$440.00
135352	SAKS FIFTH AVENUE	203 (A)		07/30/2010		P55183	$1,100.00
18435	SAN BERN CITY UNI SCH DIST, CAJON HIGH	1110.2		07/14/2010		P53847	$800.00
10636	SAN BERN CITY UNI SCH DIST,PACIFIC HIGH	1110.2		07/14/2010		P53848	$800.00
6728	SAN BERN CITY UNI SCH DIST,SAN BERNARDIN	1110.2		07/14/2010		P53846	$800.00
122858	SEKISUI TA INDUSTRIES, LLC	3002(C)(1)		07/30/2010		P56700	$1,100.00
162678	SIERRA LANDSCAPE CO., INC.	403		07/30/2010		P54664	$1,375.00
162649	SKANSKA	203(A) 203(A)		07/28/2010		P55389 P55390	$800.00
124771	SOIL RETENTION PRODUCTS, INC.	203 (A)		07/30/2010		P30676	$2,200.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
123281	SOUTHERN CALIFORNIA EDISON	203(A)		07/30/2010		P55364	$750.00
123281	SOUTHERN CALIFORNIA EDISON	203(A)		07/30/2010		P55365	$750.00
156192	SUNRAY HEALTHCARE CENTER	203 (A)		07/01/2010		P51192	$550.00
61648	TEMECULA CREEK INN	461		07/30/2010		P30673	$600.00
126481	THE SHORES	203 (A)		07/22/2010		P55561	$600.00
97081	THE TERMO COMPANY	2012	Y	07/30/2010		P51131	$1,500.00
24450	TREND MANOR FURNITURE MFG CO INC	3002(C)(1)		07/30/2010		P53872	$1,800.00
152162	VERIZON WIRELESS	203 (B)		07/30/2010		P56257	$550.00
142688	WEST COAST ARBORISTS INC.	203 (A)		07/02/2010		P55768	$500.00
142688	WEST COAST ARBORISTS INC.	203 (A)		07/02/2010		P56165	$500.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
142688	WEST COAST ARBORISTS INC.	203(A)		07/02/2010		P56223	$250.00
160391	WEST COAST WELDING INC	203 (A)		07/30/2010		P55350	$550.00
131914	WESTSIDE PAVILION	1470		07/28/2010		P55563	$500.00
108242	YWIS CORP	41960.2 461		07/13/2010		P56107	$500.00

TOTAL MSPAPS SETTLEMENTS: $68,813.00

HEARING BOARD SETTLEMENTS:

800051	ARCO TERMINAL SERVICES CORPORATION Hearing Board Case No. 4545-13 Facility to pay $1,000/month for every month Tanks 791 and 797 are in violation of existing permit. Penalty period for June and July 2010.	203, 3002		07/30/2010	TRB	HRB1924	$2,000.00
151532	LINN WESTERN OPERATING INC Hearing Board Case No. 5711-6 Facility to pay $159.11/day plus 2 times the calculated daily excess emissions fee for days gas flare exceeds 6 MMCP/month.	1148.1, 203, 2004 2012, 3004	Y	07/14/2010	TRB	HRB1921	$4,160.17

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
131425	MATRIX OIL CORPORATION Hearing Board Case No. 5776-1 Beginning 5/7/10, Matrix shall pay $1,000 for each day it operates the flare in noncompliance with District permit. Penalty covers 5/7/10 thru 6/30/10.			07/16/2010	NAS	HRB1922	$10,000.00
155877	MILLERCOORS, LLC Hearing Board Case No. 4521-4 Facility to pay $1,000/month for every calendar month it is in violation of current limits applicable to the biofilter, scrubber and flare. Penalty is for June 2010.	203, 2004, 3002	Y	07/28/2010	TRB	HRB1923	$1,000.00

TOTAL HEARING BOARD SETTLEMENTS: $17,160.17

Total Penalties

Civil Penalties:	**$392,950.00**
MSPAP Penalties:	**$68,813.00**
Hearing Board Penalties:	**$17,160.17**
Total Cash Penalties:	**$478,923.17**
Total SEP Value:	**$5,000.00**
Fiscal Year through July 2010 Cash Total:	**$478,923.17**
Fiscal Year through July 2010 SEP Value Only Total:	**$5,000.00**

109
201
203
206
218
222
308
401
403
461
463
1102
1110.2
1118
1146
1148
1151
1173
1176
1178
1402
1403
1469.1
1470
2004
2012
2202
3002
3004
41701
41960.2
42400
1107(C)(2)
1151(E)(1)
218(C)(1)(A)
40 CFR
462(D)(1)(F)
PERP 2454
PERP 2460
Title 13
Title 13

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
District Prosecutor's Office

AUGUST 2010 Penalty Report

Total Penalties

Civil Penalties:	**$564,887.00**
MSPAP Penalties:	**$64,379.00**
Hearing Board Penalties:	**$30,086.99**
Miscellaenous (back emission fees; not included):	**$120,954.88**
Total Cash Penalties:	**$659,352.99**
Total SEP Value:	**$110,000.00**
Fiscal Year through August 2010 Cash Total:	**$1,138,276.16**
Fiscal Year through August 2010 SEP Value Only Total:	**$115,000.00**

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
CIVIL PENALTIES							
88508	AMERICAN HONDA MOTOR CO INC	218, 218.1, 203(B) 1110.2		########	JMP	P53873	$68,000.00
127606	ANA'S AUTO BODY SHOP	109, 203 (A) 109, 203 (A)		########	TRB	P56406 P55834	$500.00
74094	ARCO DLR, D VERDI & S YASHARIM	203(B), 461(C)(1)(A) 41960.2		########	NAS	P56858	$700.00
145755	ARGENT CUSTOM FURNITURE	109, 203 (B)		########	JMP	P54440	$1,000.00
149431	BDS NATURAL PRODUCTS	402		########	JMP	P53522	$2,500.00
153749	CALIFORNIA HOME DEVELOPMENT	403		########	JMP	P49791	$500.00
135729	CALIFORNIA SPECIALTY PAINTING	3002(C)(1), 3002		########	JMP	P53871	$1,500.00
8309	CAMBRO MANUFACTURING CO	3002		########	KCM	P53277	$1,000.00
120081	CAR SPA, INC	461		########	KCM	P58450	$750.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
140896	EDGE DEVELOPMENT INC.	403		########	TRB	P55650	$5,000.00
73327	LA CO., LYNWOOD REGIONAL JUSTIC	1146.2		########	KCM	P57252	$2,000.00
100984	LADERA HEIGHTS CLEANERS & LAUND	203 (A)		########	TRB	P55572	$1,000.00
144455	LIFOAM INDUSTRIES, LLC	2004(F)(1), 2004(l) 1146 2004(f)(1), 1175(c)(2) 2004	Y	########	NSF	P50818 P50807 P44455 P44494	$157,500.00
3029	MATCHMASTER DYEING & FINISHING	2004, 2012	Y	########	JMP	P52561	$3,000.00
131432	MATRIX OIL CORPORATION HONOLULU	203 (B)		########	NAS	P49536	$8,000.00
91954	MENZIES AVIATION GROUP, INC.	3002(C)(1)		########	KCM	P57304	$1,500.00
78494	RAPID RACK INDUSTRIES INC	3002(C)(1)		########	NAS	P52939	$1,000.00
31096	RIVERSIDE CITY FIRE STATION #1	203, 461		########	TRB	P53832	$500.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
58044	SAN BER CNTY SOLID WASTE MGMT	3002(C)(1) 3002(C)(1) 3002(C)(1)		########	KCM	P33549 P33546 P33547	$1,500.00
52742	STOROPACK INC	203 (B), 430, 1175 42400, 3002 203(B), 430 3002(C)(1) 3002, 1175		########	TRB	P57107 P57103 P52946 P53641	$274,000.00
41310	VERIZON CALIFORNIA INC	2202 2202		########	TRB	P55265 P55264	$17,500.00
135455	VICTORIA MART & GAS	461(E)(2)(A)		########	NSF	P52726	$937.00
50310	WASTE MGMT DISP &RECY SERVS INC	203(B), 1150.0, 1110.2 3002(C)(1)		########	NSF	P49835	$5,000.00

TOTAL CIVIL PENALTIES: $554,887.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
SUPPLEMENTAL ENVIRONMENTAL PROJECTS:							
16951	ANAPLEX CORP Cash: $0; SEP: $5,000 Applied for change of Condition to limit amp hr usage to less than $50,000 amp-hours per year by 8/12/10. $25,000 permanently suspended if Anaplex has not received any NOVs for violation of District Rule 203(b) from 8/5/10 to 8/5/12.	203 (B) 203 (B)		########	NSF	P54918 P46715	$5,000.00
14049	MARUCHAN INC Cash: $5,000; SEP: $85,000 Replace two broilers with new Muira LX stream boilers by 12/31/10.	2012	Y	########	NSF	P50340	$90,000.00
18451	SAN GORGONIO PASS MEM HOSP DIST Cash: $5,000; SEP: $20,000 Install one multiple use electric vehicle charging system dual capability with the ability to charge four vehicles simultaneously Commenced by 4/1/11 and completed by 10/31/11.	2202		########	NAS	P55310	$25,000.00
TOTAL SEP: $120,000.00							
MSPAP SETTLEMENTS:							
163641	ALOHA LANDSCAPE CO	203 (A)		########		P54726	$385.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
46823	ALONDRA GOLF COURSE CO INC	461 (E) (2)		########		P55611	$520.00
163972	ANJAC FASHION BUILDING	222, 203(A)		########		P56910	$935.00
163971	ANJAC FASHION BUILDING	203 (A)		########		P56909	$550.00
164012	APPROVED FIRE PUMPS, INC.	201		########		P55587	$500.00
158798	ARCO FAC #83021/BLOOMINGTON OIL	206, 461(C)(2)(B)		########		P54880	$656.00
159664	ARCO FAC#09551NRRM CORP	461		########		P54876	$480.00
162833	BAJA CONCRETE PUMPING Also closes P56231 - Alexjandro Lopez	203(A) 203(A)		########		P56229 P56231	$550.00
14931	BAU FURNITURE MANUFACTURING, TH	3002(C)(1)		########		P49550	$600.00
155597	BEADOR CONSTRUCTION COMPANY, INC	203(A)		########		P55387	$1,125.00
160832	BEMUS LANDSCAPE INC.	Title 13		########		P55771	$1,500.00
143720	BEVERLY AUTO SERVICE, FERNANDO	461, 41960.2		########		P57168	$630.00
150174	BRE PROPERTIES, INC.	203 (A), 1470		########		P48455	$1,100.00
163611	CALIFORNIA COLD PLANING INC	203		########		P49140	$410.00
8608	CINTAS CORP	203 (A)		########		P55550	$2,200.00
59709	CITY OF RIVERSIDE FIRE STATION #2	203, 461		########		P56364	$350.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
161436	CLARION HOTEL	222, 203(A)		########		P53477	$2,000.00
125630	COUNTRY VILLA MAR VISTA HEALTHC	1146.2		########		P55584	$2,750.00
7949	CUSTOM FIBERGLASS MFG CO/CUSTOM	3002(C)(1)		########		P54732	$675.00
4063	DAMERON ALLOY FOUNDRIES INC	203 (A)		########		P55607	$550.00
86930	DEARDEN'S	201, 203 (A)		########		P56919	$550.00
116017	G & M OIL CO, LLC #66	461 (E) (1)		########		P54591	$638.00
116017	G & M OIL CO, LLC #66	203 (B), 41960.2 461(C)(2)(B)		########		P54590	$796.00
122610	G & M OIL CO, LLC #92	461		########		P46509	$552.00
147618	GRAND ARCO CARWASH/INTERSTATE,	461		########		P49205	$100.00
154407	GREEN VALLEY MARKET	461 (E) (1)		########		P56494	$225.00
106302	HIGHLAND VALERO	461		########		P55033	$100.00
158703	HUNGRY VALLEY FUEL/GORMAN VALER	461, 41960.2		########		P56482	$100.00
127540	HUNTINGTON BEACH, CITY OF, BCH	461(C)(2)(A)		########		P49207	$2,250.00
113232	INDIAN PALMS RESORT, S&D INDIAN	203(A), 461		########		P56005	$907.00
149080	KENK, INC./ROSCOE SHELL	461		########		P56491	$1,100.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
43106	KENNY STRICKLAND INC	461(C)(1)(B)		########		P54661	$1,080.00
148023	KINGDOM CLEANERS	1102, 203 (B)		########		P48454	$450.00
42127	L & J CLEANERS, ALFRED HOWELL D	203 (A), 1102		########		P56414	$2,200.00
137966	LA CURACAO BUSINESS CENTER	203 (A)		########		P56902	$1,000.00
163194	LENNAR HOMES	203 (A) 203(A)		########		P56167 P56168	$400.00
160393	LEONARD CHAIDEZ INC.	Title 13		########		P55766	$400.00
149268	LING'S	203 (B)		########		P49595	$1,750.00
159076	MASTER ENGINE REBUILDING	1171		########		P55307	$500.00
152752	MEDIA CENTER CHEVRON #92860	461		########		P57165	$450.00
141297	MINA'S CLEANERS	203 (B), 1102		########		P56439	$375.00
114598	ORANGE TREE FRESH FRUIT & NUTS	461		########		P51927	$650.00
146697	PETROLION INC	461		########		P56123	$525.00
146697	PETROLION INC	461(C)(2)(B)		########		P56127	$2,360.00
156873	PRO STEEL ERECTORS Also closes P55773 Beck Steel Inc.	203 (A) 203 (A)		########		P55770 P55773	$550.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
141818	QUATTRO BLU HOA	203 (A)		########		P48452	$550.00
145135	RANCHO READY MIX PRODUCTS, LP.	201, 203		########		P55220	$1,100.00
148773	REDLINE CONCRETE PUMPING Also closes P54085 Pan Construction	203(A) 203(A)		########		P54085 P54086	$500.00
148009	RUBIDOUX FAMILY CARE CENTER	203		########		P56377	$550.00
93584	SAFETRAN SYSTEMS CORP,ELECTRONI	203		########		P55603	$440.00
161080	SANDPIPER POOLS	203 (A)		########		P55360	$550.00
55234	SAX QUALITY CLEANERS	203 (B), 206, 1421		########		P53263	$800.00
79306	SILVIA CONSTRUCTION INC	203		########		P55211	$1,200.00
161434	SLATER'S 50/50 INC	222		########		P56056	$420.00
87976	SONY CORP NDC	203 (B)		########		P54728	$600.00
70961	SPINIELLO COMPANIES	203(A)		########		P55384	$550.00
147648	SPRINT COMMUNICATIONS	203(A)		########		P56007	$550.00
140534	STAR SIDE DESIGN	203(A)		########		P55223	$330.00
104672	SUNBELT ENERGY, INC	203		########		P39633	$550.00
163990	SUPERIOR GROCERS	203 (A)		########		P56445	$425.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
162191	SUPERIOR GROCERS	203 (A)		########		P52948	$425.00
71797	TED LEVINE DRUM CO	3002(C)(1)		########		P52940	$2,250.00
141872	THE CULVER STUDIOS	201, 203, 1146.2		########		P55585	$2,000.00
104327	THE HOME DEPOT #610	203(B), 1470		########		P55430	$640.00
6262	THE HON CO	3002(C)(1)		########		P57254	$600.00
86017	THE PENINSULA BEVERLY HILLS,THE	1146.2		########		P55569	$1,500.00
163811	THE RACK	203 (A)		########		P56907	$1,000.00
	Also closes P56908 Private Practice	203 (A)				P56908	
140501	TLC CLEANERS, LILY KWOK DBA	1421		########		P53910	$100.00
159807	TRUGREEN LANDCARE	203 (A)		########		P52693	$550.00
155293	TURELK GENERAL CONTRACTORS	203 (A)		########		P52937	$1,125.00
160601	UNLIMITED STEEL	203 (A)		########		P30655	$500.00
82385	VONS A SAFEWAY CO.	203 (A)		########		P55961	$825.00
161231	W & W AUTO SALE AND BODY REPAIR	203 (A)		########		P52945	$325.00
163276	W.A.R. CONSTRUCTION	403		########		P49548	$900.00
	Also closes P49549 LA County Department	403				P49549	
162525	WALT'S TREE SERVICE	203(A)		########		P56226	$550.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
105250	WYROC	203 (A), 203(B)		########		P30670	$3,500.00

TOTAL MSPAPS SETTLEMENTS: $64,379.00

MISCELLANEOUS SETTLEMENTS:

52742	STOROPACK INC Failure to pay emission fees for passive pentane emissions for Years 03/04 through 07/08. Monies were transferred into back emission fees account. Not included as penalty.	301		########	TRB	MIS124	$120,954.88

TOTAL MISCELLANEOUS SETTLEMENTS: $120,954.88

HEARING BOARD SETTLEMENTS:

800051	ARCO TERMINAL SERVICES CORPORAT Hearing Board Case No. 4545-13 Facility to pay $1,000/month for every month Tanks 791 and 797 are in violation of existing permit. Penalty period for August 2010.	203, 3002		########	TRB	HRB1929	$1,000.00

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT
151532	LINN WESTERN OPERATING INC Hearing Board Case No. 5711-6 Facility to pay $250/day plus calculated daily exess emission fee for days gas flared exceeded 6MMCF/mo. Because of failure in catalyst in Turbine 2. Penalty is for the month of July 2010.	303	Y	########	TRB	HRB1926	$7,876.99
155877	MILLERCOORS, LLC Hearing Board Case No. 4521-4 Facility to pay $1,000/month for every calendar month it is in violation of current limits applicable to the biofilter, scrubber and flare. Penalty is for June 2010.	203, 2004, 3002	Y	########	TRB	HRB1928	$1,000.00
144681	WARREN E&P, INC Hearing Board Case No. 5649-2 Facility agreed to pay $250/day for each day it operates microturbines without a permit to operate. Penalty covers June and July 2010.	203		########	ERS	HRB1925	$15,250.00
158950	WINDSOR QUALITY FOOD CO. LTD. Hearing Board Case No. 5751-1 Windsor shall pay $160/day for each day it operates the noncompliant Line. Penalty covers June through August (31 days)	203, 2004	Y	########	NAS	HRB1927	$4,960.00

TOTAL HEARING BOARD SETTLEMENTS: $30,086.99

FAC ID	COMPANY NAME	RULE NUMBER	RECLAIM ID	SETTLED DATE	ATTY INT	NOTICE NO	TOTAL SETTLEMENT

Total Penalties

Civil Penalties:	**$564,887.00**
MSPAP Penalties:	**$64,379.00**
Hearing Board Penalties:	**$30,086.99**
Miscellaenous (back emission fees; not included):	**$120,954.88**
Total Cash Penalties:	**$659,352.99**
Total SEP Value:	**$110,000.00**
Fiscal Year through August 2010 Cash Total:	**$1,138,276.16**
Fiscal Year through August 2010 SEP Value Only Total:	**$115,000.00**

DISTRICT RULES AND REGULATIONS INDEX
FOR JULY AND AUGUST 2010 PENALTY REPORT

REGULATION I - GENERAL PROVISIONS

Rule 109 Recordkeeping for Volatile Organic Compound Emissions *(Amended 5/2/03)*

REGULATION II – PERMITS

List and Criteria Identifying Information Required of Applicants Seeking A Permit to Construct from the South Coast Air Quality Management - District *(Amended 4/10/98)*

Rule 201 Permit to Construct *(Amended 12/3/04)*
Rule 203 Permit to Operate *(Amended 12/3/04)*
Rule 206 Posting of Permit to Operate *(Amended 10/8/93) Explains how and where permits are to be displayed.*
Rule 218 Continuous Emission Monitoring *(Amended 5/14/99)*
Rule 222 Filing Requirements for Specific Emission Sources Not Requiring a Written permit Pursuant to Regulation II. (Amended 5/19/00)

REGULATION III –

Rule 301 Permitting and Associated Fees *(Amended 5/11/01)*
Rule 303 Hearing Board Fees *(Amended 5/11/01)*
Rule 308 On-Road Motor Vehicle Mitigation Options Fees *(Amended 5/11/01)*

REGULATION IV - PROHIBITIONS

Rule 401 Visible Emissions
Rule 402 Nuisance *(Adopted 5/7/76)*
Rule 403 Fugitive Dust *(Amended 6/3/05)*
Pertains to solid particulate matter emitted from man-made activities.
Rule 430 Breakdown Provisions *(Amended 7/12/96)*
Rule 461 Gasoline Transfer and Dispensing *(Amended 3/7/08)*
Rule 463 Storage of Organic Liquids *(Amended 3/11/94)*

REGULATION XI - SOURCE SPECIFIC STANDARDS

Rule 1102 Petroleum Solvent Dry Cleaners *(Amended 12/7/90)*
Rule 1107 Coating of Metal Parts and Products *(Amended 11/17/00)*
Rule 1110 Emissions from Stationary Internal Combustion Engines (Demonstration) *(Repealed 11/14/97*
Rule 1118 Emissions From Refinery Flares *(Adopted 2/13/98)*

Rule 1146 Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters *(Amended* Rule)
Rule 1148 Thermally Enhanced Oil Recovery Wells *(Adopted 11/5/82)*
Rule 1150 Excavation of Landfill Sites *(Adopted 10/15/82*
Rule 1151 Motor Vehicle and Mobile Equipment Non-Assembly Line Coating Operations *(Amended 12/11/98)*
Rule 1171 Solvent Cleaning Operations *(Amended 6/13/97)*
Rule 1173 Fugitive Emissions of Volatile Organic Compounds *(Amended 5/13/94)*
Rule 1175 Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products *(Amended 5/13/94)*
Rule 1176 Sumps and Wastewater Separators *(Amended 9/13/96)*
Rule 1178 Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities (*Amended 4/7/06)*

REGULATION XIV - TOXICS

Rule 1402 Control of Toxic Air Contaminants from Existing Sources *(Amended 3/17/00)*
Rule 1421 Control of Perchloroethylene Emissions from Dry Cleaning Operations *(Amended 6/13/97*
Rule 1403 Asbestos Emissions from Demolition/Renovation Activities *(Amended 4/8/94)*
Rule 1421 Control of Perchloroethylene Emissions from Dry Cleaning Operations *(Amended 6/13/97)*
Rule 1469 Hexavalent Chromium Emissions From Chrome Plating and Chromic Acid Anodizing Operations *(Adopted 10/9/98)*
Rule 1470 Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines

REGULATION XX - REGIONAL CLEAN AIR INCENTIVES MARKET (RECLAIM)

Rule 2004 Requirements *(Amended 4/6/07)*
Rule 2012 Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NO_X) Emissions *(Amended 5/6/05)*
Rule 2202 On-Road Motor Vehicle Mitigation Options *(Amended 10/9/98)*

REGULATION XXX - TITLE V PERMITS

Rule 3002 Requirements *(Amended 11/14/97)*
Rule 3004 Permit Types and Content *(Amended 12/12/97)*

CALIFORNIA HEALTH AND SAFETY CODE § 41700

41701 Violation of General Limitations
41960 Gasoline Vapor Recovery
42400 Penalties

CALIFORNIA CODE OF REGULATIONS

Title 13 Mobile Sources and Fuels
PERP 2454 Portable Equipment Registration Process
PERP 2460 – Failure to Notify District within 45 day for Inspection

Back to Agenda

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 21

REPORT: Rule and Control Measure Forecast

SYNOPSIS: This report highlights AQMD rulemaking activity and public workshops potentially scheduled for the year 2010 and portions of 2011.

COMMITTEE: Not Applicable

RECOMMENDED ACTION:
Receive and file.

Barry R. Wallerstein, D.Env.
Executive Officer

EC:LT:cg

The Rule and Control Measure Forecast Report provides the Board with a monthly update of AQMD's rulemaking and control measure implementation schedule. Scheduling changes that occurred since last month's forecast are summarized.

1113	Architectural Coatings (MCS-07)
Rule 1113 is moved to March of 2011 from the 2nd Quarter of 2011, since staff will be able to complete the necessary technology review earlier than expected.	
1311	PM2.5 New Source Review Program
Rule 1311 is moved to the 1st Quarter of 2011 to allow more time to develop the proposal and work with stakeholders.	

Rules to be rescheduled/ removed and added (continued)

1315	Federal New Source Review Tracking System
Proposed Rule 1315 is moved to January 2011 from December, due to the extension of the CEQA public comment period.	
1903	Emission Budgets and Mitigation Program for General Conformity Projects (EGM-02)
Rule 1903 is moved to the 1st Quarter of 2011 from December to allow staff additional time to continue work with U.S. EPA on policy issues.	
2005	New Source Review for RECLAIM
Rule 2005 is added to the schedule for hearing in the 1st Quarter of 2011 to address recurring RTC holding requirements for emission increases, from new or modified sources at existing RECLAIM facilities.	
2202	On-Road Motor Vehicle Mitigation Options
Rule 2202 is moved to March of 2011 from December to allow staff time to resolve additional issues raised by stakeholders.	

2010 MASTER CALENDAR
Advance Target for Board Hearings

Below is a list of all rulemaking activity scheduled for the year 2010. The last four columns refer to the type of rule adoption or amendment. A more detailed description of the proposed rule adoption or amendment is located in the Attachments (A through D) under the type of rule adoption or amendment (i.e. AQMP, Toxics, Other and Climate Change).

**An asterisk indicates that the rulemaking is a potentially significant hearing.*
+This proposed rule will reduce criteria air contaminants and assist toward attainment of ambient air quality standards.
[1]Subject to Board approval
California Environmental Quality Act shall be referred to as "CEQA."
Socioeconomic Analysis shall be referred to as "Socio."

2010

December		AQMP	Toxics	Other	Climate Change
223	Emission Reductions Permits for Large Confined Animal Facilities	√			
1127+	Emission Reductions from Livestock Waste (MCS-05)	√			
1127.1+	Control of Emissions from Hog and Poultry Operations (MCS-05)	√			
1143	Consumer Paint Thinners and Multi-Purpose Solvents			√	
1147	NOx Reductions from Miscellaneous Sources			√	
1415	Reduction of Refrigerant Emissions from Stationary Refrigerant and Air Conditioning Systems				√
1415.1	Reduction of Refrigerant Emissions from Stationary Refrigeration Systems				√

2010 TO-BE DETERMINED

TBD		AQMP	Toxics	Other	Climate Change
102	Definition of Terms			√	
402	Nuisance			√	

2010 MASTER CALENDAR (continued)

2010 TO-BE DETERMINED

TBD	(continued)	AQMP	Toxics	Other	Climate Change
404+	Particulate Matter – Concentration (MCS-01)	√			
1114*+	Control of Emissions from Refinery Coking Operations (MCS-01)	√			
461	Gasoline Transfer and Dispensing			√	
1106	Marine Coating Operations (MCS-07)	√			
1106.1	Pleasure Craft Coating Operations (MCS-07)	√			
1123	Pilot Program for Refinery Start-up, Shutdown and Turnaround Procedures (MCS-06)	√			
1139+	Reduction of VOC Emissions from Cleaning Operations at Large Institutional and Commercial Facilities			√	
1151*+	Motor Vehicle and Mobile Equipment Non-Assembly Line Coating Operations			√	
1171	Solvent Cleaning Operations			√	
1173	Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants				√
1180	Petroleum Refinery Pilot Program (FLX-02)	√			
1190 Series	Fleet Vehicle Requirements			√	
Reg. XIII	New Source Review			√	
1401	New Source Review of Toxic Air Contaminants		√		
1402	Control of Toxic Air Contaminants from Existing Sources		√		
1420	Emissions Standard for Lead		√		

2010 MASTER CALENDAR (continued)

2010 TO-BE DETERMINED

TBD	(continued)	AQMP	Toxics	Other	Climate Change
1426	Emissions from Metal Finishing Operations		√		
1480	Major Diesel Indirect Sources		√		
1610	Old-Vehicle Scrapping			√	
1625	Generation of ERCs for Particulate Matter			√	
Reg. XXVII	Climate Change				√
Reg. XXX	Title V Permits				√
Reg. IV, IX, X, XI, XIV, and XX Rules	Various rule amendments may be needed to meet the requirements of state and federal laws, address variance issues/technology-forcing limits, or to seek additional reductions to meet the SIP short-term measure commitment. The Clean Communities Plan (CCP) which was formerly the Air Toxics Control Plan (ATCP) is being updated to include new measures to address toxic emissions in the basin. The CCP will include a variety of measures that will reduce exposure to air toxics from stationary, mobile, and area sources. Rule amendments may include updates to provide consistency with CARB Statewide Air Toxic Control Measures.	√	√	√	√

Note: AQMD may add control measures necessary to satisfy federal requirements, to abate a substantial endangerment to public health or welfare, state regulatory requirements or SIP commitment.

2010 MASTER CALENDAR (continued)

2011

January		AQMP	Toxics	Other	Climate Change
317*+	Clean Air Act Emissions Fees for Major Stationary Sources of VOC and NOx (CTY-02)	√			
1315*1	Federal New Source Review Tracking System			√	
March					
1113*+1	Architectural Coatings (MCS-07)	√			
2202[1]	On-Road Motor Vehicle Mitigation Options			√	
1ST Qtr.					
701	Air Pollution Emergency Contingency Actions			√	
1133.3+	Green Waste Composting (MCS-04)	√			
1138*+	Charbroilers (BCM-05)	√			
1162	Polyester Resin Operations (MCS-07)	√			
1311*+1	PM2.5 New Source Review Program			√	
1903*+1	Emission Budgets and Mitigation Program for General Conformity Projects (EGM-02)	√			
2005[1]	New Source Review for RECLAIM			√	
2301*+	Control of Emissions from New or Redevelopment Projects (EGM-01)	√			
April					
1470	Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines		√		
1471	Agricultural Stationary Compression Ignition Engines		√		

2010 MASTER CALENDAR (continued)

2011

April	(continued)	AQMP	Toxics	Other	Climate Change
4010*+	General Provisions and Requirements for Ports of Los Angeles and Long Beach (MOB-03)		√		
4020*+	Backstop Requirements for Ports of Los Angeles and Long Beach (MOB-03)		√		
2nd Qtr.		**AQMP**	**Toxics**	**Other**	**Climate Change**
1107	Coating of Metal Parts and Products (MCS-07)	√			
314	Fees for Architectural Coatings			√	
1118	Control of Emissions from Refinery Flares			√	√
2511	Credit Generation Program for Locomotive Head End Power Unit Engines			√	
2512	Credit Generation Program for Ocean-Going Vessels at Berth			√	

ATTACHMENT A

AQMP Rule Activity Schedule

This attachment lists those control measures that are being developed into rules or rule amendments for the Board consideration that are designed to implement the amendments to the 2007 Air Quality Management Plan.

2010

December	
223 1127+ 1127.1+	**Emission Reduction Permits for Large Confined Animal Facilities** **Emission Reductions from Livestock Waste (MCS-05)** **Control of Emissions from Hog and Poultry Operations (MCS-05)** *[Projected Emission Reduction unknown and TBD]* Proposed amendments to Rule 223 may be necessary to harmonize rule requirements with those in Rules 1127 and 1127.1. Proposed amendments to Rule 1127 will add mitigation measures, consistent with the latest scientific research, for dairy manure management practices. Rule 1127.1 will reduce PM10, VOC and ammonia (NH_3) emissions from livestock operations, excluding dairy operations, in the South Coast Basin. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Lieu (3059)*

TO-BE DETERMINED 2010

To-Be Determined	
404+ 1114*+	**Particulate Matter – Concentration (MCS-01)** **Control of Emissions from Refinery Coking Operations (MCS-01)** *[Projected Emission Reduction for both rules: TBD]* Proposed Rule 1114 will establish emission limits and other requirements for the operation of coking units at petroleum refineries. Amendments to Rule 404 will ensure consistency with Rule 1114. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Lieu (3059)*
1106	**Marine Coating Operations (MCS-07)** *[Projected Emission Reduction: N/A]* Proposed amendments will further reduce VOC emissions from the application of marine coatings. Amendments may also improve clarity and enforceability. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Lieu (3059)*

ATTACHMENT A

AQMP Rule Activity Schedule (continued)

TO-BE DETERMINED 2010

To-Be Determined	(continued)
1106.1	**Pleasure Craft Coating Operations (MCS-07)** *[Projected Emission Reduction: unknown]* Amendments to Rule 1106.1 will reduce VOC emissions from the application of coatings to pleasure craft and improve the enforceability and clarity of the rule. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Lieu (3059)*
1123	**Pilot Program for Refinery Start-up, Shutdown and Turnaround Procedures (MCS-06)** *[Projected Emission Reduction: N/A]* Rule 1123 would implement 2007 AQMP, Control Measure MCS-06 by identifying improved operating procedures and best management practices to reduce emissions from start-up, shutdown and turnaround operations. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Leu (3059)*
1180	**Petroleum Refinery Pilot Program (FLX-02)** *[Projected Emission Reduction: N/A]* The proposed rule serves as a placeholder should a pilot program be deemed feasible. The pilot program would allow refineries to fulfill their SIP obligations through implementation of on- or off-site mitigation projects, provided certain criteria are met. *Jill Whynot 909.396.3104 CEQA: Smith (3054) Socio: Lieu (3059)*
Reg. IV, IX, X, XI, XIV, and XX Rules	Various rule amendments may be needed to meet the requirements of state and federal laws, address variance issues/technology-forcing limits, or to seek additional reductions to meet the SIP short-term measure commitment. The Clean Communities Plan (CCP) which was formerly the Air Toxics Control Plan (ATCP) is being updated to include new measures to address toxic emissions in the basin. The CCP will include a variety of measures that will reduce exposure to air toxics from stationary, mobile, and area sources. Rule amendments may include updates to provide consistency with CARB Statewide Air Toxic Control Measures.

ATTACHMENT A

AQMP Rule Activity Schedule (continued)

2011

January	
317*+	**Clean Air Act Emissions Fees for Major Stationary Sources of VOC and NOx** *[Projected Emission Reduction: N/A]* Rule 317 is continued to January 2011 by direction of the Governing Board in July. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Lieu (3059)*
March	
1113*+1	**Architectural Coatings (MCS-07)** *[Projected Emission Reduction: TBD]* The proposed amendments would further clarify language to improve rule enforceability and seek additional VOC reductions from colorants and specialty coating categories. Any proposed amendments will be coordinated with architectural coatings fee Rule 314. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Lieu (3059)*
1st Quarter	
1133.3+	**Emission Reductions from Green Waste Composting (MCS-05)** *[Projected Emission Reduction: TBD]* Proposed Rule 1133 would reduce volatile organic compounds (VOC) and ammonia (NH_3) emissions from green waste. *Jill Whynot 909.396.3104 CEQA: Smith (3054) Socio: Lieu (3059)*
1138*+	**Control of Emissions from Restaurant Operations (BCM-05)** *[Projected Emission Reduction: TBD]* The proposed amended rule will add requirements for under-fired charbroilers and implement 2007 AQMP Control Measure BCM-05. *Jill Whynot 909.396.3104 CEQA: Smith (3054) Socio: Lieu (3059)*
1162	**Polymer Resin Operations (MCS-07)** *[Projected Emission Reduction: N/A]* Proposed amendments to Rule 1162 would require further VOC reductions from new or emerging technologies such as the use of low-monomer resins and other adjustments based on the availability of technology. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Lieu (3059)*
1903*+1	**Emission Budgets and Mitigation Program for General Conformity Projects (EGM-02)** *[Projected Emission Reduction: N/A]* Rule 1903 would implement Control Measure EGM-02 of the 2007 AQMP. The rule would specify procedures for how federal projects subject to general conformity could access an emission budget and/or pay mitigation fees for emissions from the project. *Joe Cassmassi 909.396.3155 909.396.3155 CEQA: Smith (3054) Socio: Lieu (3059)*

ATTACHMENT A

AQMP Rule Activity Schedule (continued)

2011

1st Quarter	(continued)
2301*+	**Control of Emissions from New or Redevelopment Projects (EGM-01)** *[Projected Emission Reduction: Committed to reduce 0.5 tons per day of VOC, 0.8 tons per day of NOx, and 0.5 tons per day of PM2.5 in 2023.]* Rule 2301 would implement Control Measure EGM-01 of the 2007 AQMP to manage emissions growth from new and redevelopment projects. *Carol Gomez 909.396. 3264 CEQA: Smith (3054) Socio: Lieu (3059)*
2nd Quarter	
1107	**Coating of Metal Parts and Products (MCS-07)** *[Projected Emission Reduction: N/A]* Amendments to Rule 1107 would further reduce VOC emissions and improve rule clarity and enforceability. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Lieu (3059)*

ATTACHMENT B

Toxics Rule Activity Schedule

This attachment lists those rules or rule amendments for the Governing Board consideration that are designed to implement the Air Toxics Control Plan.

To-Be Determined 2010

To-Be Determined	
1401 1402	**New Source Review of Toxic Air Contaminants** **Control of Toxic Air Contaminants from Existing Sources** *[Projected Emission Reduction: TBD]* The Office of Environmental Health Hazard Assessment (OEHHA) periodically reviews the list of toxic compounds and revises or establishes risk values. Rules 1401 and 1402 will be amended to revise the list of TACs. OEHHA is currently revising their risk assessment guidelines and, when adopted, District guidelines will be amended requiring Board approval. In addition, other administrative changes may be proposed. *Susan Nakamura 909.396.3105 CEQA: Smith (3054) Socio: Lieu (3059)*
1420	**Emissions Standard for Lead** *[Projected Emission Reduction: TBD]* Rule 1420 would be amended to incorporate the 2008 National Ambient Air Quality Standard for Lead and may include measures to reduce lead emissions to ensure compliance with the new standard. *Susan Nakamura 909.396.3105 CEQA: Smith (3054) Socio: Lieu (3059)*
1426	**Emissions from Metal Finishing Operations** *[Projected Emission Reduction: TBD]* During the adoption of Rule 1426 in May 2003, the Board directed staff to prepare a technical assessment within three years of date of adoption to evaluate the risk reduction strategies for facilities exceeding the action risk level specified in Rule 1402. Based on the technical assessment, Rule 1426 may be amended. *Susan Nakamura 909.396.3105 CEQA: Smith (3054) Socio: Lieu (3059)*
1480	**Major Diesel Indirect Sources** *[Projected Emission Reduction: TBD]* A new rule may be recommended to implement a proposed measure in the draft Clean Communities Plan (CCP) for reducing exposure to toxic air contaminant emissions from indirect sources. *Susan Nakamura 909.396.3105 CEQA: Smith (3054) Socio: Lieu (3059)*

ATTACHMENT B

Toxics Rule Activity Schedule (continued)

To-Be Determined 2010

To-Be Determined	(continued)
Reg. IV, IX, X, XI, XIV, and XX Rules	Various rule amendments may be needed to meet the requirements of state and federal laws, address variance issues/technology-forcing limits, or to seek additional reductions to meet the SIP short-term measure commitment. The Clean Communities Plan (CCP) which was formerly the Air Toxics Control Plan (ATCP) is being updated to include new measures to address toxic emissions in the basin. The CCP will include a variety of measures that will reduce exposure to air toxics from stationary, mobile, and area sources. Rule amendments may include updates to provide consistency with CARB Statewide Air Toxic Control Measures.

2011

April	
1470	**Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines**
1471	**Requirements for Diesel-Fueled Internal Combustion and Other Compression Ignition Engines Used in Agricultural Operations** *[Projected Emission Reduction: TBD]* CARB has amended the ATCM for stationary diesel-fueled internal combustion engines to reduce particulate emissions from stationary diesel powered agricultural engines that are used for growing crops, raising fowl or other animals at farms, ranches, universities, or other places. Proposed Rule 1471 will consolidate requirements for existing and new diesel-powered agricultural engines. *Susan Nakamura 909.396.3105 CEQA: Smith (3054) Socio: Lieu (3059)*
4010*+	**General Provisions and Requirements for Ports of Los Angeles and Long Beach (MOB-03)**
4020*+	**Backstop Requirements for Ports of Los Angeles and Long Beach (MOB-03)** *[Projected Emission Reduction: TBD]* The proposed rules will address toxic and criteria pollutant emissions from new and existing port-related sources. *Susan Nakamura 909.396.3105 CEQA: Smith (3054) Socio: Lieu (3059)*

ATTACHMENT C

Other Rule Activity Schedule

This attachment lists those rules or rule amendments for the Governing Board consideration that are designed to improve rule enforceability, SIP corrections, or implementing state or federal regulations.

2010

December	
1143	**Consumer Paint Thinners and Multi-Purpose Solvents** *[Projected Emission Reduction: N/A]* Proposed amendments to Rule 1143 will propose an exemption for artist solvents and thinners and make minor clarifications and editorial correction to the rule. *Naveen Berry 909.396.2363 CEQA: Smith (3054) Socio: Lieu (3059)*
1147	**NOx Reductions From Miscellaneous Sources** [Projected Emission Reduction: TBD] Proposed amendments will make necessary administrative modifications. Joe Cassmassi 909.396.3155 CEQA: Smith (3054) Socio: Lieu (3059)

To-Be Determined 2010

To-Be Determined	
102	**Definition of Terms** *[Projected Emission Reduction: N/A]* Proposed amendments to Rule 102 will include compounds exempted by the U.S. EPA with consideration for health risks as defined by the Office of Environmental Health Hazard Assessment (OEHHA). *Naveen Berry 909.396.2363 CEQA: Smith (3054) Socio: Lieu (3059)*
402	**Nuisance** *[Projected Emission Reduction: TBD]* The AQMD staff will assess the feasibility of expanding the current nuisance rule as part of a proposed measure in the draft Clean Communities Plan (CCP). The assessment may result in a recommendation to amend Rule 402 to make it more effective and more responsive to public complaints. *Susan Nakamura 909.396.3105 CEQA: Smith (3054) Socio: Lieu (3059)*

ATTACHMENT C

Other Rule Activity Schedule (continued)

To-Be Determined 2010

To-Be Determined	(continued)
461	**Gasoline Transfer and Dispensing** *[Projected Emission Reduction: TBD]* Proposed amendments to Rule 461 are to reduce VOC and toxic emissions from gasoline dispensing facilities by improving implementation of the Enhanced Vapor Recovery Regulation. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Lieu (3059)*
1139+	**Reduction of VOC Emissions from Cleaning Operations at Large Institutional and Commercial Facilities** *[Projected Emission Reduction: N/A]* Proposed Rule 1139 will reduce VOC and other emissions from the use of cleaning products at institutional and commercial facilities. *Naveen Berry 909.396.2363 CEQA: Smith (3054) Socio: Lieu (3059)*
1151*+	**Motor Vehicle and Mobile Equipment Non-Assembly Line Coating Operations** *[Projected Emission Reduction: unknown]* Amendments to the rule may be necessary to reflect further findings relative to tertiary butyl acetate (TBAc) toxicity. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Lieu (3059)*
1171	**Solvent Cleaning Operations** *[Projected Emission Reduction: N/A]* The proposed amendment will reflect the results of the recently completed technology assessments for the future VOC limits established for the cleanup of lithographic and screen printing ink application equipment. *Naveen Berry 909.396.2363 CEQA: Smith (3054) Socio: Lieu (3059)*
1190 Series	**Fleet Vehicle Requirements** *[Projected Emission Reduction: TBD]* Amendments to Rule 1190 series fleet rules may be necessary to address remaining outstanding implementation issues and in the event the court's future action requires amendments. In addition, the current fleet rules may be expanded to achieve additional air quality and air toxic benefits. *Dean Saito 909.396.2647 CEQA: Smith (3054) Socio: Lieu (3059)*
Reg. XIII	**New Source Review** *[Projected Emission Reduction: TBD]* Proposed amendment will address U.S. EPA comments on SIP approvability issues and/or requirements that may result from U.S. EPA amendments, legislation or CARB requirements. Amendments may also be proposed for clarity and improved enforceability. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Lieu (3059)*

ATTACHMENT C

Other Rule Activity Schedule (continued)

To-Be Determined 2010

To-Be Determined	(continued)
1610	**Old-Vehicle Scrapping** *[Projected Emission Reduction: TBD]* Proposed amendment may be necessary to harmonize the rule with voluntary state vehicle scrapping program. *Naveen Berry 909.396.2363 CEQA: Smith (3054) Socio: Lieu (3059)*
1625	**Generation of ERCs for Particulate Matter** [Projected Emission Reduction: TBD] A new rule will establish requirements for the generation of Emission Reduction Credits (ERCs) from particulate matter sources, such as paving unpaved roads. *Jill Whynot 909.396.3104 CEQA: Smith (3054) Socio: Lieu (3059)*
Reg. IV, IX, X, XI, XIV, and XX Rules	Various rule amendments may be needed to meet the requirements of state and federal laws, address variance issues/technology-forcing limits, or to seek additional reductions to meet the SIP short-term measure commitment. The Clean Communities Plan (CCP) which was formerly the Air Toxics Control Plan (ATCP) is being updated to include new measures to address toxic emissions in the basin. The CCP will include a variety of measures that will reduce exposure to air toxics from stationary, mobile, and area sources. Rule amendments may include updates to provide consistency with CARB Statewide Air Toxic Control Measures.

2011

January	
1315[*1]	**Federal New Source Review Tracking System** *[Projected Emission Reduction: N/A]* Proposed of Rule 1315 will codify the emission reduction tracking procedure used to demonstrate equivalence of the AQMD New Source Review Program with the Federal New Source Review Program. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Lieu (3059)*
March	
2202[1]	**On-Road Motor Vehicle Mitigation Options** *[Projected Emission Reduction: unknown]* Proposed Rule 2202 amendments will include language to clarify program options, facilitate meeting rule emission reduction targets, and clarify definitions. Rule 2202 supporting guidelines will also be updated to reflect rule requirements, policies, and practices. *Carol Gomez 909.396.3264 CEQA: Smith (3054) Socio: Lieu (3059)*

ATTACHMENT C

Other Rule Activity Schedule (continued)

2011

1st Quarter	
701	**Air Pollution Emergency Contingency Actions** *[Projected Emission Reduction: N/A]* Proposed amendments to Rule 701 will update the episode criteria to reflect newly established standards and clarify air quality reporting and dissemination protocol. *Joe Cassmassi 909.396.3155 909.396.3155 CEQA: Smith (3054) Socio: Lieu (3059)*
1311*+1	**PM2.5 New Source Review Program** *[Projected Emission Reduction: N/A]* Proposed Rule 1311 will implement U.S. EPA's New Source Review program requirements relative to PM2.5. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Lieu (3059)*
2005[1]	**New Source Review for RECLAIM** [Projected Emission Reduction: TBD] The proposed amendment is to address recurring RTC holding requirements for emission increases at existing RECLAIM facilities. Joe Cassmassi 909.396.3155 CEQA: Smith (3054) Socio: Lieu (3059)
2nd Quarter	
314	**Fees for Architectural Coatings** *[Projected Emission Reduction: TBD]* Rule 314 is a fee rule specifically for architectural coatings, and any proposed amendments will be coordinated with Rule 1113. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Lieu (3059)*
1118	**Control of Emissions from Refinery Flares** *[Projected Emission Reduction: TBD]* Amendments may be necessary to address results of the additional analysis required by the adopting resolution for the last amendment and to consider the advances in monitoring technology. Amendments may also be necessary to implement an AB 32 measure. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Lieu (3059)*
2511	**Credit Generation Program for Locomotive Head End Power Unit Engines** *[Projected Emission Reduction: TBD]* Develop a rule to allow generation of PM mobile source emission reduction credits from Locomotive Head End Power Unit Engines. Credits will be generated by retrofitting engines with PM controls or replacing the engines with new lower-emitting engines. *Randal Pasek 909.396.2251 CEQA: Smith (3054) Socio: Lieu (3059)*

ATTACHMENT C

Other Rule Activity Schedule (continued)

2011

2nd Quarter	(continued)
2512	**Credit Generation Program for Ocean-Going Vessels at Berth** *[Projected Emission Reduction: TBD]* Develop a rule to allow generation of PM, NOx and SOx emission reduction credits from ocean-going vessels while at berth. Credits will be generated by controlling the emissions from auxiliary engines and boilers of ships while docked. *Randal Pasek 909.396.2251 CEQA: Smith (3054) Socio: Lieu (3059)*

ATTACHMENT D

Climate Change

This attachments lists rules or rule amendments for the Governing Board consideration that are designed to implement South Coast Air Quality Managements District's Climate Change Policy or for consistency with state or federal rules.

2010

December	
1415	**Reduction of Refrigerant Emissions from Stationary Refrigeration and Air Conditioning Systems**
1415.1	**Reduction of Refrigerant Emissions from Stationary Refrigeration Systems** *[Projected Emission Reduction: TBD]* Proposed Rule 1415.1 is being developed to be in concert with provisions of CARB's statewide Refrigeration Management Program established to reduce emissions of high global warming potential (GWP) refrigerants from stationary refrigeration systems. Emission control requirements for air conditioning systems remain in Rule 415 and will include GWP refrigerants. *Naveen Berry 909.396.2363 CEQA: Smith (3054) Socio: Lieu (3059)*

To-Be Determined 2010

To-Be Determined	
1173	**Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants** *[Projected Emission Reduction: TBD]* Amendment to Rule 1173 may be necessary to address greenhouse gas emissions from petroleum facilities and chemical plants. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Lieu (3059)*
Reg. XXVII	**Climate Change** *[Projected Emission Reduction: TBD]* Additional protocols may be added to Rules 2701 and 2702. *Jill Whynot 909.396.3104 CEQA: Smith (3054) Socio: Lieu (3059)*
Reg. XXX	**Title V Permits** *[Projected Emission Reduction: TBD]* This proposed rule amendment would address pending federal legislation if it requires changes to Title V permitting requirements for facilities that emit greenhouse gases. *Jill Whynot 909.396.3104 CEQA: Smith (3054) Socio: Lieu (3059)*

ATTACHMENT D

Climate Change (continued)

To-Be Determined 2010

To-Be Determined	(continued)
Reg. IV, IX, X, XI, XIV, and XX Rules	Various rule amendments may be needed to meet the requirements of state and federal laws, address variance issues/technology-forcing limits, or to seek additional reductions to meet the SIP short-term measure commitment. The Clean Communities Plan (CCP), which was formerly the Air Toxics Control Plan (ATCP), is being updated to include new measures to address toxic emissions in the basin. The CCP will include a variety of measures that will reduce exposure to air toxics from stationary, mobile, and area sources. Rule amendments may include updates to provide consistency with CARB Statewide Air Toxic Control Measures.

2011

2nd Quarter	
1118	**Control of Emissions from Refinery Flares** *[Projected Emission Reduction: TBD]* Amendments may be necessary to address results of the additional analysis required by the adopting resolution for the last amendment and to consider the advances in monitoring technology. Amendments may also be necessary to implement an AB32 measure. *Laki Tisopulos 909.396.3123 CEQA: Smith (3054) Socio: Lieu (3059)*

Back to Agenda

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 22

REPORT: Lead Agency Projects and Environmental Documents Received by the AQMD

SYNOPSIS: This report provides, for the Board's consideration, a listing of CEQA documents received by the AQMD between September 1, 2010, and September 30, 2010, and those projects for which the AQMD is acting as lead agency pursuant to CEQA.

COMMITTEE: Mobile Source, October 15, 2010

RECOMMENDED ACTION:
Receive and file.

Barry R. Wallerstein, D.Env.
Executive Officer

EC:LT:SN:SS:AK

Background

CEQA Document Receipt and Review Logs (Attachments A and B) – Each month, the AQMD receives numerous CEQA documents from other public agencies on projects that could adversely affect air quality. A listing of all documents received during the reporting period of September 1, 2010 through September 30, 2010, is contained in Attachment A. A list of active projects from previous reporting periods for which AQMD staff is continuing to evaluate or prepare comments is included as Attachment B.

The Intergovernmental Review function, which consists of reviewing and commenting on the adequacy of the air quality analysis in CEQA documents prepared by other lead agencies, is consistent with the Board's 1997 Environmental Justice Guiding Principles and Initiative #4. Consistent with the Environmental Justice Program Enhancements for FY 2002-03 approved by the Board in September 2002, each of the attachments notes those proposed projects where the AQMD has been contacted regarding potential air quality-related environmental justice concerns. The AQMD has established an internal central contact to receive information on projects with potential air quality-related

environmental justice concerns. The public may contact the AQMD about projects of concern by the following means: in writing via fax, e-mail, or standard letters; through telephone communication; as part of oral comments at AQMD meetings or other meetings where AQMD staff is present; or submitting newspaper articles. The attachments also identify for each project the dates of the public comment period and the public hearing date, if known at the time the CEQA document is received by the AQMD.

At the January 6, 2006 Board meeting, the Board approved the Workplan for the Chairman's Clean Port Initiatives. One action item of the Chairman's Initiatives was to prepare a monthly report describing CEQA documents for projects related to goods movement and to make full use of the process to ensure the air quality impacts of such projects are thoroughly mitigated. In response to describing goods movement CEQA documents, Attachments A and B were reorganized to group projects of interest into the following categories: goods movement projects; schools; landfills and wastewater projects; airports; and general land use projects; etc. In response to the mitigation component, guidance information on mitigation measures were compiled into a series of tables relative to the following equipment: off-road engines, on-road engines, harbor craft, ocean-going vessels, locomotives, and fugitive dust. These mitigation measure tables are on the CEQA webpages portion of the AQMD's website. Staff will continue compiling tables of mitigation measures for other emission sources including airport ground support equipment, etc.

As resources permit, staff focuses on reviewing and preparing comments for projects: where the AQMD is a responsible agency; that may have significant adverse regional air quality impacts (e.g., special event centers, landfills, goods movement, etc.); that may have localized or toxic air quality impacts (e.g., warehouse and distribution centers); where environmental justice concerns have been raised; and those projects for which a lead or responsible agency has specifically requested AQMD review.

During the period September 1, 2010, through September 30, 2010, the AQMD received 60 CEQA documents. Of the total of 78 documents listed in Attachments A and B:

- 17 comment letters were sent;
- 19 documents were reviewed, but no comments were made;
- 28 documents are currently under review;
- 12 documents did not require comments (e.g., public notices, plot plans, Final Environmental Impact Reports); and
- 1 documents were not reviewed.

Copies of all comment letters sent to lead agencies can be found on the AQMD's CEQA webpage at the following internet address: www.aqmd.gov/ceqa/letters.html.

AQMD Lead Agency Projects (Attachment C) – Pursuant to CEQA, the AQMD periodically acts as lead agency for stationary source permit projects. Under CEQA, the lead agency is responsible for determining whether an Environmental Impact Report (EIR) or a Negative Declaration (ND) is appropriate for any proposal considered to be a "project" as defined by CEQA. An EIR is prepared when the AQMD, as lead agency, finds substantial evidence that the proposed project may have significant adverse effects on the environment. A ND or Mitigated Negative Declaration (MND) may be prepared if the AQMD determines that the proposed project will not generate significant adverse environmental impacts, or the impacts can be mitigated to less than significance. The ND and MND are written statements describing the reasons why proposed projects will not have a significant adverse effect on the environment and, therefore, do not require the preparation of an EIR.

Attachment C to this report summarizes the active projects for which the AQMD is lead agency and is currently preparing or has prepared environmental documentation. Through the end of September, the AQMD received no new requests to be the lead agency for a stationary source permit application project. No CEQA documents for permit application projects were certified in September. As noted in Attachment C, through the end of September 2010, the AQMD continued working on the CEQA documents for four active projects.

To date in 2010, AQMD staff has been responsible for preparing or having prepared CEQA documents for six stationary source permit projects, four continuing from 2009. Through the end of September 2010, two CEQA documents have been certified for permit application projects.

Attachments

A. Incoming CEQA Documents Log
B. Ongoing Active Projects for Which AQMD Has or Will Conduct a CEQA Review
C. Active AQMD Lead Agency Projects

**

ATTACHMENT A

INCOMING CEQA DOCUMENTS LOG
SEPTEMBER 1, 2010 TO SEPTEMBER 30, 2010

SCAQMD LOG-IN NUMBER PROJECT TITLE	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
General Land Use (residential, etc.) LAC100901-02 Hillside Development Permit, Conditional Use Permit, Tentative Tract Map, Design Review, and Environmental Assessment	The proposed project consists of constructing nine town homes, ranging from 1,230 square feet to 1,940 square feet. The total proposed floor area is 14,671 square feet on a 29,267 square-foot lot. Comment Period: N/A Public Hearing: 9/27/2010	ND	City of Pasadena	Document reviewed - No comments
General Land Use (residential, etc.) LAC100901-03 Hillside Development Permit, Design Review, and Environmental Assessment	The proposed project consists of constructing a 1,067 square-foot addition to an existing 1,602 square-foot house on a down slope lot. The proposal consists of a 217 square-foot addition to the first floor and an 857 square-foot addition to the lower level that will fill in the space beneath the existing house. Comment Period: N/A Public Hearing: 8/25/2010	ND	City of South Pasadena	Document reviewed - No comments
General Land Use (residential, etc.) LAC100901-04 Variance, Hillside Development Permit, Design Review, and Environmental Assessment	The proposed project consists of constructing a 370 square-foot addition to an existing 1,503 square-foot two-story house on a 5,738 square-foot lot. Comment Period: N/A Public Hearing: 8/25/2010	ND	City of South Pasadena	Document reviewed - No comments
General Land Use (residential, etc.) LAC100901-05 Rim of the Valley Corridor Special Resource Study	This document consists of a notice of the National Park Service conducting a special resource study of the Rim of the Valley Corridor. The purpose of this special resource study is to determine whether any portion of the Rim of the Valley Corridor study area is eligible to be designated as a unit of the national park system or added to an existing national park. The study will also explore other ways that private or government entities can protect resources and provide more outdoor recreation opportunities. Comment Period: N/A Public Hearing: N/A	Other	National Park Service	Document does not require comments

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***Sorted by Land Use Type (in alpha order), followed by County, then date received.*

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General Land Use (residential, etc.) LAC100910-02 Coastal Development Permit No. 07-095, Initial Study No. 09-003 and Mitigated Negative Declaration No. 09-003	This document consists of a notice of public hearing for the construction of a new one-story, 4,938 square-foot single-family residence with a combination subterranean garage/basement, detached 688 square-foot second residential unit with a 253 square-foot garage, 656 square-foot stable, grading, driveway with fire department turnaround, retaining walls, landscaping, fuel modification and installation of a new alternative onsite wastewater treatment system. Comment Period: N/A Public Hearing: 9/21/2010	Other	City of Malibu	Document does not require comments
General Land Use (residential, etc.) LAC100915-03 The Canyon Residences Project	The proposed project consists of constructing 775 for-lease residential units in multiple buildings, a recreational facility for residents, parking structures containing 1,544 parking spaces, and landscaping throughout the 15.7-acre site. Comment Period: 9/16/2010 - 11/15/2010 Public Hearing: N/A	DEIR	Los Angeles County	Currently under review
General Land Use (residential, etc.) LAC100916-01 Master Case No. 07-127, Annexation 07-002A & B, Pre-Zone/Zone Change 07-001A & B, GPA 07-0001A & B, SP 07-0001, TTM 69164, CUP07-1009, Oak Tree Permit 07-019, EIR	This document consists of a notice of public hearing for the approval to amend the City's General Plan, pre-zone the site as Specific Plan, and annex approximately 185 acres of land into the City as well as approval for the construction of a mixed-use/transit-oriented development consisting of 1,117 residential dwelling units and 950,000 square feet of commercial and medical office, retail theater, restaurant, and hotel uses. Comment Period: N/A Public Hearing: 10/19/2010	Other	City of Santa Clarita	Document does not require comments
General Land Use (residential, etc.) LAC100916-04 Butcher Ranch -TTM52214	The proposed project consists of subdividing the 8.55-acre site into 14 lots and the vacation of the Casaba Road right-of-way on the project site. Eleven of the lots would be developed with single family residential units, with opportunities for private equestrian facilities. Comment Period: 9/16/2010 - 10/18/2010 Public Hearing: N/A	Mitigated ND	City of Rolling Hills Estates	Document reviewed - No comments
General Land Use (residential, etc.) LAC100921-01 Brasada Residential Project	The proposed project consists of subdividing approximately 273-acres into the 61 single-family residential lots, seven common area lots, and one approximately 83-acre parcel that is anticipated to remain in open space. Comment Period: 9/20/2010 - 11/4/2010 Public Hearing: N/A	DEIR	City of San Dimas	Currently under review

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General Land Use (residential, etc.) LAC100924-03 Architectural and Site Plan Review #09-A36, 101 S. Mills Ave	The proposed project consists of reuse and new construction of an existing facility at 101 S. Mills Avenue. Comment Period: 9/22/2010 - 10/13/2010 Public Hearing: 10/13/2010	Mitigated ND	City of Claremont	Document reviewed - No comments
General Land Use (residential, etc.) LAC100924-05 100 E. Ocean Boulevard Acquisition Project	The proposed project consists of acquiring a privately owned property owned by the Long Beach Redevelopment Agency for the purpose of land assembly for future development. Acquisition of the subject property would allow the Redevelopment Agency to improve the physical appearance of the subject property in short term while encouraging long term redevelopment of the site, as well as improve access to Victory Park. Comment Period: 9/23/2010 - 10/22/2010 Public Hearing: N/A	ND	City of Long Beach	Document reviewed - No comments
General Land Use (residential, etc.) ODP100930-02 Santa Susana Field Laboratory	This document consists of a Final Agreement in Principle between the U.S. Department of Energy and the State of California. The proposed project consists of having the Department of Energy and NASA clean up radioactive and chemical contamination in their respective areas at the Santa Susana Field Laboratory. Comment Period: 10/30/2010 - 10/1/2010 Public Hearing: 9/16/2010	Other	Department of Toxic Substance	Document reviewed - No comments
General Land Use (residential, etc.) ORC100910-01 Orange County Vector Control District Integrated Vector Management Practices: Orange County, California	The proposed project consists of all ongoing activities of the Orange County Vector Control District (OCVCD). The OCVCD uses Intergrated Vector Management techniques to guide its comprehensive control programs. This includes surveillance for vector and diseases, source reduction, public education, and chemical and biological control. Future objectives of the current programs involve the increased use of vector species- or genus-specific chemicals and species- and genus-specific biological control, use of less persistent chemicals, and improved methods of delivery, including replacement of gasoline-fueled vehicles with those using alternative fuels. Public information efforts may be expanded or modified as new disease threats arise. Comment Period: 9/10/2010 - 9/30/2010 Public Hearing: N/A	NOP/IS	Orange County Vector Control District	AQMD commented 9/17/2010
General Land Use (residential, etc.) ORC100921-03 Newport Beach Country Club (PA 2005-140)	The proposed project consists of demolition of the existing tennis and golf clubhouses and the construction of a new tennis clubhouse and golf clubhouses and ancillary facilities. The project also includes the construction of 27 short-term visitor-serving units and a bungalow spa/fitness area and concierge and guest meeting facilities; and five single-family residential dwelling units on the subject property. Comment Period: 9/20/2010 - 10/19/2010 Public Hearing: N/A	ND	City of Newport Beach	Document reviewed - No comments

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General Land Use (residential, etc.) ORC100929-03 Village Entrance Project	The proposed project consists of constructing a five-level parking structure. The urban park feature will span the entire length of the Village Entrance site. Comment Period: 9/24/2010 - 11/24/2010 Public Hearing: N/A	Revised DEIR	City of Laguna Beach	Document reviewed - No comments
General Land Use (residential, etc.) SBC100916-02 Auto Club Speedway Events Center Revised Noise Standards	This document consists of a Final EIR which includes responses to SCAQMD comments. The project includes modifying noise standards to accommodate a different onsite location for a drag strip. Comment Period: N/A Public Hearing: 9/23/2010	Final SubEIR	San Bernardino County	Currently under review
General Land Use (residential, etc.) SBC100929-02 Fontana Sports Park & Roadways Improvement Project	This document consists of responses to SCAQMD comments. The proposed project consists of developing a 27-acre, adult fast pitch sports park that contains five lighted ballfields, a 12-lane batting cage, 8,000 square-foot concession facility, tot lot, passive park amenities and parking for approximately 430 vehicles. Comment Period: N/A Public Hearing: N/A	Other	City of Fontana	Document does not require comments
Industrial and Commercial LAC100901-01 Chevron El Segundo Marine Terminal Lease Renewal	This document consists of a notice of public hearing and availability of the Draft EIR for the approval of a new 30-year lease for offshore lands associated with the existing Marine Terminal land appurtenant facilities. Comment Period: 8/16/2010 - 9/30/2010 Public Hearing: 9/22/2010	Other	California State Lands Commission	Currently under review
Industrial and Commercial SBC100922-03 Tentative Parcel Map SUBTPM18794 and Development Review DRC2007-00551	The proposed project consists of subdividing a property comprised of three parcels with a combined area of approximately 904,000 square feet into twelve parcels and a proposal to develop an industrial/warehouse complex comprised of 12 buildings totaling 408,000 square feet in an existing General Industrial zone. Comment Period: 9/23/2010 - 10/13/2010 Public Hearing: N/A	Mitigated ND	City of Rancho Cucamonga	Currently under review

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Institutional (schools, government, etc.) LAC100908-01 9th Street K-8 Span School Redevelopment Project	This document consists of a Final EIR which includes responses to comments as well as changes to the Draft EIR. The proposed project consists of redeveloping an existing elementary school with approximately 77,454 square feet of combined building space for an expanded elementary school and a new middle school on the proposed project site. Comment Period: N/A Public Hearing: N/A	FEIR	Los Angeles Unified School District	Document reviewed - No comments
Institutional (schools, government, etc.) LAC100921-04 Arcadia Education Center	The proposed project consists of demolishing the existing school buildings and constructing a 37,089 square-foot two-story education center. Comment Period: 9/20/2010 - 10/20/2010 Public Hearing: N/A	Mitigated ND	Arcadia Unified School District	Document reviewed - No comments
Institutional (schools, government, etc.) RVC100909-04 Perris Union High School District High School No. 4	The proposed project consists of constructing a new high school in the Perris Union High School District. The proposed includes constructing a new high school on an approximately 52-acre site. Comment Period: N/A Public Hearing: N/A	Final Sup EIR	Perris Union High School District	Document reviewed - No comments
Institutional (schools, government, etc.) SBC100916-05 CUP DRC2010-00415	The proposed project consists of adding 1st to 5th grade classes to an existing school currently providing preschool and kindergarten (with a projected total student count of 185) at the Saint Peter and Saint Paul Catholic Church. Comment Period: 9/22/2010 - 10/12/2010 Public Hearing: N/A	ND	City of Rancho Cucamonga	Document reviewed - No comments
Plans and Regulations LAC100909-03 The Rose Gardens at Santa Teresita Master Plan	The proposed project consists of a Master Plan for redevelopment of the campus, which includes demolition of the existing hospital, assisted living building, and skilled nursing facilities as well as assisted living and independent living units. Buildout of the Master Plan is anticipated over four phases and would increase the building square footage by 229,293 square feet to 521,628 square feet, not including the potential parking structure. Comment Period: 9/8/2010 - 10/8/2010 Public Hearing: N/A	NOP/IS	City of Duarte	AQMD commented 9/17/2010
Plans and Regulations LAC100909-05 2010 Bicycle Plan	The proposed project consists of a comprehensive update of the City's existing Bicycle Plan. The 2010 Plan expands upon the 600+ miles of bikeways in the 1996 Bicycle Plan and proposes to establish a total of 1,633 miles of designated bikeways. Comment Period: 9/3/2010 - 10/8/2010 Public Hearing: N/A	Mitigated ND	City of Los Angeles	Document reviewed - No comments

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Plans and Regulations LAC100915-01 The 3rd Street Corridor Specific Plan Project	The proposed Specific Plan identifies locations for a new transit oriented development around the Metro Gold Line stations and along 3rd Street along with public improvement projects that would assist in creating the vision described in the plan. The Specific Plan would allow for approximately 320,000 square feet of additional retail commercial development and 370,000 square feet of additional office development along with approximately 420 additional residential units in mixed-use projects in locations as identified. Comment Period: 9/15/2010 - 10/14/2010 Public Hearing: N/A	NOP/IS	County of Los Angeles	AQMD commented 9/22/2010
Plans and Regulations LAC100915-02 City of Azusa 2008-2014 Housing Element	The proposed project consist of adopting and implementing the City of Azusa 2008-2014 Housing Element, which represents an update of the City's certified Housing Element. Comment Period: 9/15/2010 - 10/15/2010 Public Hearing: N/A	ND	City of Azusa	Currently under review
Plans and Regulations LAC100917-02 Baldwin Park Municipal Code Amendment	The proposed project consists of an amendment to the Municipal Code to allow up to six independent uses within a department store. Comment Period: 9/17/2010 - 10/19/2010 Public Hearing: N/A	ND	City of Baldwin Park	Document does not require comments
Plans and Regulations LAC100924-01 Downtown Downey Specific Plan	The Downtown Downey Specific plan would encourage and guide development in Downey's downtown area. The Plan anticipates full build-out by 2025 and a mix of development that would result in 40 percent residential use and 60 percent commercial use. This document includes a response to SCAQMD comments. Comment Period: N/A Public Hearing: N/A	FEIR	City of Downey	Document does not require comments
Plans and Regulations LAC100924-04 One Valley One Vision	The proposed project consists of a comprehensive update to the General Plan. The General Plan sets out a long-range vision and comprehensive policy framework for how the City should grow and develop, provide public services, and maintain the qualities that define Santa Clarita over the next 20 years and beyond. Comment Period: 9/24/2010 - 12/22/2010 Public Hearing: 10/5/2010	DEIR	City of Santa Clarita	Currently under review

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Plans and Regulations LAC100929-01 Whittier Boulevard Specific Plan Amendment	The proposed project consists of the Whittier Boulevard Specific Plan intended to guide future development within the Whittier Boulevard corridor and facilitate change in development patterns within the project area. Comment Period: 9/29/2010 - 10/29/2010 Public Hearing: 10/19/2010	NOP (No IS Attached)	City of Whittier	Currently under review
Plans and Regulations LAC100930-02 Monrovia Nursery Specific Plan	The proposed project consists of adoption and implementation of a specific plan over approximately 95 acres in northwest Glendora. The document designates a development plan and development requirements for the development of the project area as a large-lot single-family subdivision. Comment Period: 9/28/2010 - 10/29/2010 Public Hearing: N/A	Mitigated ND	City of Glendora	Currently under review
Plans and Regulations ODP100924-02 2009 8-Hour Ozone Modified SIP & 2009 RACT SIP	The proposed project consists of the 2009 8-Hour Ozone Modified State Implementation Plan and 2009 Reasonably Available Control Technology State Implementation Plan. Comment Period: N/A Public Hearing: N/A	ND	Imperial County Air Pollution Control District	Document does not require comments
Plans and Regulations ORC100914-02 City of Villa Park General Plan Update	The proposed project consists of analyzing the potential environmental impacts resulting from implementation of the proposed General Plan Update. The General Plan Update designates approximately 1,304 acres as Residential and anticipates 2,053 dwelling unit at buildout, with a resultant population projection of 6,508 persons. Additionally, approximately 11.55 acres are designated Commercial and approximately 27.83 acres are designated Open Space. Comment Period: 9/13/2010 - 10/12/2010 Public Hearing: 10/26/2010	Mitigated ND	City of Villa Park	Currently under review
Plans and Regulations ORC100921-02 The Platinum Triangle	This document consists of comments from a community member to the Platinum Triangle EIR. Comment Period: N/A Public Hearing: N/A	Other	City of Anaheim	Currently under review
Plans and Regulations ORC100929-04 City of Buena Park 2035 General Plan Update	The proposed project consists of a General Plan update which includes an update and reorganization of existing elements, resulting in the following State mandated and optional elements: Land Use and Community Design Element; Mobility Element; Community Facilities Element; Conservation and Sustainability Element; Open Space and Recreation Element; Safety Element: Noise Element; Economic Development Element; and Housing Element. Comment Period: 9/28/2010 - 11/11/2010 Public Hearing: N/A	Draft PEIR	City of Buena Park	Currently under review

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Plans and Regulations RVC100922-04 SPA10-002	This document consists of a transmittal for Specific Plan Amendment. The proposed project consists of amending the Downtown Revitalization Specific Plan to incorporate concepts for multi-modal mobility pursuant to a Caltrans Community Based Transportation Planning grant; to promote livable and sustainable community concepts; to introduce Mixed-Use Development standards; and comprehensively update obsolete specific plan text. Comment Period: N/A Public Hearing: 10/7/2010	Other	City of Corona	Currently under review
Plans and Regulations SBC100902-01 Renaissance Specific Plan	The proposed project consists of the Renaissance Specific Plan. The Specific Plan is planned as an integrated community of varied housing types located near and linked to places of employment, retail outlets, services and schools. The project accommodates 16.2 million square feet of business and commercial uses, 1,667 residential units, one school, a community park, and multiple neighborhood parks all located in close proximity and organized in a grid pattern. Comment Period: 5/3/2010 - 6/16/2010 Public Hearing: N/A	DEIR	City of Rialto	AQMD commented 9/22/2010
Plans and Regulations SBC100923-01 General Plan Amendment and Countywide Greenhouse Gas Emissions Reduction Plan	The proposed project consists of a countywide greenhouse gas (GHG) emissions General Plan amendment, GHG reduction plan and development code amendments. Comment Period: 9/20/2010 - 10/20/2010 Public Hearing: 9/29/2010	NOP/IS	San Bernardino County	Currently under review
Retail LAC100917-01 Gilmore Project 3rd & Fairfax	This document consists of an air quality analysis as requested by SCAQMD comment letter. The proposed project consists of a new 23,477 square-foot retail development with a total of 113 on-site parking spaces. Comment Period: N/A Public Hearing: N/A	Other	City of Los Angeles	Document reviewed - No comments
Retail RVC100930-01 Walmart Expansion	The proposed project consists of expanding an existing Walmart store by a total of 22,272 square feet, resulting in an approximately 153,399 square-foot store, including approximately 28,036 square fete of grocery sales area and new entry vestibules. Comment Period: 9/30/2010 - 10/29/2010 Public Hearing: N/A	NOP/IS	City of Riverside	Currently under review

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Transportation LAC100909-02 Regional Connector Transit Corridor Project	This document consists of a notice of availability for the Draft EIR for the Regional Connector Transit Corridor Project. The Regional Connector project would provide a direct light rail link through downtown Los Angeles that connects the Metro Gold Line to Pasadena, the Metro Gold Line Eastside Extension, the Metro Blue Line, and the future Metro Expo Line. Comment Period: 9/3/2010 - 10/18/2010 Public Hearing: 9/28/2010	Other	Los Angeles County Metropolitan Transportation Authority	Currently under review
Transportation LAC100922-02 High Desert Corridor	This document consists of an invitation to an Agency Scoping meeting for the High Desert Corridor. The project consists of a proposed new State Route 138 from State Route 14 in Los Angeles County to State Route 18 in San Bernardino County. Comment Period: 9/22/2010 - 11/1/2010 Public Hearing: N/A	Other	California Department of Transportation	Document does not require comments
Transportation ORC100903-04 I-405 Improvement Project	The proposed project consists of improvements to the mainline freeway and interchange on the Interstate 405 for approximately 14 miles between State Route 73 and Interstate 605. Comment Period: 9/3/2010 - 9/27/2010 Public Hearing: N/A	DEIR	California Department of Transportation	AQMD commented 9/24/2010
Transportation SBC100916-03 DesertXpress High-Speed Passenger Train	The proposed project consists of modifications and additions including a new Victorville passenger station site option, a Barstow area rail alignment routing following I-15 from Lenwood through Yermo, a new rail alignment through the Clark Mountains near the Mojave National Preserve, new sites for maintenance and operation facilities in unincorporated Clark County, relocation of portions of the rail alignment in metropolitan Las Vegas from the immediate I-15 corridor to the Industrial Road/Dean Martin Drive metropolitan Las Vegas from the immediate I-15 corridor to the Industrial Road Comment Period: 9/16/2010 - 10/18/2010 Public Hearing: N/A	DEIS	US Department of Transportation	Document does not require comments
Utilities LAC100902-02 Alpine Solar Project (R2009-02089)	The proposed project consists of constructing, owning, and operating a renewable energy project providing electricity generated from clean solar technology. The Alpine Solar Project will consist of a nominal 92-megawatt alternating current solar photovoltaic generating facility located on approximately 580 acres of developable area of the approximately 800-acre project site. Comment Period: 9/1/2010 - 10/1/2010 Public Hearing: N/A	ND	Los Angeles County	No review conducted - No comments

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Utilities LAC100916-07 Sylmar Ground Return System Replacement Project	The proposed project consists of replacing a 31-mile system of overhead lines, underground cables, and sub-sea cables that run from the Sylmar Converter Station to the Pacific Ocean. Comment Period: 9/16/2010 - 10/25/2010 Public Hearing: 10/14/2010	NOP/IS	City of Los Angeles	AQMD commented 9/24/2010
Utilities LACSBC100914-01 Tehachapi Renewal Transmission Project	This document consists of a Final EIR which includes responses to comments. Comment Period: N/A Public Hearing: N/A	FEIR	United States Department of Agriculture	Document does not require comments
Warehouse & Distribution Centers RVC100922-01 # Mira Loma Commerce Center	This document consists of a Final EIR which includes responses to comments. The proposed project consists of six plot plans, that includes 886,000 square feet of warehousing in four buildings, and an additional 20 smaller buildings for an industrial/business park on a total of 60.4 acres. Comment Period: N/A Public Hearing: 10/4/2010	FEIR	Riverside County	Currently under review
Waste and Water-related LAC100903-02 Penmar Water Quality Improvement Project	This document consists of a notice of Community Meeting to discuss the upcoming Penmar Water Quality Improvement Project. Comment Period: N/A Public Hearing: 8/11/2010	Other	City of Los Angeles	Document does not require comments
Waste and Water-related LAC100908-03 Water Supply Desalination Infrastructure, Brine Pipeline Project	The proposed action is as follows: (Alternative 1 - Proposed Action Alternative: Green Valley Parkway alignment) Brine Pipeline, is part of a future water supply desalination infrastructure project. The proposed action is approximately 9,509 linear feet, or 1.8 miles, covering approximately 3.25 acres and 18 inches in diameter. The proposed Brine Pipeline construction is anticipated to commence in November 2011, is expected to take approximately one year to construct, and is projected to be completed by November 2012. Comment Period: N/A Public Hearing: N/A	Final EA	US Army Corps of Engineers	Document reviewed - No comments

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- Project has potential environmental justice concerns due to the nature and/or location of the project.

ATTACHMENT A
INCOMING CEQA DOCUMENTS LOG
SEPTEMBER 1, 2010 TO SEPTEMBER 30, 2010

SCAQMD LOG-IN NUMBER PROJECT TITLE	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
Waste and Water-related LAC100908-04 Colorado Lagoon Estuary Restoration Project	The proposed project consists of sediment removal of approximately 32,500 cubic yards from the Lagoon. Disposal of the dredge material would occur at a disposal site within Slip 1 at the Port of Long Beach. The dredged material would be stabilized prior to transport with a lead treatment process. Comment Period: 9/8/2010 - 9/17/2010 Public Hearing: N/A	Draft EA	Los Angeles County	Document reviewed - No comments
Waste and Water-related LAC100916-06 Al Larson Boat Shop Improvement Project	The proposed project consists of redeveloping an existing boat shop to modernize the facilities, comply with regulatory requirements, and to improve its ability to build and repair ships and vessels. Improvements would include maintenance dredging to ensure adequate vessel access to the site, beneficially reusing dredged material by constructing two confined disposal facility which would result in approximately 0.9 acre of new land for increased vessel maintenance and repair, constructing new wharves, and installing a new travel-lift boat hoist. In addition, the proposed project would improve site hydrology to comply with stormwater regulations and remove historical sediment and soil contamination. Comment Period: 9/16/2010 - 10/18/2010 Public Hearing: N/A	NOP/IS	The Port of Los Angeles	AQMD commented 9/24/2010
Waste and Water-related ORC100903-03 North Basin Groundwater Protection Project	This document consists of a letter that a Draft Subsequent EIR for modifications to its North Basin Groundwater Projection Project is being prepared. The project is intended to protect groundwater supplies by containing groundwater contaminated with industrial degreasing solvents. The plan also includes wells to extract contaminated groundwater, a treatment plant to remove the contaminants from the extracted groundwater, injection wells to recharge the treatment groundwater Comment Period: 9/3/2010 - 9/30/2010 Public Hearing: N/A	Other	Orange County Water District	Currently under review
Waste and Water-related RVC100902-03 Brookside South Recharge	The proposed project consists of utilizing approximately 5,580 linear feet of the graded South Noble Creek stream channel south of Brookside Avenue to impound and recharge imported water during the non-storm season. Comment Period: 9/2/2010 - 10/1/2010 Public Hearing: N/A	Mitigated ND	San Gorgonio Pass Water Agency	Document reviewed - No comments
Waste and Water-related RVC100903-01 Salton Sea Species Conservation Habitat Project	This document consists of a request for project information for a cumulative impact analysis for the Salton Sea Species Conservation Habitat Project. The project would consist of compensating for some of the fish and wildlife habitat that is being lost as the Salton Sea becomes more saline. The project would also restore about 2,400 acres of habitat configured in a series of interconnected shallow ponds. Comment Period: 7/13/2010 - 8/12/2010 Public Hearing: N/A	Other	US Army Corps of Engineers	Document does not require comments

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SEPTEMBER 1, 2010 TO SEPTEMBER 30, 2010

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Waste and Water-related RVC100909-01 Sonny Bono Salton Sea National Wildlife Refuge Complex	This document consists of the first update for the Sonny Bono Salton Sea National Wildlife Refuge Complex as well as notice of public scoping meetings. Comment Period: N/A Public Hearing: 9/14/2010	Other	US Fish & Wildlife Service	AQMD commented 9/17/2010
Waste and Water-related RVC100914-03 Sun City Force Main and Recycled Water Pipeline Project	The proposed project consists of installing approximately 6.3 miles of new and replacement sewer and recycled water pipelines within an approximately 5 mile long corridor in the cities of Menifee and Perris. Comment Period: 9/14/2010 - 10/14/2010 Public Hearing: N/A	Mitigated ND	Eastern Municipal Water District	Currently under review
Waste and Water-related RVC100914-04 Eagle Canyon Dam & Debris Basin	The proposed project consists of constructing, operating, and maintaining an earthen dam, debris catchment and underground storm drain for the purpose of flood detention and flood hazard mitigation for businesses and residents located downstream of the canyon. Comment Period: 9/14/2010 - 10/28/2010 Public Hearing: 9/21/2010	Draft EA/EIR	Riverside County Flood Control & Water Conservation District	Currently under review
Waste and Water-related RVC100916-08 Mission Springs Water District Assessment District 12 Sewer Improvement Project	The proposed project consists of constructing approximately fifty-seven miles of wastewater pipelines that would facilitate the removal of approximately 4,000 individual septic tanks to meet the current and future long term water supply and protect groundwater quality. Comment Period: 9/16/2010 - 10/15/2010 Public Hearing: N/A	Draft EA	US Army of Corps of Engineers	Document reviewed - No comments

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ATTACHMENT B
ONGOING ACTIVE PROJECTS FOR WHICH AQMD HAS OR WILL CONDUCT A CEQA REVIEW

SCAQMD LOG-IN NUMBER PROJECT TITLE	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
Medical Facility LAC100831-03 Martin Luther King, Jr. Medical Center Campus Redevelopment Project	The proposed project consists of two Tiers: Tier I development would consist of approximately 170,332 square feet of new development and the vacation of approximately 509,018 square feet; and Tier II would entail the development of a campus-wide Master Plan. Tier II would have the potential to build out approximately 1,814,696 square feet of development on the proposed project site with mixed uses including medical office, commercial, retail, office space, recreation, and other development in support of the campus. The net new development of the proposed project would be approximately 1,476,010 square feet. Tier II would also entail the construction of up to 100 residential units, to be developed at a multi-family density consistent with the surrounding residential area. Comment Period: 8/31/2010 - 10/15/2010 Public Hearing: N/A	DEIR	Los Angeles County	Currently under review
Transportation LAC100810-02 Palmdale to Los Angeles section of California's high-speed train project	This document consists of a notice of availability of the Preliminary Alternatives Analysis Report and meeting notice. The California High-Speed Train Authority will provide information on alignment alternatives and station location options being considered for further study in the environmental review process for the proposed project. Comment Period: N/A Public Hearing: 10/6/2010	Other	California High-Speed Rail Authority	Currently under review
Utilities SBC100819-01 SA-09-05/E-09-02	This document consists of a notice of public hearing for a proposal to construct 10 advanced lithium ion energy storage units and ancillary support equipment. The structures, totaling 5,050 square feet, will be constructed on an approximately 440,000 square-foot parcel. Comment Period: N/A Public Hearing: 9/2/2010	Other	City of Grand Terrace	Currently under review
Waste and Water-related ALL100825-01 Reach 9, Phase IIA Embankment	The proposed project consists of modifications to the Reach 9 Phase IIA portion of the Santa Ana River Mainstem project. There are two main embankment components to the project. One is comprised of approximately 4,500 feet of bank protection which generally wraps around the Green River Housing Estates. The second is designed to protect the 91 Freeway and is located upstream of the Green River Housing Estates portion and extends approximately 2,000 feet, terminating near the Prado Dam drop structure. The proposed project is an element of the Santa Ana River flood control project and accomodates raising the heights of the Prado dam. Comment Period: 8/25/2010 - 9/20/2010 Public Hearing: N/A	Draft Sup EA	US Army Corps of Engineers	Currently under review
Waste and Water-related LAC100805-01 USCG's Shipboard Technology Evaluation Program	This document consists of a letter regarding the future evaluation under NEPA of the impacts of treating shipboard ballast water using a prototype technology. The proposed project would use diesel exhaust to treat ballast water during uptake while the ship is at berth at the Port of Long Beach. Comment Period: N/A Public Hearing: N/A	Other	US Department of Transportation	Currently under review

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Waste and Water-related LAC100819-07 Yorba Slaughter Adobe Dike Project	The proposed project consists of a Supplemental EA and addendum to the EIR necessary to update the existing environmental conditions and document the impacts of design refinements from the Yorba Slaughter Adobe Dike project on environmental resources since the 2001 Final SEIS/EIR was approved. The proposed project is an element of the Santa Ana River flood control project and accomodates raising the heights of the Prado dam. Comment Period: 8/19/2010 - 9/8/2010 Public Hearing: N/A	Sup EA/ EIR Addendum	US Army Corps of Engineers	Currently under review
Waste and Water-related ORC100831-07 Carbon Canyon Dam Sediment Removal Project	This document consists of Reponses to Comments as well as edits to the Draft EA The proposed project would involve the removal of up to approximately 200,000 cubic yards of sediment within the detention basin of the Carbon Canyon Dam and upstream channel erosion protection. Comment Period: N/A Public Hearing: N/A	Final EA	US Army Corps of Engineers	Currently under review
Waste and Water-related RVC100831-02 Desert Sunlight Holdings, LLC Desert Sunlight Solar Farm Project	This document consists of a notice of availability of a Draft EIR. The proposed project consists of the 19,516-acre right-of-way to construct and operate the Desert Sunlight Solar Farm 550-megawatt solar photovoltaic facility and associated 220-kilovolt generation interconnection line, and to facilitate the construction and operation by Southern California Edison of a new 500/220 kilovolt Red Bluff Substation where the project would interconnect with the Southern California Edison regional transmission system. Comment Period: 8/27/2010 - 11/25/2010 Public Hearing: N/A	Other	Bureau of Land Management	Currently under review
Industrial and Commercial LAC100729-01 Clay Street Business Park	The proposed project consists of subdividing 68.92 gross acres into 20 industrial parcels and four lettered lots for ingress/egress, open space and detention basin purposes. The project will comprise approximately 889,502 square feet of light industrial and business park building area which, at full occupancy will support approximately 900 employees. Comment Period: 7/29/2010 - 9/13/2010 Public Hearing: N/A	DEIR	County of Riverside	AQMD commented 9/10/2010
Industrial and Commercial LAC100827-03 RCUP2009-00090/RENV2009-00079 - New Fuel Storage Tank at Existing Fuel Loading Facility in the Compton Area	This document consists of responses to SCAQMD comments. The proposed project consists of constructing and operating a new fuel storage tank at an existing fuel loading terminal permitted to handle and store hazardous materials. The proposed floating roof storage tank is 48 feet in height, 85 feet in diameter, and has a capacity of 40,000 barrels. The new tank will store ethanol/gasoline. Comment Period: N/A Public Hearing: N/A	Other	Los Angeles County	AQMD commented 9/21/2010

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Medical Facility SBC100824-03 CUP-09-07, and SP-09-16	The proposed project consists of expanding the San Antonio Community Hospital by approximately 179,080 square feet. The proposed improvements include construction of an integrated two-level medical building and four-story bed tower, as well as related parking lot and landscaping improvements and a new central power plant to support the new medical building. Comment Period: 8/24/2010 - 9/20/2010 Public Hearing: 10/27/2010	Mitigated ND	County of San Bernardino	AQMD commented 9/24/2010
Plans and Regulations LAC100831-05 Wilmington Redevelopment Plan Amendment/Expansion Project	The proposed project consists of expanding the boundaries of the existing redevelopment project area to include the greater Wilmington area. Comment Period: 8/31/2010 - 9/28/2010 Public Hearing: N/A	NOP (No IS Attached)	City of Los Angeles	AQMD commented 9/7/2010
Plans and Regulations ORC100810-08 Fullerton Transportation Center Specific Plan	The proposed project consists of the Fullerton Transportation Center Specific Plan to create a sustainable transit-oriented neighborhood near the Fullerton Train Depot. The proposed project is intended to, among other things focus growth and development around the train depot to link land use and transit. Comment Period: 8/6/2010 - 9/20/2010 Public Hearing: N/A	DEIR	City of Fullerton	AQMD commented 9/17/2010
Plans and Regulations RVC100817-04 Keller Crossing Specific Plan	The proposed project consists of the Keller Crossing Specific Plan. The Specific Plan area would be divided into seven land use planning areas, ranging from 8.8 to 61.1 acres. Land uses include commercial office, commercial retail, low-density residential, mixed use, open space conservation, and master plan roadways. Comment Period: 8/17/2010 - 9/16/2010 Public Hearing: N/A	DEIR	County of Riverside	AQMD commented 9/28/2010
Plans and Regulations RVC100826-02 Corona Revitalization Zone - Amendment II to the Combined Redevelopment Plan for the Merged Redevelopment Project Areas and Amendment I to the Redevelopment Plan for the Temescal Canyon Redevelopment Project Area	The proposed project consists of amendments that would add territory to the existing Merged Project Area and would merge the Redevelopment Plan for the Temescal Project Area with the Combined Redevelopment Plan for the Merged Project Area. Comment Period: 8/26/2010 - 9/25/2010 Public Hearing: N/A	NOP (No IS Attached)	Redevelopment Agency of the City of Corona	AQMD commented 9/7/2010

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ONGOING ACTIVE PROJECTS FOR WHICH AQMD HAS OR WILL CONDUCT A CEQA REVIEW

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Warehouse & Distribution Centers	This document consists of a Final EIR which includes Reponses to Comments as well as changes to the Draft EIR. Comment Period: N/A Public Hearing: 10/12/2010	FEIR	City of Perris	AQMD commented 9/10/2010
RVC100803-06 Rados Distribution Warehouse Project				
Waste and Water-related	The proposed project consists of allowing the permitted landfill footprint to increase to 287.3 acres with a total height of 250 feet above the existing ground surface. The expanded solid waste landfill will accommodate approximately 65 million cubic yards of waste generated from Imperial County and other Southern California Counties. Also, the landfill expansion project seeks to increase the rate of incoming waste volume to be accepted at the site and increase the number of hours per day. The proposal is to increase the incoming waste to an average of 1,000 tons per day at initial start-up and then increase to 63,000 tons per day after five years. Comment Period: 8/6/2010 - 9/6/2010 Public Hearing: N/A	NOP/IS	County of Imperial	AQMD commented 9/8/2010
RVC100806-02 Salton City Landfill Expansion (CUP #10-0002)				

TOTAL NUMBER OF REQUESTS TO AQMD FOR DOCUMENT REVIEW THIS REPORTING PERIOD: 0
TOTAL NUMBER OF COMMENT LETTERS SENT OUT THIS REPORTING PERIOD: 17
TOTAL NUMBER OF DOCUMENTS REVIEWED, BUT NO COMMENTS WERE SENT: 19
TOTAL NUMBER OF DOCUMENTS CURRENTLY UNDER REVIEW: 28
TOTAL NUMBER OF DOCUMENTS THAT DID NOT REQUIRE COMMENTS: 12
TOTAL NUMBER OF DOCUMENTS THAT WERE NOT REVIEWED: 1

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ATTACHMENT C
ACTIVE AQMD LEAD AGENCY PROJECTS
THROUGH SEPTEMBER 30, 2010

Project Description	Project Proponent	Type of Document	Status	Consultant
Operators of Warren E & P, Inc. are proposing to install a new flare, heater treater, etc., at their refinery facility in the Wilmington area of Los Angeles. The proposed project also includes bringing six microturbines into compliance with SCAQMD permit requirements.	E & P Warren	Subsequent Mitigated Negative Declaration	Based on comments received on the Draft Negative Declaration, circulated for a 30-day public review period on April 15, 2009, the document is being revised and will be circulated for po	Environ International Corp.
The proposed project is a biomass-to-energy project that would be located at the Sunshine Canyon Landfill. Specifically, landfill operators are proposing to generate electricity by installing turbines to burn landfill gas that is currently flared.	Sunshine Canyon Landfill	Subsequent EIR	Public comment period for Notice of Preparation/Initial Study closed on December 18, 2009. Consultant is currently preparing the draft SEIR.	ARCADIS
Shell Carson Terminal operators are proposing a permit modification to base throughput on ethanol and gasoline, not just ethanol.	Shell Carson Distribution Terminal	EIR	Public comment period for Notice of Preparation/Initial Study closed May 18, 2010. Consultant is currently preparing Draft EIR.	AECOM
Petro Diamond operators are proposing to change current permit conditions to allow an increase in the number of annual marine vessel visits to the terminal, but limit ship visits per month.	Petro Diamond Terminal Company	Not Yet Determined	Consultant preparing initial study	SABS Environmental Services

A shaded row indicates a new project.

= AQMD was contacted regarding potential environmental justice concerns due to the nature and/or location of the project.

Back to Agenda

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 23

PROPOSAL: Status Report on Major Projects for Information Management Scheduled to Start During First Six Months of FY 2010-11

SYNOPSIS: Information Management is responsible for data systems management services in support of all AQMD operations. This action is to provide the monthly status report on major automation contracts and projects to be initiated by Information Management during the first six months of FY 2010-11.

COMMITTEE: Not Applicable

RECOMMENDED ACTION:
Receive and file.

Barry R. Wallerstein, D.Env.
Executive Officer

JCM:MAH:OSM:nv

Background

Information Management (IM) provides a wide range of information systems and services in support of all AQMD operations. IM's primary goal is to provide automated tools and systems to implement Board-approved rules and regulations, and to improve internal efficiencies. The annual Budget specifies projects planned during the fiscal year to develop, acquire, enhance, or maintain mission-critical information systems. As provided in July for the first six months of the fiscal year, Information Management is providing this report to detail major projects/contracts or purchases that are expected during these six months.

Summary of Report

The attached report identifies each of the major projects/contracts or purchases that are expected to come before the Board between July 1 and December 31, 2010. Information provided for each project includes a brief project description, FY 2010-11 Budget, and the schedule associated with known major milestones (issue RFP/RFQ, execute contract, etc.).

Attachments(s)

Information Management Major Projects
for the Period July 1 through December 31, 2010

ATTACHMENT
November 5, 2010 Board Meeting
Information Management Major Projects
for the Period of July 1 through December 31, 2010

Item	Brief Description	Budgeted Funds	Schedule of Board Actions	Status
PeopleSoft and Oracle Software Support	Purchase PeopleSoft and Oracle software support maintenance for the integrated HR/Finance system.	$238,800	Approve Sole Source Purchase July 9, 2010	Completed
Authorize Purchase of Off-Site Storage and Destruction Services	Obtain approval for the purchase of off-site storage services for paper records and nightly back-up tapes; and destruction services for paper records and microfiche for one year.	$73,000	Approve Sole Source Purchase July 9, 2010	Completed
Electronic Document Management System Upgrade and Migration	Authorize the purchase of OnBase document management system licensing, service and support for one year; implementation and migration services; and replacement of server hardware.	$207,061	Approve Purchase July 9, 2010	Completed
System Enhancements	Provide enhancements for: • CLASS Systems • eGoverment applications and infrastructure • PeopleSoft e-modules	$465,000	September 10, 2010	Completed
Network Server Upgrades	Replace obsolete Intel based servers to increase performance based on requirements to support network server applications.	$75,000	Award Purchase from Approved Vendors List Bids September 10, 2010	Completed
Systems Development Outsourcing	Award contracts for short- and long-term system development and support services: • E-commerce System Development • CRM system assessment and implementation	$TBD	Release RFP September 10, 2010; Award Contract January 7, 2011	On Schedule
Desktop Computer Hardware Upgrades	Authorize the purchase of desktop upgrades.	$150,000	Authorize Purchase from Approved Vendors List November 5, 2010	On Schedule
CLASS Database Software Support	Purchase Ingres database software support and maintenance for the CLASS system.	$169,000	Approve Sole Source Purchase November 5, 2010	On Schedule

Double-lined Rows - Board Agenda items current for this month

Shaded Rows - activities completed

Back to Agenda

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 25

REPORT: Administrative Committee

SYNOPSIS: The Administrative Committee met on Friday, October 8, 2010. The Committee discussed various issues detailed in the Committee report. The next Administrative Committee meeting is scheduled for Friday, November 12, at 10:00 a.m. in Conference Room CC-8.

RECOMMENDED ACTION:
Receive and file.

Dennis Yates, Vice Chair
Administrative Committee

tc

Attendance: Attending the October 8, 2010 meeting were Committee Members Mayor Dennis Yates, Jane Carney, and Supervisor Josie Gonzales. Chair William A. Burke and Mayor Ron Loveridge were absent due to conflicts in schedules.

ACTION/DISCUSSION ITEMS:

1. **Board Members' Concerns:** None.

2. **Chairman's Report of Approved Travel:** Dr. Wallerstein stated that Dr. Joe Lyou participated on a panel at WSPA's 2010 Issues conference held in Rancho Bernardo, and Supervisor Josie Gonzales will be attending the California Fuel Cell Partnership Steering Team meeting on October 19-20, 2010.

3. **Approval of Compensation for Board Member Assistant(s)/Consultant(s):** None.

4. **Report of Approved Out-of-Country Travel:** None.

NOVEMBER AGENDA ITEMS:

5. **Establish Board Meeting Schedule for Calendar Year 2011**

   Moved by Carney; seconded by Gonzales; unanimously approved.

6. **Appropriate Funds from Designation for Litigation and Enforcement and Authorize Amending/Initiating Contracts with Outside Counsel:** Barbara Baird, District Counsel, stated that staff is requesting authorization from the Board for an additional $425,000 to pursue pending litigation in the environmental arena, including architectural coating rules, Rule 1143 related to consumer coatings products, and challenging AQMD's Rule 433 – Natural Gas Quality. She continued that since some of these are high-profile cases, outside counsel has been used. Mrs. Carney suggested that staff evaluate and report on the possibility of hiring one to two litigation attorneys to reduce the cost and provide the same quality of representation. Ms. Baird responded that two new attorneys have recently been hired, one of which has heavy experience in CEQA litigation and is assisting in these issues. Nonetheless, the requested evaluation will be undertaken.

   Moved by Gonzales; seconded by Carney; unanimously approved.

7. **Appropriate Funds for PAMS and Lead Monitoring Programs from U.S. EPA Section 105, Recognize and Appropriate Funds for Section 103 Monitoring Programs, and Authorize Purchases and Release of RFQ Under These Programs**

   Moved by Carney; seconded by Gonzales; unanimously approved.

8. **Execute Contract for Biennial Audit of Motor Vehicle Registration Revenues for FYs 2007-08 and 2008-09:** Michael O'Kelly, Chief Financial Officer, explained that this is the eighth biennial audit, which is paid by local governments, the MSRC and AQMD. An RFP was approved by the Board and the firm of Thompson, Cobb, Bazilio and Associates, PC was selected. Committee member Gonzales asked how staff arrived at the recommendation, and Mr. O'Kelly responded that the cost, technical scores, and additional points determined the winner, and Dr. Wallerstein added that the recommended firm was also the lowest bidder.

   Moved by Carney; seconded by Gonzales; unanimously approved.

There was a discussion on the status of Dr. Burke's e-mail database, where Chris Marlia, Asst. DEO/Information Management, explained that efforts are being continued to procure lists and AQMD released an RFP to bring in a firm with expertise in assisting in managing the mailing list to be efficient in sending out e-mail blasts. He stated that AQMD currently has mailing lists with 40,000 to 50,000 contacts, but it still is not the magnitude requested by the Chairman. Dr. Wallerstein added that Public Affairs and Information Management have been working on this project together, but have not been able to locate the lists for a low cost; and that this item will be brought to this Committee later this year for consideration. Staff may have a lead on a supplier of the desired list.

9. **Authorize Purchase of Desktop Computer Hardware Upgrades**

   Moved by Carney; seconded by Gonzales; unanimously approved.

10. **Authorize Purchase of Ingres Relational Database Management System Software Support**

    Moved by Carney; seconded by Gonzales; unanimously approved.

11. **Execute Contract for Security Guard Services at Diamond Bar Headquarters:** Bill Johnson, Asst. DEO/Administrative & Human Resources, stated that staff is recommending going with the current contractor who has been with AQMD since 2001. Their services have been very good, but most importantly their retention of guards on the premises have been for a long period. Current retention at AQMD is 6% turnover, whereas the general industry is 10-15%. Mr. Johnson continued that staff would recommend option 2 as it provides for a pay increase of $.25 per hour each six months over the contract term. There is an option to provide health insurance benefits but this would increase the cost by $230,000 for the life of the contract, which staff feels is not appropriate at this time. Mrs. Carney asked if the Committee has the latitude to approve a two-year contract in order to determine how the federal government's health reform legislation would impact the contract, and Mr. Johnson agreed.

    Two-year contract moved by Carney; seconded by Gonzales with the amendment; unanimously approved.

12. **Advertising and Public Outreach Initiative to Chinese-American Communities to Increase Awareness of the Impacts of Air Pollution:** Sam Atwood, Media Office Manager, presented this item stating that this outreach is targeted toward the Mandarin and Cantonese population in the Southland to raise awareness of AQMD, the health efforts of air pollution, inform the communities

of what AQMD is doing to improve the air they breathe, and try to encourage and solicit their increased involvement. Mr. Atwood continued that this is a 26-week program which has been budgeted for up to $400,000 to include newspapers, radio, TV, and on-line advertising. Another aspect of this program is to become involved in sponsorships for festivals with media outlets for the Chinese New Year (February 3, 2011) or home and garden shows. Also, 30-second TV commercials will be prepared in both languages at prime time markets with interviews with Board Members or AQMD staff, where Mrs. Carney asked why real individuals could not be interviewed, and Mr. Atwood agreed. Staff is seeking discounts for TV advertising where the story boards, scripts, and graphics are prepared by staff and the studio is provided by the TV station, along with Mandarin-speaking actors.

Mr. Atwood explained that the development and testing of messages would occur in November, with a soft launch in December, and the full launch in January 2011. Vice Chair Yates asked whether the full launch should occur on the actual date of the Chinese New Year.

Dr. Wallerstein stated that Dr. Burke has requested Supervisor Antonovich to take a lead on this project, who is supporting this current proposal, with funding coming from a settlement from Wal-Mart to be used for public outreach and education. He added that the Supervisor recently hosted a luncheon with the Chinese media, which was well received and supportive feedback was received. This project is a joint effort with Media, Public Affairs and Media's current contractor, Valencia, who has a subcontractor that specializes in outreach and media relations with the Asian community.

Committee member Gonzales suggested that this project should create a long-term return in outreach towards the Chinese and Mandarin elementary, middle and high school students due to their strong culture and gravitational pull in relationships in building businesses. She believes it is essential to include youth as this will allow them to become leaders in clean air transformation so they begin to own it over the years, have familiarity with the issues, and interest in AQMD's mission. She continued that their faith-based organizations, culture, and lifestyle should be incorporated into our approach with their holidays and other celebrations.

Dr. Wallerstein stated that Public Affairs currently has a faith-based outreach that can now be tied into this project. He stated that Dr. Burke has requested a package (previously produced by Think Earth) to be updated, produced and provided to schools, churches and temples to provide air quality information to

children. It was then discussed that some type of contest and award be provided to the child who participates and motivates others.

Debra Mendelsohn, Board Consultant to Supervisor Antonovich, stated that the Supervisor supports this project and that their office is ready to assist staff in any way possible. She also mentioned that Chinese New Year falls on February 3, 2011 and is the year of the rabbit.

Moved by Gonzales; seconded by Carney; unanimously approved.

13. **Recommendation to Approve Nomination for Local Government & Small Business Advisory Group**: Vice Chair Yates stated that Sergio Carrillo is being nominated by Councilmember Mitchell as a member of Local Government & Small Business Assistance Advisory Group.

    Moved by Carney; seconded by Gonzales; unanimously approved.

14. **Local Government & Small Business Advisory Group Minutes for the July 16, 2010 Meeting:** Attached for information only are the Local Government & Small Business Advisory Group Minutes of the July 16, 2010 meeting.

15. **Review November 5, 2010 Governing Board Agenda:** Dr. Wallerstein stated that there are several items on the agenda, such as the continued item Adopt Proposed Rule 1420.1 (Emissions Standard for Lead From Large Lead-acid Battery Recycling Facilities); Approve the Revised Draft Clean Communities Plan; Amend Regulations XVII (Prevention of Significant Deterioration) and XXX (Title V Permits); Amend Regulation XX (RECLAIM Program); and Amend Rule 1175 (Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products).

16. **Other Business:** None.

17. **Public Comment:** None.

Meeting adjourned at 10:44 a.m.

Attachment

- Minutes from the July 16, 2010 Local Government & Small Business Assistance Advisory Group Meeting

LOCAL GOVERNMENT & SMALL BUSINESS ASSISTANCE ADVISORY GROUP
FRIDAY, JULY 16, 2010
MEETING MINUTES

MEMBERS PRESENT:
Dennis Yates, AQMD Governing Board Member, LGSBA Chairman
Greg Adams, L.A. County Sanitation District
Paul Avila, P.B.A. & Associates
Geoffrey Blake, Metal Finishers of Southern California/All Metals
Daniel Cunningham, Metal Finishing Association
Jacob Haik, Office of School Board Member Richard Vladovic
Maria Elena Kennedy, Kennedy Communications
Steve Mugg, South Orange County Representative, City of Mission Viejo

MEMBERS ABSENT:
Ronald Loveridge, AQMD Governing Board Member, LGSBA Vice Chairman
Felipe Aguirre, Vice Mayor, City of Maywood
Todd Campbell, Clean Energy
Angelo Logan, East Yard Communities for Environmental Justice
Kelly Moulton, Paralegal

OTHERS PRESENT:
Earl Elrod, Board Member Assistant *(Yates)*
Nicole Nishimura, Board Member Assistant *(Lyou)*
Frank Caponi, Los Angeles County Sanitation District
Kris Flaig, Los Angeles County Sanitation District
Paul Ryan, California Refuse and Recycling Council

AQMD STAFF:
Philip Crabbe, Community Relations Manager
Nancy Feldman, Principal Deputy District Counsel
Anupom Ganguli, Asst. Deputy Executive Officer/Public Advisor
Patricia Kwon, Air Quality Specialist
Lori Langrell, Secretary
Chung Liu, Deputy Executive Officer
Dairo Moody, Air Quality Specialist
John Olvera, Principal Deputy District Counsel
David Ono, Program Supervisor
Gary Quinn, Program Supervisor
Kevin Orellana, Air Quality Specialist
Laki Tisopulos, Asst. Deputy Executive Officer
Greg Ushijima, Air Quality Engineer II
Jill Whynot, Director of Strategic Initiatives

Agenda Item #1 - Call to Order/Opening Remarks
Chair Dennis Yates called the meeting to order at 11:14 a.m.

Agenda Item #2 – Approval of June 11, 2010 Meeting Minutes/Review of Follow-Up/Action Items
Chair Yates called for approval of the meeting minutes.

The June 11, 2010 meeting minutes were approved. The action items from that meeting were completed.

Agenda Item #3 –Amend Rule 1150.1 – Control of Gaseous Emissions from Municipal Solid Waste Landfills
Ms. Jill Whynot gave a presentation on Rule 1150.1 – control of gaseous emissions from municipal solid waste landfills.

Agenda Item #4 –On-Road Heavy Duty Vehicle Voucher Incentive Program (VIP and HVIP)
Mr. Fred Minassian provided an update on the On-Road Heavy Duty Vehicle Voucher Incentive Program (VIP and HVIP).

Mr. Geoff Blake asked what percent of the purchase price of a truck represents the incentive. Mr. Minassian replied that the incentive is approximately 40%.

Mr. Greg Adams asked if there is a still a three vehicle per fleet limitation. Mr. Minassian replied in the negative.

Agenda Item #5 – Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters and Rule 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters, Implementation Assessment Report
Mr. Gary Quinn provided a status update on the Implementation Assessment Report for Rules 1146 and 1146.1.

Mr. Adams asked if this discussion pertained to natural gas burners. Mr. Quinn confirmed this.

Mr. Blake asked if this addresses Rule 1146.2, and whether there are changes coming in that category. Mr. Quinn and Mr. Laki Tisopulos replied that this does not address Rule 1146.2 and they do not believe any changes are coming.

Agenda Item #6 – Installation of Air Filtration Systems in the South Coast Air Basin
Ms. Patricia Kwon provided a presentation on the administration of air filtration systems in schools near the Ports of Los Angeles and Long Beach, and other communities.

Mr. Adams asked why the VOC aspect is being abandoned. Ms. Kwon replied that the VOC removal, technically, is tricky since the amount of carbon needed is very large and it would only be good for a single event. She added that it is more cost effective to focus on PM removal, and conduct further testing on VOC removal technologies before using in a larger scale program.

Mr. Adams asked what additional modifications needed to be made to classrooms. Ms. Kwon stated that for the most part no modifications need to be done. She added that most involved a simple panel filter change out or some duct modifications to widen the opening. She also added that they were careful not to cut into walls as there may be asbestos issues, with the goal to keep the modifications at a minimum.

Mr. Adams commented that he felt vindicated because he had previously suggested using funds to install filters in schools next to standby generators, but his proposal was rejected five years ago.

Mr. Blake asked how effective the filters are. Ms. Kwon responded that in terms of PM and black carbon they are very effective, and regarding VOC's the results are inconclusive. Ms. Kwon offered to provide a pilot study report to the members.

Action Item: *Provide to LGSBA members the Pilot Study Report on the Air Filtration Systems.*

Mr. Jacob Haik stated that he is involved with two schools currently being built within LAUSD. He asked Ms. Kwon if the school district will be required to install something at this time. Ms. Kwon indicated that the most commonly used filters have a cost of $3.00-$5.00 per filter and last approximately three months. There are new high performance filters that are approximately $100.00 per filter with a lifetime of approximately one year. They are noticing also that there are more manufacturers producing these filters and as a result the price is going down.

Mr. Adams mentioned about incentives for a business picking up the cost of filter installations, and due to PM 2.5 reductions, the business could receive an offset credit, for example in the high impact areas or along the 710 freeway.

Agenda Item #7 – Monthly Report on Small Business Assistance Activities
No comments.

Agenda Item #8 – Update on Climate Change Activities (Written Report)
Ms. Jill Whynot provided a written report on climate change activities.

Agenda Item #9 - Other Business
Dr. Ganguli announced that at the Administrative Committee meeting earlier this morning, there were some reappointments and appointments of members to the LGSBA Advisory Group. This brings the total number of members on the Group to 14. The re-appointments were as follows:

Greg Adams
Geoffrey Blake
Daniel Cunningham
Jacob Haik
Kelly Moulton

The following individuals were appointed as new members to the Advisory Group:

Rita Loof, Radtech
Mary Ann Lutz, City of Monrovia
Sam Garrison, Los Angeles Area Chamber of Commerce
Lucy Dunn, Orange County Business Council
Luis Ayala, City of Alhambra

Mr. Adams asked if there was a way to obtain the new member's bios. Dr. Ganguli indicated that they are available online with the Administrative Committee package.

Ms. Maria Elena Kennedy announced that she has recently been appointed to the U.S. EPA's National Drinking Water Advisory Council by Lisa Jackson.

Agenda Item #10 - Public Comment
No comments.

Agenda Item #10 - Adjournment
The meeting adjourned at 11:59 p.m.

Back to Agenda

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 26

PROPOSAL: Climate Change Committee

SYNOPSIS: The Climate Change Committee met on Wednesday, October 13, 2010. Following is a summary of that meeting.

RECOMMENDED ACTION:
Receive and file.

Miguel Pulido, Acting Chair
Climate Change Committee

Attendance
The Climate Change Committee meeting was held on October 13, 2010. Committee members who participated were Supervisor Josie Gonzales and Mayor Miguel Pulido. Dr. William Burke, Councilmember Judith Mitchell and Mayor Ron Loveridge were absent.

The meeting convened at 8:50 a.m.

Discussion / Action Items

Dr. Barry Wallerstein, Executive Officer, welcomed the committee members and then self introductions were made.

RFP for Additional GHG Reduction Projects
Jill Whynot, Director of Strategic Initiatives, described an RFP that staff will bring to the Governing Board for consideration at their November 5, 2010 meeting. Three hundred thousand dollars has been received from Chevron as additional mitigation funds related to a CEQA project on a previous refinery modification. Chevron previously paid $1.5 million, which was used for a large reforestation project in the Angeles National Forest.

The RFP would seek one or more projects for greenhouse gas (GHG) reductions in the AQMD jurisdiction. Projects would follow pre-approved protocols in Regulation XXVII – Climate Change.

Review criteria would include up to five points each for projects implemented within five miles of the refinery or for quantifiable co-benefits. If the RFP is approved, a voluntary bidder's conference would be held in mid-November of 2010 and the recommendation for contract awards would go to the Governing Board in February 2011.

This was an action item, however less than a quorum was present for the discussion of this item. The members present indicated their support that this item be recommended for approval by the Board.

Chairman's Initiative for Urban Tree Planting

Aaron Katzenstein, Program Supervisor, updated the Committee on the Urban Tree Planting program, which was one of the Chairman's Initiatives for 2009. This program will result in approximately 11,000 California native, low-biogenic VOC trees being planted throughout the AQMD jurisdiction. Thirty three cities and two counties are participating. To date, approximately 600 trees have been planted. The program also includes a student employment component.

Mayor Pulido inquired if there would be funds for additional city projects. Dr. Katzenstein mentioned that some cities will not be able to plant the total number of trees originally planned, so there may be some remaining funds. Supervisor Gonzales stated that it would be good to put such funds back to work. She asked about the size of trees required, as trees that are too large have lower survival rates. Under these contracts, the acceptable size range is 15 gallon to 24 inch box.

Reforestation Project

Dr. Katzenstein provided a briefing on the reforestation project within the Station Fire area in the Angeles National Forest. This project was funded by AQMD using $1.5 million that Chevron paid as a mitigation fund for a refinery project at their El Segundo facility. The U.S. Forest service, through the National Forest Foundation, will replant 2,500 to 4,000 acres under this project. 470,000 seedlings are being grown to support this effort. Planting will occur in Spring 2011 and GHG reductions will be monitored and verified to ensure accurate quantification.

Supervisor Gonzales suggested that this project be included in information that goes to the community to promote AQMD's programs. She and Mayor Pulido both were very pleased with this effort.

Update on Green Team Activities

Ms. Whynot summarized activities of the AQMD Green Team, which was formed ten months ago. A group of employees, representing each division and the two labor unions meets quarterly to work on green initiatives from the AQMD Green Policy and review employee suggestions. Many accomplishments have been realized or are in progress.

Several graphs and charts were shown to illustrate the AQMD's GHG emissions and related metrics.

Mayor Pulido asked to see more frequent updates on these efforts. Supervisor Gonzales asked if the data presented for AQMD included tenants that share our building. Staff responded that in some areas, such as electricity usage, that is true. Supervisor Gonzales recommended that we work with our tenants to make sure they are cognizant of our green initiatives. Dr. Wallerstein will ask staff to meet with tenants to discuss this and to actively seek their participation.

Update on Discussions with CARB Regarding Implementation for Local Air Districts

Ms. Whynot reported on recent developments regarding air district participation in the state's proposed cap-and-trade program and verification of mandatory GHG emission reports. The initial draft cap-and-trade rules included many restrictions on how entities could or could not participate in various roles related to program implementation. Local air districts were treated in the same manner as private, for-profit, businesses. Staff has drafted suggested language and is working, with contractor assistance, to get language included in the next draft rule language. CARB staff has been receptive to some of these concepts, so staff is cautiously optimistic that AQMD may be able to have an expanded role.

The other area of positive progress relates to GHG verification for mandatory emission reports that large facilities have to submit to CARB. Last winter, approximately a dozen AQMD staff took a one-week CARB training class and got certified as GHG emission verifiers. However, they cannot perform this function until the AQMD is given verification body status. CARB staff will approve AQMD and one to two other local air districts as verification bodies.

In addition, CARB staff will propose clarifying language for the mandatory reporting rule in December 2010. Dr. Wallerstein will brief Mayor Loveridge on these two items before the December 2010 CARB Board meeting.

Closing Remarks

None

Other Business
None

Public Comments
None

The meeting adjourned at 9:30 a.m.

Attachment
Attendance Roster

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
CLIMATE CHANGE COMMITTEE MEETING – ATTENDANCE ROSTER
OCTOBER 13, 2010

NAME		AFFILIATION
Committee Member Josie Gonzales		AQMD Governing Board (via video teleconference)
Committee Member Miguel Pulido		AQMD Governing Board (via v video teleconference)
Maureen Kane		AQMD Governing Board Assistant (Loveridge)
Barry Wallerstein		AQMD Staff
Barbara Baird		AQMD Staff
Elaine Chang		AQMD Staff
Jill Whynot		AQMD Staff
Aaron Katzenstein		AQMD Staff
Arlene Farol		AQMD Staff
Jean Ospital		AQMD Staff
Patti Whiting		AQMD Staff

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 27

REPORT: Legislative Committee

SYNOPSIS: The Legislative Committee held a meeting on Friday, October 8, 2010. The next Legislative Committee meeting is scheduled for Friday, November 12, 2010 at 9:00 a.m. in Conference Room CC8. The Committee deliberated on agenda items for Board consideration and recommended the following position:

Bill/Title	**Recommended Position**
H.R. 6291 (Richardson) Freight FOCUS Act of 2010	Support with Amendments

RECOMMENDED ACTION:
Receive and file this report, and approve position on the bill as specified in this letter. Also, approve staff to participate in future discussions regarding SB 375 implementation with legislative representatives and other governmental agencies.

Jane Carney, Chair
Legislative Committee

OA:AG:PC:ar

Attendance [Attachment 1]
The Legislative Committee met on October 8, 2010. Committee Chair Jane Carney was present. Committee Members Jan Perry and Michael D. Antonovich were present via videoconference.

Update on Federal Legislative Issues
With regard to the Federal Clean Air Act Section 185 issue, Mr. Mark Kadesh, AQMD federal legislative consultant, reported that there continues to be good progress.

Additionally, AQMD staff has been very responsive to requests for information from Congressional staff on this issue.

Regarding our appropriations requests, Mr. Chris Kierig, AQMD federal legislative consultant, explained that current funding levels are expected to be maintained through a continuing resolution in late December or early next year.

Mr. Andrew Wheeler, AQMD federal legislative consultant, reported that they continue to work with Congressman Waxman regarding the Section 185 issue. He added that they are also working to communicate to members of Congress the favorable U.S. EPA decision that dismissed NRDC's petition regarding the use of New Source Review offsets. Mr. Wheeler also reported that they continue to work with AQMD staff to identify bills that will be important to AQMD for next year's legislative strategy.

Recommend Position on the following Federal Bills [Attachment 2]
Henry Hogo, Assistant DEO, briefed the Committee on the following federal legislation:

H.R. 6291 (Richardson) Freight FOCUS Act of 2010
Mr. Hogo, explained that this bill, which addresses similar policy areas as S. 3629 (Lautenberg), will establish a national process for freight planning and prioritization of funding. This bill establishes a transportation Trust Fund, which will be used for funding eligible projects focused on improving goods movement, based on specified merits. The Trust Fund would be funded in part by a twelve cent increase in the diesel tax paid by trucks. Staff's proposed amendments include suggestions to include air quality and health related impacts and costs, allow local air pollution control agencies to provide input, and prioritize projects involving "zero or near-zero emissions technology".

Staff recommends a position of SUPPORT WITH AMENDMENTS.

The Legislative Committee approved staff's recommendation to Support H.R. 6291 with Amendments.

Anupom Ganguli, Assistant DEO/Public Advisor, briefed the Committee on the following federal legislation:

S. 3072/H.R. 4753 (Rockerfeller/Rahall) Stationary Source Regulations Delay Act
Dr. Ganguli reported that these two identical companion bills would suspend, for a two-year period, any U.S. EPA action for greenhouse gas (GHG) regulations under the Clean Air Act with respect to carbon dioxide or methane, except for motor vehicle emissions and reports or enforcement of reporting requirements. Since this is contrary to AQMD's past policies and Board actions, staff recommended an Oppose position.

Dr. Wallerstein added that the U.S. EPA was very responsive to comments made by AQMD and other agencies regarding the phasing in of GHG requirements for stationary sources, and that there were co-benefits for air pollution reduction from such actions.

Chair Jane Carney stated that she would like to hear public testimony on AQMD's proposed rule regarding this subject in the future, and suggested a delay in taking this item up. The Legislative Committee directed staff to bring this issue back at its November meeting.

Update on Sacramento Legislative Issues
Mr. Paul Gonsalves, AQMD state legislative consultant, reported that a budget for the state of California had just been adopted. Additional information will be available in the near future. Mr. Gonsalves added that pension reform was also passed which impacts new state employees hired on or after November 10, 2010.

Ms. Carolyn V. Hunter, AQMD state legislative consultant, reported that they have been monitoring bills that were moved to the Governor's desk. Ms. Hunter added that there has been some movement regarding the process relating to AB 1318 and the needs analysis, including several internal meetings between California Air Resources Board (CARB) and California Energy Commission. Discussions are underway about possibly holding a public workshop at AQMD within the next month or so.

Discussion on SB 375 implementation
Dr. Barry Wallerstein, AQMD Executive Officer, reported on SB 375 implementation. Dr. Wallerstein reminded the committee that the intent of the bill was to reduce GHG emissions. At their last meeting, CARB established regional GHG emission reduction targets, on a per capita basis. However, the SCAG Regional Council had asked CARB to establish lower targets than were proposed. For 2020, SCAG asked for a 6% decrease and for 2035, an 8% decrease, as a target. However, CARB adopted an 8% decrease for 2020 and a 13% decrease for 2035, as a target. An agreement was reached to have an update in February 2011 to revisit the 13% target to see if it needs to be modified based on additional analyses. SCAG is required to submit a sustainable communities plan directed at achieving these targets. Dr. Wallerstein added that part of the rationale from SCAG in asking to establish lower targets are decreases in funding.

Dr. Wallerstein requested that the committee allow AQMD staff to participate in future discussions on implementation, including funding with legislative representatives and other governmental agencies in order to protect AQMD's policy priorities.

The Legislative Committee approved AQMD staff to participate in future discussions regarding SB 375 implementation with legislative representatives and other governmental agencies.

Governor's Final Actions on Bills Passed by the Legislature. [Attachment 3]
Dr. Ganguli briefly discussed the bills referenced within the written report.

Home Rule Advisory Group Committee Legislative Report [Attachment 4]
Please refer to Attachment 4 for the written report.

Other Business: None

Public Comments: None

Attachment
1. Attendance Roster
2. Federal Bill Language and AQMD Bill Analyses
3. Governor's Final Actions on Bills Passed by the Legislature
4. Reports from AQMD Home Rule Advisory Committee

Attachment 1

ATTENDANCE RECORD – October 8, 2010

DISTRICT BOARD MEMBERS:
Jane Carney
Jan Perry *(Videoconference, Los Angeles)*
Michael D.Antonovich (Videoconference, Los Angeles)

STAFF TO COMMITTEE:
Oscar Abarca, Deputy Executive Officer
Dr. Anupom Ganguli, Assistant DEO/Public Advisor
William Sanchez, Senior Legislative & Public Affairs Manager
Julie Franco, Senior Administrative Secretary
Jeanette Short, Senior Administrative Secretary
America Robledo, Secretary

DISTRICT STAFF:
Dr. Barry Wallerstein, Executive Officer
Peter Greenwald, Senior Policy Advisor
Henry Hogo, Assistant Deputy Executive Officer
Elaine Chang, Deputy Executive Officer
Dr. Laki Tisopulos, Assistant Deputy Executive Officer
Nancy Feldman, District Prosecutor
Alan Caldwell, Community Relations Manager
Marc Carrel, Program Supervisor
Philip Crabbe, Community Relations Manager
Patti Whiting, Staff Specialist
Paul Wright, Audio Visual Specialist
Nancy Cole, Financial Analyst
Kim White, Public Affairs Specialist
Tina Cherry, Sr. Public Information Specialist
Rainbow Yeung, Sr. Public Information Specialist *(Videoconference, Los Angeles)*

OTHERS PRESENT:
Andrew Wheeler, B&D Consulting (teleconference)
Jason Gonsalves, Gonsalves & Son (teleconference)
Chris Kierig, Kadesh & Associates (teleconference)
Mark Kadesh, Kadesh & Associates (teleconference)
Carolyn V. Hunter, Sloat, Higgins, Jensen & Associates (teleconference)
Jeff Catalano, Board Member Assistant (Perry) *(Videoconference, Los Angeles)*
Bill Lamarr, California Small Business Association
Debra Mendelsohn, Board Member Assistant (Antonovich)
Nicole Nishimura, Board Member Assistant (Lyou)

Greg Adams, LACSD
Steve Schuyler, WSPA
Kris Flaig, City of Los Angeles/SCAP
Sue Gornicle, BP
Sarah Wewa, AAR
Vlad Kogan, OCSA
Clayton Miller, CIAQC

ATTACHMENT 2

H.R. 6291 (Richardson)
Freight FOCUS Act of 2010

S. 3072/H.R. 4753 (Rockefeller/Rahall)
Stationary Source Regulations Delay Act

H.R. 6291 (Richardson)

The Freight FOCUS Act of 2010

Summary: This legislation proposes to establish a national process for freight planning and prioritization of funding. The bill will create a Goods Movement Trust Fund, which will be used for funding eligible projects focused on improving goods movement based on specified merits.

The objectives of this bill are to "provide for merit-based investment in the freight transportation system of the U.S. to ensure economic growth, increase vitality and competitiveness in national and global markets, address good mobility and accessibility issues, reduce air pollution and other environmental impacts of freight transportation, better public health conditions, enhance energy security, and improve the condition and connectivity of the freight transportation system."

Background: Freight or goods movement activity has been rapidly growing in the transportation industry. As the nation grows, urban transportation issues also grow. As ports and goods movement activity expands throughout the United States, major challenges are created. For example, the Ports of Los Angeles and Long Beach have been considered Southern California's "economic engine." Studies report that imports coming through these corridors have generated jobs, income, and tax revenue in almost every state in the nation, revealing the economic importance of international trade. However, the movement of freight has also been identified by the U.S. Environmental Protection Agency as a "health concern at the national, regional, and community level." The ports of Los Angeles and Long Beach are the single largest source of pollution in Southern California and have greatly contributed to Southern California's diesel particulate pollution and resulting health impacts.

Improvements to the nation's transportation system could be achieved through advancements in areas that are impacted by the system, such as the economy, technology, safety, health and the environment. This legislation is aimed towards creating enhancements in the country's goods movement system and mitigating associated impacts or challenges that this freight transportation system creates.

Status: N/A

Specific Provisions: The Freight FOCUS Act of 2010 would specifically:

1) Create an Office of Freight Planning and Development at the Department of Transportation, a National Freight Advisory Committee consisting of 15 individuals representing public and private stakeholders with respect to freight, and would require development of a national freight plan with public and private participation;
2) Designate freight corridors of national significance to help prioritize projects;
3) Form freight corridor coalitions that allow participation from local and regional

entities;
4) Select projects along the corridors and across the county;
5) Raise revenue by increasing diesel tax paid by trucks by 12 cents, provide for a $3 billion/year transfer from the General Fund into the Goods Movement Trust Fund, and would allow for other revenue raising options;
6) Create the Goods Movement Trust Fund (GMT);
7) Issue merit-based grants from GMT administered by the Assistant Secretary for Freight planning; and
8) Ensure financial integrity of projects and ensure that labor standards are maintained and protected.

Impacts on AQMD's mission, operations or initiatives: The goods movement industry is a vital component of California's economy. The important issues regarding improving the freight transportation system and reducing its environmental impacts in California need to be further addressed. Additionally, developing policies and programs would be essential in reducing congestion, emissions, and other environmental and economic impacts resulting from goods movement in California.

The Freight FOCUS Act of 2010 will have the potential to accelerate the implementation of existing emission reduction programs and plans for goods movement. This legislation may also facilitate the creation of new emission reduction projects related to freight transportation.

Recommended Position: SUPPORT WITH AMENDMENTS
Proposed amendments:

1) Pages 3-4 – Within the National Freight Plan, specifically include "air quality and health related impacts" as a type of challenge related to freight movement that needs to be assessed and to have recommendations made to address that challenge. – Section 2(d)(5);
2) Page 4 - Specifically include air pollution control agencies within the types of stakeholders to be included in the Freight Advisory Committee. – Section 3(b) *;*
3) Page 8 - Add "health costs" to list of criteria to be considered when designating freight corridors of national significance. -- Section 4(b)(4)(B)(v);
4) Pages 9-10 - Specifically include air pollution control agencies within the types of stakeholders to be included in freight corridor coalitions. -- Section 4(c)(2);
5) Page 15 – Specifically include "zero or near-zero emissions technology" as a type of innovative technology that is to be included as a factor in project prioritization. – Section 4(c)(5)(B)(vii);

6) Page 16-18 – Specifically include "A project that benefits the environment and air quality through the utilization of zero or near-zero emissions technology" as a type of project eligible for a grant. – Section 4(d)(2);
7) Page 19 – Specifically include local governments, including air quality agencies, as entities eligible to submit an application for a grant. – Section 4(d)(3)(A); and
8) Page 20 – Specifically include "A project that benefits the environment and air quality through the utilization of zero or near-zero emissions technology" as a type of project eligible for not less than 7% of the amounts made available for grants. – Section 4(d)(6);

LEGISLATIVE COMMITTEE RECOMMENDED: October 8, 2010 Support with Amendments

CONGRESSWOMAN LAURA RICHARDSON OF CALIFORNIA

THE FREIGHT FOCUS ACT OF 2010

"FREIGHT IS THE FUTURE OF COMMERCE IN THE UNITED STATES"

Congresswoman Richardson is preparing to introduce a comprehensive bill on goods movement. Below is an outline of the bill. We hope your organization supports her effort to improve the movement of goods throughout the country.

Bill Highlights

The bill would establish a process for freight planning and prioritization of funding. The bill provides for public and private sector involvement in the process, and prioritizes major goods movement corridors and funds projects to alleviate choke points.

The bill also creates a Goods Movement Trust Fund, which would be dedicated to funding such projects, and contains safeguards to ensure that if funding came in from a specific mode, those funds will be dedicated to projects for that mode.

While the current draft only includes funding from an increase in the diesel tax, the structure is flexible to incorporate other revenue streams or transfers of funds from any other source.

It is anticipated that this bill will be introduced on Wednesday, September 29th and we hope to have your support by that time.

Major Provisions:

1. Create an office of freight planning at DOT
    a. The office would conduct freight planning and publish reports
    b. The office would designate corridors of national significance

   c. The office would be ultimately responsible for administering a competitive, merit based grant program
2. Create a National Freight Advisory Committee
   a. This would allow a formal mechanism for the private sector to have input into funding priorities and planning
3. Creates a national freight plan with input from public and private entities, including the National Freight Advisory Committee
4. Designate Freight corridors of national significance
   a. This would help prioritize projects along our most important trade corridors
5. Form freight corridor coalitions
   a. Allowing local and regional entities to have direct input into what projects are selected and prioritized if they choose to form a coalition.
6. Select projects along the corridors and across the country
   a. A public metric would be developed to prioritize projects along the corridors and across the country
7. Raise revenue
   a. The primary source is currently a 12 cent increase in the diesel tax paid by trucks
   b. There would also be a $3 billion a year transfer from the General Fund into the Goods Movement Trust Fund.
   c. The bill is drafted in an open format so other revenue raisers can be added
   d. Any funds raised from only a single mode would be dedicated for projects that benefit that mode
8. Create Goods Movement Trust Fund (GMT)
9. Issue grants from GMT
   a. The Assistant Secretary for Freight planning would administer a competitive, merit based grant program to projects around the country from funds in the GMT. Funding would be available for projects across many different modes.
10. Ensure the financial integrity of projects
11. Ensure that labor standards are maintained and protected
12. Provide for administrative costs for all levels of the program
13. Create a national freight plan, including a “Freight Snapshot” to keep track of current trends in freight that would be publicly available.

.....

(Original Signature of Member)

111TH CONGRESS
2D SESSION

H. R. _____

To provide for merit-based investment in the freight transportation system of the United States to ensure economic growth, increase vitality and competitiveness in national and global markets, address goods mobility and accessibility issues, reduce air pollution and other environmental impacts of freight transportation, better public health conditions, enhance energy security, and improve the condition and connectivity of the freight transportation system, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

Ms. RICHARDSON introduced the following bill; which was referred to the Committee on _____

A BILL

To provide for merit-based investment in the freight transportation system of the United States to ensure economic growth, increase vitality and competitiveness in national and global markets, address goods mobility and accessibility issues, reduce air pollution and other environmental impacts of freight transportation, better public health conditions, enhance energy security, and improve the condition and connectivity of the freight transportation system, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the ''Freight is the Future Of Commerce in the United States Act of 2010'' or the ''Freight FOCUS Act of 2010''.

(b) TABLE OF CONTENTS.—

SEC. 2. OFFICE OF FREIGHT PLANNING AND DEVELOPMENT.

(a) ESTABLISHMENT.—Not later than 180 days after the date of enactment of this Act, the Secretary shall establish in the Office of the Secretary an Office of Freight Planning and Development (in this section referred to as the ''Office'').

(b) ASSISTANT SECRETARY.—The Office shall be headed by an Assistant Secretary for Freight Planning and Development who shall be appointed by the Secretary.

(c) DUTIES.—The Assistant Secretary shall—

(1) advise the Secretary on freight issues;

(2) carry out the freight corridors of national significance program under section 4;

(3) facilitate communication among public and private stakeholders with respect to freight issues;

(4) provide recommendations to the Secretary on funding sources for projects with respect to freight; and

(5) develop the national freight plan under subsection (d).

(d) NATIONAL FREIGHT PLAN.—Not later than 2 years after the date of enactment of this Act, and every 3 years thereafter, the Assistant Secretary shall submit to Congress and publish on the Web site of the Department of Transportation a national freight plan, which shall include—

(1) projections relating to freight for the 20-year period beginning on the date on which the plan is submitted to Congress and recommendations for supporting freight movement during that period;

(2) a list of the freight corridors designated as freight corridors of national significance under section 4(b);

(3) the most recent freight corridor snapshot report published under section 4(e);

(4) an analysis of emerging and long-term trends in—

(A) economic and trade policies related to freight movement; and

(B) public health and environmental conditions related to freight movement; and

(5) an assessment of challenges related to freight movement and recommendations for addressing those challenges.

SEC. 3. FREIGHT ADVISORY COMMITTEE.

(a) ESTABLISHMENT.—Not later than 180 days after the date of enactment of this Act, the Secretary shall establish a Freight Advisory Committee (in this section referred to as the ''Committee'').

(b) MEMBERSHIP.—The Committee shall be composed of 15 individuals who represent public and private stakeholders with respect to freight, including representatives of—

(1) each mode of freight transportation;

(2) ports;

(3) shippers of freight;

(4) metropolitan planning organizations (as that term is defined in section 134(b) of title 23, United States Code) serving areas in which a freight corridor is located;

(5) State transportation agencies;

(6) environmental protection organizations;

(7) public health advocates;

(8) labor; and

(9) others determined appropriate by the Secretary.

(c) CHAIRPERSON.—The Assistant Secretary for Freight Planning and Development (appointed under section 2(b)) shall be the chairperson of the Committee.

(d) MEETINGS.—The Committee shall meet at the call of the chairperson at least twice each year.

(e) DUTIES.—The Committee shall—

(1) advise the Assistant Secretary on issues, projects, and funding needs with respect to freight, including the determination of freight priorities;

(2) develop measures to predict growth in freight movement;

(3) facilitate the sharing of information relating to freight between public and private entities;

(4) assist the Assistant Secretary with the development of the national freight plan under section 2(d); and

(5) assist the Assistant Secretary with the development of freight corridor snapshot reports under section 4(e).

SEC. 4. FREIGHT CORRIDORS OF NATIONAL SIGNIFICANCE PROGRAM.

(a) ESTABLISHMENT.—Not later than one year after the date of enactment of this Act, the Assistant Secretary for Freight Planning and Development (appointed under section 2(b)) shall establish a freight corridors of national significance program (in this section referred to as the ''Program'') in accordance with this section.

(b) DESIGNATION OF FREIGHT CORRIDORS OF NATIONAL SIGNIFICANCE.—

(1) IN GENERAL.—Not later than one year after the date of enactment of this Act, and every 3 years thereafter, the Assistant Secretary shall designate the multimodal freight corridors in the United States that the Assistant Secretary has determined, in accordance with this subsection, are freight corridors of national significance based on the importance of the corridors to freight movement.

(2) PUBLICATION.—The Assistant Secretary shall publish on the Web site of the Department of Transportation a document that specifies the corridors designated under paragraph (1) and contains—

(A) a map of the corridors;

(B) a detailed description of the standards used to designate the corridors;

(C) statistics supporting the designation of each corridor; and

(D) a description of the role of each corridor in supporting the economy and freight transportation system of the United States.

(3) PUBLIC PARTICIPATION.—The Secretary shall make designations under paragraph (1) after providing notice and an opportunity for public comment.

(4) RULEMAKING TO DETERMINE DESIGNATION STANDARDS.—

(A) IN GENERAL.—The Assistant Secretary, in consultation with the Freight Advisory Committee (established under section 3(a)), shall conduct a rulemaking proceeding to establish publically available, objective, and quantifiable standards for designating freight corridors as freight corridors of national significance under paragraph (1).

(B) CRITERIA.—The standards established under subparagraph (A) shall ensure that, in designating a freight corridor as a freight corridor of national significance, the following criteria are accurately measured and considered

(with the criteria listed in descending order of importance):

(i) The volume of freight moved along the corridor.

(ii) The value of freight moved along the corridor.

(iii) The benefits that may be generated by transportation improvements carried out along the corridor, including the creation or sustaining of jobs, expansion of business opportunities, or increasing of the gross domestic product.

(iv) The potential for growth in freight movement along the corridor.

(v) The economic, environmental, and other costs associated with traffic congestion and travel delay along the corridor.

(5) DATA COLLECTION.—

(A) IN GENERAL.—The Assistant Secretary, in consultation with the Freight Advisory Committee, shall collect and review all data relating to freight necessary to designate freight corridors of national significance under paragraph (1) and shall consider, in consultation with the heads of relevant Federal agen-

cies, methods for improving the sources of the data to reduce deficiencies in the data and assist projections of transportation demand.

(B) PROJECTIONS.—The Assistant Secretary, in consultation with the Freight Advisory Committee and the Administrator of the Environmental Protection Agency, shall analyze short- and long-term trends in the movement of freight domestically and internationally to assist the designation of freight corridors of national significance under paragraph (1), including by analyzing economic and trade policies and public health and environmental conditions related to freight movement.

(c) FREIGHT CORRIDOR COALITIONS.—

(1) IN GENERAL.—With respect to each freight corridor of national significance designated under subsection (b), the Assistant Secretary may designate one entity to serve as a freight corridor coalition that represents the freight corridor for purposes of this section.

(2) COALITION COMPOSITION.—To be eligible for designation as a freight corridor coalition under paragraph (1), an entity shall be composed of individuals representing each of the following:

(A) The State transportation agency of each State in which a portion of the corridor is located.

(B) The metropolitan planning organization (as that term is defined under section 134(b) of title 23, United States Code) for each area in which a portion of the corridor is located.

(C) Each mode of freight transportation that operates along the corridor.

(D) Each port along the corridor.

(E) Environmental protection organizations.

(F) Public health advocates.

(G) Labor.

(H) Private stakeholders, including shippers, carriers, and freight-related associations.

(3) APPLICATION PROCESS.—

(A) IN GENERAL.—The Assistant Secretary shall establish a process for entities to apply for designation as a freight corridor coalition under paragraph (1).

(B) APPLICATION.—The application of an entity for designation as a freight corridor coa-

lition under paragraph (1) shall include at least the following:

(i) A description of the composition of the entity and how that composition meets requirements under paragraph (2).

(ii) A description of the proposed functions and authorities of the entity, including with respect to the performance of analysis, consensus building, and planning.

(iii) Information demonstrating that the entity has, or will develop, the legal, financial, technical, and political capacity and support from relevant organizations necessary to carry out the functions of a freight corridor coalition under this subsection.

(iv) A description of the proposed budget for the entity, including—

(I) a staffing plan;

(II) a spending plan; and

(III) a plan for acquiring funding from sources other than grants under paragraph (4).

(4) GRANTS FOR ADMINISTRATIVE EXPENSES.—The Assistant Secretary is authorized to

make grants to a freight corridor coalition designated under paragraph (1) to assist the coalition with administrative expenses.

(5) FREIGHT CORRIDOR PLAN.—

(A) IN GENERAL.—Not later than one year after the date on which an entity is designated as a freight corridor coalition under paragraph (1), and annually thereafter, the freight corridor coalition shall submit to the Assistant Secretary a freight corridor plan that includes—

(i) a prioritized list of projects that are eligible for grant assistance under subsection (d) and that the coalition has determined will improve the freight movement performance of the freight corridor of national significance represented by the coalition;

(ii) an estimate of the cost of each project specified in the list under clause (i) and the aggregate cost of all listed projects;

(iii) a specification of a State sponsor willing to carry out each project specified in the list under clause (i) and the support

that each member of the coalition shall provide the State sponsor with respect to the project;

(iv) a funding plan, including a specification of funding sources, for each project specified in the list under clause (i);

(v) a description of how projects specified in the list under clause (i) support connectivity at State borders;

(vi) a detailed description of the corridor, including a description of—

(I) the modes of transportation that operate along the corridor;

(II) the transportation facilities along the corridor;

(III) the interaction of passenger and freight movement along the corridor;

(IV) the performance of the corridor and projections of future corridor performance, including with respect to the speed and reliability of travel along the corridor;

(V) any environmental or public health issues related to freight movement along the corridor; and

(VI) any economic costs related to congestion and travel delay along the corridor; and

(vii) any additional information the Assistant Secretary determines appropriate.

(B) PROJECT PRIORITIZATION.—In determining the priority of a project specified in a freight corridor plan under subparagraph (A), a freight corridor coalition shall consider the following:

(i) The schedule for completing the project and the appropriate sequencing of projects.

(ii) Whether the project will improve a component of a freight corridor determined to be performing poorly in a freight corridor snapshot report under subsection (e).

(iii) The improvement in freight movement that will result from the project and the impact of failing to carry out the project.

(iv) Whether the project will address a bridge in need of repair.

(v) The amount of non-Federal funding available for the project, including funding from public-private partnerships.

(vi) The benefits of the project unrelated to freight movement and whether there is funding available from nonfreight sources commensurate with those benefits.

(vii) Whether innovative technologies are incorporated into the project.

(viii) The extent to which the project will reduce air, water, or noise pollution, including through improved energy conservation or efficiency.

(ix) The congestion reduction benefits of the project.

(x) The improvement in the condition of freight movement infrastructure that will result from the project.

(xi) The public health and safety benefits of the project, including with respect to accident and injury reduction with a goal of reducing by 10 percent the number

of fatalities related to freight transportation by the year 2015.

(xii) Whether the project involves the replacement or repair of an existing surface transportation facility—

(I) the replacement or repair of which will result in economic and mobility benefits for the United States; and

(II) that, if not replaced or repaired, will likely deteriorate substantially and negatively impact the economy and transportation system of the United States.

(xiii) Whether the project will not be completed without Federal support.

(xiv) The regional and national economic development benefits of the project, including with respect to trade facilitation.

(xv) Whether the project will be carried out on a publicly owned site.

(d) GRANTS.—

(1) IN GENERAL.—In carrying out the Program, the Assistant Secretary is authorized to make a grant to any State to assist any project—

(A) specified in paragraph (2); and

(B) for the improvement of freight movement.

(2) ELIGIBLE PROJECTS.—The projects eligible for grant assistance under paragraph (1) are the following:

(A) A project for the development or improvement of a port.

(B) A project for the development or improvement of a multimodal terminal facility.

(C) A project for the development or improvement of a land port of entry.

(D) A project to improve freight rail performance, including through capacity expansion.

(E) A project for the development or improvement of a road or bridge, including a road or bridge that—

(i) is essential to supporting local, interregional, interstate, or international freight movement;

(ii) improves access to freight facilities, including ports, terminals, and distribution centers;

(iii) improves freight transportation to or from an international gateway, includ-

ing ports, airports, and border crossings; or

(iv) improves access for, and the emergency capabilities of, military personnel and equipment.

(F) A project for the development or improvement of an intelligent transportation system for freight that reduces congestion and improves safety.

(G) A project for the development or improvement of a facility that provides long-term truck parking.

(H) A project for the development of freight movement capacity where that capacity is needed.

(I) A project for the development of a roadway-rail grade separation.

(J) A dredging project or a project to develop or improve a lock or dam.

(K) A project to benefit the environment, including through the reduction of emissions determined by the Assistant Secretary, in consultation with the Administrator of the Environmental Protection Agency, to be harmful to the environment.

(L) A project to improve safety or security with respect to freight movement.

(M) A project that will improve public health.

(N) Any other project the Assistant Secretary determines appropriate.

(O) Planning, preparation, or design activities with respect to any project described in this paragraph.

(3) APPLICATION PROCESS.—

(A) IN GENERAL.—The Assistant Secretary shall establish a process for States to submit an application for a grant under paragraph (1).

(B) RESPONSES.—Without regard to whether a grant is made under paragraph (1) with respect to an application, the Assistant Secretary shall provide a written response to each application submitted under subparagraph (A) and the response shall include a written determination by the Assistant Secretary that the project for which the application was submitted is—

(i) highly recommended to be carried out;

(ii) recommended to be carried out; or

(iii) not recommended to be carried out.

(4) PRIORITIES AND CONSIDERATION.—In making grants under paragraph (1), the Assistant Secretary shall—

(A) give priority to projects listed in a freight corridor plan submitted under subsection (c)(5)(A) and according to the prioritization of projects in that plan; and

(B) give consideration to the criteria specified in subsection (c)(5)(B).

(5) FEDERAL SHARE.—The Federal share of the cost of a project assisted with a grant under paragraph (1) shall not exceed 80 percent.

(6) PROJECTS THAT BENEFIT THE ENVIRONMENT.—The Assistant Secretary shall use not less than 7 percent of the amounts made available for grants under paragraph (1) each fiscal year for grants to assist projects that benefit the environment, including through reducing emissions determined by the Assistant Secretary, in consultation with the Administrator of the Environmental Protection Agency, to be harmful to the environment.

(7) PROJECTS THAT BENEFIT FREIGHT SECURITY.—The Assistant Secretary shall use not less than 1 percent of the amounts made available for grants under paragraph (1) each fiscal year for grants to assist projects that improve freight security, including cargo inspection projects and education and training projects related to security.

(8) PROJECT COSTS.—In carrying out this subsection, the Assistant Secretary shall develop standards for estimating project costs and shall evaluate the cost estimation, contracting, and cost reduction practices of States that receive grants under paragraph (1).

(9) PROJECT MANAGEMENT AND FINANCIAL PLANS.—

(A) MAJOR PROJECTS.—A recipient of a grant under paragraph (1) for a project with an estimated total cost of at least $500,000,000, or for any other project the Assistant Secretary determines appropriate, shall submit to the Assistant Secretary, with respect to the project—

(i) a project management plan; and

(ii) an annual financial plan.

(B) OTHER PROJECTS.—A recipient of a grant under paragraph (1) for a project with an

estimated total cost of at least $100,000,000, but less than $500,000,000, shall prepare an annual financial plan with respect to the project and shall make that plan available for review at the request of the Assistant Secretary.

(C) PROJECT MANAGEMENT PLAN.—For purposes of this paragraph, a project management plan shall document, with respect to a project—

(i) the procedures in effect to provide timely information to project decisionmakers to allow the decisionmakers to effectively manage the scope, costs, schedules, quality, and Federal requirements with respect to the project; and

(ii) the role of non-Federal interests in the delivery of the project.

(D) FINANCIAL PLAN.—For purposes of this paragraph, a financial plan shall, with respect to a project, provide detailed estimates of the costs of completing the project, including potential increases to those costs.

(10) MAINTENANCE OF EFFORT.—

(A) IN GENERAL.—As a condition of receiving a grant under paragraph (1), the Gov-

ernor of the State receiving the grant shall submit to the Assistant Secretary a certification that the State will maintain its effort with respect to the funding of freight projects.

(B) STATEMENT OF INTENDED FUNDING.—As part of the certification under subparagraph (A), the Governor shall submit a statement to the Assistant Secretary identifying the amount that the State plans to expend from non-Federal sources for freight projects during the 6-year period beginning on the date of the submission of the certification.

(C) FAILURE TO MEET INTENDED FUNDING.—If the Assistant Secretary determines that a State failed to expend the amount for freight projects identified in the statement under subparagraph (B), the Assistant Secretary may prohibit the State from receiving a grant under paragraph (1) during a period—

(i) not to exceed 3 years; and

(ii) beginning on the date on which that determination is made.

(11) PREVAILING RATE OF WAGE.—

(A) IN GENERAL.—The Secretary shall take such action as may be necessary to insure

that all laborers and mechanics employed by contractors or subcontractors on construction work performed on projects assisted with a grant under paragraph (1) shall be paid wages at rates not less than those prevailing on the same type of work on similar construction in the immediate locality as determined by the Secretary of Labor in accordance with sections 3141, 3146, and 3147 of title 40, United States Code.

(B) CONSULTATION.—In carrying out the duties of subparagraph (A), the Secretary of Labor shall consult with the relevant agency of the State in which a project assisted with a grant under paragraph (1) is to be performed. After giving due regard to the information thus obtained, the Secretary of Labor shall make a predetermination of the minimum wages to be paid laborers and mechanics in accordance with the provisions of subparagraph (A) which shall be set out in each project advertisement for bids and in each bid proposal form and shall be made a part of the contract covering the project.

(C) EXCEPTIONS.—The provisions of this paragraph shall not be applicable to employment pursuant to apprenticeship and skill training programs which have been certified by the Secretary as promoting equal employment opportunity in connection with a construction program.

(12) FUNDING BY MODE.—

(A) DETERMINATION.—In making grants under paragraph (1) each fiscal year, the Assistant Secretary shall determine if any portion of the amounts made available for the grants was generated for deposit in the Goods Movement Trust Fund (established under section 5(a)) by a single mode of transportation.

(B) PORTIONS GENERATED BY A SINGLE MODE OF TRANSPORTATION.—If the Assistant Secretary determines under subparagraph (A) that any portion of the amounts made available for a fiscal year for grants under paragraph (1) was generated by a single mode of transportation, the Assistant Secretary shall ensure that at least 92.5 percent of that portion is used for grants to assist projects that benefit that mode.

(C) PORTION NOT GENERATED BY A SINGLE MODE OF TRANSPORTATION.—If the Assistant Secretary determines under subparagraph (A) that any portion of the amounts made available for a fiscal year for grants under paragraph (1) was generated by a single mode of transportation, the Assistant Secretary shall ensure that 50 percent of the portion of those amounts that was not generated by a single mode of transportation is used solely for grants to assist projects that benefit the modes of transportation to which subparagraph (B) applied that fiscal year according to the amounts generated by each of those modes.

(e) FREIGHT CORRIDOR SNAPSHOT REPORT.—Not later than 3 years after the date of enactment of this Act, and annually thereafter, the Assistant Secretary shall publish on the Web site of the Department of Transportation a detailed analysis of the performance of each freight corridor designated as a freight corridor of national significance under subsection (b) and any other freight corridor determined appropriate for inclusion by the Assistant Secretary, including an analysis of congestion, safety, environmental, public health, infrastructure condition, and accessibility issues with respect to the freight corridor.

SEC. 5. FUNDING.

(a) GOODS MOVEMENT TRUST FUND.—

(1) ESTABLISHMENT.—

(A) IN GENERAL.—Subchapter A of chapter 98 of the Internal Revenue Code of 1986 is amended by adding at the end the following:

"SEC. 9512. GOODS MOVEMENT TRUST FUND.

"(a) CREATION OF TRUST FUND.—There is established in the Treasury of the United States a trust fund to be known as the 'Goods Movement Trust Fund', consisting of such amounts as may be appropriated or credited to such Trust Fund as provided in this section or section 9602(b).

"(b) TRANSFERS TO TRUST FUND.—There are hereby appropriated to the Goods Movement Trust Fund amounts equivalent to so much of the taxes received in the Treasury under section 4081 as are determined at the rate specified in section 4081(a)(5).

"(c) APPROPRIATION OF ADDITIONAL SUMS.—In addition to amounts appropriated under subsection (b), there is hereby authorized to be appropriated to the Goods Movement Trust Fund to make the expenditures referred to in subsection (d) $3,000,000,000 for each of fiscal years 2011 through 2016.

"(d) EXPENDITURES.—

''(1) IN GENERAL.—Amounts in the Goods Movement Trust Fund shall be available, as provided in appropriations Acts, only for purposes of making expenditures to carry out the Freight FOCUS Act of 2010.

''(2) TRANSFERS FROM TRUST FUND FOR CERTAIN REPAYMENTS AND CREDITS.—The Secretary shall pay from time to time from the Goods Movement Trust Fund into the general fund of the Treasury amounts equivalent to amounts paid under section 6433 or credits allowed under section 34(a)(4).''.

(B) CONFORMING AMENDMENT.—Paragraph (1) of section 9503(b) of such Code is amended by adding at the end the following: ''There shall not be taken into account under subparagraph (D) so much of the taxes imposed by section 4081 as are determined at the rate specified in section 4081(a)(5).''.

(C) CLERICAL AMENDMENT.—The table of sections for subchapter A of chapter 98 of such Code is amended by adding at the end the following:

''Sec. 9512. Goods Movement Trust Fund.''.

(2) INCREASE IN DIESEL TAX FOR TRANSPORTATION OF GOODS BY HIGHWAY.—

(A) IN GENERAL.—Subsection (a) of section 4081 of the Internal Revenue Code of 1986 is amended by adding at the end the following:

''(5) DIESEL FUEL USED FOR TRANSPORTATION OF GOODS BY HIGHWAY.—

''(A) IN GENERAL.—In the case of diesel fuel, the rate in effect under paragraph (2)(A)(iii) shall be increased by 12 cents.

''(B) INFLATION ADJUSTMENT.—

''(i) IN GENERAL.—In the case of any diesel fuel removed, entered, or sold during any calendar year beginning after 2011, the 12 cent amount under subparagraph (A) shall be increased by an amount equal to—

''(I) such amount, multiplied by

''(II) the costs of living adjustment determined under section 1(f)(3) for the calendar year, determined by substituting 'calendar year 2010' for 'calendar year 1992' in subparagraph (B) thereof.

''(ii) ROUNDING.—Any increase under clause (i) shall be rounded to the nearest multiple of one-tenth of 1 cent.''.

(B) EFFECTIVE DATE.—The amendment made by this paragraph shall apply to fuel removed, entered, or sold after September 30, 2011.

(3) DIESEL FUEL NOT USED FOR MOVEMENT OF GOODS BY HIGHWAY.—

(A) IN GENERAL.—Subchapter B of chapter 65 of the Internal Revenue Code of 1986 is amended by adding at the end the following:

"SEC. 6433. DIESEL FUEL NOT USED FOR MOVEMENT OF GOODS BY HIGHWAY.

''(a) IN GENERAL.—In the case of diesel fuel on the sale of which tax was imposed by section 4081 and which is used for any purpose other than in the trade or business of moving goods by highway, the Secretary shall pay (without interest) to the ultimate purchaser of such fuel an amount equal to the product of the number of gallons of such fuel so used multiplied by the rate specified in section 4081(a)(5).

''(b) FILING OF CLAIMS.—Claims filed under subsection (a) shall be filed at such time and in such form and manner as the Secretary of the Treasury shall by regulation prescribe.

''(c) APPLICABLE LAWS.—

''(1) IN GENERAL.—All provisions of law, including penalties, applicable in respect of the taxes imposed by section 4081 shall, insofar as applicable and not inconsistent with this section, apply in respect of the payments provided for in this section to the same extent as if such payments constituted refunds of overpayments of the tax so imposed.

''(2) EXAMINATION OF BOOKS AND WITNESSES.—For the purpose of ascertaining the correctness of any claim made under this section, or the correctness of any payment made in respect of any such claim, the Secretary shall have the authority granted by paragraphs (1), (2), and (3) of section 7602(a) (relating to examination of books and witnesses) as if the claimant were the person liable for tax.

''(d) INCOME TAX CREDIT IN LIEU OF PAYMENT.—

''(1) PERSONS NOT SUBJECT TO INCOME TAX.—Payment shall be made under this section only to—

''(A) the United States or an agency or instrumentality thereof, a State, a political subdivision of a State, or any agency or instrumentality of one or more States or political subdivisions, or

''(B) an organization exempt from tax under section 501(a) (other than an organization required to make a return of the tax imposed under subtitle A for its taxable year).

''(2) ALLOWANCE OF CREDIT AGAINST INCOME TAX.—For allowance of credit against the income tax imposed by subtitle A for diesel fuel used for any purpose other than in the trade or business of moving goods by highway, see section 34.''.

(B) ALLOWANCE OF CREDIT AGAINST INCOME TAX.—

(i) IN GENERAL.—Subsection (a) of section 34 of the Internal Revenue Code of 1986 is amended by striking ''and'' at the end of paragraph (2), by striking the period at the end of paragraph (3) and inserting '', and'', and by adding at the end the following:

''(4) under section 6433 (determined without regard to section 6433(d)).''.

(ii) CONFORMING AMENDMENT.—Subsection (b) of section 34 of such Code is amended—

(I) by striking ''6421 or 6427'' and inserting ''6421, 6427, or 6433'', and

(II) by striking ''6421(i) or 6427(k)'' and inserting ''6421(i), 6427, or 6433''.

(C) CLERICAL AMENDMENT.—The table of sections for subchapter B of chapter 65 of such Code is amended by adding at the end the following:

''Sec. 6433. Diesel fuel not used for movement of goods by highway.''.

(D) EFFECTIVE DATE.—The amendments made by this paragraph shall apply to fuel sold after September 30, 2011.

(b) AUTHORIZATIONS OF APPROPRIATIONS.—

(1) IN GENERAL.—There is authorized to be appropriated from the Goods Movement Trust Fund (established under subsection (a)) to carry out this Act for a fiscal year the level of receipts plus interest (as that term is defined in subsection (d)) with respect to the Goods Movement Trust Fund for that fiscal year.

(2) ALLOCATION OF AMOUNTS.—Of the amounts made available to carry out this Act for a fiscal year—

(A) $5,000,000 shall be available to carry out section 2 for that fiscal year;

(B) $3,000,000 shall be available to carry out section 3 for the first full fiscal year beginning after the date of enactment of this Act and $1,000,000 for each fiscal year thereafter;

(C) $5,000,000 shall be available to carry out section 4, except for the making of grants under subsections (c)(4) and (d) of that section, for that fiscal year;

(D) $1,000,000 shall be available to make grants under section 4(c)(4) for that fiscal year; and

(E) the remainder shall be available to make grants under section 4(d) for that fiscal year.

(c) CONTRACT AUTHORITY.—

(1) DATE AVAILABLE FOR OBLIGATION.—Authorizations from the Goods Movement Trust Fund to carry out this Act shall be available for obligation on October 1 of the fiscal year for which they are authorized.

(2) GRANTS AS CONTRACTUAL OBLIGATIONS.—A grant made under subsection (c)(4) or (d) of section 4 that is approved by the Assistant Secretary

is a contractual obligation of the Government to pay the Federal share of the cost of the project.

(d) GOODS MOVEMENT TRUST FUND GUARANTEE.—

(1) IN GENERAL.—The total budget resources made available from the Goods Movement Trust Fund each fiscal year to carry out this Act shall be equal to the level of receipts plus interest with respect to the Goods Movement Trust Fund for that fiscal year. Such amounts may be used only to carry out this Act.

(2) GUARANTEE.—No funds may be appropriated to carry out this Act unless the amount described in paragraph (1) has been provided.

(3) ENFORCEMENT OF GUARANTEES.—It shall not be in order in the House of Representatives or the Senate to consider any bill, joint resolution, amendment, motion, or conference report that would cause total budget resources in a fiscal year to carry out this Act for such fiscal year to be less than the amount required by paragraph (1) for such fiscal year.

(4) DEFINITIONS.—In this subsection, the following definitions apply:

(A) TOTAL BUDGET RESOURCES.—The term ''total budget resources'' means the total

amount made available by appropriations Acts from the Goods Movement Trust Fund for a fiscal year to carry out this Act.

(B) LEVEL OF RECEIPTS PLUS INTEREST.—The term ''level of receipts plus interest'' means the level of funding appropriated or credited to the Goods Movement Trust Fund under section 9512 of the Internal Revenue Code of 1986 for a fiscal year as estimated in the budget of the United States Government for that fiscal year submitted by the President pursuant to section 1105 of title 31, United States Code. The President shall ensure that an estimate of such funding is included in each such budget.

SEC. 6. DEFINITIONS.

In this Act, the following definitions apply:

(1) FREIGHT.—The term ''freight'' means goods transported for a fee by a water, land, or air transportation mode.

(2) FREIGHT CORRIDOR.—The term ''freight corridor'' means a designated route along which freight is moved, including water, land, and air routes.

(3) SECRETARY.—The term ''Secretary'' means the Secretary of Transportation.

S. 3072 (Rockefeller) / H.R. 4753 (Rahall) Stationary Source Regulations Delay Act

Summary:
This bill would suspend, during the 2-year period beginning on the date of enactment of this Act, any Environmental Protection Agency (EPA) action under the Clean Air Act with respect to carbon dioxide or methane, except for motor vehicle emissions and reports or enforcement of reporting requirements.

Background:
U.S. EPA climate change regulations, including standards relating to light-duty motor vehicles, Title V permits, and actions related to Prevention of Significant Deterioration (PSD), have already been adopted and are scheduled to be implemented beginning January 2, 2011. The stationary source regulations that would be delayed if this Act passed include Title V permits and actions related to PSD. Future New Source Performance Standards (NSPS) to reduce carbon dioxide or methane would also be delayed.

Status:
Mar 4, 2010 Read twice and referred to the Senate Committee on Environment and Public Works. / Mar 4, 2010 Referred to the House Committee on Energy and Commerce.

Specific Provisions:

- During the 2-year period beginning on the date of enactment of this Act, the EPA may not take any action under the Clean Air Act (42 U.S.C. 7401 et seq.) with respect to any stationary source permitting requirement (Title V or PSD) or any requirement under section 111 (NSPS) of that Act (42 U.S.C. 7411) relating to carbon dioxide or methane.
- The Act would not apply to:
    - any action under part A of Title II of the Clean Air Act (42 U.S.C. 7521 et seq.) relating to the vehicle emissions standards contained in Docket No. EPA-HQ-OAR-2009-0171 or Docket No. EPA-HQ-OAR-2009-0472;
    - any action relating to the preparation of a report or the enforcement of a reporting requirement; or
    - any action relating to the provision of technical support at the request of a State.
- The act provides that no action taken by EPA prior to the end of the 2-year period shall make CO2 or methane a pollutant "subject to regulation" under the Clean Air Act.

Impacts on AQMD's mission, operations or initiatives:
This bill is contrary to AQMD's legislative principles relating to climate change. Also the delay resulting from this bill would reduce opportunities for possible simultaneous co-benefit emission reductions of greenhouse gases and criteria pollutants. The bill would apparently prevent EPA from imposing sanctions or a federal implementation plan (FIP) on an area that fails to implement the GHG Tailoring Rule for PSD and Title V, and would

have the effect of making PSD & Title V inapplicable to GHGs at least prior to the 2-year period.

Recommended Position:

Oppose.

LEGISLATIVE COMMITTEE RECOMMENDED: October 8, 2010 Legislative Committee directed staff to bring this issue back at its November meeting.

111th CONGRESS

2d Session

S. 3072

To suspend, during the 2-year period beginning on the date of enactment of this Act, any Environmental Protection Agency action under the Clean Air Act with respect to carbon dioxide or methane pursuant to certain proceedings, other than with respect to motor vehicle emissions, and for other purposes.

IN THE SENATE OF THE UNITED STATES

March 4, 2010

Mr. ROCKEFELLER introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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A BILL

To suspend, during the 2-year period beginning on the date of enactment of this Act, any Environmental Protection Agency action under the Clean Air Act with respect to carbon dioxide or methane pursuant to certain proceedings, other than with respect to motor vehicle emissions, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the `Stationary Source Regulations Delay Act'.

SEC. 2. SUSPENSION OF CERTAIN EPA ACTION.

(a) In General- Except as provided in subsection (b), notwithstanding any provision of the Clean Air Act (42 U.S.C. 7401 et seq.), during the 2-year period beginning on the date of enactment of this Act, the Administrator of the Environmental Protection Agency may not take any action under the Clean Air Act (42 U.S.C. 7401 et seq.) with respect to any stationary source permitting requirement or any requirement under section 111 of that Act (42 U.S.C. 7411) relating to carbon dioxide or methane.

(b) Exceptions- Subsection (a) shall not apply to--

(1) any action under part A of title II of the Clean Air Act (42 U.S.C. 7521 et seq.) relating to the vehicle emissions standards contained in Docket No. EPA-HQ-OAR-2009-0171 or Docket No. EPA-HQ-OAR-2009-0472;

(2) any action relating to the preparation of a report or the enforcement of a reporting requirement; or

(3) any action relating to the provision of technical support at the request of a State.

(c) Treatment- Notwithstanding any other provision of law, no action taken by the Administrator of the Environmental Protection Agency before the end of the 2-year period described in subsection (a) shall be considered to make carbon dioxide or methane a pollutant subject to regulation under the Clean Air Act (42 U.S.C. 7401 et seq.) for any source other than a new motor vehicle or new motor vehicle engine, as described in section 202(a) of that Act (42 U.S.C. 7521(a)).

END

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111TH CONGRESS
2D SESSION

H. R. 4753

To suspend, during the 2-year period beginning on the date of enactment of this Act, any Environmental Protection Agency action under the Clean Air Act with respect to carbon dioxide or methane pursuant to certain proceedings, other than with respect to motor vehicle emissions, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MARCH 4, 2010

Mr. RAHALL (for himself, Mr. MOLLOHAN, and Mr. BOUCHER) introduced the following bill; which was referred to the Committee on Energy and Commerce

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A BILL

To suspend, during the 2-year period beginning on the date of enactment of this Act, any Environmental Protection Agency action under the Clean Air Act with respect to carbon dioxide or methane pursuant to certain proceedings, other than with respect to motor vehicle emissions, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the ''Stationary Source Regulations Delay Act''.

SEC. 2. SUSPENSION OF CERTAIN EPA ACTION.

(a) IN GENERAL.—Except as provided in subsection (b), notwithstanding any provision of the Clean Air Act (42 U.S.C. 7401 et seq.), during the 2-year period beginning on the date of enactment of this Act, the Administrator of the Environmental Protection Agency may not take any action under the Clean Air Act (42 U.S.C. 7401 et seq.) with respect to any stationary source permitting requirement or any requirement under section 111 of that Act (42 U.S.C. 7411) relating to carbon dioxide or methane.

(b) EXCEPTIONS.—Subsection (a) shall not apply to—

(1) any action under part A of title II of the Clean Air Act (42 U.S.C. 7521 et seq.) relating to the vehicle emissions standards contained in Docket No. EPA–HQ–OAR–2009–0171 or Docket No. EPA–HQ–OAR–2009–0472;

(2) any action relating to the preparation of a report or the enforcement of a reporting requirement; or

(3) any action relating to the provision of technical support at the request of a State.

(c) TREATMENT.—Notwithstanding any other provision of law, no action taken by the Administrator of the Environmental Protection Agency before the end of the

2-year period described in subsection (a) shall be considered to make carbon dioxide or methane a pollutant subject to regulation under the Clean Air Act (42 U.S.C. 7401 et seq.) for any source other than a new motor vehicle or new motor vehicle engine, as described in section 202(a) of that Act (42 U.S.C. 7521(a)).

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ATTACHMENT 3

All Bills of Interest to AQMD Acted on by the Governor

Bills Supported by the District and signed by the Governor into law between January 1st through September 30, 2010.

- AB 1500 (Lieu) High-occupancy lanes: single occupancy vehicles: sunset date**.**
  Would extend the date, to January 1, 2015, that specified low-emission vehicles can use high-occupancy lanes, the department can issue low-emission decals or other identifiers, and illegal use of a department-issued decal on a low-emission vehicle is considered a misdemeanor, creating a state-mandated local program. This bill contains other related provisions and other existing laws.

- AB 1863 (Gaines) Diesel generators: health facilities.
  Would extend this repeal date to January 1, 2016. This bill contains other related provisions and other existing laws.

- AB 2037 (V.M. Perez) Electricity: air pollution
  This bill would prohibit a load-serving entity or local publicly owned electric utility from entering into, and would prohibit the PUC from approving for an electrical corporation, a long-term financial commitment with or for a new electrical generation facility constructed in California, or in a shared pollution area, as defined, that does not meet specified air pollution criteria.

- AB 2289 (Eng) Smog check program: testing: penalties
  Would require State Bureau of Automotive Repair to implement testing using onboard diagnostic systems only on model year 2000 and newer vehicles, beginning no earlier than January 1, 2013.

- AB 2514 (Skinner) Energy Storage Systems

  Would require the CPUC, by March 1, 2012, to open a proceeding to determine appropriate targets, if any, for each load-serving entity to procure viable and cost-effective energy storage systems and, by October 1, 2013, to adopt an energy storage system procurement target, if determined to be appropriate, to be achieved by each load-serving entity by December 31, 2015, and a 2nd target to be achieved by December 31, 2020. The bill would require the governing board of a local publicly owned electric utility, by March 1, 2012, to open a proceeding to determine appropriate targets, if any, for the utility to procure viable and cost-effective energy storage systems and, by October 1, 2014, to adopt an energy storage system procurement target, if determined to be appropriate, to be achieved by the utility by December 31, 2016, and a 2nd target to be achieved by December 31, 2021.

- ACR 109 (Nestande) Roy Wilson Memorial Highway
  Would designate a specified portion of State Highway Route 74 in the City of Palm Desert and Riverside County as the Roy Wilson Memorial Highway. The measure would also request the Department of Transportation to determine the cost for appropriate signs showing this special designation and, upon receiving donations from nonstate sources covering that cost, to erect those signs.

- SB 435 (Pavley) Vehicles: pollution control devices
  Would make it a crime for a person to park, use, or operate a motorcycle, registered in the state, that is manufactured on and after January 1, 2013, or a motorcycle, registered in the state, with aftermarket exhaust system equipment that is manufactured on or after January 1, 2013, that does not have the above label, and would make a violation of this provision punishable by a specified fine, thereby imposing a state-mandated local program by creating a new crime.

- SB 1224 (Wright) Air discharges
  Until January 1, 2014, would authorize a local air pollution control district or air quality management district to adopt a rule or regulation, consistent with protecting the public's comfort, repose, health, and safety, and not causing injury, detriment, nuisance, or annoyance, that ensures district staff and resources are not used to investigate complaints determined to be repeated and unsubstantiated, alleging a nuisance odor violation of that discharge prohibition. If a district adopts such a rule or regulation, the bill would require the district to submit the rule or regulation to the Senate Committee on Environmental Quality and the Assembly Committee on Natural Resources within 30 days of adopting the rule or regulation.

- SB 1479 (Committee on Public Employment and Retirement) Public employment: retirement benefits: administration.
  Among other provisions, this bill authorizes the AQMD to prepay is annual SBCERA obligation at a cost savings in excess of $1 million per year.

Bills supported by the District, but vetoed by the Governor.

- SB 1433 (Leno) Air pollution penalties: inflation adjustments.
  Would require the state board, on March 1, 2011, and annually thereafter, to adjust maximum civil and criminal penalties for inflation, and to publish the inflation-adjusted maximum penalties on its Internet Web site.
  Vetoed: 9/28/10
  AQMD Position: Support

Other Bills of Interest Sorted by Category **(Chaptered or Vetoed by 9/30)**

Alternative Fuels and Vehicle Technology

- AB 1106 (Fuentes) Alternative and Renewable fuel and vehicle technology
  Would extend this authorization to contract with the Treasurer indefinitely, and would also authorize the commission to contract with small business financial development corporations established by the Business, Transportation and Housing Agency to expend funds through the Small Business Loan Guarantee Program, if the expenditure is consistent with all of the requirements of the program.
  Chaptered: 9/27/10

- SB 1340 (Kehoe) Energy
  Would additionally, specify projects eligible for funding under the program to include a cost-effective program to provide funding for homeowners who purchase an electric vehicle to offset costs associated with modifying electrical sources to include a residential plug-in electric vehicle charging station. This bill contains other related provisions and other existing laws.
  Chaptered: 9/30/10

- SB 1455 (Kehoe) Plug-in hybrid and electric vehicles: Internet Web site.
  Would require the Energy Commission, by July 1, 2011, in consultation with the PUC, to develop and maintain an Internet Web site containing specific links to electrical corporation or local publicly owned electric utility Internet Web sites that contain information specific to plug-in hybrid or fully electric vehicles, or other Internet Web sites that include specified information. This bill contains other existing laws.
  Chaptered: 9/27/10

CEQA

- AB 231 (Huber) Environment: CEQA: overriding consideration
  Would authorize a lead agency, until January 1, 2016, to incorporate by reference a finding of overriding consideration made in a prior EIR for a later project if specified conditions are met, including that the lead agency determines that the later project's significant impacts on the environment are not greater than or different from those identified in the prior EIR.
  Chaptered: 9/29/10

- AB 499 (Hill) Environment: CEQA: determination: dispute
  Would instead require that a petitioner or plaintiff name, as a real party in interest, a recipient of approval, as identified by the public agency in its notice of determination or notice of exemption, that is the subject of an action or proceeding challenging the determination, finding, or decision of a public agency pursuant to CEQA. The bill would authorize the court to dismiss a petition or complaint if a petitioner or plaintiff fails to serve the recipient of approval identified by the public agency within the above service period. The bill would require the court to issue an order providing additional time for, and specifying the manner of, service if the petitioner or plaintiff demonstrates to the court's satisfaction that he or she has made a good faith effort to service the identified recipient of approval within the above service period.

Vetoed: 9/29/10

- SB 1456 (Simitian) Environmental quality: cumulative effects and mediation
  Until January 1, 2016, would provide that if a lead agency determines that a cumulative effect has been adequately addressed in a prior environmental impact report, in accordance with a specified procedure, that cumulative effect is not required to be examined in a later environmental impact report, mitigated negative declaration, or negative declaration. This bill contains other related provisions and other existing laws.
  Chaptered: 9/29/10

Government Reorganization and or Efficiency

- AB 1659 (Huber) State government: agency repeals
  Would create the Joint Sunset Review Committee to identify and eliminate waste, duplication, and inefficiency in government agencies and to conduct a comprehensive analysis of every "eligible agency," as defined, to determine if the agency is still necessary and cost effective. The bill would define an "eligible agency" as an entity of state government, however denominated, for which a date for repeal has been established by statute on or after January 1, 2011. The bill would require each eligible agency scheduled for repeal to submit a report to the committee containing specified information. The bill would require the committee to take public testimony and evaluate the eligible agency prior to the date the agency is scheduled to be repealed, and would require that an eligible agency be eliminated unless the Legislature enacts a law to extend, consolidate, or reorganize the agency. The bill would specify the composition of the committee, which would be appointed by the Senate Committee on Rules and the Speaker of the Assembly, and certain aspects of its operating procedure.
  Chaptered: 9/30/10

- SB 959 (Ducheny) Development: expedited permit review
  Would require the office to provide information to developers explaining the permit approval process at the state and local levels, or assisting them in meeting statutory environmental quality requirements, as specified, and would prohibit the office or the state from incurring any liability as a result of the provision of this assistance. The bill would require the office to assist state and local agencies in streamlining the permit approval process, and an applicant in identifying any permit required by a state agency for the proposed project. The bill would authorize the office to call a conference of parties at the state level to resolve questions or mediate disputes arising from a permit application for a development project. The bill would require that the office be located exclusively in Sacramento, and to consist of no more than 4 personnel through 2013
  Vetoed: 9/29/10

Greenhouse Gas / Climate Change

- AB 1405 (DeLeon) CA Global Warming Solutions Act of 2006: CA Climate Change Community Benefits Fund
  Would establish the California Climate Change Community Benefits Fund, and would require a minimum of 10% of revenues generated for the state each year from the state sale of compliance instruments for market-based compliance mechanisms pursuant to the act, other than revenues collected for administrative purposes, to be deposited into that fund. The moneys in the fund would be used, upon appropriation by the Legislature, in the most impacted and disadvantaged communities , as defined, to fund programs or projects that reduce greenhouse gas emissions or mitigate direct health, or environmental, impacts of climate change through competitive grants, loans, or other funding mechanisms. The Secretary for Environmental Protection would be required to administer moneys appropriated from the fund and would be required to establish criteria and procedures
  Vetoed: 9/30/10

- AB 1507 (Lieu) Motor Vehicle greenhouse gas emission reduction projects
  Would require the State Air Resources Board, by July 1, 2011, to revise project guidelines, for a project that reduces greenhouse gas emissions, to allow funds from specified programs and funding sources to be used for a project also funded under the Carl Moyer Memorial Air Quality Standards Attainment Program without those additional public funds being factored into the criteria emission reduction cost-effectiveness calculations under that program.
  Chaptered: 9/30/10

- ACR 133 (Perez) Earth Hour.
  Would endorse efforts to raise awareness of global climate change and energy efficiency and would declare the hour of 8:30 to 9:30 p.m. on the last Saturday of March to be "Earth Hour" throughout the state. The measure would encourage city, county, and state employees, and businesses to turn off nonessential lights in government buildings, public schools, public landmarks, and other buildings for that hour on March 27, 2010.
  Chaptered: 4/1/10

- SB 1006 (Pavley) Natural Resources: climate change: Strategic Growth Council
  Would require the council to manage and award revolving loans or grants to a city, county, special district, nonprofit organization, or entity formed under a joint powers agreement. The bill would require that these revolving loans or grants be awarded for urban greening plans and projects. This bill contains other existing laws.
  Chaptered: 9/30/10

- SB 1328 (Lowenthal) Greenhouse gas emissions: motor vehicle cabin temperature
  Would require the state board to consider specified matters if adopting or amending regulations to reduce motor vehicle cabin temperature in order to reduce greenhouse gas emissions.
  Chaptered: 9/30/10

- SJR 17 (Leno) Climate change: ocean acidification: Arctic.
  Would reaffirm the Legislature's commitment to reducing greenhouse gases in California to 1990 levels by 2020. It would urge the United States Environmental Protection Agency to regulate greenhouse gases and the federal government to persevere in its commitment to leading the world in efforts to address global climate change and ocean acidification, and reduce the concentration of carbon dioxide in the atmosphere to 350 parts per million.
  Chaptered: 8/27/10

HOV Lanes

- AB 1224 (Eng) High-occupancy toll lanes
  Would extend the authorization for the demonstration program until January 15, 2015, and would require the associated report to be submitted to the Legislature by December 31, 2014.
  Chaptered: 9/29/10

- SB 535 (Yee) Vehicles: high-occupancy vehicle lanes.
  Would revise that provision to provide that it shall remain in effect only until January 1, 2015, or until the Secretary of State receives that specified notice, with respect to a vehicle that meets California's super ultra-low exhaust emission standard and the federal inherently low-emission evaporative emission (ILEV) standard and a vehicle produced during the 2004 model-year or earlier that meets the California ultra-low emission vehicle standard and the ILEV standard. With respect to all other vehicles described above, this provision shall be operative only until July 1, 2011, or only until the Secretary of State receives that specified notice, whichever occurs first. This bill contains other related provisions and other existing laws.
  Chaptered: 8/30/10

Power Generation and Transmission

- AB 1947 (Fong) Solar Energy
  Would authorize a local publicly owned electric utility to adopt, implement, and finance a solar initiative program exempt from those offset and same-premises program requirements, where residential and business consumers offset part or all of their electricity demand with electricity generated by a solar energy system not located on the premises of the consumer, if the program meets certain requirements.
  Chaptered: 9/29/10

- AB 1954 (Skinner) Electrical transmission: renewable energy resources.
  Would provide that an application by an electrical corporation for a certificate of public convenience and necessity for new transmission facilities is necessary to the provision of electric service if the CPUC finds that the new transmission facility is necessary to facilitate achievement of the renewables portfolio standard. The bill would authorize the CPUC to approve the recovery in retail rates by an electrical corporation of certain costs for transmission facilities that are incurred in certain circumstances if not approved for recovery in transmission rates by the Federal Energy Regulatory Commission.
  Chaptered: 9/29/10

- AB 2514 (Skinner) Energy Storage Systems
  Would require the CPUC, by March 1, 2012, to open a proceeding to determine appropriate targets, if any, for each load-serving entity to procure viable and cost-effective energy storage systems and, by October 1, 2013, to adopt an energy storage system procurement target, if determined to be appropriate, to be achieved by each load-serving entity by December 31, 2015, and a 2nd target to be achieved by December 31, 2020. The bill would require the governing board of a local publicly owned electric utility, by March 1, 2012, to open a proceeding to determine appropriate targets, if any, for the utility to procure viable and cost-effective energy storage systems and, by October 1, 2014, to adopt an energy storage system procurement target, if determined to be appropriate, to be achieved by the utility by December 31, 2016, and a 2nd target to be achieved by December 31, 2021.
  Chaptered: 9/29/10

- SB 77 (Pavley) Energy: California Alternative Energy and Advanced Transportation Financing Authority: Property Assessed Clean Energy (PACE).
  Would require the authority to establish a Property Assessed Clean Energy (PACE) Reserve program to assist local jurisdictions in financing the installation of distributed generation renewable energy sources or energy or water efficiency improvements meeting specified requirements that are permanently affixed on real property through the use of a voluntary contractual assessment. The bill would, until January 1, 2015, appropriate up to $50,000,000 from the Renewable Resource Trust Fund to the authority for the purposes of the PACE Reserve program. The bill would require the authority, on March 31, 2011, and annually thereafter until January 1, 2015, to submit to the Legislature a report containing specified information regarding the implementation of the above provisions. This bill contains other related provisions and other existing laws.
  Chaptered: 4/21/10

- SB 730 (Wiggins) Energy Efficiency
  Would require the commission, in evaluating energy efficiency investments, to ensure that local and regional interests, multifamily dwellings, and energy service industry capabilities are incorporated into an electrical corporation's energy efficiency program portfolio design, and to encourage participation from local governments, community-based organizations, and energy efficiency service providers in program design, revision, and implementation, where appropriate. The bill would require an electrical corporation, when developing or revising its energy efficiency program portfolio design, to collaborate with, and seek comments from, county climate protection authorities or other public agencies that are directly authorized to implement regional or countywide climate protection and energy efficiency programs.
  Vetoed: 9/29/10

Retirement

- AB 1856 (Fong) Public employees' retirement
  The bill would require that installment payments automatically resume at the end of the suspension period, or earlier if requested by the member. The bill would prohibit an additional suspension of those installment payments for the same service for 3 years following the resumption of installment payments. The bill would require that the balance due at the end of a

suspension period be recalculated to include interest accrued during the suspension. This bill contains other related provisions
Chaptered: 8/27/10

- AB 194 (Torricco) Retirement: local employees
  Would specify that, notwithstanding any other law, for the purposes of determining a retirement benefit paid to a person who first becomes a member of a public retirement system on or after January 1, 2011, the maximum salary or pay rate upon which retirement benefits shall be based shall not exceed 125% of the salary recommended by the California Citizens Compensation Commission to be paid to the Governor of the State of California, effective December 7, 2009. The bill would require that this amount be adjusted annually based on changes in the All Urban California Consumer Price Index.
  Vetoed: 9/30/10

- AB 609 (Conway) County Employees Retirement: administrative costs
  Would prohibit expenses for the costs of administration of the retirement system incurred in any year from exceeding the greater of 21/100 of 1% of the accrued actuarial liability of the retirement system or $2,000,000, as adjusted annually by a specified annual cost-of-living adjustment. This bill would eliminate the exclusion of expenditures for legal services and costs of litigation from the costs of administration of the retirement system and would, instead, exclude from those costs of administration expenditures for computer software and hardware and computer technology consulting services in support of these products.
  Chaptered: 9/30/10

- AB 1821 (Ma) Public Employees Retirement System: preretirement death benefits
  Would require assets and liabilities of contracting agencies subject to those provisions to be pooled, as specified, after June 30, 2011. The bill would also provide that on and after July 1, 2011, certain members employed by a contracting agency entitled to receive benefits under the 1959 survivor allowance provisions instead receive increased benefits, as specified. This bill contains other related provisions and other existing laws.
  Vetoed: 9/30/10

- AB 1987 (Ma) Public retirement: final compensation: computation: retirees.
  Would generally provide, effective July 1, 2011, that any change in salary, compensation, or remuneration principally for the purpose of enhancing a member's benefits would not be included in the calculation of a member's final compensation for purposes of determining that member's defined benefit. The bill would require the board of each state and local public retirement system to establish, by regulation, accountability provisions that would include an ongoing audit process to ensure that a change in a member's salary, compensation, or remuneration is not made principally for the purpose of enhancing a member's retirement benefits. This bill would limit the calculation of a member's final compensation to an amount not to exceed the average increase in compensation received within the final compensation period and the 2 preceding years by employees in the same or a related group as that member. This bill would also provide that a person who retires on or after January 1, 2012, may not perform services for any employer covered by a state or local retirement system until that person has been separated from service for a period of at least 180 days. This bill would

provide for the implementation of the changes under the applicable retirement laws that apply to counties and cities.
Vetoed: 9/30/10

- SB 1139 (Correa) State retirement: benefit programs.
The Public Employees' Retirement Law (PERL) provides a comprehensive set of rights and benefits for various employees of the state and local agencies. That law also establishes the Public Employees' Retirement System (PERS) and sets forth the provisions for the delivery of benefits, including retirement benefits, health benefits, and an optional tax-deferred compensation program, to its members. Under that law, the retirement benefits of a retirement system member are based, in part, on the completed service credit and compensation received by that member. This bill would make technical and clarifying changes to those provisions of law, including amendments that rename the current "deferred compensation program" as the "tax-preferred retirement savings program." This bill contains other related provisions and other existing laws.
Chaptered: 9/30/10

Vehicular Pollution Control

- AB 787 (Hill) Smog Check: Vehicle Repair Assistance and retirement program
Would require the department to pay a person who retires his or her vehicle $1,500 for a low-income motor vehicle owner, as defined, and $1,000 for all other motor vehicle owners, and would authorize additional payments above these amounts based on consideration of specified criteria . The bill would require the department to permit vehicle retirement for any motor vehicle that has been continuously registered in the state for at least 2 years prior to vehicle retirement, and that fails any type of smog check inspection lawfully performed in the state.
Chaptered: 9/24/10

- SB 435 (Pavley) Vehicles: Pollution Control Devices
Would make it a crime for a person to park, use, or operate a motorcycle, registered in the state, that is manufactured on and after January 1, 2013, or a motorcycle, registered in the state, with aftermarket exhaust system equipment that is manufactured on or after January 1, 2013, that does not have the above label, and would make a violation of this provision punishable by a specified fine, thereby imposing a state-mandated local program by creating a new crime. The bill would require the person to whom a notice to appear is issued, or against whom a complaint is filed, for the above violation, to provide proof of correction. The bill would authorize a court to dismiss the penalty imposed for a first violation if the person produces proof of correction to the satisfaction of the court. This bill contains other related provisions and other existing laws.
Chaptered: 9/28/10

- AB 2461 (Emmerson) Vehicles: vehicle registration amnesty program
Would require the department to establish the above amnesty program from July 1, 2011, to June 30, 2012, and would make related changes. For the purposes of that program, the bill would require a specially constructed vehicle to be considered "correctly registered" if it has been issued a certificate of compliance on the basis that the specially constructed vehicle has

met the inspection and maintenance tailpipe emissions requirements, as determined by the Bureau of Automotive Repair, for the model year assigned in the amnesty application. Because the bill would expand the scope of the crime of perjury, this bill would impose a state-mandated local program. This bill contains other related provisions and other existing laws.
Chaptered: 9/27/10

Workforce Development

- AB 2696 (Bass) California Workforce Investment Board: Green Collar Jobs Council.
  Would revise the duties of the GCJC, as specified. The bill would authorize the board to accept any revenues, moneys, grants, goods, or services from federal and state entities, philanthropic organizations, and other sources, to be used for purposes relating to the administration and implementation of the strategic initiative. The bill would authorize the Employment Development Department, upon appropriation by the Legislature, to expend those moneys and revenues for purposes related to the strategic initiative and the award of grants, as provided. The bill would require the GCJC to consult with appropriate state and local agencies to identify opportunities to coordinate the award of grant and green workforce training funds received by the state under the federal American Recovery and Reinvestment Act of 2009 or any other funding sources. The bill would require the board, on or before April 1, 2011, and annually each April 1 thereafter, to report to the Legislature on the status of GCJC activities, grants awarded, and the development and implementation of a green workforce.
  Chaptered: 9/27/10

- SB 675 (Steinberg) Partnership academies: Clean Technology and Renewable Energy Job Training, Career Technical Education, and Dropout Prevention Program.
  Would require the Controller annually to allocate $8,000,000 from the Energy Resources Program Account, upon appropriation by the Legislature, to the Superintendent of Public Instruction for expenditure in the form of local grants to be allocated pursuant to the existing provisions for creating and maintaining partnership academies. The bill would require a grantee to implement or maintain a partnership academy that focuses on employment in clean technology businesses and renewable energy businesses and provides skilled workforces for the products and services for energy or water conservation, or both, renewable energy, pollution reduction, or other technologies. This bill contains other related provisions and other existing laws.
  Vetoed: 9/30/10

Miscellaneous

- SB 1172 (Negrete-McLeod) Regulatory boards: diversion programs
  Would specify that those records and documents shall be kept for 3 years and kept confidential and are not subject to discovery or subpoena unless otherwise expressly provided by law. This bill contains other related provisions and other existing laws. \
  Chaptered: 9/29/10

- SB 1402 (Dutton) State Air Resources Board: administrative and civil penalties

Would require a written communication from the state board alleging that an administrative or civil penalty will be, or could be, imposed either by the state board or another party, including the Attorney General, for a violation of air pollution law, to contain specified information. The bill would require this information and final mutual settlement agreements reached between the state board and a person alleged to have violated air pollution laws to be made available to the public.
Chaptered: 9/28/10

- AJR 41 (Lieu) Santa Monica Airport
  Would memorialize the Federal Aviation Administration, the federal Environmental Protection Agency, the federal Department of Transportation, and the members of the California congressional delegation to work collaboratively to review noise levels and the safety of flight
  Chaptered: 8/30/10

- SB 70 (Committee on Budget and Fiscal Review) Sales and use taxes: fuel taxes.
  Would exempt the sale of, and the storage, use, or other consumption of, specified diesel fuel from that tax that would be imposed by AB 6 of the 2009-10 8th Extraordinary Session. This bill contains other related provisions and other existing laws.
  Chaptered: 3/24/10

- SJR 33 (Lowenthal) National freight policy.
  Would request that Congress adopt a national freight policy as a component of the next federal transportation bill and subsequently direct the United States Department of Transportation to implement its provisions.
  Chaptered: 8/20/10

ATTACHMENT 4

Home Rule Advisory Group
September 15, 2010

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
LEGISLATIVE REPORT

FROM HOME RULE ADVISORY GROUP
MEETING OF SEPTEMBER 15, 2010

HRAG members present:
Dr. Dr. Elaine Chang (SCAQMD)
Greg Adams, L.A. County Sanitation Districts
Enrique Chiock, Breathe L.A. (participated by phone)
Curtis Coleman, Southern California Air Quality Alliance
Chris Gallenstein on behalf of Richard Corey, CARB (participated by phone)
Jayne Joy, Eastern Municipal Water District
Rongsheng Luo on behalf of Jonathan Nadler, SCAG (participated by phone)
Bill LaMarr, California Small Business Alliance
Art Montez, AMA International
Larry Rubio, Riverside Transit
Steve Schuyler on behalf of Mike Wang, WSPA
Lee Wallace, So Cal Gas and SDG&E

LEGISLATIVE UPDATE

Philip Crabbe provided a preview of what is scheduled to be discussed at the Legislative Committee meeting on September 17, 2010. The legislative consultants are scheduled to provide an update on federal legislation. The following federal bills will be presented to the Committee for consideration:

Bill #(s)	Author(s)	Bill Title
S. 3495	Dorgan	Promoting Electric Vehicles Act of 2010
S. 3608 H.R. 5174	Schumer/ Tonko	Fuel Cell Industrial Vehicle Jobs Act of 2010 (related bills)
S. 3629 H.R. 5976	Lautenberg/ Sires	Focusing Resources, Economic Investment, and Guidance to Help Transportation Act of 2010 (companion bills)

S. 3495

S. 3495 would establish within the Department of Energy (DOE) a national plug-in electric drive vehicle deployment program. During a five-year period, approximately 700,000 vehicles would be deployed. The bill also would task DOE with monitoring the progress and providing technical assistance to states. The bill would identify and create five to 15 targeted plug-in deployment communities that would be eligible for federal funding of up to $500,000,000.

S. 3629 (Lautenberg)/H.R. 5976 (Sires)
These bills would define the federal government's role in freight transportation policy and planning. The bills would instruct the U.S. DOT to develop a strategic plan for investing in the country's goods movement infrastructure. It would call for the creation of a new national freight infrastructure investments grant program that would fund projects prioritized through merit-based criteria.

S. 3608 (Schumer)/H.R. 5174 (Tonko)
These bills would amend the internal revenue code to maintain a level of an $8,000 tax credit for qualified fuel cell motor vehicles placed in service after 2009. The bills would also allow credit for certain off-highway vehicles. The Tonko bill would provide for possible increases in the credit for certain off-highway vehicles that achieve higher electricity generation efficiency.

At the Legislative Committee meeting, staff will provide an update on the state budget and a summary of the air quality related bills that will be going to the Governor or were acted on this year.

Discussion
A participant asked if staff will be giving an update on Section 185 of the Clean Air Act at the Legislative Committee meeting on September 17. Mr. Crabbe responded that this issue will likely be discussed at the Legislative Committee meeting.

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 28

REPORT: Mobile Source Committee

SYNOPSIS: The Mobile Source Committee met Friday, October 15, 2010. Following is a summary of that meeting.

RECOMMENDED ACTION:
Receive and file.

Jane Carney, Acting Chair
Mobile Source Committee

EC:fmt

Attendance

Acting Chair Jane Carney called the meeting to order at 9:00 a.m. Present at the AQMD was Committee Member Josie Gonzales. Attending via videoconference was Committee Member John J. Benoit. Chair Ronald Loveridge, Committee Members Bill Campbell and Jan Perry were absent. The following items were presented:

INFORMATIONAL ITEMS:

1) Status Report on 2010 Update to Ports' Clean Air Action Plan

Peter Greenwald, Senior Policy Advisor, provided a status report on the 2010 Update to the Clean Air Action Plan (CAAP) for the Ports of Los Angeles and Long Beach. The CAAP was adopted in 2006 and included control measures to reduce emissions at the ports from ships, cargo handling equipment, trucks, harbor craft, and locomotives. The 2010 CAAP Update incorporates comments and changes to the plan and was developed with significant input from AQMD, CARB, and EPA. AQMD staff has some concerns with the draft document and proposed strengthening amendments for locomotives and railyards, electrification, oceangoing vessels, risk reduction standard, 2014 NOx San Pedro Bay standard, and San Pedro Bay Standards implementation. The 2010 CAAP Update was considered for adoption at a joint hearing of the Harbor Commissions on October 6, 2010. Testimony was heard from industry and environmental groups who requested more time to review the document. Consideration of the Update was

continued to November with port staff to provide further explanations to stakeholders and the Harbor Commissions. AQMD staff will continue to participate.

2) Report on Senate Bill 375 Implementation

Mark Butala, Manager of Comprehensive Planning for the Southern California Association of Governments (SCAG), was invited by staff to provide a report on the strategy development and technical analysis for Senate Bill 375 (SB 375) implementation. Dr. Elaine Chang, Deputy Executive Officer, explained that SCAG staff will be providing periodic updates to the Mobile Source Committee on the status of the Sustainable Communities Strategy (SCS) development and the development of the 2012 Regional Transportation Plan (RTP) as this data will be incorporated into the next Air Quality Management Plan.

Mr. Butala's presentation focused on statutory components and greenhouse gas (GHG) reduction strategies for the SCS. The strategies to reduce GHG emissions have been divided into two categories, land use and transportation. Land use strategies include infill development, transit oriented development (TOD), and mixed use developments. Transportation strategies include infrastructure investments, transportation demand management and transportation system management policies. In addition, SCAG will be looking at current programs in which GHG reductions can be claimed. For example, 80 Compass Blueprint Projects have been completed or are in development. In addition to the Compass Blueprint Projects there are also pedestrian and bicycle initiatives, green building programs, and projects that will be completed under Measure R.

Mr. Butala discussed a number of challenges for implementation of an SCS. There is no additional funding for the planning and implementation of SCS projects. This is to be completed under the current funding structures. Time, particularly as it relates to the Regional Housing Needs Assessment (RHNA) process, will be an issue. SCAG is also still waiting for the California Air Resources Board to complete their evaluation of SCAG's proposed methodologies; and two sub-regions, Orange County Council of Governments (OCCOG) and Gateway Cities Council of Governments (Gateway COG), are going to develop their own SCS's which will need to be incorporated into the regional SCS.

SCAG local sustainability planning tool will soon be available for local government use, and the first round of SCS development workshops will be held in December 2010/January 2011. Other workshops and development activities will follow, with the draft 2012 RTP/SCS scheduled for release in November

2011. It is planned that public hearings will be held November 2011 to January 2012, with the final 2012 RTP/SCS released in April 2012.

Supervisor Josie Gonzales was interested in seeing SCAG's plan for outreach to the local governments. She is concerned because planning decisions are made through different processes among local governments and she wants to ensure that the correct planning structures have been identified.

Ms. Jane Carney suggested that SCAG try to identify funds for a study to look at the completed Compass Blueprint projects to determine what has and has not worked to reduced vehicle miles traveled.

3) 2010 Ozone Season and Ongoing Air Quality Trends

Joe Cassmassi, Planning and Rules Manager, provided an update of the ozone air quality season through mid-October. The trend of Basin days exceeding the federal 75 ppb standard has continued to show progress with 2010 having the lowest total to date. Peak concentrations are also lower than previous years. The trend was evaluated to discuss the potential influence of seasonal weather conditions on ozone formation and the impact of the economic downturn on the pattern. In general, the mid-summer months did not show any significant weather bias toward ozone formation. The sensitivity analysis addressing the economic slowdown suggested that lower overall concentrations in the Basin would likely result but the mix of VOC and NOx could force more frequent impacts to areas closer to the emissions source region. Observations of ozone concentrations and patterns supported this postulation.

Ms. Carney asked staff to clarify the definition of the monsoon in southern California, and Mr. Cassmassi responded that the typical flow in the late summer is from the south and it draws moisture from the Gulf of Mexico and Gulf of Baja to increase desert precipitation probability. Mr. Cassmassi, pointed out that the monsoonal flow was very weak this year and more stable conditions due to the lack of monsoon may have lead to a nominal increase in ozone for the Coachella Valley. In closing, Mr. Cassmassi pointed out that the 2010 smog season still has a few weeks left and that staff will continue to monitor the air quality and augment the analysis at the end of the year.

4) Rule 2202 Activity Report

Written report submitted. No comments.

5) Monthly Report on Environmental Justice Initiatives – CEQA Document Commenting Update

Written report submitted. No comments.

6) Other Business
None

7) Public Comment
None

The meeting adjourned at 10:20 a.m.

Attachment
Attendance Roster

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
MOBILE SOURCE COMMITTEE MEETING
Attendance Roster- October 15, 2010

NAME		AFFILIATION
Acting Chair Jane Carney		AQMD Governing Board
Committee Member John J. Benoit		AQMD Governing Board (via videoconference)
Committee Member Josie Gonzales		AQMD Governing Board
Board Assistant Lisha Smith		AQMD Governing Board (Gonzales)
Board Assistant Buford Crites		AQMD Governing Board (Benoit) via videoconf.
Board Assistant Nicole Nishimura		AQMD Governing Board (Lyou)
Board Assistant Debra Mendelsohn		AQMD Governing Board (Antonovich)
Mark Butala		SCAG
David Rothbart		Los Angeles County Sanitation District
Sue Gornick		BP
Curtis Coleman		Southern California Air Quality Alliance
Steve Schuyler		WSPA
Richard Friedman		EES
Elaine Chang		AQMD Staff
Laki Tisopulos		AQMD Staff
Barbara Baird		AQMD Staff
Henry Hogo		AQMD Staff
Peter Greenwald		AQMD Staff
Nancy Feldman		AQMD Staff
Joe Cassmassi		AQMD Staff
Randall Pasek		AQMD Staff
Shashi Singeetham		AQMD Staff
Carol Gomez		AQMD Staff
Jean Ospital		AQMD Staff

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
MOBILE SOURCE COMMITTEE MEETING
Attendance Roster- October 15, 2010

Veera Tyagi		AQMD Staff
Sam Atwood		AQMD Staff
Patti Whiting		AQMD Staff
Philip Crabbe		AQMD Staff

Back to Agenda

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 29

REPORT: Refinery Committee

SYNOPSIS: The Refinery Committee met Friday, August 18, 2010. Following is a summary of that meeting.

RECOMMENDED ACTION:
Receive and file.

Dennis Yates, Acting Chair
Refinery Committee

EC:LT:JC:GQ

Attendance
Mayor Dennis Yates, Acting Committee Chair, called the meeting to order at approximately 10:00 AM. Also present at the AQMD were Judith Mitchell and Dr. Joseph Lyou, with Dr. William Burke joining via videoconference and Jane Carney joining via teleconference.

Overview of Proposed Amendments to SOx RECLAIM Program
Dr. Laki Tisopulos, Assistant Deputy Executive Officer with Planning, Rule Development and Area Sources, gave a presentation on the legal mandates to reduce SOx emissions, staff's proposed SOx shave and the methodology applied, RTC reductions, and future water demands [Attachment]. Mayor Yates inquired about the main source of SOx pollution. Dr. Tisopulos responded that ocean-going ships are the main contributors to SOx emissions. RECLAIM sources contribute approximately 25 percent to the overall SOx emissions.

Mayor Yates asked if the 2007 AQMP identified the committed reductions in SOx as three tons per day and whether the industries were pointing to that figure. Dr. Barry Wallerstein, Executive Officer, responded that the AQMP is a snapshot in time and detailed analyses are prepared during rulemaking to identify available emission

reductions and such estimates can be higher or lower than the preliminary estimate in the AQMP.

Dr. Lyou added that in an Appendix in the AQMP, it states "*It should be noted that during rule development all SOx sources in RECLAIM will be subject to a thorough BARCT evaluation to achieve the maximum feasible SOx reductions*".

Board Member Mitchell inquired on the 3 ton per day AQMP estimate and staff's proposed reduction of over 6 tons per day. Dr. Tisopulos responded that staff's proposal of a 55% shave reflects an RTC (RECLAIM Trading Credit) reduction of 6.1 tons per day by 2019. Dr. Lyou indicated that between the original staff proposal and the current staff proposal there's a 1.4 ton per day difference. Dr. Wallerstein responded that after the last Refinery Committee Meeting, meetings were held with various refiners to review detailed data for their specific refineries. After holding internal discussions with the consultants and a review of the numbers, staff amended its proposal. Dr. Elaine Chang, Deputy Executive Officer, explained that there were three reasons that contributed to the change: (1) staff excluded some very costly controls at a single facility (2) staff extended the compliance date from 2017 to 2019 and incorporated appropriate growth assumptions in the methodology presented and (3) staff recently completed audited emissions rather than reported emissions.

Joe Sparano, WSPA Executive Advisor, Rod Spackman from Chevron, and Stan Holmes representing Exxon-Mobil presented an alternative to staff's proposal. At the conclusion of the presentation and discussion on their alternative proposal, Joe Sparano reiterated that they are committed to meeting the three tons per day requirement under the 2007 AQMP. They also expressed concern with staff's proposal on shave methodology. However, WSPA is prepared to work with staff on addressing their concerns. The WSPA representatives pointed to their $2.7 billion cost estimate as more accurately representing the cost to reduce the SOx emissions and that staff had underestimated these costs.

Board Member Mitchell asked why, according to staff, there was no need to remove electrostatic precipitators (ESPs). Dr. Tisopulos responded that ESPs are installed to control predominantly directly emitted particulates in order to meet the Rule 1105.1 standards. The wet gas scrubbers are mainly used to control SOx emissions. Based on feedback received from the consultants, staff does not believe that any of the ESPs will need to be removed.

Dr. Lyou inquired on whether consideration was given to the physical layout of the refineries and whether this makes sense to each individual refinery. Dr. Tisopulos stated that both sets of consultants had a walkthrough of the refineries to identify a location and also heard concerns expressed by each refinery. Several refiners did not agree with the locations recommended by the first set of consultants. Alternative

locations were recommended by Norton Engineering in response to comments received, which has contributed to increasing the original costs by approximately 20 percent.

Dr. Tisopulos reviewed the projected potable water demand, availability of recycled water and well water for the scrubber technology. Board Member Mitchell inquired on the geographic range of distribution for the Harbor Water Project and Dr. Lyou asked the water purveyors if they could meet the water demand increase. Water purveyors attending the meeting included Uzi Daniel (West Basin Municipal Water District), Joe Walters (West Basin Municipal Water District, and Jesus Gonzalez (LADWP – Water Recycling Group). They responded to the Committee Members' questions that the pipeline is built to serve the harbor corridor area and that they would be able to meet the demands to supply recycled water at the required levels.

Dr. Burke commented that he was pleased to see WSPA and staff members partnering on resolving the issues at hand. He stressed the importance on meeting our legal obligation under the law to meet SIP commitments, implement all BARCT for existing sources, and demonstrate equivalency to Command and Control regulations.

Dr. Lyou requested staff to prepare an analysis of the difference between the cost estimates of $2.7 billion (WSPA) and $750 million (staff's consultants). In addition, he requested site visits to the refineries to observe the proposed physical location of equipment.

Board Member Carney requested a copy of both consultant reports and the draft CEQA document.

Public Comments
Adrian Martinez, NRDC, requested both presentations by staff and WSPA be made available on the district website. He also requested that the environmental community have an opportunity to present at the next Refinery Committee meeting.

Meeting adjourned at 12:25 pm.

Attachment
SCAQMD Presentation

Attachment

SOx RECLAIM

Refinery Committee Meeting
August 18, 2010

BACKGROUND

Why Reduce SOx Emissions?

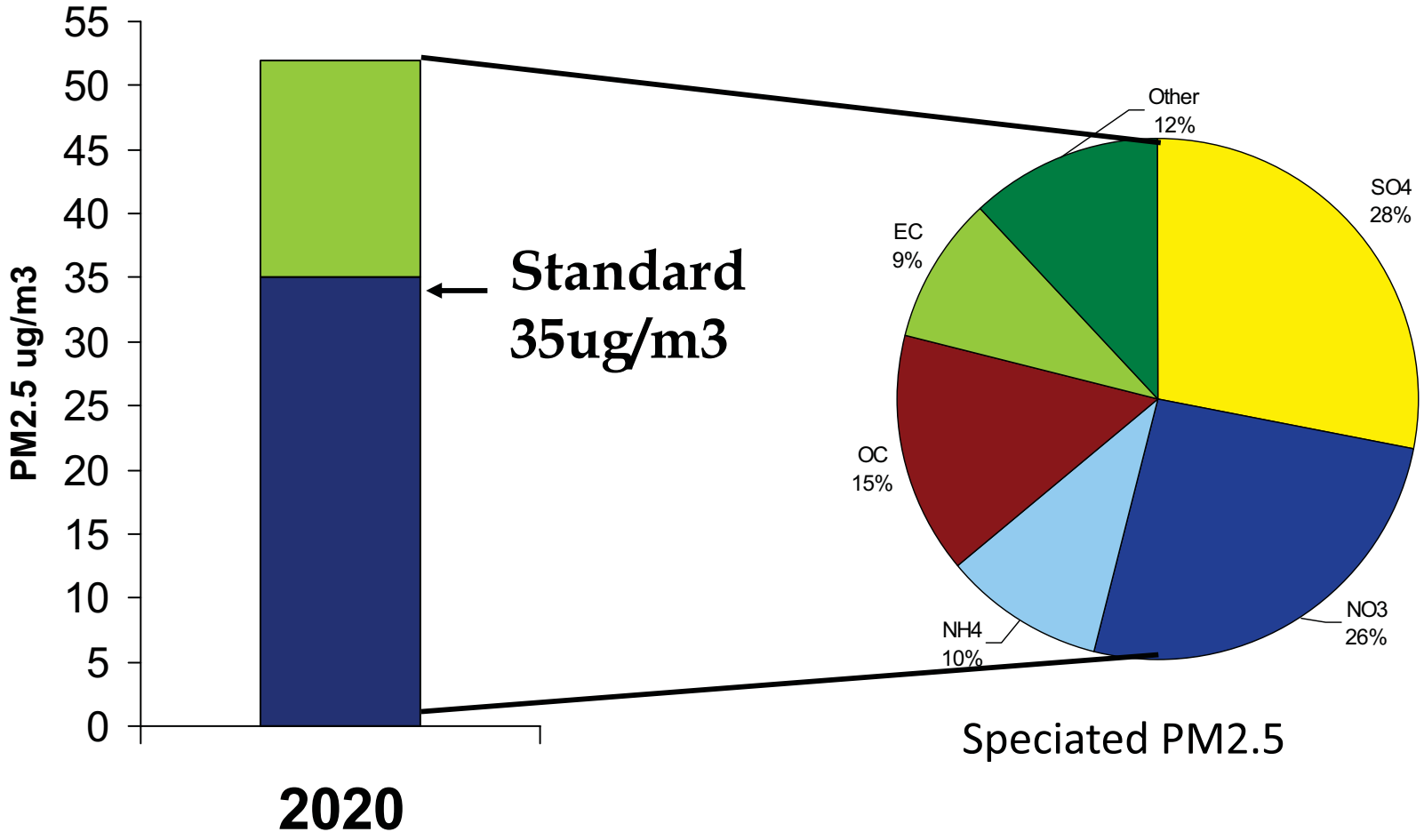
Legal Mandates

- Periodic BARCT update (H&S §40440)
- Command & control equivalency (H&S §39616 (c)(1))
- SIP commitment (2007 AQMP/SIP CMB-02)

Need for Reductions Beyond 2007 AQMP

- 24-hour PM2.5 standard by 2020
- Proposed annual and 24-hr PM2.5 standards
  - 24-hr standard: 30-35 ug/m3
  - Annual standard: 11-13 ug/m3

Predicted Maximum 24-hour PM 2.5 Concentration (2020)

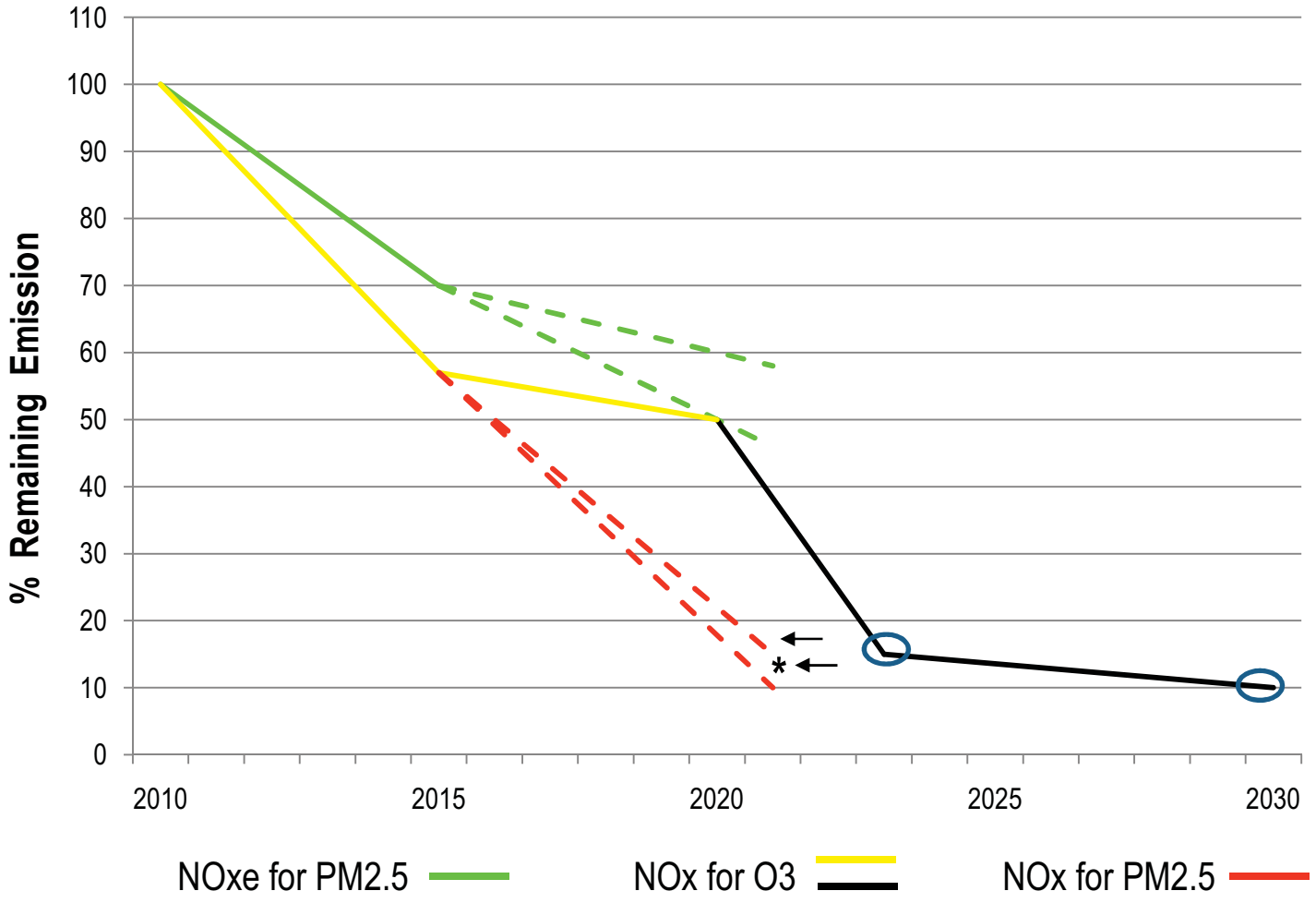


Source, 2007 AQMP

PM2.5 Preliminary Analysis

- Reduction effectiveness among PM2.5 and its precursors:
  - NOx:SOx:PM2.5:VOC = 1:15:10:0.4
- Basin wide average PM2.5 air quality improvement
  - 150 tons/day NOxe reductions for every 1 ug/m3
- Annual standard under consideration 11-13 ug/m3
  - 300 to 600 tons/day NOxe reductions

Preliminary Analysis of Emission Levels for Pending O3 & PM2.5 Standards



*Additional SOx and PM2.5 reductions still needed

Staff Proposal

- BARCT for 6 source categories (5ppm – 10ppm)
  - FCCUs
  - Sulfur Recovery/Tail Gas Units (SRU/TGU)
  - Sulfuric Acid Plants
  - Coke Calciner
  - Glass Melting Furnaces
  - Cement Kilns
- Investment (present value, 25 years)= $630 – $750 million
- Weighted Average Cost Effectiveness= $15k-19k/ton SOx
- CEQA Alternatives: 3 tpd – 6.14 tpd RTC Reductions (25% – 55% shave)

Staff Proposal (continued)

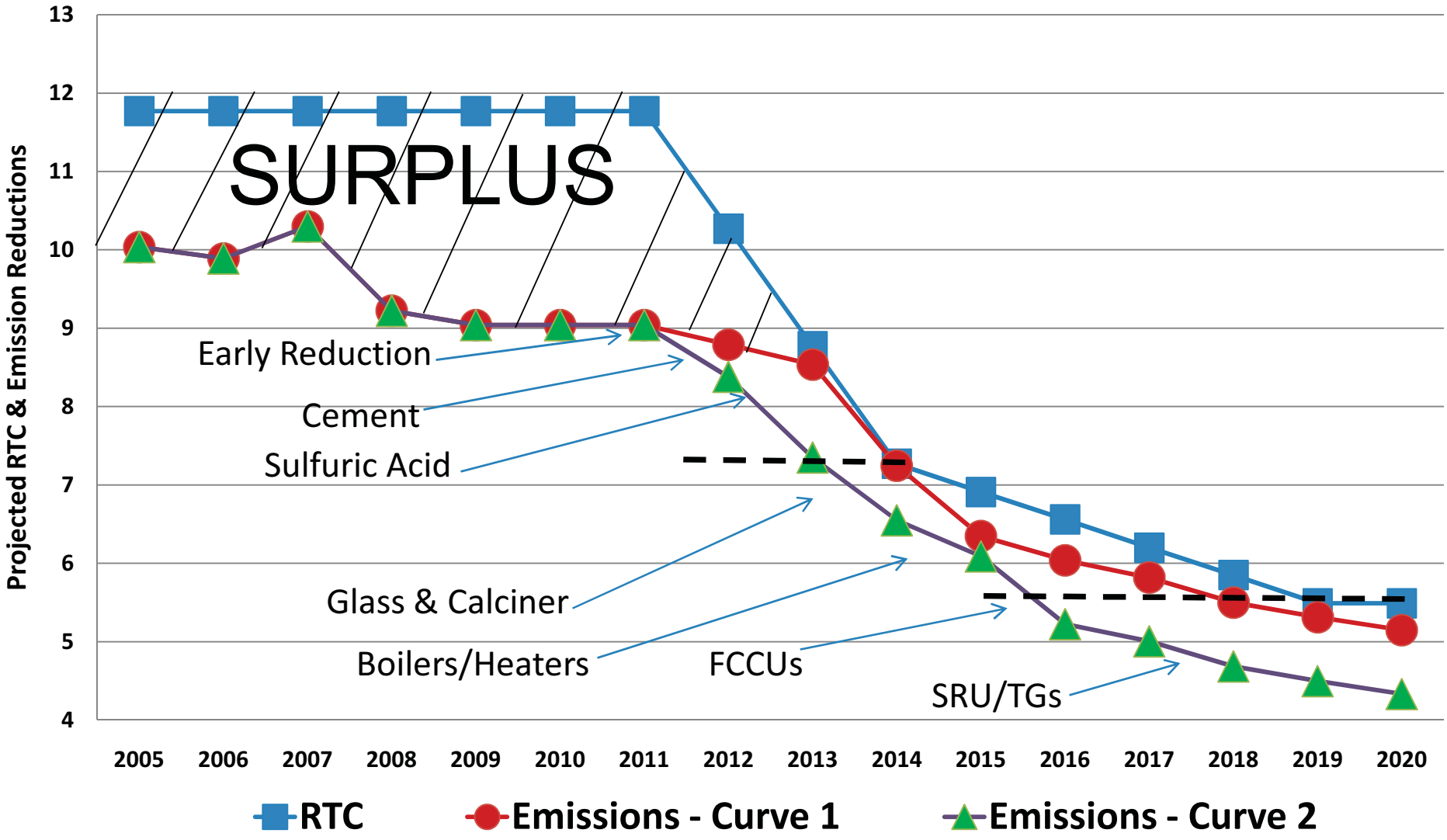
- 55% shave (RTC Reductions 6.14 tpd) by 2019 in two phases
  - Original staff proposal: 67.5% shave by 2017
  - 6.14 tpd RTC Reductions = 5.35 tpd actual emission reductions
- Two-phase reduction w/ annual reduction targets
  - 41% by 2014 (4.5 tpd)
  - 55% by 2019 (6.14 tpd)
- Limited exemption from shave for certain small emitters
- Provisions for market viability
  - Set-aside RTC amounts similar to NOx RECLAIM
  - Board review if SOx RTC price greater than $50k per ton SOx

Staff Proposal (continued)
% Shave* & RTC Reductions

	2014		2017		2019	
	Shave	Reductions	Shave	Reductions	Shave	Reductions
Original Proposal	41%**	4.5 tpd	67.5%	7.5	------	------
Current Proposal	41%	4.5 tpd			55%	6.1

* % shave is calculated by dividing RTC Reductions by RTC Holdings of major emitters and investors (11.09 tpd)
** Current margin (unused RTCs) between RTC Holdings and Actual Emissions: ~2.55 tpd (22% of RTC holdings)

Staff Proposal



Emissions - Curve 1: BARCT for staff proposal. Curve 2: Additional opportunity for reductions with slower rate of growth than Curve 1

Is SOx RECLAIM Shave Overdue?

- Significant overallocation since program inception
- First BARCT review since 1994
- 1994 BARCT review included only two source categories by 2000
- More reduction options than needed

Command and Control Equivalency
&
SOx Shave Methodology

Staff's Approach

- Not to penalize or create windfalls due to trades since the inception of the program
- Afford the same growth opportunities as C&C
- Consistent with NOx RECLAIM

AQMP Methodology

- Use 1997 audited emissions at the start of the program
- Apply 2007 AQMP growth assumptions by industry between 1997- 2019
- Full implementation of Tier 1 controls by 2000
- Full implementation of proposed BARCT by 2019
- 10% compliance margin

Who Does the Shave Apply to?

- SOx RECLAIM Universe = 32 Facilities
- Staff Proposes to Apply Shave to:
  - 11 largest emitters (93% of emissions)
  - Private investors/brokers
  - Exclude 21 facilities
    - small emitters
    - no applicable BARCT
    - holdings less than initial allocation minus recently acquired credits (3 facilities)
    - 4 facilities with no holdings

Work Plan

Work Plan Elements	Completed	Partially Completed	Conclusions
Stranded Investments (ESPs)	✓		•Equipment costs w/in estimated range •Installation costs varied significantly •Bottlenecks: Preference toward, same vendor/contractor and compressed construction schedule due to litigation •No need to remove ESPs
Consultant Analyses	✓		•Hired 2nd consultant •Higher cost estimates than 1st set of consultants but w/in uncertainty range of analysis •Cost-effectiveness ~20% higher

Work Plan (continued)

Work Plan Elements	Completed	Partially Completed	Conclusions
Water Demand & Wastewater Discharge	✓		•Water demand can be met •Water demand significant •Mitigation: Use recycled water if available •Wastewater treatment capacity adequate
Market Viability		✓	•Staff analysis completed and being discussed with WSPA
CEQA	✓		•Program EA •Water and GHG emission significant •Mitigation: Use recycled water, if available
Permitting		✓	•Wil initiate meetings between WSPA and E & C

Water & Wastewater

Water Demand

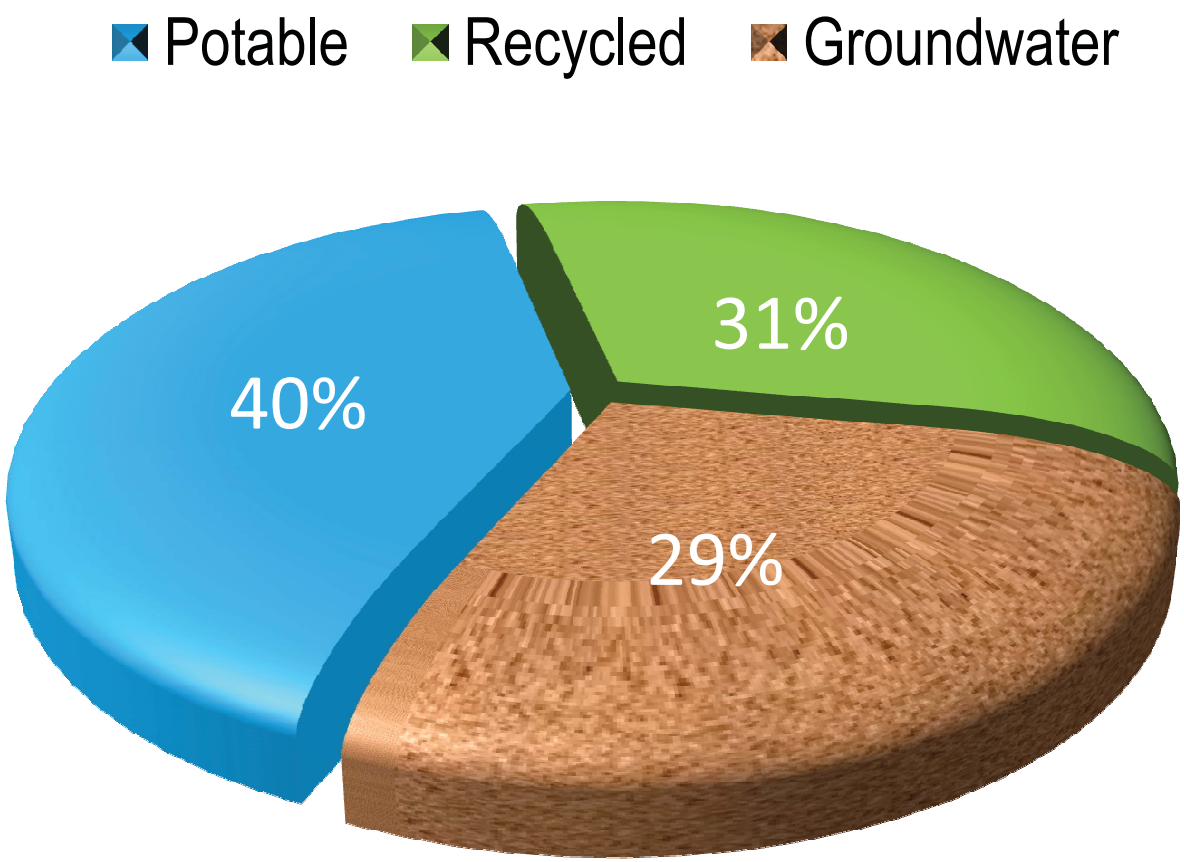
Facility	Baseline (Million Gals/Day)	Increase (Million Gals/Day)	% Increase
Refinery 1	2	0.04	2%
Refinery 2	9	0.2	2%
Refinery 3	10	0.2	2%
Refinery 4	6	0.06	1%
Refinery 5*	9	0.02	<1%
Refinery 6	12	0.2	2%
Sulf. Acid	0.7	0.02	3%
Coke	1	0.04	4%
Glass	0.1	0.06	48%
Cement	3	0.1	3%
Total	53 Million Gals/Day 163 Acre-Ft/Day 59 Thousand Acre-Ft/Yr	1 Million Gals/Day 3 Acre-Ft/Day 1 Thousand Acre-Ft/Yr	2%

Water Demand

- South Coast Regional Water Demand = 6.37 Million Acre-Ft Per Year
  - Project Increase = 1,000 Acre-Ft Per Year = 0.02% of South Coast Water Demand
  - 80% Below CEQA Threshold of 5 Million Gals Per Day
- Water Suppliers Can Meet Demand for Next 20 Years (2005 Urban Water Management Plans)
- Potable Water Increase = 0.3 Acre-Ft per Day
  - Negligible Effect on Governor's Goal of 20% Potable Reduction by 2020
- Recycled Water & Well Water Available

Water Demand

Current Water Demand

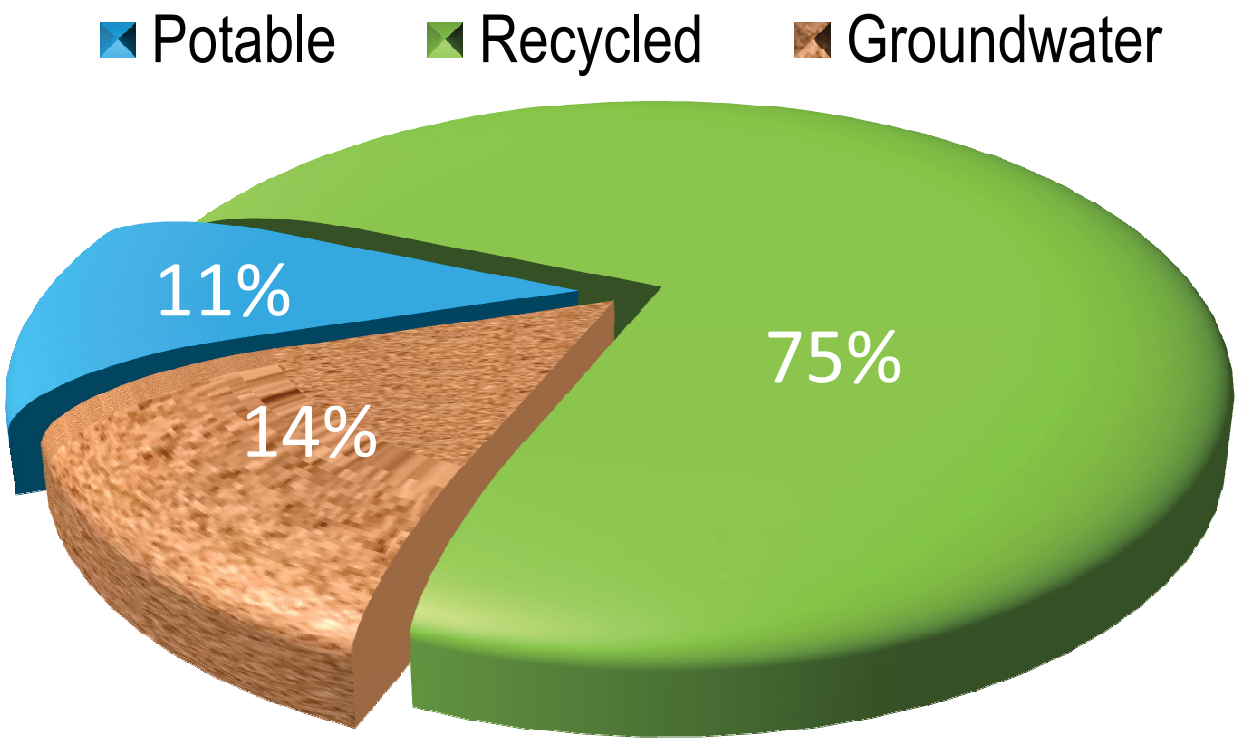


Total Baseline Water Use in CEQA = 58 million gallons per day*

* Reflects potential demand. Actual usage is 53 million gallons per day.

Water Demand

Future Water Demand With Wet Gas Scrubbers (Option 1)
If Future Supplies of Recycled Water ARE Available

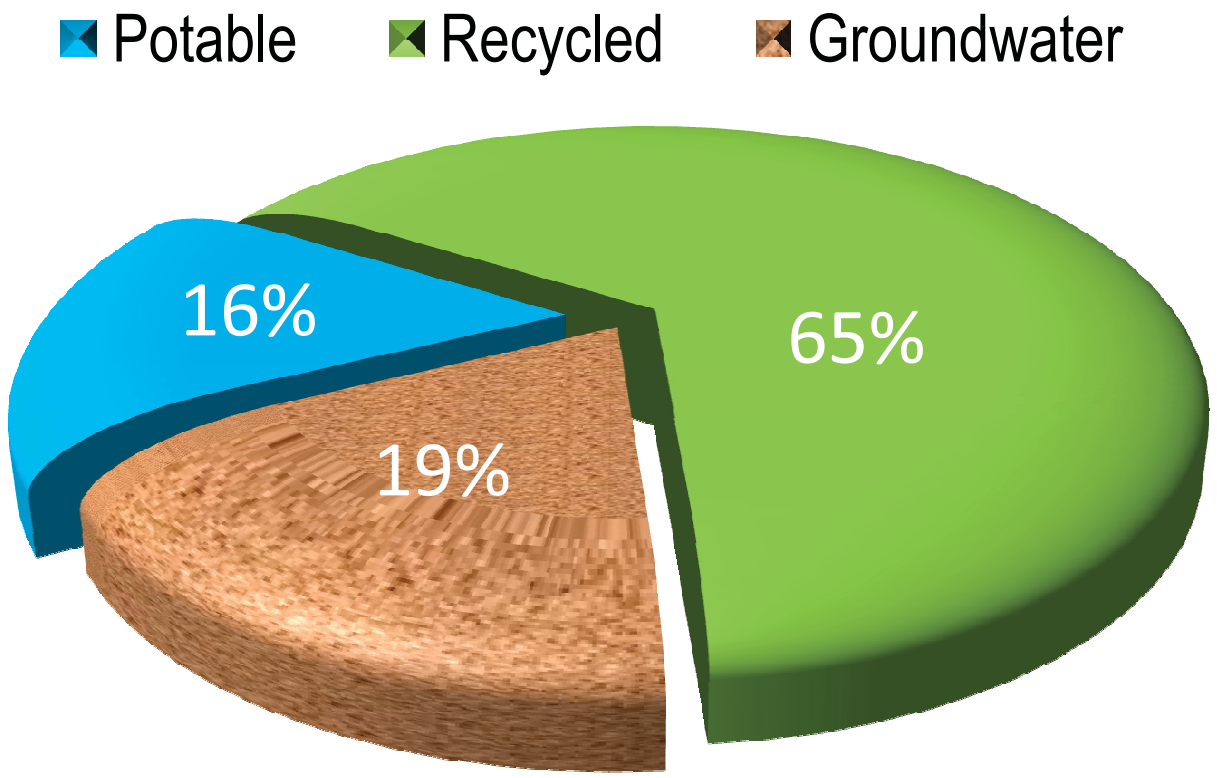


Increase in Water Use = 883,368 gallons per day

Potable water projected increase is below CEQA Significance Threshold

Water Demand

Future Water Demand With SOx Reducing Catalysts (Option 2)
If Future Supplies of Recycled Water ARE Available



Increase in Water Use = 642,272 gallons per day

Potable water projected increase is below CEQA Significance Threshold

Water Demand

- CEQA Significance Threshold = 5 million gallons per day
- Exercise Abundance of Caution – Consider New CEQA Significance Threshold
  - Potable water usage by a 500 dwelling unit project
    - 0.134 million – 0.223 million gallons per day
- The projected increase in potable water usage in Option 1 triggers significance if future recycled water supplies are not available
- Mitigation to reduce potable water demand:
  - Use recycled water, if available (Harbor Refineries Recycled Water Pipeline Project)

Wastewater

- Small increase in wastewater discharge. No need to revise discharge permits.

Facility	Discharge Limit (GPM)	Current Discharge (GPM)	Increase (GPM)	% Increase
Refinery 1	764 - 1,000	903	15	2%
Refinery 2	7,500 - 12,200	3,000	40	<1%
Refinery 3	6,000 – 16,000	5,000	36	<1%
Refinery 4	10,000	2,200	22	<1%
Refinery 5*	5,000	1,400 – 2,000	14	<1%
Refinery 6	5,200 – 8,000	4,000	51	1%
Sulf. Acid	425	175 - 387	8	2%
Coke	125	65	11	9%
Glass	Not Reported	250	9	----
Cement	No Limit	Evaporation Pond	Small	Small
Total	35,000 – 53,000	17,000 – 18,000	206	<1%

Next Steps

- Continue to Meet with Stakeholders
- Draft CEQA Released Today
- Revised Draft Staff Report & Socioeconomic Analysis - In Progress
- Public Hearing – November 2010

REVISED

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 29A

REPORT: Refinery Committee

SYNOPSIS: The Refinery Committee met Wednesday, September 22, 2010. Following is a summary of that meeting.

RECOMMENDED ACTION:
Receive and file.

Jane Carney, Chair
Refinery Committee

EC:LT:JC:GQ:KO

Attendance
Jane Carney, Committee Chair, called the meeting to order at approximately 12:00 PM. Present were Chair Carney and Committee Members Dennis Yates, Judith Mitchell, and Dr. Joseph Lyou, with Jan Perry joining via teleconference and Dr. William Burke joining via videoconference.

Overview of Proposed Amendments to SOx RECLAIM Program
Dr. Laki Tisopulos, Assistant Deputy Executive Officer with Planning, Rule Development and Area Sources, gave a presentation to compare the proposals from the District and WSPA for RTC (RECLAIM Trading Credit) reductions [Attachment 1].

Dr. Tisopulos stated in the presentation that there are three outlier units in the refineries that are driving up the costs, according to WSPA's estimates. Board Member Carney asked if the costs being used by AQMD included the contingency amounts set forth in the report from Norton Engineering Consultants. Dr. Tisopulos responded that the overall costs do include contingencies. Board Member Mitchell asked what the basis is for WSPA's estimates. Mayor Yates asked if the costs take into account any logistical problems that will be encountered with regard to plot space and location for wet gas scrubber installations. Dr. Tisopulos responded that both sets of consultants took this

into consideration as part of the cost estimates, although some of the proposed locations of the scrubbers differed between the consultants which accounted for some of the cost differences. However, this does not explain the large gap between the District and WSPA's estimates, particularly for the three outlier units.

Jan Perry joined via teleconference at 12:35 pm

Dr. Burke expressed his apprehension regarding some governmental assessment of costs. He advised District staff to ensure reasonableness in its cost estimates. Mayor Yates expressed his frustration at the fact that the District and WSPA were still going back and forth with regard to the costs. He stated that this exercise should be completed before the next Refinery Committee Meeting. Cathy Reheis-Boyd, WSPA President, said that WSPA will meet with District staff the following day (September 23, 2010) to address these concerns in detail. Dr. Burke asked about market viability, inquiring about the "wiggle room" in the market after the shave.

Dr. Burke left the meeting at 1:20 pm.

Mayor Yates left the meeting at 1:35 pm.

The Committee provided the opportunity for members of the environmental community to comment on the proposed rule amendment. Their members expressed contentment with the progress of rule development and stated that the transparency of the cost figures from both sides is of utmost importance. Representatives also stated that it is very important for the refineries take into account the prevention of premature deaths with the successful adoption of this rule amendment and that the refineries could pass the project's cost to the consumer. Industry representatives responded that this proposed regulation would severely impact the job market in California.

Mrs. Reheis-Boyd presented to the Committee a slide presentation addressing WSPA's concerns regarding costs of meeting the proposed RTC shave [Attachment 2]. Board Member Carney inquired about the infrastructure to deliver recycled water to the refineries. She wanted to know what those costs are and if those should be included in the staff proposal. Board Member Mitchell added that this discussion really needs to be clarified for the Board Members.

Dr. Lyou stated that the District has to ensure that it does what the law requires, especially if it is cost effective. In addition, he had questions on the ERCs to RTCs portion of the shave. Mrs. Reheis-Boyd responded that WSPA and the District will discuss this further at the following day's meeting. Dr. Lyou said that he will want a write-up of that explanation and that he also will want error bars included in the costs provided by WSPA.

Public Comments
The Committee then opened the floor to comments from the public. These comments focused on concerns regarding the potential job impacts and the selection of a proper RTC cost threshold in order to ensure optimum flexibility in the SOx RECLAIM trading program.

Dr. Tisopulos concluded by stating that a very brief presentation will be delivered at the Stationary Source Committee on Friday, September 24, 2010. The presentation will include the progress of the discussions between WSPA and the District at the Thursday, September 23 meeting.

Meeting adjourned at 2:35 pm.

Attachments
1 – SCAQMD Presentation
2 – WSPA Presentation

Attachment 1

SOx RECLAIM
Refinery Committee Meeting

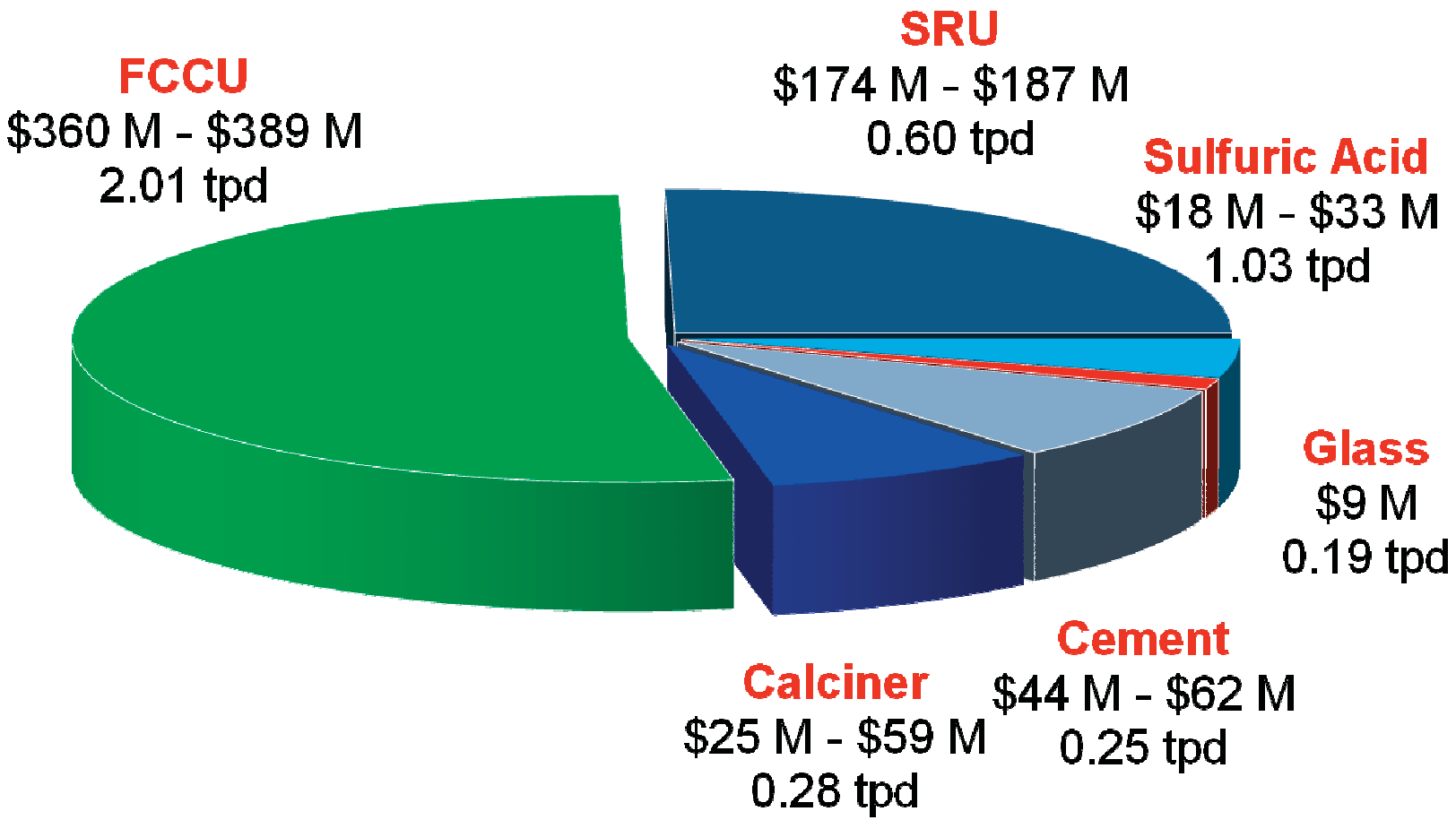
September 22, 2010

Explaining the Gap on Cost Estimates

- WSPA's estimate = $2.85 billion (60% shave)
- Limited information on WSPA/ENVIRON presentation
- Difficult format for meaningful analysis
- Overlapping costs (e.g. hydrotreating, DeSOx, wet gas scrubbing)
- Does not reflect the revised 55% shave scenario

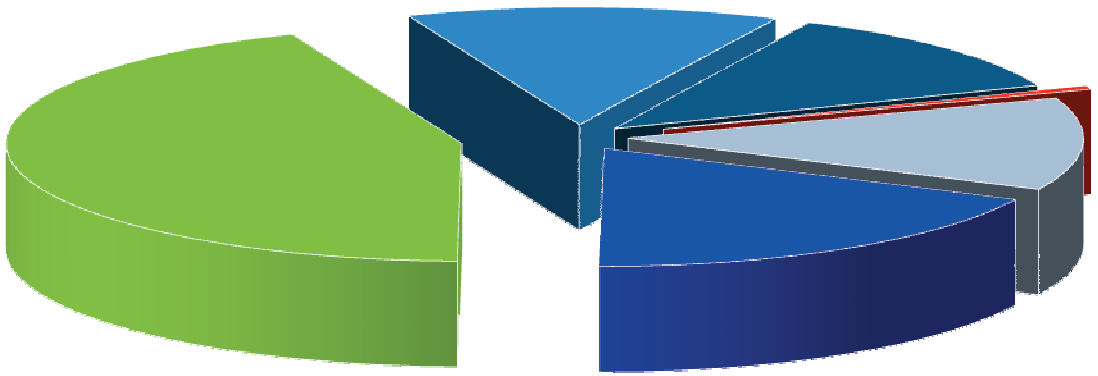
Estimate	Reasons
$2,850 M	
- $720 M	Remove costs for boilers/heaters control options
- $101 M	Remove costs for early controls already in place
- $467 M	Remove costs for cost-ineffective units
$1,562 M	
- $700 M	Remove overestimated costs for FCCU's WGSs
+ $196 M	**Add consultant's estimates for FCCU's WGSs (2 outliers)**
- $459 M	Remove overestimated costs for SRU/TG's WGS
+ $73 M	**Add consultant's estimate for SRU/TG's WGS (1 outlier)**
$672 M	

Costs & Emission Reductions by Equipment Category (based on Consultants' Input)



SOx RECLAIM project = $630 - $738 million, 5.4 tpd emission reductions, cost effectiveness $15 - $19 K per ton
Refinery sector = $561 - $638 million (86% total costs), 3.9 tpd emission reductions (73% total reductions)
FCCU controls = 53% of total costs and 53% of total emission reductions

Costs & Emission Reductions by Refinery (based on Consultants' Input)



Refinery 4
$78 M - $84 M
0.2 tpd

Refinery 2
$60 M - $76 M
0.17 tpd

Refinery 6
$232 M - $279 M
1.51 tpd

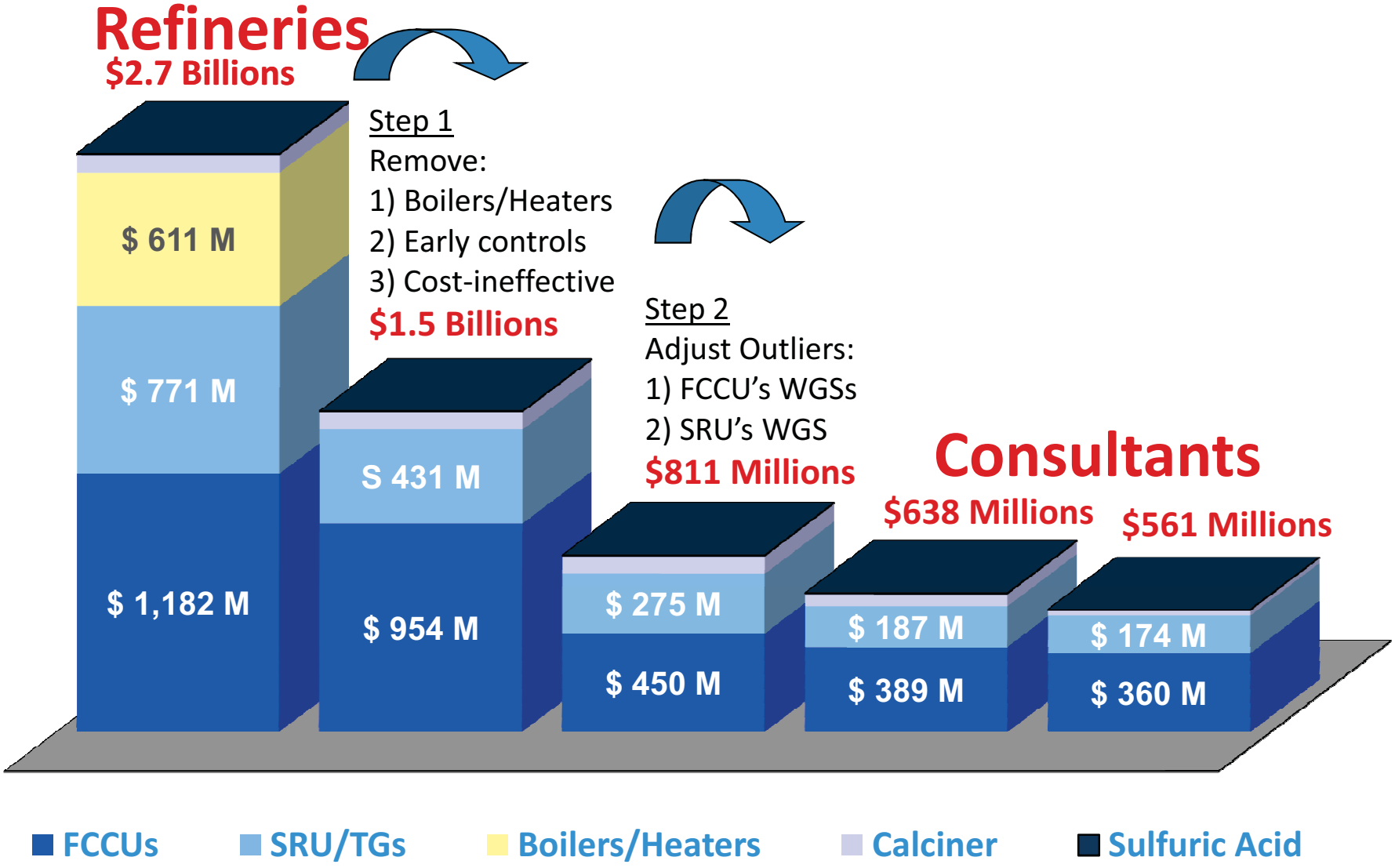
Refinery 5
$2 M - $3 M
0.03 tpd

Refinery 1
$76 M - $81 M
0.58 tpd

Refinery 3
$112 M - $115 M
0.43 tpd

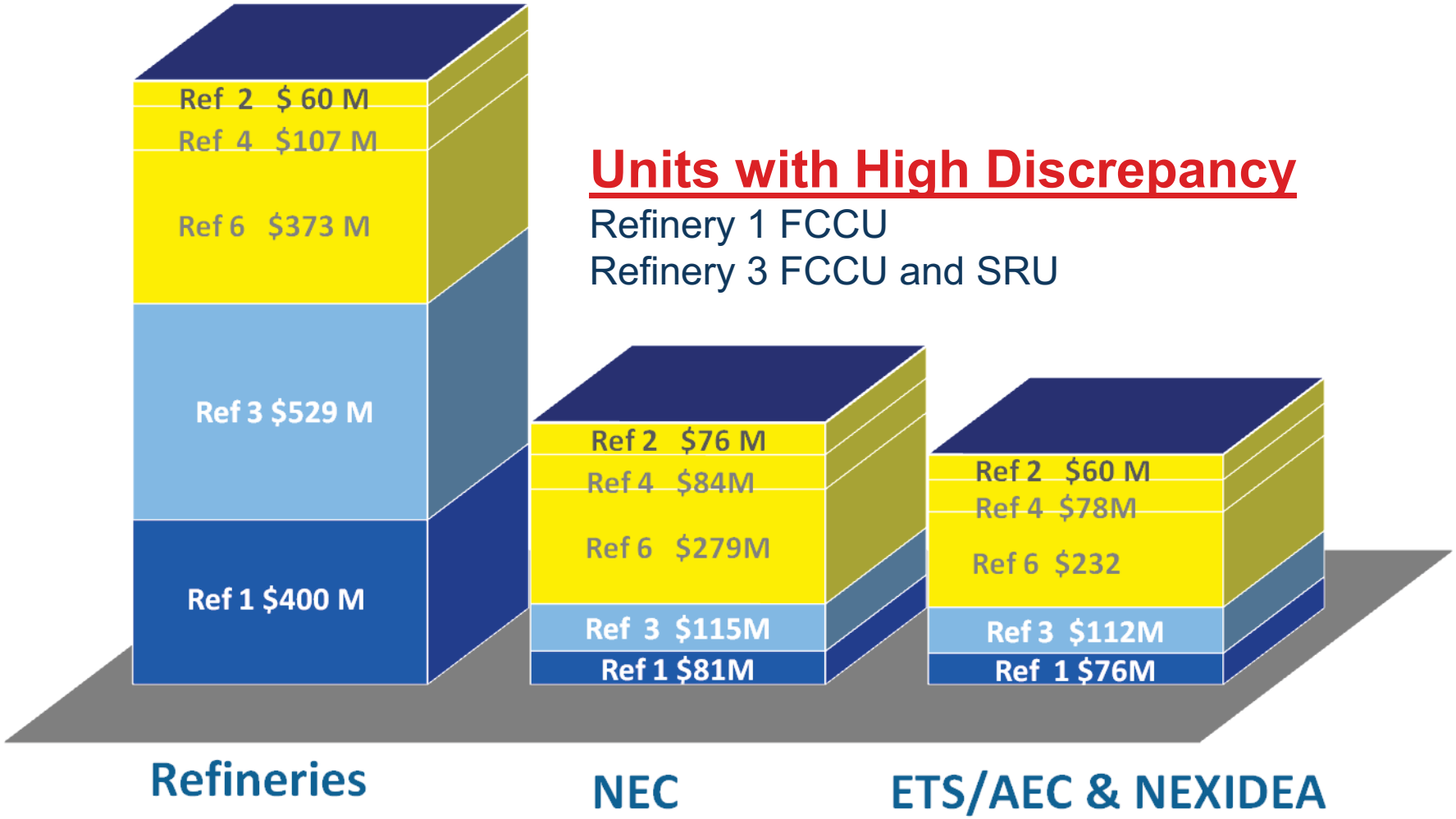
SOx RECLAIM project = $630 - $738 million, 5.4 tpd emission reductions, cost effectiveness $15 - $19 K per ton
Refinery sector = $561 - $638 million (86% total costs), 3.9 tpd emission reductions (73% total reductions)

Explaining the Gap in Two Steps



Step 1: 2.7 billions –(611millions for boilers/heaters +101 millions for early controls + 467 million for cost-ineffective)= 1,471 millions
Step 2: 1.47 billion – (700 millions for FCCUs + 229 millions for SRU as refinery's estimate) + (196 millions for FCCUs + 73 millions for SRU as consultants' estimate) = 811 millions

Explaining the Gap in Two Steps

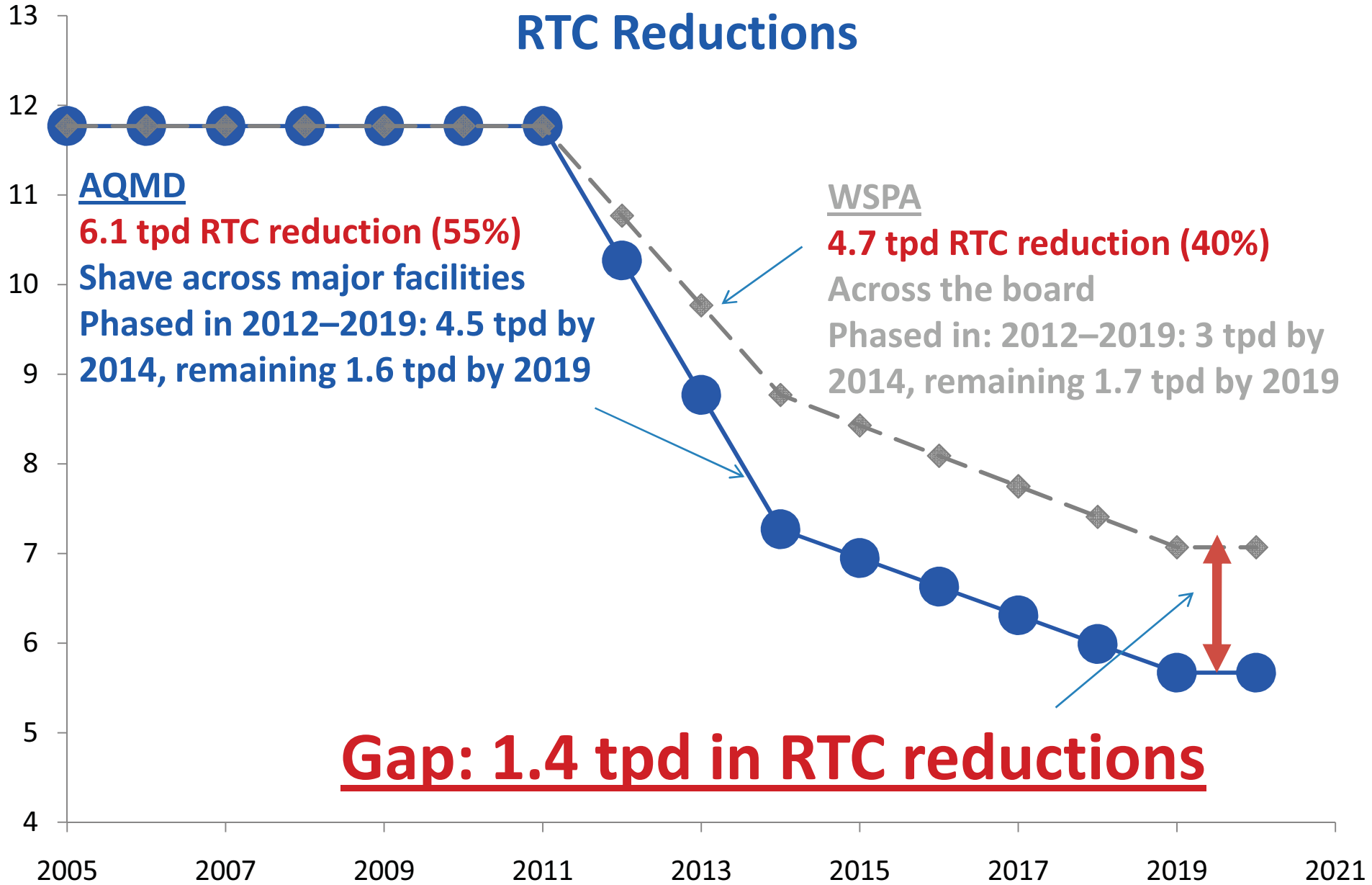


Units with High Discrepancy

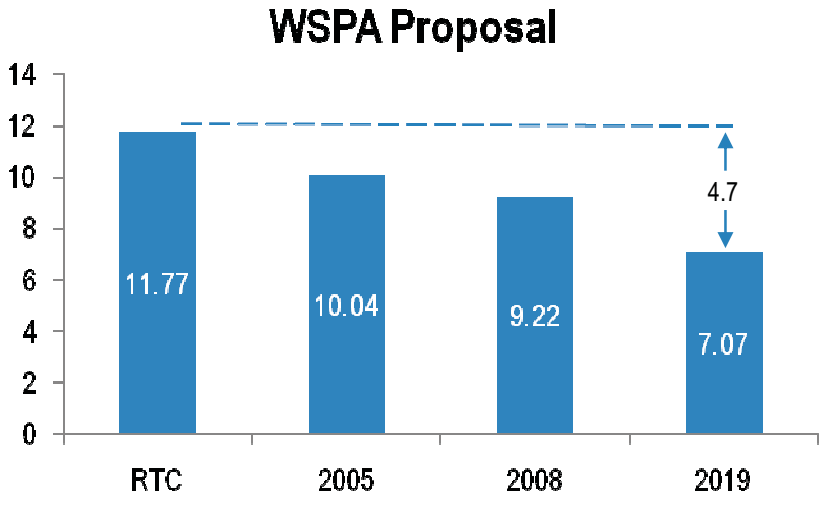
Refinery 1 FCCU

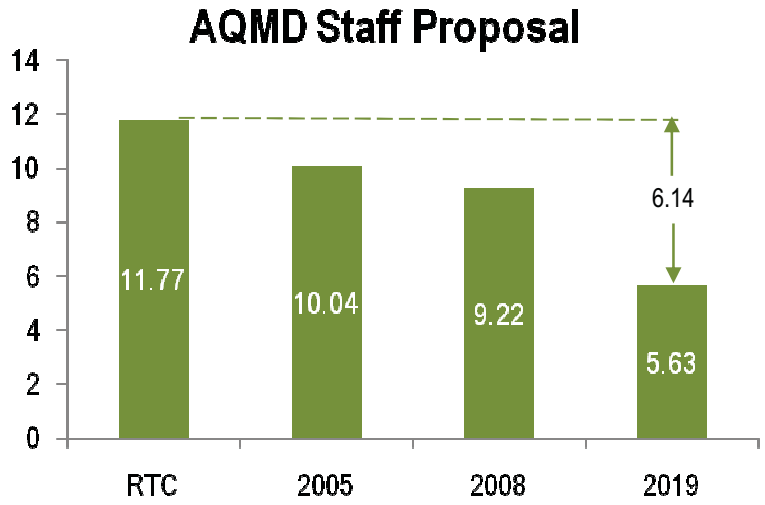
Refinery 3 FCCU and SRU

Staff's versus WSPA's Proposal
RTC Reductions



BARCT Reductions 2005 = 5.35 TPD





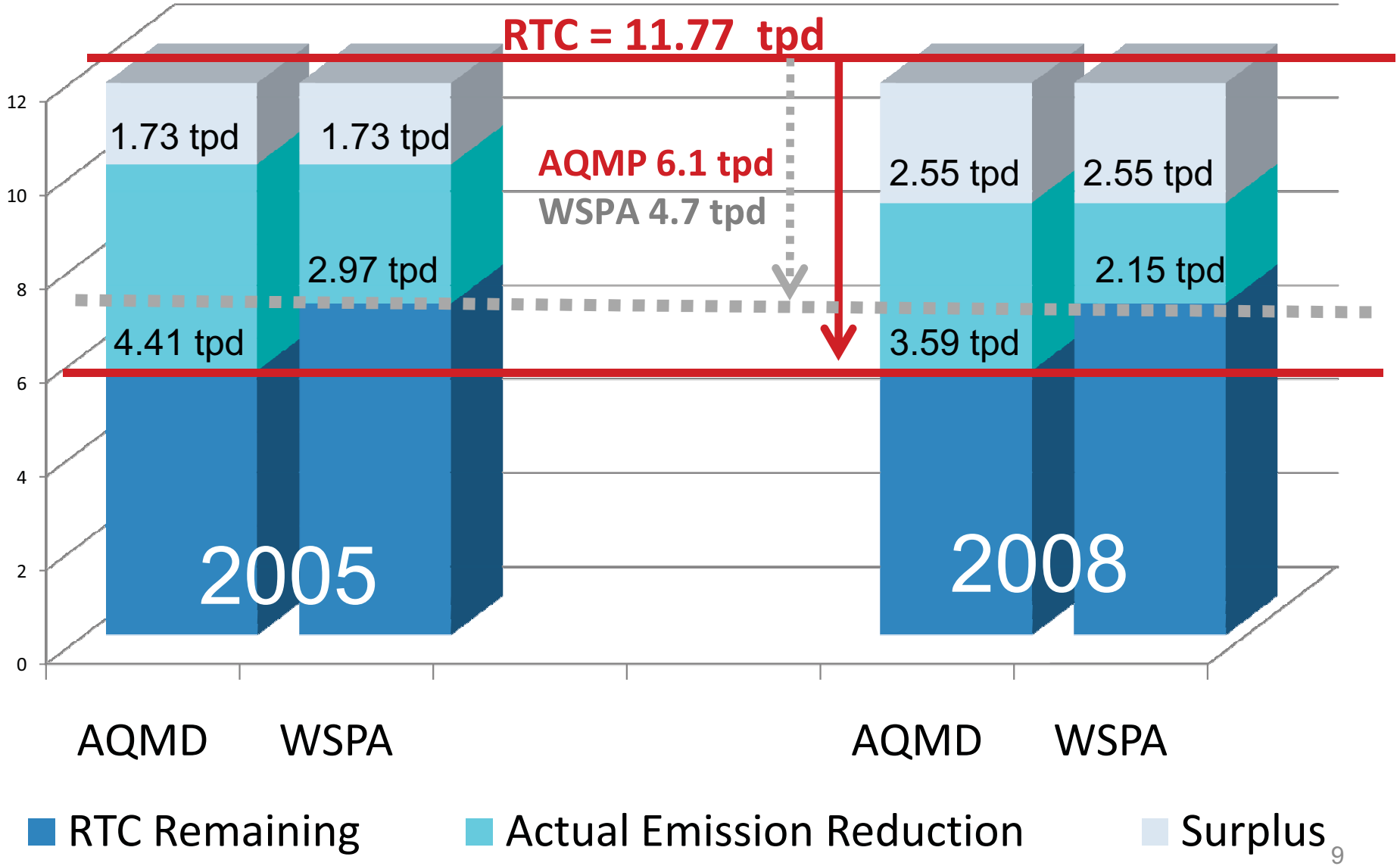
RTC = Reduction

RTC = Remaining Emissions

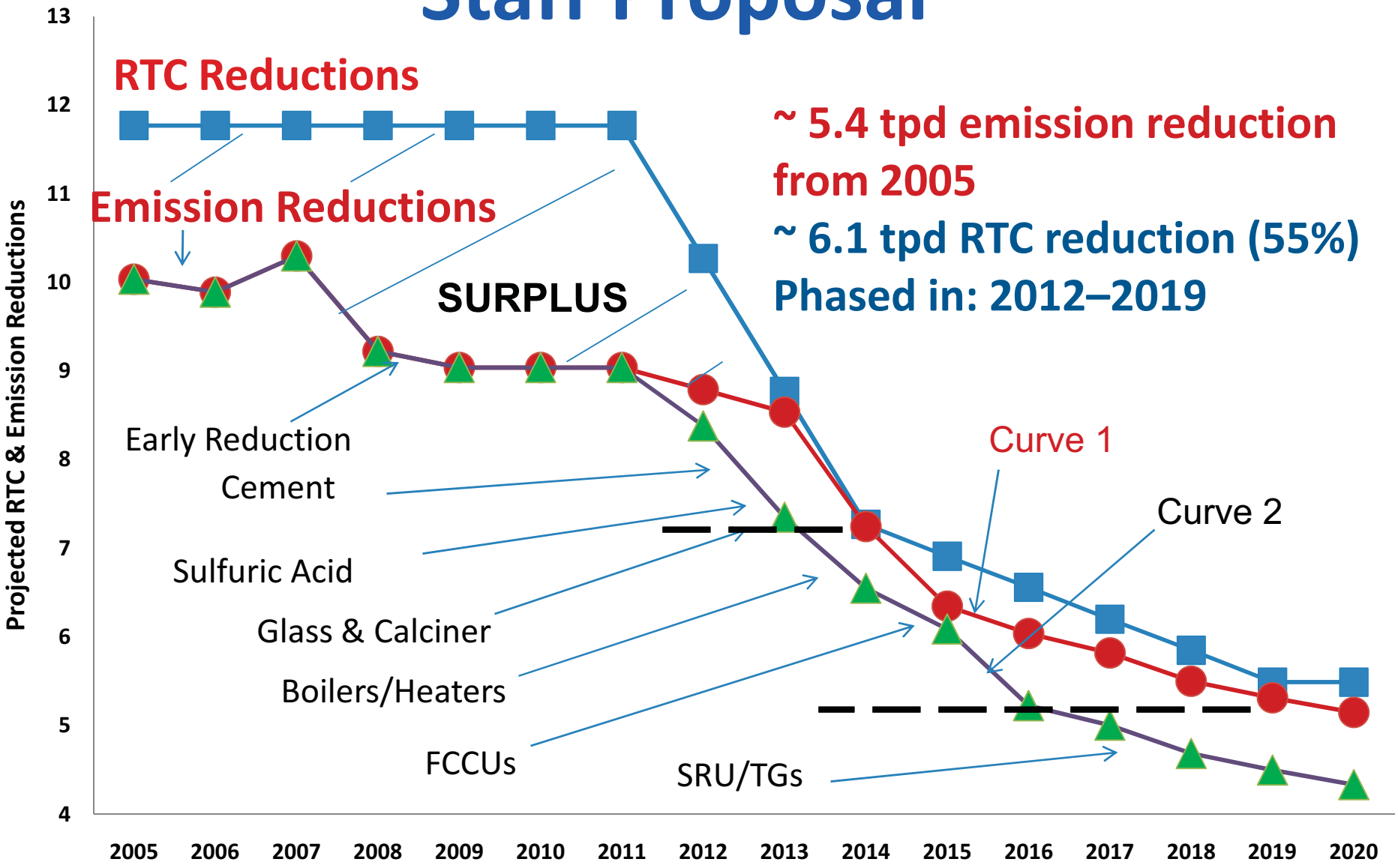
Summary Table (TPD)

	WSPA	AQMD
RTC Reductions	4.7	6.14
Act. Reductions 2005	2.97	4.41
Act Reductions 2008	2.15	3.59

Staff's versus WSPA's Proposal
RTC Reductions



Staff Proposal



Emissions - Curve 1: BARCT for staff proposal. Curve 2: Additional opportunity for reductions from boilers/heaters

Potential Strategy Options - Target 55% Shave

		Consultants' Estimates of PWV ($ Million)	Cumulative Costs ($ Million)	Emission Reductions (Tons per Day)	Cumulative Emission Reductions (Tons per Day)	
Surplus and Early Compliance			**N/A**	**2.73**	**2.73**	
Boilers/Heaters	**Ref 1**	1	**1**	0.06	**2.79**	
Sulfuric Acid		30	**31**	1.00	**3.79**	**WSPA Minimum reductions needed to reach 40% shave**
Boilers/Heaters	**Ref 4**	16	**47**	0.35	**4.14**	
Glass		9	**55**	0.19	**4.32**	
Sulfuric Acid	**Ref 5**	3	**58**	0.03	**4.36**	
FCCU	**Ref 6**	109	**167**	0.94	**5.29**	
FCCU	**Ref 1**	81	**249**	0.58	**5.87**	
Boilers/Heaters	**Ref 5**	64	**312**	0.33	**6.21**	
Coke Calciner	**Ref 6**	59	**371**	0.28	**6.49**	
Kilns		62	**433**	0.25	**6.73**	
Boilers/Heaters	**Ref 2**	20	**453**	0.07	**6.80**	
SRU	**Ref 6**	110	**563**	0.29	**7.09**	
FCCU	**Ref 3**	115	**678**	0.28	**7.38**	
FCCU	**Ref 4**	84	**762**	0.20	**7.58**	
Boilers/Heaters	**Ref 3**	15	**777**	0.04	**7.62**	
SRU	**Ref 2**	76	**853**	0.17	**7.79**	
SRU	**Ref 3**	17	**870**	0.15	**7.93**	

AQMD Minimum reductions needed to reach 55% shave

Next Steps

- Continue to meet with stakeholders
- Draft Program Environmental Assessment – released on August 18, 2010. Comments due by October 1, 2010 (45-day review)
- Socioeconomic analysis on going; to be released 30 days prior to public hearing
- Set Hearing – October 2010
- Public Hearing – November 2010

Western States Petroleum Association

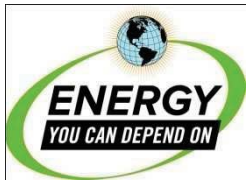
Attachment 2

WSPA Presentation – RECLAIM SOx Shave

SCAQMD Refinery Committee

Presented by
Cathy Reheis-Boyd
President, WSPA

September 22, 2010



Where are we today?

- WSPA met with District staff more than 30 times since 2008 rule development began
  - Provided cost numbers to the District from WSPA's 3rd party Consultant, Environ
  - Individual companies have met with the District's consultants and District Staff to understand compliance costs
  - Offered Refinery tours to Board members
- July 30, 2010 WSPA proposed an alternate shave methodology to District Staff
- August 18, 2010 Refinery Committee meeting:
  - WSPA presented a new position from 25%/3 TPD shave by end of 2014 as required by the AQMP to 33% (3.9 TPD) by end of 2019 and District staff came back with 41% by end of 2014 and 55% (6.1 TPD) by 2019
  - Compliance costs and treatment of RTC's are two core unresolved issues that remain between WSPA and the District
  - Refinery Committee suggested WSPA and District come together on a shave
- September 16, 2010 WSPA President presented a revised proposal to Dr. Wallerstein; discussed by phone on September 17
  - WSPA proposed 40% (4.7 TPD) shave, with 3 TPD achieved by the end of 2014 AQMP target date and the remaining 1.7 TPD shaved by end of 2019
  - Dr. Wallerstein uncomfortable with WSPA's proposal; did not move from 55% but agreed to additional dialogue
- September 21, WSPA President and team and Barry Wallerstein and Staff met
  - Thoughtful dialogue; continue to discuss and resolve differences on treatment of RTC's and cost. Intent is to inform Socioeconomic Report and Board decision.

WSPA RECLAIM SOx Proposal: September 16, 2010

- Emission Reductions (RTC): 4.7 TPD reduced
- Universe of Sources: 11.77 TPD
- Percent Shave: 4.7 /11.77 = 40%

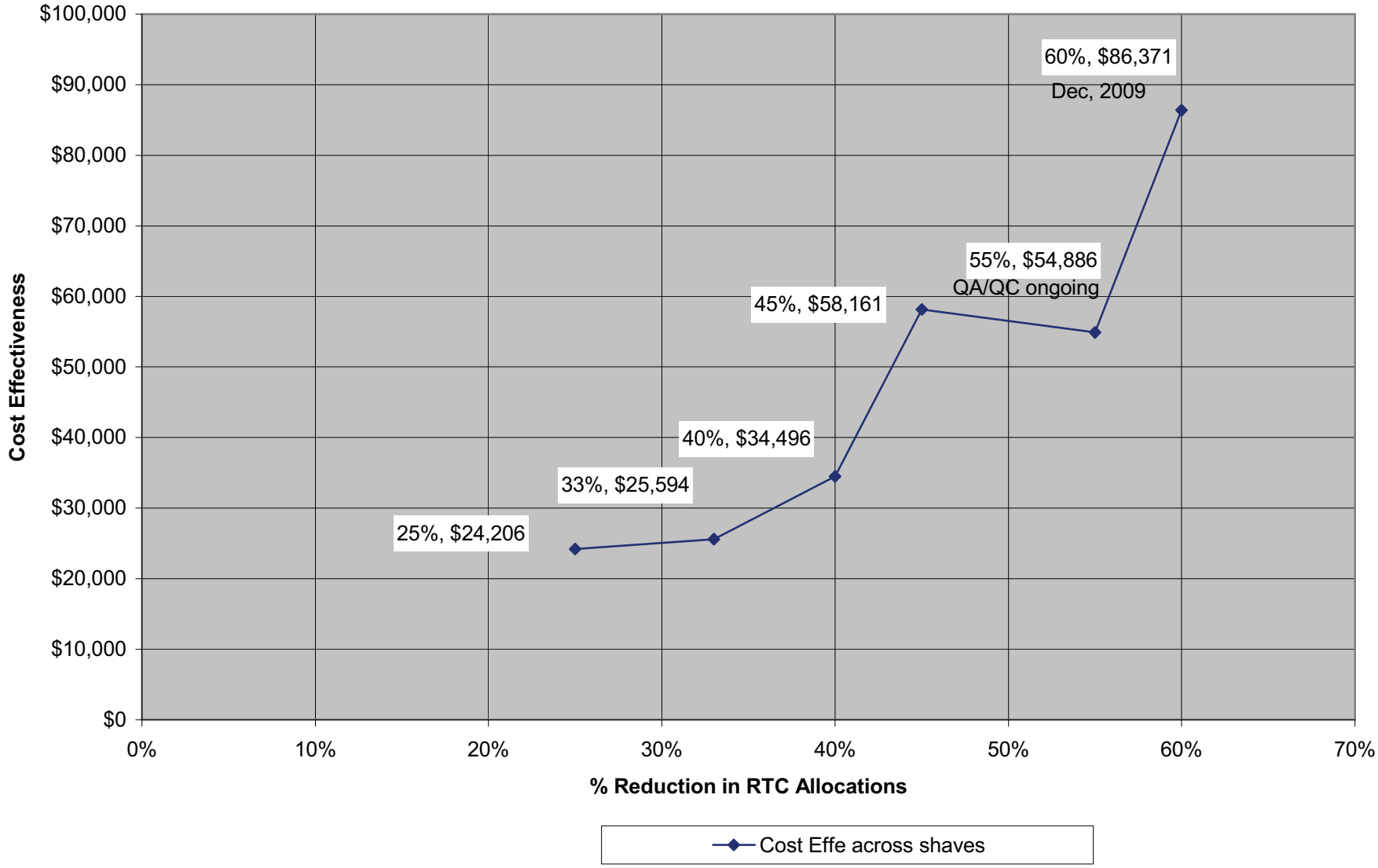
Underlying Facts

- RTC's: 1.98 TPD of RTC's (comprised of ERC's converted to RTC's and Clean Fuels Credits not subject to shave)
- Emission Reductions achieved as follows:
  - 3 TPD by end of 2014 (2007 AQMP)
  - Remainder of 1.7 TPD achieved by end of 2019
- Shave is across the board
  - Small sources and sources already at BARCT are included in shave
- Source Categories included in shave:
  - FCCU, SRU/TGU, Acid Plants, Glass Plants, Coke Calciner, Cement Plants
- Source Category excluded from shave:
  - Refinery Heaters and Boilers

WSPA Environ Cost Survey

- Initial Survey September-November, 2009
  - Final QA/QC completed – February, 2010
  - Presented to SCAQMD – April, 2010
- July 2010 Survey results updated presented to SCAQMD
- September 2010 re-survey to determine cost at SCAQMD 55% shave level and re-examine costs for other shave levels. Presenting to the District September 23, QA/QC still on-going
  - November-December, 2009:
    - 60%: $2,857,000,000
  - July, 2010:
    - 60%: $2,580,000,000
  - September, 2010
    - 55%: $1,516,000,000
- Why did cost change?
  - Change is expected as companies continue to refine their cost estimates with the regulation as AQMD proposals evolve
  - Some high-cost projects associated with more aggressive reductions in RTC allocations have been eliminated – lower cost alternatives used (e.g. WGS vs. Catalyst)

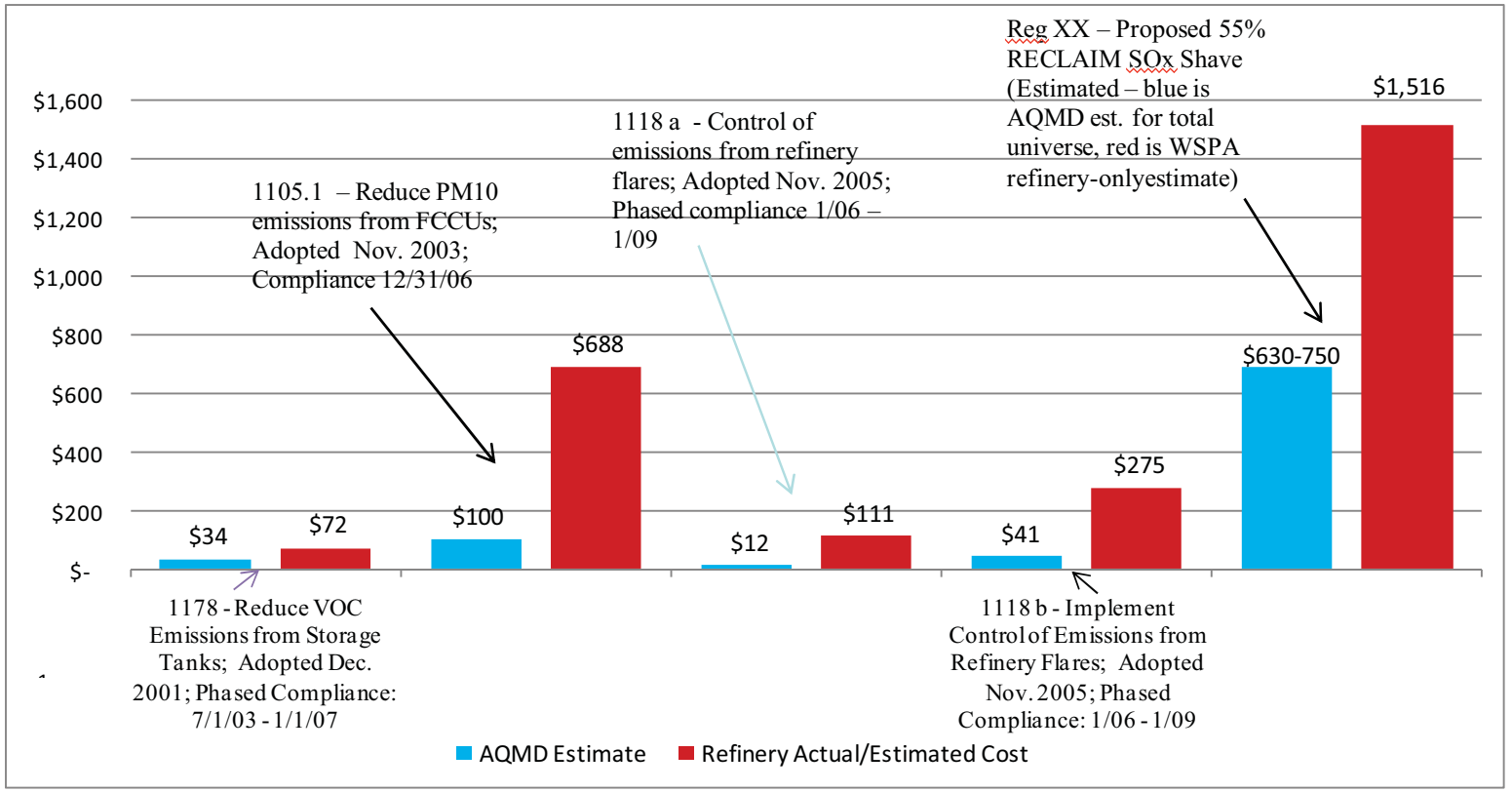
Cost Effectiveness for Refineries Across Shaves



Source: Environ

Western States Petroleum Association

SCAQMD estimated cost versus actual cost by rule



Norton Engineering Consultants (NEC)
SOx RECLAIM BARCT Report

- **NEC's capital and operating cost report was sent to WSPA on June 15, 2010.**
- **Report highlights errors and omissions underlying Staff Proposal key findings**
  - "As a result of the operating and capital cost differences noted in this report, we recommend AQMD recalculate SOx Control Cost Effectiveness Values with updated capital and operating costs were available. Some additional work is required to generate new capital and operating costs for allocations of alternative technologies on some units."
  - "Therefore we believe that the cost of control technology applications at these locations has been underestimated. A reasonable contingency to be added to the project costs for these facilities would be 50% of total direct plus indirect project cost."
  - "It appears that this single budget quote (FCCU wet gas scrubber) was used to develop costs for all five FCU scrubber installations. The Vendor D system consist only of a wet scrubber and a PTU purge water treatment plant. All other costs are excluded. NEC normally would have obtained a quote for each of the facilities or at a minimum quotes for three units to more accurately develop a size scaling factor."
  - "In general, the NEC estimates approximately doubled the cost of the ductwork and knife gate valves included in the original FCCU control technology estimates."
  - "NEC did not recalculate original cost effectiveness factors. However, in reviewing the consultants' operating cost work-up, we felt the annual maintenance costs were significantly underestimated."

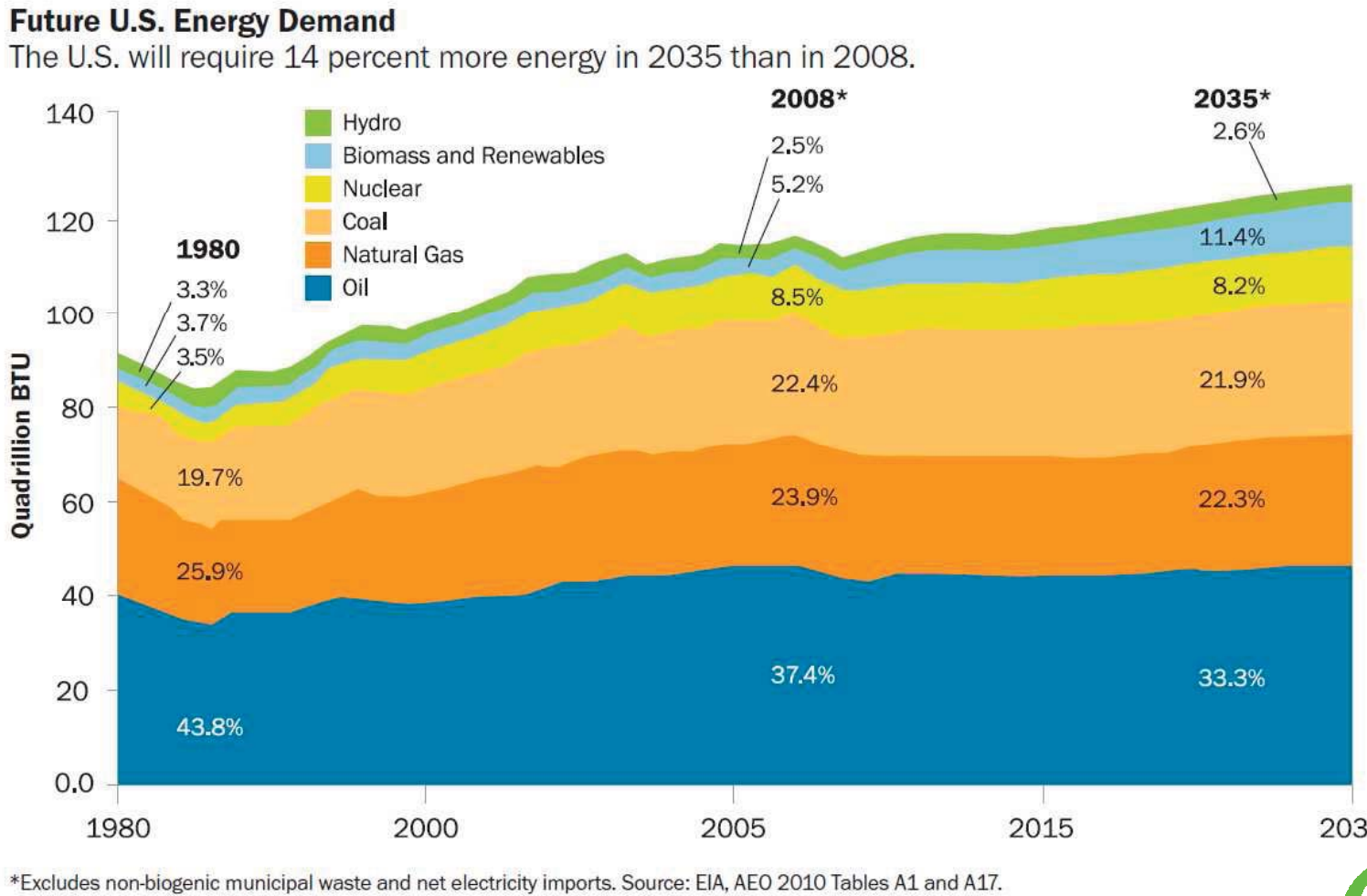
Several hundred million gallons of additional water annually

- Statewide drought, new era of limitations, allocations and mandatory conservation
- SB 7 Statewide 20% reduction in urban water use and requires urban water suppliers to set an interim urban water use target (December 31, 2015), and meet the overall target by December 31, 2020.
- Statewide Water Districts have taken actions such as: 1) asking for voluntary reductions; 2) imposing mandatory restrictions or declaring a local emergency; 3) imposing agricultural rationing; 4) imposing drought rates, surcharges and fines; 5) limiting new development
- Three out of six Refineries currently do not have access to recycled water
- Consideration needs to be given to all of the following issues:
  - Additional capital costs to construct and permit the infrastructure and who pays?
  - Can recycled water can be supplied within the timeframe required for compliance?
  - Water purveyor indicated a current water price ($800 per acre-foot) and the costs for higher quality water (such as boiler feed water) is more than $1,250 per acre-foot.
  - Availability and reliability of water delivery?
- The District's assertion that reclaimed water use can cost-effectively displace an increase in water requirements in the face of mandated reductions of 20% in potable water needs to be substantiated through an analysis - an analysis that has never been conducted.

Cumulative Rules
SCAQMD, LA/LB Port, CARB, EPA

- Southern California refineries are the world's cleanest
- SCAQMD requirements since the 1980s have reduced emissions from most sources by more than 90%
- 47 recently adopted or planned near-term rules will impact directly emitted particulate matter (PM) or principal PM precursors (SOx and NOx)
- A quarter of the SCAQMD's 47 rules impact petroleum industry (primarily refineries) for emissions and stationary sources or producers of transportation fuels
- Federal RFS2; AB 32; LFCS; fuel reformulation; Clean Fuels Outlet regulation

Future U.S. energy supply projections



*Excludes non-biogenic municipal waste and net electricity imports. Source: EIA, AEO 2010 Tables A1 and A17.

Renewable and Alternative Energy Projects

- California refiners added close to 1 billion gallons of ethanol to gasoline last year, making California the largest ethanol consuming state in U.S.

- Shell: wind farm displaces 85,000 tons of carbon dioxide
- BP: $500 million research to UC Berkeley
- BP: Occidental First of its kind Hydrogen energy project
- Chevron: photovoltaic facility to help power operations
- ConocoPhillips: developing hydrogen infrastructure and animal fat to renewable diesel process
- ExxonMobil: exploring new approaches to internal combustion engine technology
- Valero: implemented efficiencies that will reduce greenhouse gas emissions
- Tesoro: flare gas compressors to reduce flaring
- Occidental and AERA: cogeneration facilities produce electric power and steam
- Chevron, and Shell: members of the California Fuel Cell Partnership

Working together

- Continue working toward a constructive solution
- Support a cost-effective shave
- Include WSPA consultant's cost information in Socioeconomic Report
- Schedule follow-up meeting of Refinery Committee to review Final Program Environmental Assessment, Socioeconomic Report and other pertinent information
- Provide information to Stationary Source Committee Friday, September 24
- Offer refinery tours to Board members

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 29B

REPORT: Refinery Committee

SYNOPSIS: The Refinery Committee met Thursday, October 14, 2010. Following is a summary of that meeting.

RECOMMENDED ACTION:
Receive and file

Jane Carney, Chair
Refinery Committee

EC:LT:JC:GQ:KO

Attendance

Jane Carney, Committee Chair, called the meeting to order at approximately 1:30 PM. Present were Committee Members Judith Mitchell and Dr. Joseph Lyou.

Overview of Proposed Amendments to SOx RECLAIM Program

Dr. Laki Tisopulos, Assistant Deputy Executive Officer with Planning, Rule Development and Area Sources, gave a presentation highlighting a cost comparison between the AQMD and WSPA proposals for the SOx RECLAIM Trading Credit (RTC) reductions. In addition, water demand/supply, market safety valves, and the District's Socioeconomic analysis were discussed. Dr. Tisopulos stated that the costs for the refineries in achieving the necessary SOx reductions under the staff proposal should be far less than the 1.6 billion dollars WSPA is claiming. He indicated that most of WSPA's cost-ineffective strategies listed in its "others" category (or $700 million) may not need to be utilized since emission reductions from the remaining strategies submitted by WSPA are more than adequate to meet the proposed shave target. Dr. Tisopulos also stated that additional reductions from both the refinery and non-refinery sectors could potentially be available, providing an additional margin of safety.

Some industry representatives were concerned about the value of the future RTC prices. Dr. Tisopulos explained that the cost of future RTCs will depend on the cost of controls and supply and demand of RTC's. Industry representatives also were concerned about the reasoning and criteria for the District's selection of $50,000 per ton of SOx RTCs as the safety valve threshold. Dr. Tisopulos responded that there was a natural break in the proposed control costs. Dr. Wallerstein, AQMD Executive Officer, also responded that the PM impacts of SOx and effectiveness of SOx relative to other PM2.5 precursors are also factored into the threshold selected, as was done in the NOx RECLAIM program and the 2007 Air Quality Management Plan (AQMP). A refinery representative asked if the affected facilities should rely on this as a safety valve. Dr. Wallerstein stated that the District may be open to other safety valve criteria.

In the District's presentation, it was stated that recycled water supplies would be available to supply the wet gas scrubbers under the proposed project. Three of the six major refineries are currently receiving recycled water. The District's presentation also showed that the existing recycled water infrastructure is being expanded to supply recycled water to the remaining three refineries and possibly other facilities. The off-site infrastructure expansion cost (about $150 million) is born by ratepayers in Los Angeles; while the on-site (within the facility) costs will likely be subsidized by LADWP. Dr. Tisopulos stated that the consultants' analyses had also accounted for the on-site costs. LADWP representative affirmed this statement by saying that recycled water use is currently being evaluated and assessed for each facility. After the assessment, LADWP will evaluate the cost effectiveness of delivery and then set a rate to make it attractive to each facility. WSPA emphasized the point that the recycled water infrastructure costs are currently being evaluated by LADWP, not that the funds have already been subsidized. Dr. Tisopulos explained that potable water will be the backup water supply in the event that there are any temporary issues with recycled water delivery, once it is provided.

The District's Socioeconomic analysis found that the staff proposal would result in job creation during the initial years of the programs and job losses during the outer years averaging in annual loss of 3 to 9 jobs. On the other hand, staff's analysis of WSPA's cost estimate of the staff proposal resulted in 202 jobs created annually. The proposed project would initially produce jobs during the construction period and result in some job losses afterward. WSPA representatives stated that the District did not factor in the impacts of a refinery shutting down in the analysis. Dr. Wallerstein stated that the range of job losses is within the acceptable range for job losses and economic impacts of past rulemakings.

WSPA representatives (Cathy Reheis-Boyd and Joe Sparano) presented to the Committee a slide presentation outlining WSPA's SOx RTC shave proposal and the associated costs of meeting BARCT and shave requirements. WSPA conducted an

economic analysis evaluating the possible impacts of a median-sized refinery shutting down. Dr. Wallerstein stated his concern in trying to grasp this scenario and added that if a refinery were to shut down, the cleanup and land reuse would cause a possible positive ripple effect to the local economy. Additionally, Dr. Wallerstein posed the question of which refineries would pick up the slack for the lost jobs, fuel, etc. Furthermore, Dr. Wallerstein stated that AQMD staff does not agree with WSPA's presentation on additional money that needs to be invested by the refineries to meet the shave. Elaine Chang, AQMD Deputy Executive Officer, added that all of the extra costs would be appropriate for a command and control regulation, not for cap and trade.

Board Member Carney stated that she is pleased with the progress of the rulemaking. Cathy Reheis-Boyd and Dr. Wallerstein both stated that they are hopeful that the District and WSPA will come to an agreement. Board Member Mitchell stressed that the philosophical differences in the RTC reduction approaches need to be resolved. Dr. Wallerstein requested another Refinery Committee before the November 5th Governing Board Meeting. Dr. Lyou requested that the Committee discuss the ERCs to RTCs portion of the shave in addition to the legal requirements at the next meeting.

PUBLIC COMMENTS

The Committee then opened the floor to comments from the public. These comments focused on concerns regarding the impacts on jobs and business with this regulation, particularly outside the refineries, and with the necessity to move forward and approve the staff proposal.

Meeting adjourned at 4:00 pm.

Attachments
1 – SCAQMD Presentation
2 – WSPA Presentation

SOx RECLAIM
Refinery Committee Meeting

October 14, 2010

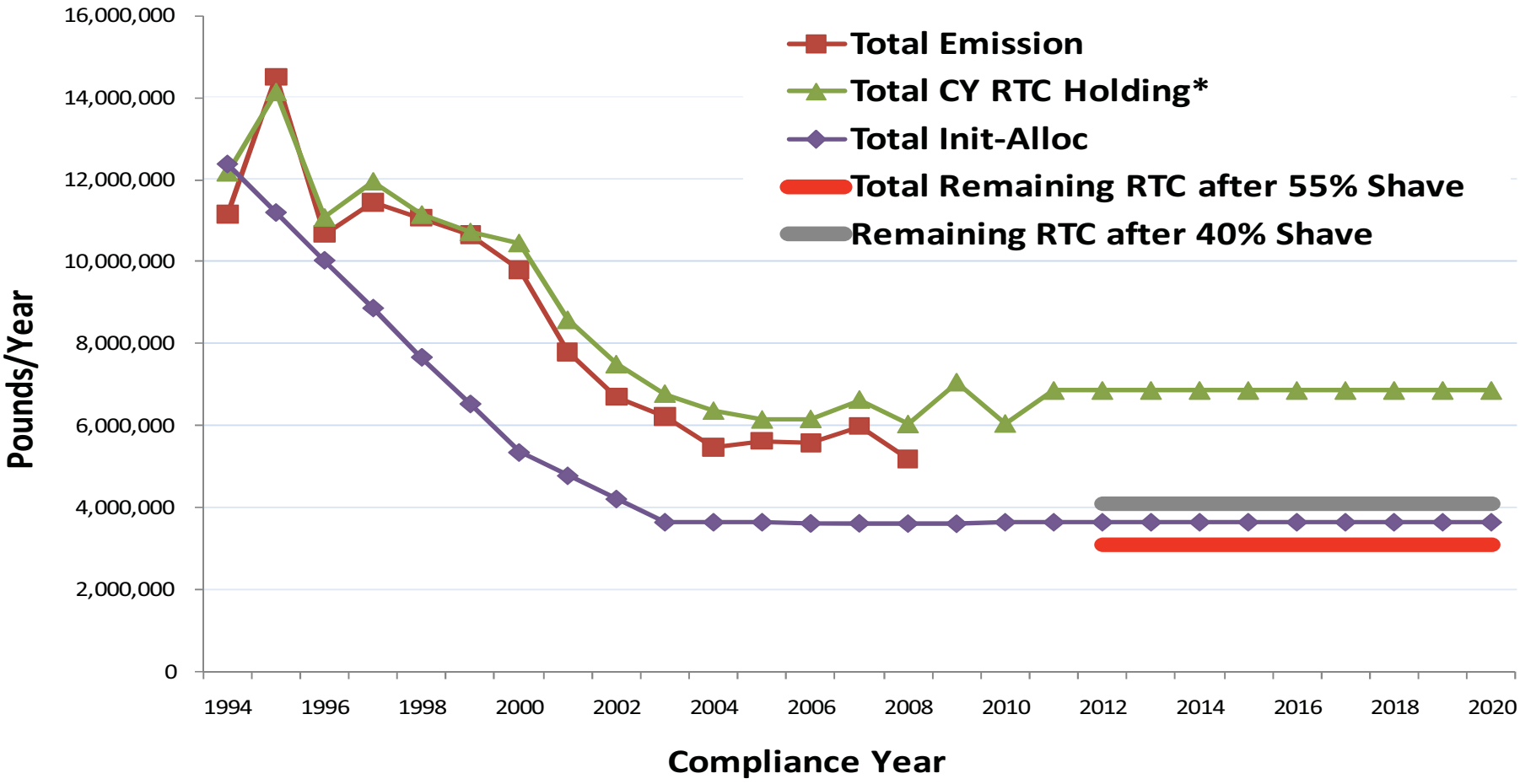
Outline

- Staff Proposal
- Cost Comparison (AQMD versus WSPA)
- Safety Valves
- Cost Effectiveness versus Percent Shave
- Water Demand & Supply
  - —Recycled Water Infrastructure
- Socioeconomic Analysis

Staff Proposal

- Total RTC reductions = 6.1 TPD (55% Shave; 5.4 TPD actual emission reductions)
- Two-phased reductions: 4.5 TPD by 2014, Remaining 1.6 TPD by 2019
- Limited exemption for certain small emitters
- Provisions for market viability
  - Set-aside RTC amounts similar to NOx RECLAIM
  - Board review if SOx RTC price greater than $50,000 per ton SOx

Refineries under RECLAIM



Cost Comparison

AQMD's Main Strategy						
		Limit	Reduction (TPD)	Range of Costs ($Million)		CE ($/ton)
FCCU	4 WGS	5 ppmv	2.01	360	389	$20K - $21K
SRU	3 WGS	5 ppmv	0.60	174	187	$31K - $44K
Other Units	1 WGS and other process modification	10 ppmv	0.31	27	62	$9K - $22K
Early Reductions (FCCU, SRU)	1 WGS and other process modification	5 ppmv	1.00	-	-	
Sub Total			3.92	561	638	$16K-$18K

WSPA's Main Strategy					
		Limit	Reduction (TPD)	Costs ($Million)	CE ($/ton)
FCCU	2 WGS	5 ppmv	1.60	328	$22K
	3 DeSOx	6-35 ppmv			
SRU	2 WGS and other process modification	5-25 ppmv	0.36	331	$101K
Other Units	1 WGS and other process modification	Not specified	0.98	177	$20K
Early Reductions (FCCU)	1 WGS	5 ppmv	0.87	-	
Sub Total			3.81	836	$24K

Costs for WSPA's "Other" Strategies

Project		Reduction (TPD)	Costs ($Million)	Cost Effectiveness ($/Ton)
SRUs	15 ppmv	0.13	253	213,277
Fuel Gas Treatment	<40 ppmv	0.49	467	104,445
CEMS Improvements	3 projects	0.26	4	1,686
RTCs		1.24	77	6,805
Total for Others		**2.12**	**801**	**41,406**
Total for Others (excluding cost-ineffective projects)		**1.5**	**81**	**5,918**

Likely Refinery Compliance Strategy

RTCs Needed for 55% Shave = 5.17 TPD

WSPA Strategies	Reduction (TPD)	Costs ($Million)
1. WSPA's Main Strategy	3.81	836
2. "Other" Cost-Effective WSPA Strategies	1.5	81
Total Actual Reductions & Costs	**5.31**	**917**
Average Cost Effectiveness = $18,925 Per Ton		

Other Potentially Available RTCs = 1.44 TPD

- Rem. Unused RTCs by Refineries = 0.37 TPD (2005)
- Investor-Owned RTCs = 0.002 TPD (Current)
- RTCs from Non-Refinery Sector = 0.54 TPD
- RTCs from Refinery Sector = 0.53 TPD ?

Grand Total Available = 5.31 + 1.44 = 6.75 TPD

Surplus = 6.75 – 5.17 =1.6 TPD

Key Question

IS WSPA's ASSUMPTION FOR ADDITIONAL COSTS AND REDUCTIONS ($801 MILLION, 2.12 TPD) REASONABLE?

- Not reasonable under a market based program such as RECLAIM
- Relies on getting reductions at each facility (similar to Command-and-Control program)
- Discounts key principle and benefits of a cap and trade program that cost-effective off-site reductions will substitute for cost-ineffective on-site controls

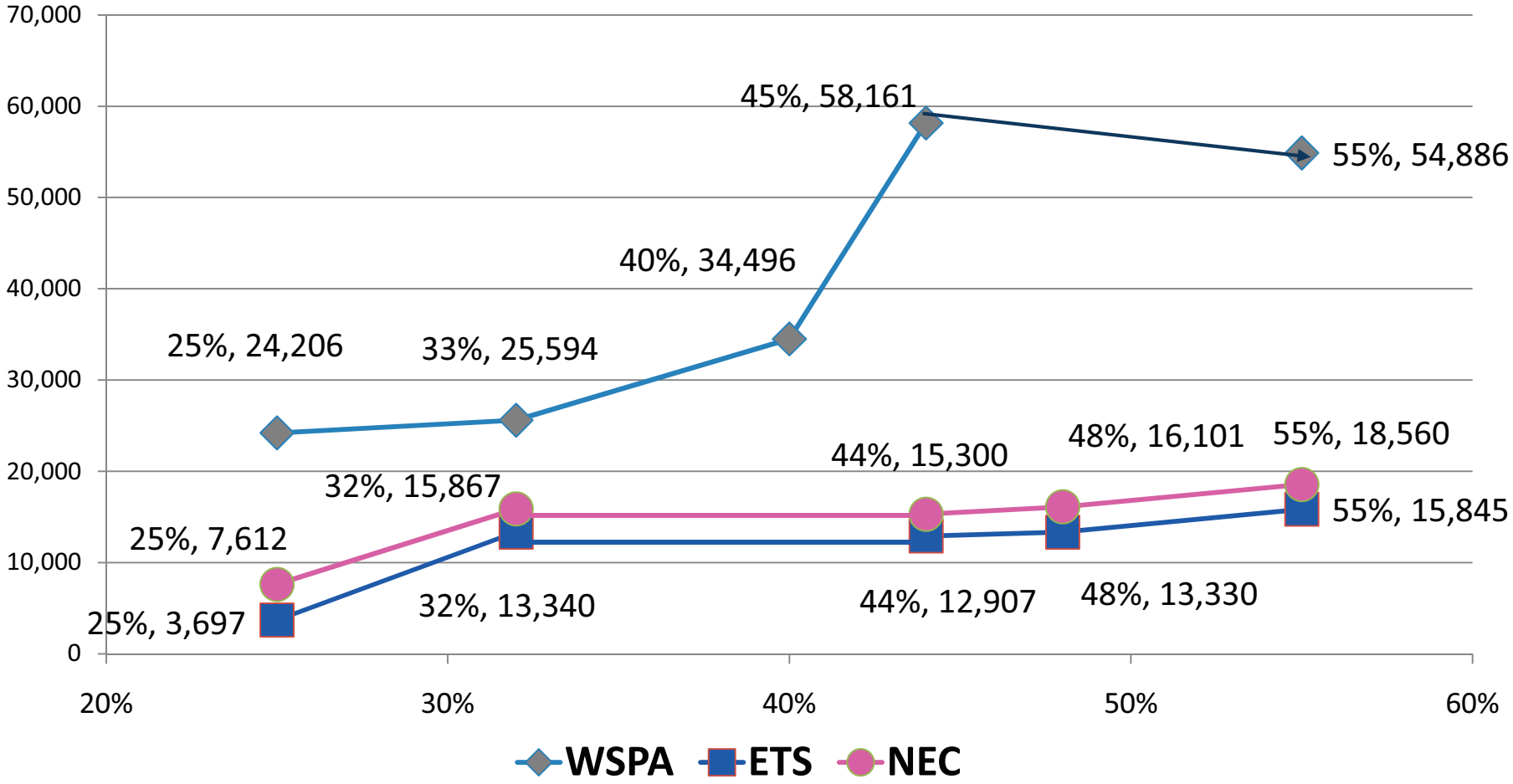
Key Question (Cont.)

- Underestimates reduction potential of main strategies:
  - —DESOX CATALYSTS CAN ACHIEVE 5 ppmv. (WSPA assumes 6 ppmv – 35 ppmv)
  - —WGS CAN ACHIEVE 5 PPMV (WSPA assumes 5 – 25 ppmv)
- Cost-effective reductions from other non-refinery facilities/sectors and investors will be available, will be used , and MUST be considered
- Staff Proposal Provides Other Safety Valves

Safety Valves
(Included in Staff Proposal)

- Gradual annual reductions with extended compliance schedule (2012-2019)
- Staff to begin monitoring RTC price trends (12-month rolling average)
- Hold Public Hearing if RTC price exceed $50,000 per ton (discrete price)
- Ability for Board to set-aside (give back) up to 100% of RTC reductions for any year when RTC price exceeds $50,000 per ton

Cost Effectiveness versus Percent Shave



AQMD & Consultants

55% - Staff's proposal

48% - Exclude SRU/TG control, **44%** - Exclude SRU/TG and cement control

32% - Exclude SRU/TG, cement and glass, **25%** - only coke calciner and sulfuric acid control

WATER
DEMAND & SUPPLY

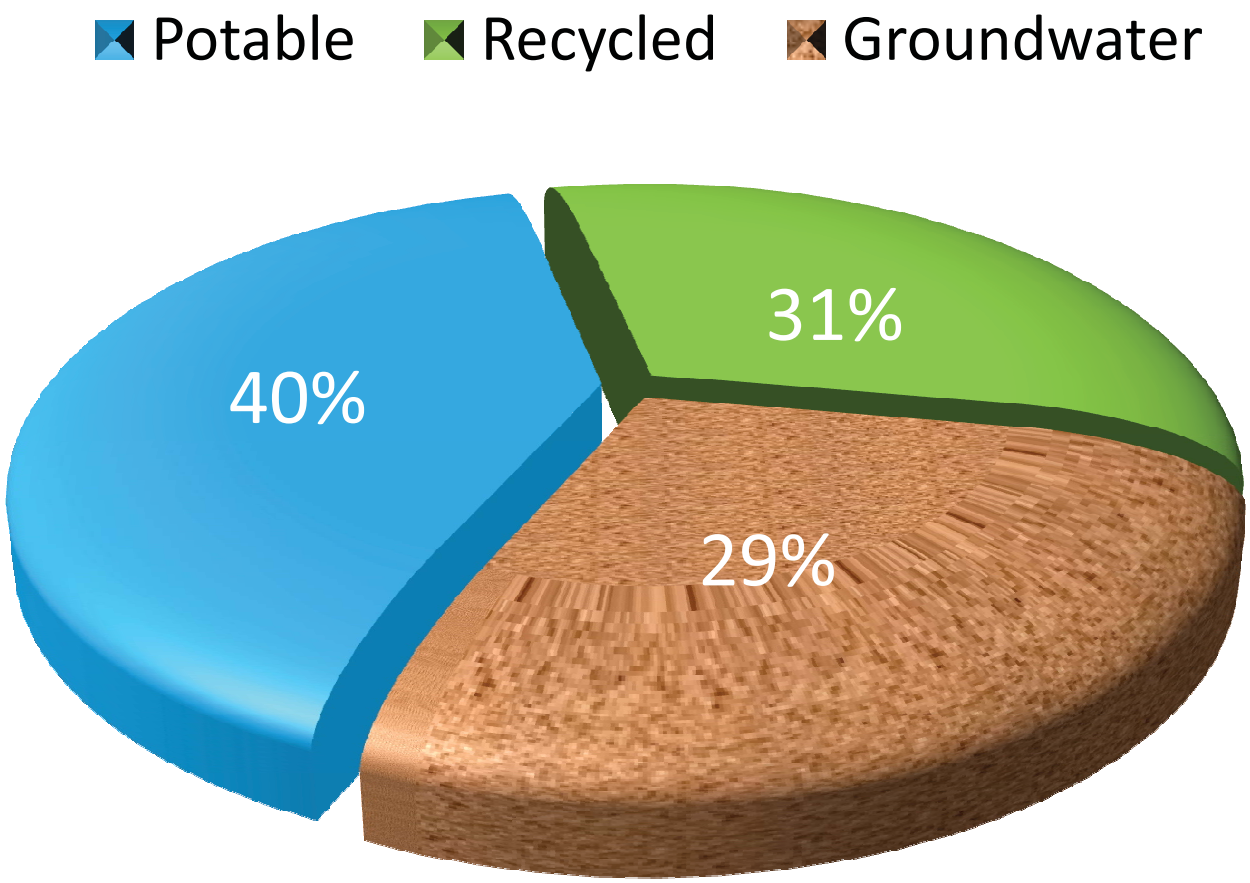
Water Demand

Facility	Baseline (Million Gals/Day)	Increase (Million Gals/Day)	% Increase
Refinery 1	2	0.04	2%
Refinery 2	9	0.2	2%
Refinery 3	10	0.2	2%
Refinery 4	6	0.06	1%
Refinery 5*	9	0.02	<1%
Refinery 6	12	0.2	2%
Sulf. Acid	0.7	0.02	3%
Coke	1	0.04	4%
Glass	0.1	0.06	48%
Cement	3	0.1	3%
Total	53 Million Gals/Day 163 Acre-Ft/Day 59 Thousand Acre-Ft/Yr	1 Million Gals/Day 3 Acre-Ft/Day 1 Thousand Acre-Ft/Yr	2%

Water Demand

- South Coast Regional Water Demand = 6.37 Million Acre-Ft Per Year
- Total Water Increase for SOx RECLAIM = 1,000 Acre-Ft Per Year. Only 0.02% of South Coast Water Demand
- Water Suppliers Can Meet Demand for Next 20 Years (2005 Urban Water Management Plans)
- Potable Water Increase = 0.3 Acre-Ft per Day = 110 Acre-Ft per Year. Negligible Effect on Governor's Goal of 20% Potable Water Reduction by 2020
- Recycled Water & Well Water Available

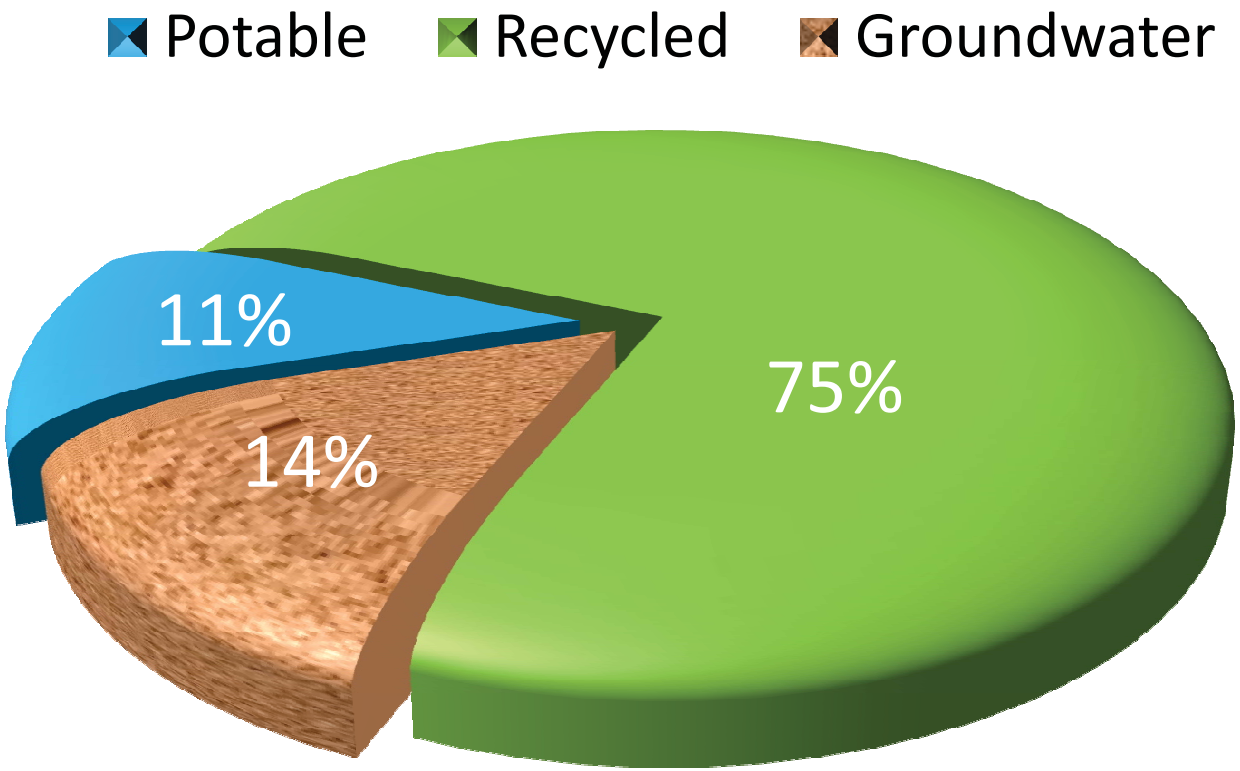
Current Water Demand



Total Baseline Water Use in CEQA = 57,790,000 gallons per day (based on previous CEQA documents)

Future Water Demand

With Wet Gas Scrubbers (Option 1) If Future Supplies of Recycled Water ARE Available

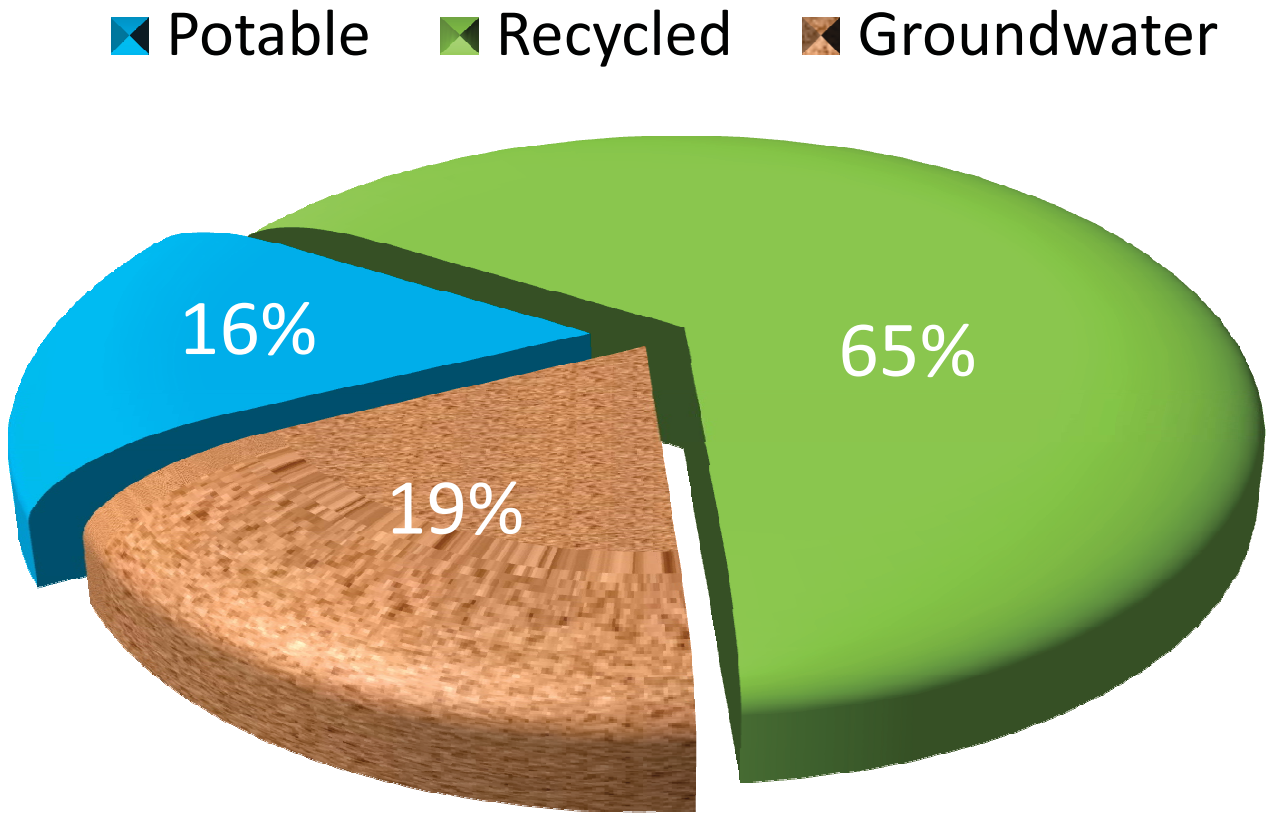


Increase in Water Use = 883,368 gallons per day

Potable water projected increase is below CEQA Significance Threshold

Future Water Demand

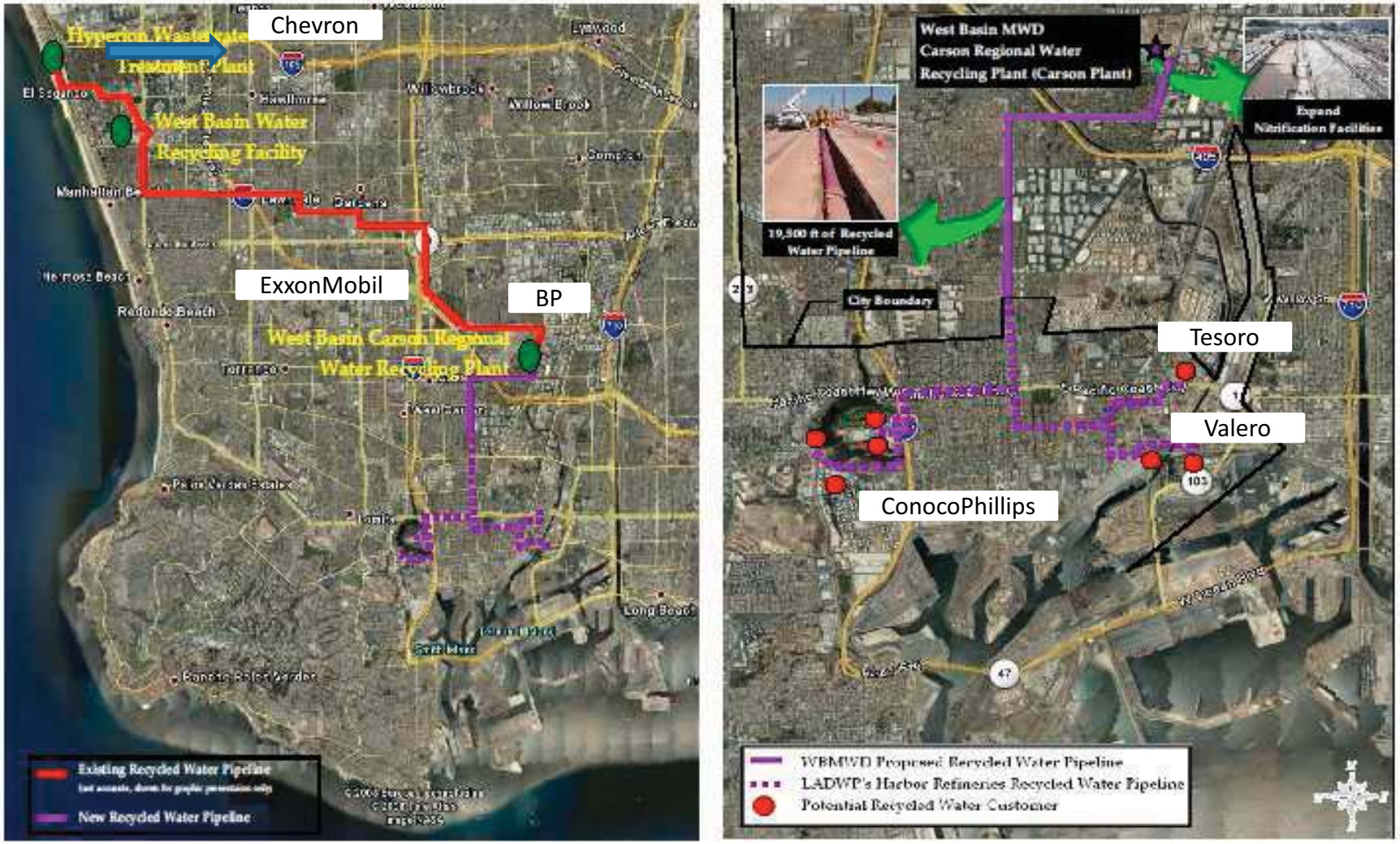
With SOx Reducing Catalysts (Option 2) If Future Supplies of Recycled Water ARE Available



Increase in Water Use = 642,272 gallons per day

Potable water projected increase is below CEQA Significance Threshold

Recycled Water Infrastructure



Reference: LADWP/West Basin Recycled Water System Serving Los Angeles Harbor Area

Recycled Water Project

Reference: LADWP/West Basin Recycled Water System Serving Los Angeles Harbor Area

Recycled Water Infrastructure Costs
(Outside Refinery's Boundary)

- **Expansion Cost: ~ $150 Million**
- **Costs of delivering recycled water to the refineries to be born out by all rate payers in Los Angeles**
- **Onsite costs of conversion to be subsidized by LADWP**
- **Cost for recycled water not to exceed potable water cost**
- **Future piping structure has capacity to displace all types of water usage at refineries**

Water Infrastructure Costs
(Inside Refinery's Boundary)

- **Consultants did include costs of piping infrastructure**
- **ETS/AEC** " … include in the cost estimates all the monies required to construct and/or supply utilities (such as steam, electricity, and water), as well as infrastructure (e.g., sewer and wastewater treatment), associated with each measure……." (p.33 Module 2 Report)

  "… Costs to obtain additional water either from an external source or by reallocating the water already used in a given refinery are one of the items covered in the contingency." (p. 51 Module 3 Report)
- **NEXIDEA** "It must be pointed out that (to handle) … utility upgrades that might be required to supply power and water….a 35% contingency was added to the base costs…. (p.11 Report for Sulfuric Acid Plants and Coke Calciner)
- **NEC** "… The original project estimate included an allowance for getting this water to the refinery and further to the new scrubber … The water allowance developed by the consultants was not intended to reflect the total cost of running new offsite water feed lines to the refinery but was intended to cover a prorata share of these costs… " (p.9 of Final Report)

SOCIOECONOMIC ANALYSIS

Scope of Socioeconomic Analysis

- **Analyzed Cost Input from:**
  - **ETS, Inc./NEXIDEA, Inc. (Present Value of $630 Million)**
  - **NEC**
    - **Developed Cost Adjustment Factors by Equipment by Facility Relative to ETS/NEXIDEA (Present Value $738 Million)**
  - **WSPA**
    - **Cost of Compliance is 3 times that of ETS/NEXIDEA (Present Value of $1.5 Billion)**
- **Evaluated Impacts of:**
  - **Staff Proposal**
  - **CEQA Alternatives**

Affected Facilities and Industries

- **11 Facilities**
  - **Petroleum Product Manufacturing**
    - **Six Refineries**
    - **One Coke Calciner Plant**
    - **One Sulfuric Acid Plant**
  - **Chemical Manufacturing**
    - **One Sulfuric Acid Plant**
  - **Non-Metallic Mineral Product Manufacturing**
    - **One Cement Plant**
    - **One Glass Plant**

Compliance Cost

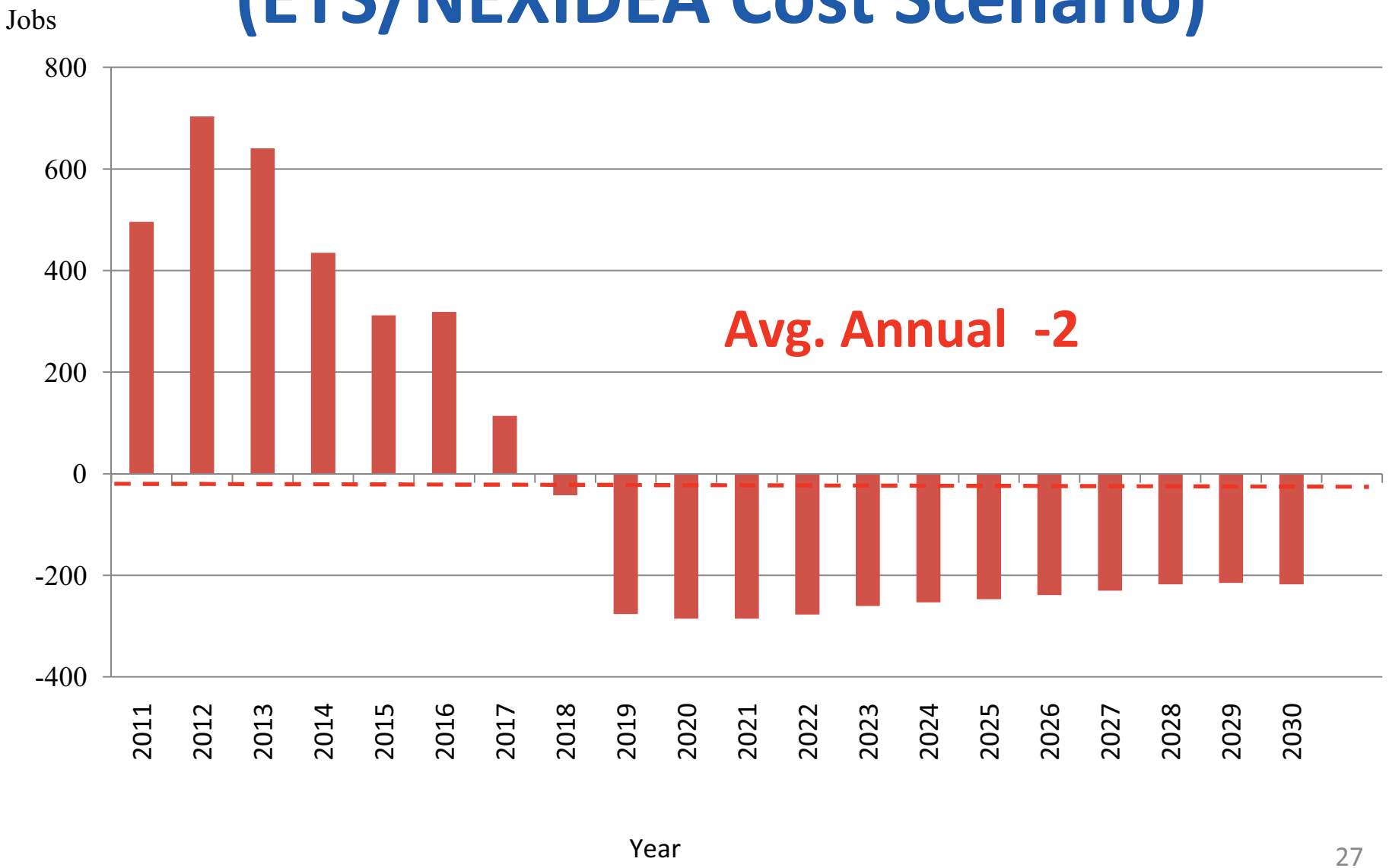
- One-Time Cost*
  - Capital Costs
    - Wet and Dry Gas Scrubbers
    - Emerachem ESX Catalyst
    - Consolv Upgrade
  - Installation Cost
    - Demolition, Concrete, Structure, etc.
    - Piping, Electrical, Contractor, etc.
- Operating and Maintenance Costs
  - Utilities
  - Labor and Materials

*Annualized @ 4% interest rate and 25-year equipment life

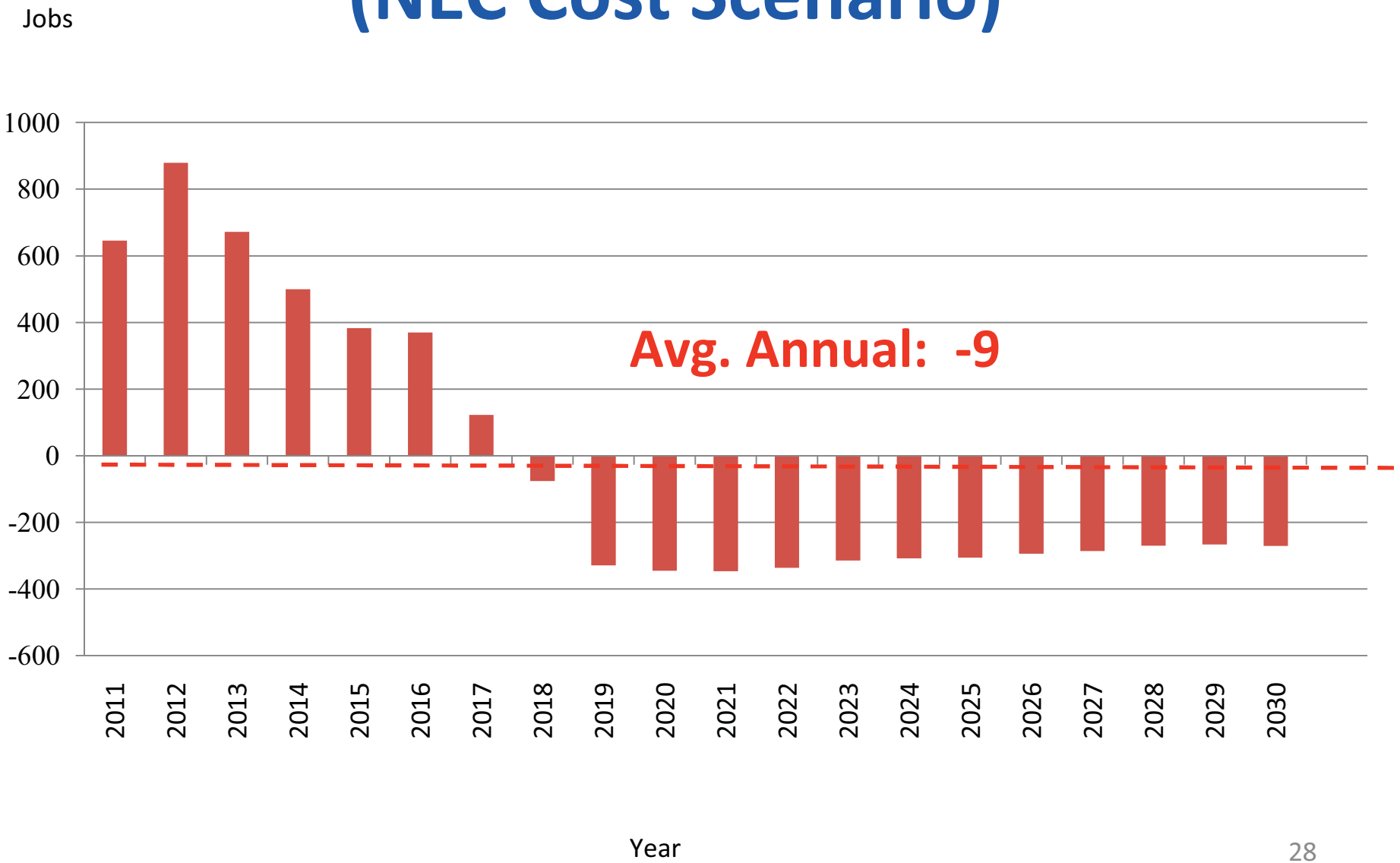
Average Annual Cost and Job Impacts (2011-2030)

Scenario	Cost (in millions)	Job Impact
ETS/NEXIDEA	$32	-2
NEC	$42	-9
WSPA	$85	+202

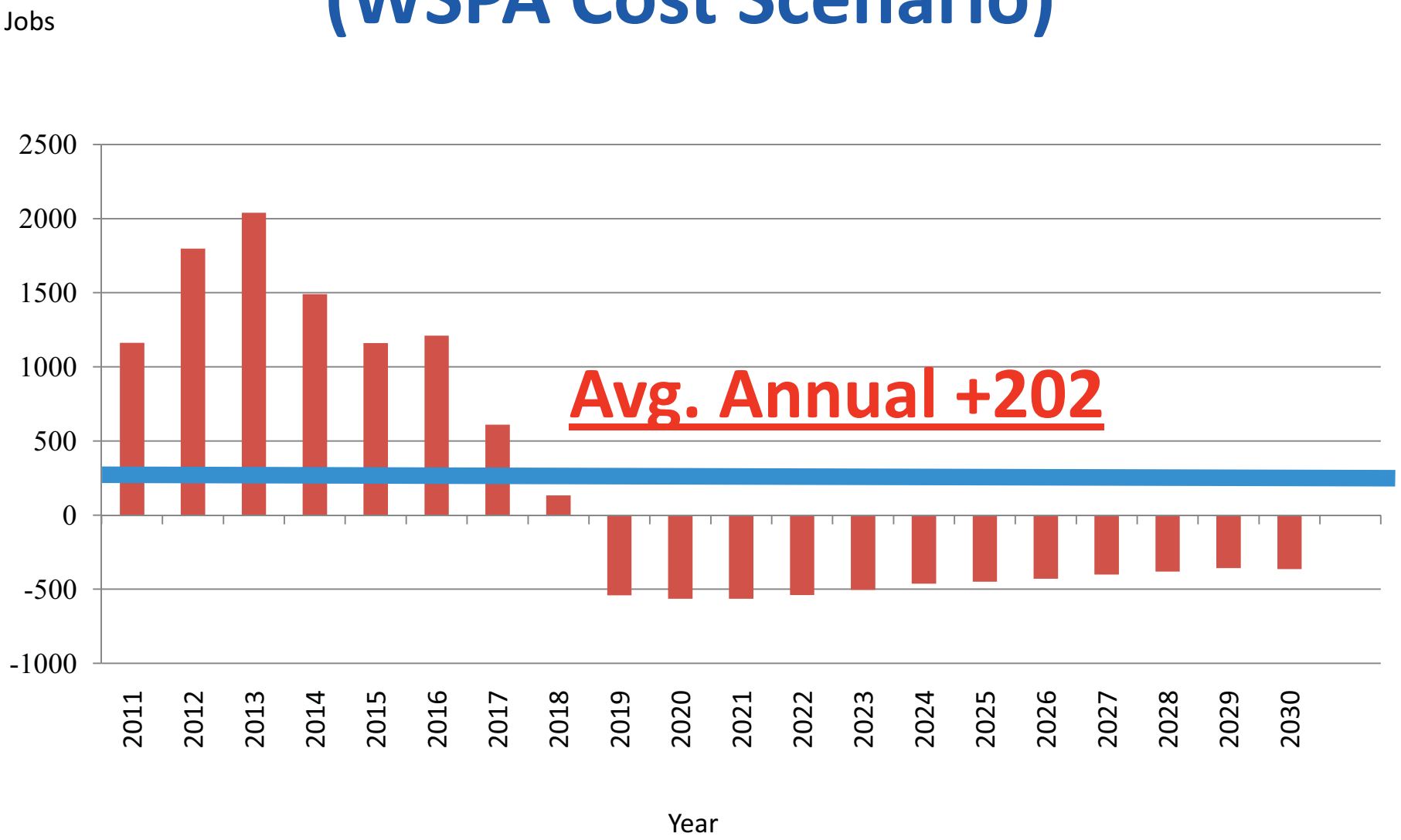
Annual Job Impacts (ETS/NEXIDEA Cost Scenario)



Annual Job Impacts (NEC Cost Scenario)



Annual Job Impacts (WSPA Cost Scenario)



Impacts on Petroleum Product Prices (in % Relative to U.S.)

Scenario	2014	2019	2030
ETS/NEXIDEA	0.06%	0.12%	0.11%
NEC	0.07%	0.15%	0.14%
WSPA	0.18%	0.36%	0.33%

CEQA Alternatives

- **Alternative A (No Project Alternative)**
  - **Existing SOx RECLAIM**
- **Alternative B**
  - **Only Sulfuric Acid, Coke Calciner, and Glass Plants are Affected (AQMP Scenario)**
- **Alternative C**
  - **Excludes Sulfur Recovery Units from the Proposed Amendments**

Average Annual Impact of CEQA Alternatives

Alternative	Cost (in millions)	Job Impact
Proposed Project	$32 to $42	-2 to -9
Alternative A	$0	0
Alternative B	$3 to $6	-29 to -36
Alternative C	$23 to $29	-37 to -69

Next Steps

- Draft revised Staff Reports & Socioeconomic Analysis released on October 5th, 2010 (30-day review). Comments due by October 26
- Three comment letters received on Draft PEA. Response to comment letters on-going.
- Continue discussion with stakeholders
- Public Hearing – November 2010

Western States Petroleum Association

WSPA Presentation – RECLAIM SOx Shave

SCAQMD Refinery Committee

Presented by
Cathy Reheis-Boyd
President, WSPA

October 14, 2010

The RECLAIM Journey
Emission Reductions and Percents

	December, 2009	August 18 Refinery Committee	September 16/September 22 Refinery Committee	October 14
WSPA Position (TPD Reduction)	3 TPD (Meet 2007 AQMP)	3.9 TPD: 3 TPD by end of 2014; additional 0.9 TPD by end of 2019 **+ 0.9 TPD**	4.7 TPD:3 TPD by end of 2014; additional 1.7 TPD by end of 2019 **+1.7 TPD**	?
% Reduction (based on 11.77 TPD)	Approx. 25%	33% **+8%**	40% **+15%**	?
SCAQMD Position (TPD Reduction)	7.4 TPD	6.1 TPD: 4.5 TPD by end of 2014 – 1.5 TPD each year; additional 1.6 TPD by end of 2019 **-1.3 TPD**	?	?
% Reduction (based on 11.09 TPD)	67%	55% **-12%**	?	?

Progress to Date

- **July 30, 2010 WSPA proposed an alternate shave methodology to District Staff**

- **August 18, 2010 Refinery Committee meeting:**
  - WSPA 25%/3 TPD shave by end of 2014 required by AQMP to 33% (3.9 TPD) by end of 2019
  - District 41% by end of 2014 and 55% (6.1 TPD) by 2019
  - Compliance costs and RTC's unresolved issues

- **September 16, 2010 WSPA President presented a revised proposal to Dr. Wallerstein; discussed by phone on September 17**
  - WSPA moved to 40% (4.7 TPD) shave, with 3 TPD achieved by end of 2014 **(**AQMP**)** and remaining 1.7 TPD shaved by end of 2019
  - District remained at 55%

- **September 21, 2010 WSPA President and team and Barry Wallerstein and Staff met**
  - Continue to discuss differences for treatment of RTC's and cost**;** no movement on shave proposal

- **September 22, 2010 Refinery committee meeting**
  - WSPA reiterated 40% proposal - District remained at 55%
  - Agreement to develop a cost matrix to detail the difference in estimated cost

- **Open issues from past Refinery Committee meetings:**

  Staff was asked by Board members at the last two Refinery Committee meetings for legal analysis, total number of rules impacting Refineries, industrial water use analysis, and to find a middle ground on the shave requirement.

TABLE 13-1 - RTC Reductions Estimated From 1997 Baseline

Equipment Type	AQMP Method - Projected to 2019											
	Audited 97-98 Fiscal tpd	Growth Factor 1997-2019	2019 with growth	Scenario 3 - Staff's Proposal			Scenario 4 - Intermediate			Scenario 5 - AQMP		
				BARCT Adj Factor	ReM	ReD	BARCT Adj Factor	ReM	ReD	BARCT Adj Factor	ReM	ReD
FCCUs	**5.68**	1.00	5.68	0.06	0.34	5.34	0.06	0.34	5.34	0.26	1.48	4.20
SRU/TG	**2.03**	1.00	2.03	0.63	1.28	0.75	1.00	2.03	0.00	1.00	2.03	0.00
Coke Calciner	**1.31**	1.00	1.31	0.05	0.07	1.25	0.05	0.07	1.25	0.05	0.07	1.25
Sulfuric Acid	**1.06**	1.30	1.37	0.04	0.05	1.31	0.04	0.05	1.31	0.04	0.05	1.31
Glass Melting Furnace	**1.71**	1.45	2.48	0.01	0.02	2.45	0.01	0.02	2.45	0.01	0.02	2.45
Cement Kilns	**0.53**	2.58	1.36	0.74	1.01	0.35	0.74	1.01	0.35	1.00	1.36	0.00
Boilers/Heaters	**6.11**	1.00	6.11	0.20	1.22	4.88	0.20	1.22	4.88	0.20	1.22	4.88
Total Major Equipment	**18.42**	1.10	20.33		3.99	16.34		4.74	15.59		6.23	14.10
Others	**1.06**	1.11	1.18		1.18			1.18			1.18	
Total Remaining In Year 2019 With Growth (Minus 0.054 tpd reductions from R431.1 & R431.2 for AQMP Method)				**5.12**			5.87			7.36		
1.1 x (Total Remaining)				**5.63**			6.45					
RTC Reduction in Yr 2019 w 1.1 Factor = 11.77 - (1.1xTotal Remaining)				**6.14**			5.32					
For alternative shave, % reduction w 1.1 = (shave/11.09)				**55%**			48%					
RTC Reduction in Year 2019 w/o 1.19 Factor = 11.77 - (1.19*Remaining)										3.00		
% Reduction Across Universe w/o 1.1 to compare w AQMP = (shave/11.78)										25%		

WSPA RECLAIM SOx Proposal: September 16, 2010

- Emission Reductions (RTC): 4.7 TPD reduced
- Universe of Sources: 11.77 TPD
- Percent Shave: 4.7 /11.77 = 40%

Underlying Facts

- RTC's: 1.98 TPD of RTC's (comprised of ERC's converted to RTC's and Clean Fuels Credits not subject to shave)

- Emission Reductions achieved as follows:
  - 3 TPD by end of 2014 (2007 AQMP)
  - Remainder of 1.7 TPD achieved by end of 2019

- Shave is across the board
  - Small sources and sources already at BARCT are included in shave

- Source Categories included in shave:
  - FCCU, SRU/TGU, Acid Plants, Glass Plants, Coke Calciner, Cement Plants

- Source Category excluded from shave:
  - Refinery Heaters and Boilers

WSPA – Socioeconomic Report Perspectives

- District's analysis included WSPA's estimated cost to comply; did not incorporate possible facility shutdown scenario and possible job loss data
- WSPA's economic analysis provided possible impacts if a hypothetical median-sized facility were to cease operation in response to the RECLAIM program – part of a huge regulatory burden being placed on the refining industry
- District estimated costs for installation of BARCT on affected sources – not costs of compliance with the shave
- Positive job growth is in temporary construction sector – jobs will disappear once construction is complete; jobs lost are the permanent facility positions as the result of high cost of compliance
- District used the same flawed cost estimates from the original consultant reports; 2x to 6x low for FCCU capital costs and 50% to 200% low for operating costs
- Report did not take into consideration site specific issues nor if a technology was proven for that source category
- Not clear that revised cost estimates fully take into consideration WSPA's concerns nor those of the peer review Norton Engineering Report
- Continued operation of a facility is not a guarantee – many facilities (aerospace, furniture manufacturing, refineries) in the basin have ceased operation
- Current adverse economic climate cannot be ignored – investigating down-side risk of proposed RECLAIM amendment is reasonable and in the public interest

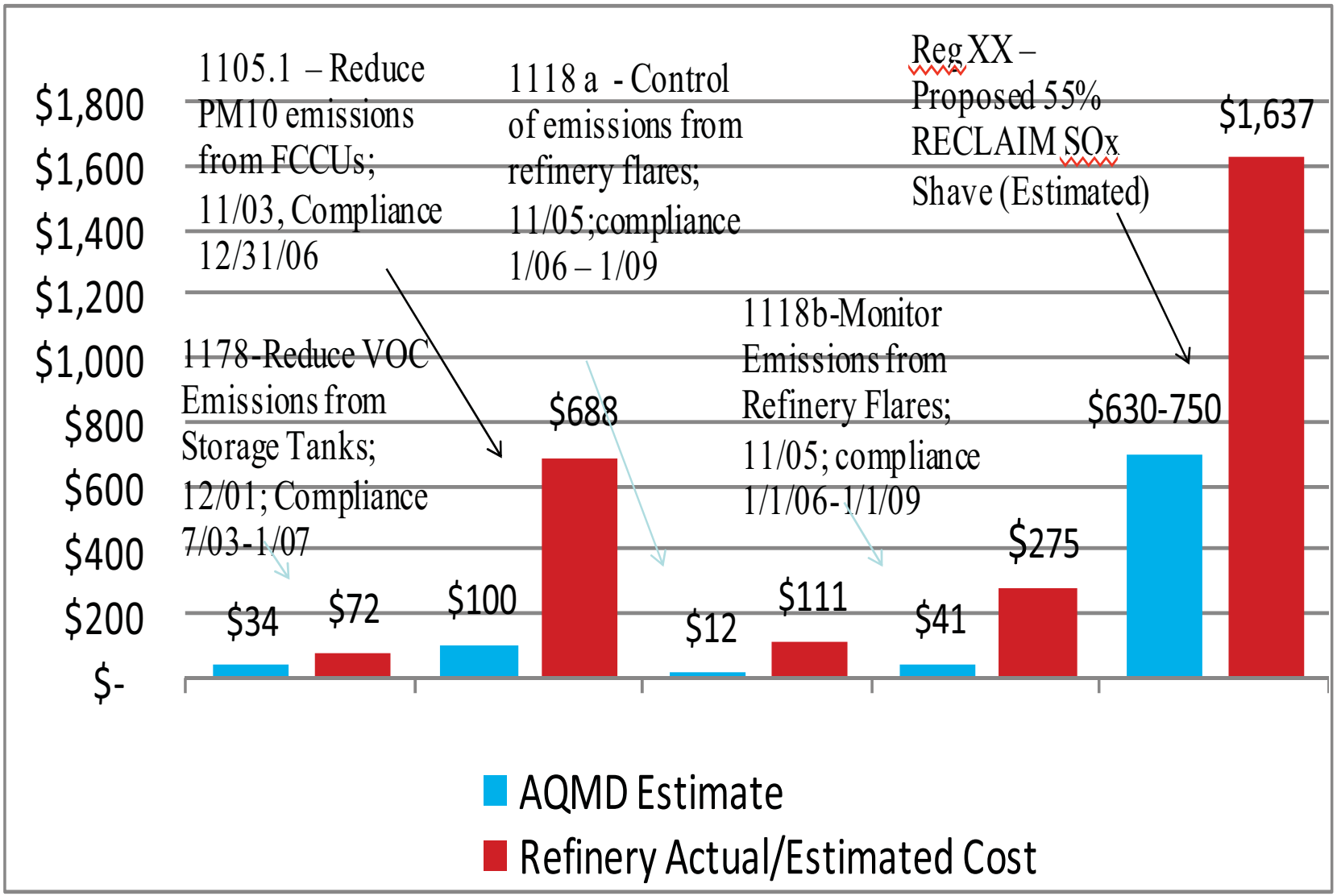
WSPA BARCT Equivalency/ 55% Shave Analysis Summary

Project Type	SCAQMD PV	Number of WSPA Projects / Concentration Range	WSPA BARCT Reductions (Tons/Day)	WSPA BARCT PV	WSPA Additional Reductions to Get to BARCT (Tons/Day)	WSPA Additional PV Costs to Get to BARCT	RTCs or Other Emission Reductions to get to Shave (Tons/Day)	Cost of RTCs or Other Projects to get to Shave	WSPA Total Tons/Day	WSPA Total Cost	Cumulative Total	Project Type	Additional WSPA Cost vs. SCAQMD
FCCU - WGS	$ 389,000,000	3 WGS, 5 ppm	1.97	$ 285,000,000	0.00	$ -	0.00	$ -	1.97	$ 285,000,000	$ 285,000,000	FCCU - WGS	$ (61,000,000)
FCCU - DeSOx	$ -	3 DeSOx, 6-35 ppm	0.50	$ 43,000,000	0.00	$ -	0.00	$ -	0.50	$ 43,000,000	$ 328,000,000	FCCU - DeSOx	
Other Miscellaneous	$ 58,857,000	Unspecified	0.00	$ -	0.48	$ 106,000,000	0.00	$ -	0.48	$ 106,000,000	$ 1,556,000,000	Other Miscellaneous	$ 47,143,000
SRU (1)	$ 181,000,000	6 projects, 5-25 ppm	0.36	$ 331,000,000	0.00	$ -	0.13	$ 253,000,000	0.49	$ 584,000,000	$ 912,000,000	SRU	$ 403,000,000
Other Fuel Gas	$ -	5 projects, <40 ppm in fuel	0.00	$ -	0.33	$ 62,000,000	0.49	$ 467,000,000	0.82	$ 529,000,000	$ 1,441,000,000	Other Fuel Gas	$ 529,000,000
Other Improve CEMs	$ -	3 projects	0.00	$ -	0.11	$ 5,000,000	0.26	$ 4,000,000	0.37	$ 9,000,000	$ 1,450,000,000	Other Improve CEMs	$ 9,000,000
RTCs	$ -	-	0.00	$ -	0.06	$ 4,000,000	1.24	$ 77,000,000	1.30	$ 81,000,000	$ 1,637,000,000	RTCs	$ 81,000,000
Total	**$ 628,857,000**	**-**	**2.83**	**$ 659,000,000**	**0.98**	**$ 177,000,000**	**2.12**	**$ 801,000,000**	**5.93**	**$1,637,000,000**		**Total**	**$ 1,008,143,000**

(1) Avg of $174M-$187M

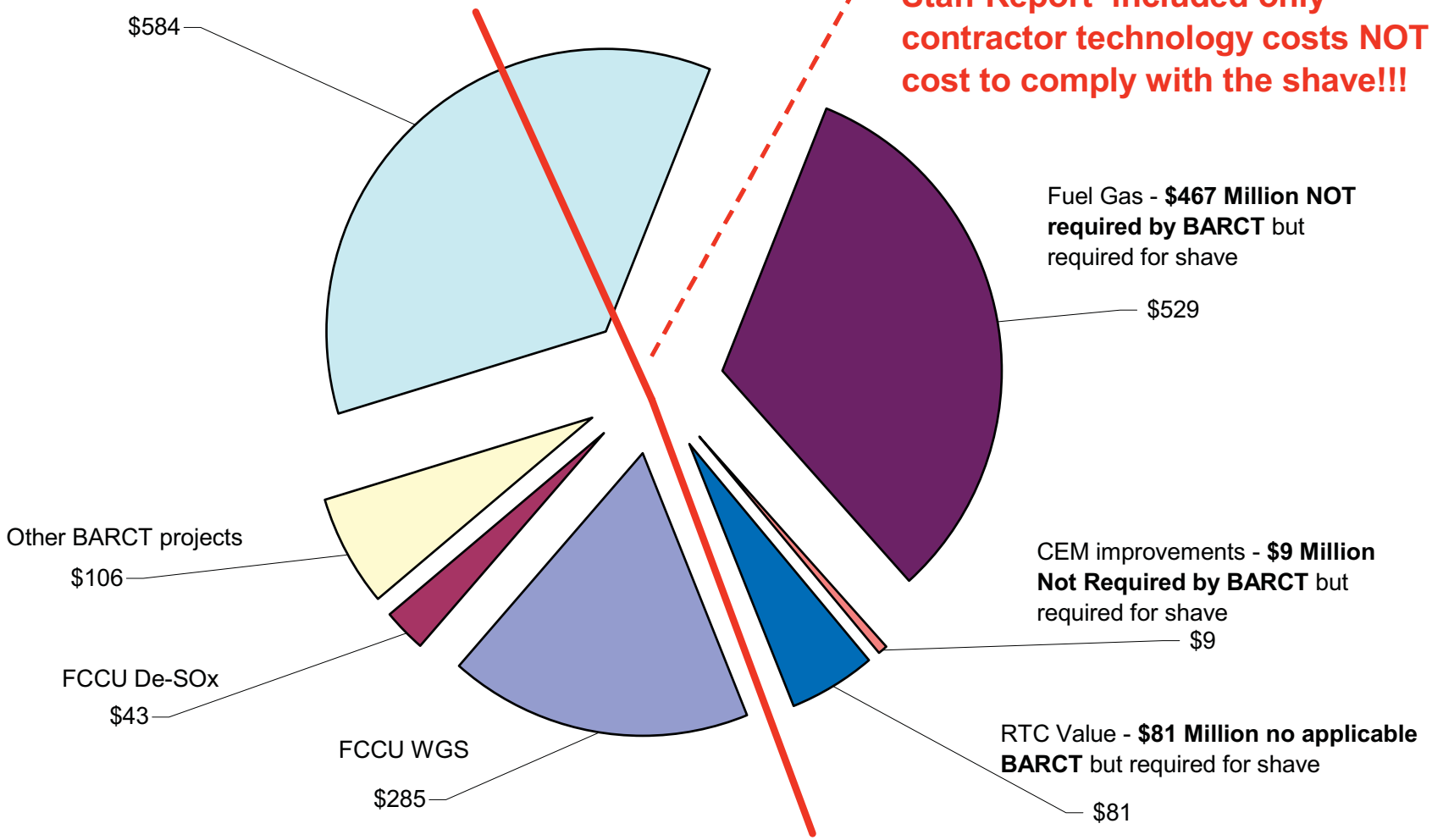
Half of the costs or $801million are associated with emissions beyond what is required for BARCT.

SCAQMD estimated cost versus actual cost
District historically wrong by 3-5X with estimated cost



Refinery Costs - RECLAIM
$ Millions

Area to right of solid line shows EXTRA COSTS FOR REDUCTIONS BEYOND BARCT - approx. $800 Million. SCAQMD Staff Report included only contractor technology costs NOT cost to comply with the shave!!!



SOx RECLAIM Legal Requirements

- SOx RECLAIM is being implemented as a PM measure

- Requirements are not the same for PM as for Ozone, CO and NOx (see Health & Safety Code §40910 et seq.)
  - No specific state law AQMP requirements
  - No requirement for "all feasible measures"

- §39616 "equivalent or greater level of emission reductions at an equivalent or lower cost"

BARCT Requirement

- Emission limitation – maximum reductions
- Must consider cost for entire source category
  - Exclusion of a single unit based on excessive cost lowers the average cost-effectiveness for the category
  - Not to be confused with rule cost-effectiveness
- If the limitation is not cost-effective, then it is not BARCT

Significant Impediments (open issues)

District's proposed safety valve (non tradable RTC account)

- Projects take several years to plan, design, permit and build
- Companies can't wait until the end of the year to put in a scrubber
- You can't plan with uncertainty – companies need perpetuity credits

Requires several hundred million gallons of additional water annually

- 3 out of 6 Refineries do not have access to recycled water
- Capital cost to construct and permit; can water be supplied by compliance date? availability and reliability of water delivery
- Current water price ($800 per acre-foot); cost for higher quality water (such as boiler feed water) is more than $1,250 per acre-foot

Need for future reductions not analyzed

- Need to account for implementation of all rules and regulations, including CARB SOx and PM measures
- Arbitrary/Speculative

Board Policy Decision

- Avoid additional shave beyond BARCT – not required by law
- Preserve market viability and do not create structural buyers
- Ensure cost-effective shave methodology
- Do not penalize early reductions
- Avoid shaving ERC-based RTC's needed for future growth
- Maintain opportunity to Trade
  - Proposed reductions are so large that market is constrained and lower-cost options are precluded

Back to Agenda

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 30

REPORT: Stationary Source Committee

SYNOPSIS: The Stationary Source Committee met Friday, October 15, 2010. Following is a summary of that meeting. The next meeting will be November 19, at 10:30 a.m., in Conference Room CC8.

RECOMMENDED ACTION:
Receive and file.

Dennis Yates, Chair,
Stationary Source Committee

MN:am

Attendance
The meeting began at 10:00 a.m. Present were Chair Dennis Yates, Board Members Jane Carney, Josie Gonzales, and Judith Mitchell. Absent were Board Members Bill Campbell and Ronald Loveridge.

INFORMATIONAL ITEMS

1. **Adopt Rule 320 – Automatic Adjustment Based on Consumer Price Index for Regulation III Fees**
   Barbara Baird, District Counsel, gave the staff presentation on Proposed Rule 320. The rule would require that most Regulation III fees be automatically adjusted each year to reflect the change in the California CPI for the previous calendar year. At least eight (8) air districts already have similar automatic adjustments in their fee rules. The Board would retain the ability to adopt a different lower fee adjustment or no adjustment for any given year, but the automatic adjustment would then resume the following year unless the Board decided to do something different. In response to a question from Board Member Judith Mitchell, Ms. Baird clarified that as currently drafted, the fee rate would go down if the CPI for a given year was negative. There were no public comments at the

committee meeting but two e-mails opposing the proposal were distributed, and Mayor Yates read them into the record.

2. Reg. XXX – Title V Permits
Reg. XVII – Prevention of Significant Deterioration

Jill Whynot, Director of Strategic Initiatives, provided a briefing on proposed amendments to Regulation XXX – Title V permits and a new rule for Regulation XVII – Prevention of Significant Deterioration (PSD). These rules will go to the Board for consideration in November.

Ms. Whynot summarized what these programs entail and how GHGs will be added. Of 500 current Title V permits, approximately 50-60 may be large enough to trigger the thresholds established in U.S. EPA's "Tailoring Rule." Title V permits would need to include applicable requirements, which are currently only those related to BACT and/or permit conditions resulting from PSD review.

PSD requirements for GHGs include BACT and public notice. BACT for GHGs will be a case-by-case review. A U.S. EPA document for BACT for several categories of equipment is expected to be released in the next 2-3 weeks. If AQMD did not amend these rules, U.S. EPA would implement PSD and Title V, which could have potential for conflicting BACT determinations. Many of the comments from stakeholders have been resolved. There remains concern about the uncertainty of future BACT determinations.

There are also numerous lawsuits that could stop these federal permitting programs for GHGs. If this occurs, AQMD rules would be amended. However, "applicable requirements" as defined under Title V are only those related to PSD, which is being incorporated by reference.

Mohsen Nazemi, Deputy Executive Officer of Engineering and Compliance, added that CAPCOA has developed some guidance on BACT for GHGs. Barbara Baird noted that for the first six months, only facilities already required to have a PSD permit action for other reasons would need to have GHG review. That should be just a few facilities. That gives us an additional six months to better understand BACT for GHGs. In response to a Board Member question, Mr. Nazemi stated that only 1-2 dozen projects per year are expected to be over the PSD thresholds. Facilities can also reduce emissions or take a cap to stay out of PSD and Title V.

3. **Rule 1143 – Consumer Paint Thinners and Multi-Purpose Solvents**
Naveen Berry, Planning & Rules Manager, presented a summary on Proposed Amended Rule (PAR) 1143. The amendment will propose an exemption for artist solvents and thinners that will make the rule more consistent with the state consumer products regulation by: (1) exempting artist solvents and thinners that are properly labeled and sold in containers that are one liter or less from applicable VOC limits; (2) defining artist solvents and thinners; and (3) making changes to the rule to clarify that all exempt products shall be subject to recordkeeping and reporting. The proposed amendment will result in 114 pounds of VOC emission reductions foregone per day. No public comments were received following the presentation

Ms. Carney indicated that she would not participate in agenda #4 due to conflict of interest as U.S. Battery is a source of income for her, at which time she left the meeting.

4. Rule 1420.1 – Emissions Standard for Lead from Large Lead-Acid Battery Recycling Facilities
Susan Nakamura, Planning and Rules Manager, summarized Proposed Rule 1420.1. Staff explained that the focal point of the proposal is to comply with the new U.S. EPA's ambient concentration, which is 0.15 ug/m3. The proposed rule limits stack emissions at the facility to 0.045 lbs/hr to support achievement of the ambient concentration. The key issue remains should the emission limitation be lowered to 0.003 lbs/hr. In response to the Board's interest, staff released two alternatives at the October 1, 2010 hearing that incorporated a 0.003 lb/hr emission limit for stack emissions. Staff concluded that these alternatives would require additional analysis. As a result, staff recommended a new alternative that would be to require a feasibility analysis for reaching 0.003 lb/hr as part of the compliance plan.

Mike Buckantz, RSR Corporation, spoke on behalf of Quemetco and handed out a chart and a table showing lead reductions achieved at the facility and stated this is also an air toxics rule and all possible reductions of lead emissions should be made. Quemetco has committed $40 million to installing controls similar to Quemetco at two other plants. They have shown that the technology is achievable and affordable to reduce total facility point source emissions to 0.003 lb/hr. Joe Dowd, Exide Technologies Vice President and General Manager, stated that there are only two lead acid battery recycling facilities west of Dallas. If one of those went out of business, it would remove part of the incentive to recycle. Exide intends to comply with the ambient lead standard controlling both stack and

fugitive emissions. By controlling stack emissions to 0.003 lb/hr which is very expensive, they may not have the resources to properly address fugitive which may be the larger problem.

WRITTEN REPORTS

All written reports were acknowledged by the Committee.

PUBLIC COMMENTS

There were no public comments.

The meeting was adjourned at 11:20 a.m.

Attachments
Attendance Roster

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
STATIONARY SOURCE COMMITTEE
OCTOBER 15, 2010
ATTENDANCE ROSTER (VOLUNTARY)

NAME		AFFILIATION
Committee Chair Dennis Yates		AQMD Governing Board
Committee Member Judith Mitchell		AQMD Governing Board
Committee Member Jane Carney		AQMD Governing Board
Committee Member Josie Gonzales		AQMD Governing Board
Board Assistant Nicole Nishimura		AQMD Governing Board (Lyou)
Board Assistant Debra Mendelsohn		AQMD Governing Board (Antonovich)
Board Assistant Lisha Smith		AQMD Governing Board (Gonzales)
Board Assistant Marisa Perez		AQMD Governing Board (Mitchell)
Curt Coleman		So Cal AQ Alliance
John Dunlap		Exide
Wayne Nastri		Quemetco
Howard Berman		Quemetco
Mike Buckantz		Quemetco
Steve Schuyler		WSPA
David Rothbart		LACSD
Mohsen Nazemi		AQMD Staff
Barbara Baird		AQMD Staff
Bill Wong		AQMD Staff
Elaine Chang		AQMD Staff
Laki Tisopulos		AQMD Staff
Jill Whynot		AQMD Staff
Nancy Feldman		AQMD Staff
Susan Nakamura		AQMD Staff

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
STATIONARY SOURCE COMMITTEE
OCTOBER 15, 2010
ATTENDANCE ROSTER (VOLUNTARY)

Naveen Berry		AQMD Staff
Cheryl Marshall		AQMD Staff
Danny Luong		AQMD Staff
Tina Cherry		AQMD Staff

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 31

REPORT: Technology Committee

SYNOPSIS: The Technology Committee met on October 15, 2010. Major topics included Technology Advancement items reflected in the regular Board Agenda for the November Board meeting. A summary of these topics with the Committee's comments is provided. The next Technology Committee meeting will be on November 19, 2010 at 12 p.m. in CC-8.

RECOMMENDED ACTION:
Receive and file.

Josie Gonzales
Technology Committee Chair

CSL:pmk

Attendance: Committee Chair Josie Gonzales and Committee Member Judith Mitchell were in attendance at District headquarters. Committee Member John Benoit participated by video-teleconference. Committee Members William Burke, Miguel Pulido, and Dennis Yates were absent due to a conflict with their schedules.

NOVEMBER BOARD AGENDA ITEMS

1. **Execute Contracts to Conduct Conceptual Feasibility Studies for Reduction of Near Roadway Pollutant Exposures**
   Numerous air monitoring and health studies document elevated pollution levels and health risks in areas immediately adjacent to busy roadways and freeways. In addition to reducing on-road tailpipe emissions, other mitigation measures may be effective in reducing the pollution exposure of those living, working or playing in these affected areas. On March 5, 2010, an RFP was released for conceptual research studies to assess the feasibility and cost-effectiveness of roadside pollution mitigation measures, and six proposals were received. Based on the results of the technical evaluation process, this action is to execute three contracts in a total amount not to exceed $250,000 to study the reduction of pollutant exposures using near roadway mitigation measures.

Staff presented the proposal to fund three conceptual feasibility studies looking at exposure mitigation measures next to busy roadways. Committee Member Mitchell stated that while there might be some repetition in the studies, and that she would eventually like to see additional active filtration measures studied, that this was a good start. Committee Chair Gonzales also stated that she would like to see additional "out of the box" solutions assessed, and not stick to what we know or traditional techniques. She mentioned that staff should look at approaches being taken elsewhere in the world to address this issue. Staff replied that while research on the effects of barriers has been conducted, there have been conflicting results. These proposed projects will help develop better, validated models to better assess new roadside measures, including active measures. It was also stated that the Planning Center proposal is flexible, and assessment of the active approaches can be accomplished within that project.

Moved by Mitchell; seconded by Benoit; unanimously approved.

2. Execute Sole Source Contract for Buy-Down Incentive Program for CNG Home Refueling Appliance

Since May 6, 2005, the AQMD has implemented a buy-down incentive program for the *Phill* natural gas home refueling appliance (HRA) manufactured by FuelMaker Corporation to broaden the consumer base of light-duty natural gas vehicles. In April 2009, FuelMaker Corporation filed bankruptcy and was acquired by Fuel Systems Solutions, Inc. In July 2010, sale of the HRA in California resumed through an exclusive distributor, Gas Equipment Systems, Inc. (GESI). This action is to execute a sole source contract with GESI for an amount not to exceed $60,000 from the Clean Fuels Fund to provide a buy-down incentive of $1,000 per HRA.

Council Member Mitchell asked about the cost of the unit. Staff answered $4500.

Moved by Mitchell; seconded by Benoit; unanimously approved.

3. Execute Contract To Provide Technical Assistance for Alternative- Fueled Trucks Funded Under AQMD's Heavy-Duty Diesel Truck Replacement Program

The AQMD has received grant awards from the Department of Energy and Environmental Protection Agency for LNG truck projects approved under AQMD's Heavy-Duty Diesel Truck Replacement Program, including administrative funds. AQMD's administration of the program consists of project outreach and solicitation, project evaluation, inspections, contracting, invoice processing, project monitoring and other activities to comply with all program requirements. AQMD is required to monitor the operation of each LNG truck on a quarterly basis for a period of two years. This action is to execute a contract with Clean Fuel Connection to provide

technical assistance for quarterly reporting and other program administrative activities in an amount not to exceed $80,000.

Moved by Benoit; seconded by Mitchell; unanimously approved.

4. Execute Contracts to Support Electric Charging Infrastructure

Southern California has an established but obsolete network of public charging for electric vehicles. State and federal funds are being invested in our region to support the deployment of plug-in electric vehicles including charging infrastructure. These awards, however, do not include installation costs or coordination among awardees. This action is to help coordinate charging infrastructure rollout by executing contracts with Clipper Creek, Coulomb Chargepoint and ETEC ECOtality to replace existing chargers and install new chargers in high priority locations for a total cost not to exceed $210,000 from the Clean Fuels Fund.

Committee Chair Gonzales requested staff provide updates on the program and criteria to be used in site selection as chargers are installed and further ensure the hardware will be upgradeable in the future.

Moved by Mitchell; seconded by Benoit; unanimously approved.

5. Execute Contracts to Cofund Electric and Natural Gas Hybrid Heavy-Duty Trucks

Battery electric and hybrid heavy-duty trucks represent potential near-term opportunities for zero- and low-emission technologies for goods movement activities. The challenges remain in demonstrating the durability and capability of these new technologies on various heavy-duty applications. In July 2010, the California Energy Commission awarded $2,100,000 to Daimler Trucks to develop ten natural gas hybrid Class 8 trucks under the AB 118 program and $1,000,000 to TransPower to develop up to two Class 8 battery electric trucks. Both projects, however, are still in need of additional support to proceed. This action is to execute contracts with Daimler Trucks in an amount not to exceed $900,000 and with TransPower in an amount not to exceed $497,000 from the Clean Fuels Fund for the above-mentioned battery electric and natural gas hybrid heavy-duty truck demonstration projects.

This item was withdrawn by staff.

INFORMATIONAL ITEM ONLY

6. Clean Fuels Program Draft Plan Update *(presentation only)*

At the October 2010 Board meeting, the Board provided comments and input on the staff's proposed priorities for the Clean Fuels Program Draft Plan Update for 2011. Staff has addressed these comments and proposes adjustments to the funding priorities. Major emphasis remains on electric and plug-in hybrid electric vehicles, their infrastructure and expanding their market deployment, development and demonstration of clean engine systems, and expansion of alternative fuel infrastructure.

Public Comment Period – There was no public comment.

Other Business – There was no other business.

The next meeting will be November 19.

Attachment
A - Attendance

Attachment A – Attendance

Committee Chair Josie Gonzales	AQMD Governing Board
Committee Member Judith Mitchell	AQMD Governing Board
Committee Member John Benoit	AQMD Governing Board (via VT)
Nicole Nishimura	Board Assistant (Lyou)
Marisa Perez	Board Assistant (Mitchell)
Lisha Smith	Board Assistant (Gonzales)
John Olvera, Principal Deputy District Counsel	AQMD
Ruby Fernandez, Deputy District Counsel II	AQMD
Jean Ospital, Health Effects Officer	AQMD
Chung Liu, S&TA	AQMD
Henry Hogo, S&TA	AQMD
Matt Miyasato, S&TA	AQMD
Phil Fine, S&TA	AQMD
Fred Minassian, S&TA	AQMD
Randall Pasek, S&TA	AQMD
Dipankar Sarkar, S&TA	AQMD
Phil Barroca, S&TA	AQMD
Lisa Mirisola, S&TA	AQMD
Vicki White, S&TA	AQMD
Patti Whiting, S&TA	AQMD
Greg Ushijima, L&PA	AQMD
Nancy Cole, FIN	AQMD
Mary Leonard, FIN	AQMD
Paul Wright, IM	AQMD
Pat Krayser, S&TA	AQMD
Donna Vernon, S&TA	AQMD
Jordan McRobie	CaFCP
Stephanie White	CaFCP
Steve Ellis	Honda

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 32

REPORT: Mobile Source Air Pollution Reduction Review Committee

SYNOPSIS: Below is a summary of key issues addressed at the MSRC's meeting on October 21, 2010. The MSRC's next meeting is Thursday, November 18, 2010, at 2:00 p.m. in Conference Room CC8.

RECOMMENDED ACTION:
Receive and file.

Michael D. Antonovich
AQMD Representative on MSRC

CSL:HH:DAH

Additional Funds Approved for Alternative Fuel School Bus Incentives
For its FY 2008-09 Alternative Fuel School Bus Incentives Program, the MSRC allocated $3 million for incentives to public schools purchasing CNG or propane buses. To date, $2,520,000 has been awarded to A-Z Bus Sales and $240,000 to BusWest, the two qualified vendors administering this program, leaving $240,000 available for allocation. At its October 21, 2010 meeting, the MSRC unanimously awarded the remaining $240,000 to BusWest to provide incentives to the Rowland Unified School District for four CNG buses at $60,000 per bus incentive. The AQMD Board will consider this contract modification at its November 5, 2010 Board meeting.

Approve New/Replacement Contract for Riverside County Transportation Commission
As part of the FY 2003-04 Work Program, the Riverside County Transportation Commission (RCTC) was awarded $225,000 to enhance the region's rideshare database systems through the creation of a direct communications link between RCTC's RidePro and Metro's TripMaster. Among other features, the communications link will facilitate the access of transit itineraries through the CommuteSmart.info website. This contract expired recently before a modification to extend the term could be executed. At its October 21, 2010 meeting, the MSRC unanimously approved a new/replacement contract

for RCTC with a 12-month term in the amount of $225,000. The AQMD Board will consider this new/replacement contract at its November 5, 2010 Board meeting.

MSRC Website Upgrades to Include Pilot Project for Online Proposal Submission
The MSRC maintains a website (www.cleantransportationfunding.org) which was designed and continues to be maintained and hosted by HiP Design on behalf of the MSRC. The website acts as an outreach tool, promoting the MSRC's programs and providing assistance to contractors, proposers and others interested in clean transportation. Although the MSRC previously authorized HiP Design to develop a website feature to allow online submissions of proposals and applications, the feature was not activated because the AQMD does not currently have online submission of proposals as part of the procurement process. After consulting with AQMD's Finance and Legal staff, two areas for improvement were identified to ensure the integrity of the online submissions: 1) build in an additional level of password protection for proposal submission in the back-end; and 2) add an email notification and attachment mechanism. As a pilot project, AQMD's Finance and Legal staff have agreed to allow online submissions for the MSRC's FY 2010-11 Local Government Match Program, if desired by the MSRC. At its October 21, 2010 meeting, the MSRC unanimously elected to require mandatory online submissions for its FY 2010-11 Local Government Match Program. To facilitate this pilot project, the MSRC awarded an additional $1,500 to HiP Design to modify the website accordingly. The AQMD Board will consider this contract modification at its November 5, 2010 Board meeting. The Program Announcement for the FY 2010-11 Local Government Match Program is still being developed, but will include mandatory online submission procedures. Once the PA has been approved by the MSRC, approval to release it will be sought from the AQMD Board. It is anticipated this will occur in early 2011.

Development of New MSRC Website and Maintenance Services as Part of FY 2010-11 Work Program
As mentioned above, the MSRC maintains a website. This website, however, was developed in 2005 by HiP Design on the MSRC's behalf. Over the last five years, a variety of new options for content management system platforms and hosting have become available. The newer platforms provide for more flexibility and smoother processing. Additionally, much of the current hosting hardware, although still operational, is outdated and needs replacement. And finally the website's appearance needs to be refreshed and updated. It has been determined that the existing MSRC database and its contents can be smoothly moved to newer platforms if a new website is desired. At its October 21, 2010 meeting, the MSRC authorized preparation of a solicitation in the amount of $100,000 as part of its FY 2010-11 Work Program to identify and retain a company to develop a new website and provide maintenance, hosting and upgrade services for the first two years of operation. Once the MSRC has

considered and approved the solicitation for these services, approval to release it will be sought from the AQMD Board. It is anticipated this will occur in early 2011.

Off-Road Diesel Exhaust After-Treatment Demonstration Program as Part of FY 2010-11 Work Program

In October 2007, as part of its FY 2006-07 Work Program, the MSRC in partnership with CARB and the AQMD launched the "Showcase" Program to demonstrate diesel exhaust after-treatment devices on off-road construction vehicles. The Showcase Program sought to facilitate the verification of multiple devices across the broadest possible range of off-road vehicle sizes and types, and was originally intended to demonstrate devices on 230 vehicles. A primary goal of the "Showcase" Program was to provide essential in-use operations data necessary to support the verification of off-road retrofit devices and assist CARB with enforcement of its statewide "In-Use Off-Road Diesel Vehicles" regulation.

Due to a number of factors, including the economy, vehicle/device rematches, cost issues, staff shortages and Cal-OSHA requirements, the number of vehicles participating fell dramatically to the current level of 107, of which only 44 have been retrofitted to date. This reduction includes devices which were to be demonstrated on 59 of Caltrans' off-road vehicles. Recently, however, Caltrans decided it could not participate in the program. At its October 21, 2010 meeting, the MSRC directed staff to terminate negotiations with several manufacturers who were proposing to place the devices on Caltrans' vehicles. The value of these awards was $1,037,495. All other contracts in the original program have been effectuated either via executed contracts or previously declined and or canceled and the funding reverted back to the AB 2766 Discretionary Fund.

Nonetheless, there clearly remains a need for additional after-treatment devices to be verified for use on off-road vehicles. Providing fleets with more than one option should help keep prices down, and there are still engine types without verified devices. A need has also been identified for demonstration of installation designs which meet OSHA visibility requirements. On October 21, 2010, the MSRC as part of its FY 2010-11 Work Program approved a follow-on Showcase Program which would utilize an extended solicitation process with broad eligibility criteria to allow either fleets or vendors to be project proponents. The MSRC allocated $2,250,000 for this follow-on Showcase Program. The funds will come from the following sources: 1) the $1,037,495 previously allocated to vendors to retrofit Caltrans' vehicles; 2) $1,000,000 previously allocated, but not awarded, as part of the FY 2007-08 Work Program for an on-road retrofit demonstration program; and 3) $250,000 previously allocated, but not awarded, as part of the FY 2007-08 Program for a Showcase gap-filler program. Once the MSRC has considered and approved solicitation(s) for the follow-on Showcase Program, approval to release it will be sought from the AQMD Board. It is anticipated this will occur in early 2011.

FY 2010-11 Work Program Development
MSRC staff reported that the five subcommittees –Vehicles; Infrastructure; Local Government Match; Transportation Control Measures; and Showcase – have continued their deliberations toward development of FY 2010-11 Work Program elements. In addition to the website upgrades, new website and follow-on Showcase Program, approved as part of the FY 2010-11 Work Program at the MSRC's October 21, 2010 meeting, MSRC staff briefly outlined overall concepts for several additional proposed elements, including a Local Government Match Program (with the mandatory online submission requirement); an Alternative Fuels Infrastructure Program; several potential vehicle programs including incentives to exhilarate retirement of light-duty vehicles, clean up of off-road emissions; and zero-emission vehicles; an Alternative Fuels School Bus Incentives Program; and transportation control measure programs such as an event center shuttle service, multi-mobility hubs and networks, a 511 mobile "smart phone" app and development of adaptive real-time transit schedules. Additional information including more specific details and proposed funding targets will be presented to the MSRC for consideration at its November 18, 2010 meeting. It is estimated that more than $20 million will be available for the FY 2010-11 AB 2766 Discretionary Fund Work Program.

Contract Modification Request
The MSRC considered one contract modification for City of Redondo Beach Contract #ML07043, which provides $125,000 towards the purchase of five heavy-duty CNG vehicles. They unanimously approved a two-year contractual term extension and a modified statement of work to allow substitution of vehicles.

Contracts Administrator's Report
The MSRC's AB 2766 Contracts Administrator provides a written status report on all open contracts from FY 2002-03 through the present. The Contracts Administrator's Report for October 2010 is attached for your information.

Attachment
October 2010 Contracts Administrator's Report

Clean Transportation
Funding from the MSRC
Mobile Source Air Pollution Reduction Review Committee

MSRC Agenda Item No. 2

DATE: October 21, 2010

FROM: Cynthia Ravenstein

SUBJECT: AB 2766 Contracts Administrator's Report

SYNOPSIS: This report covers key issues addressed by MSRC staff, status of open contracts, and administrative scope changes from August 26 through September 28, 2010.

RECOMMENDATION Receive and file report

WORK PROGRAM IMPACT: None

Contract Execution Status

2009-10 Work Program

On September 11, 2009, the AQMD Governing Board approved 27 awards under the Local Government Match Program as part of the MSRC's FY 2009-10 Work Program. All these projects also received partial funding as part of the MSRC's FY 2008-09 Work Program (see below). These contracts are with the prospective contractor for signature or executed.

On November 6, 2009, the AQMD Governing Board approved 11 additional awards, as well as 1 augmentation for a project which previously received a partial award, under the Local Government Match Program as part of the MSRC's FY 2009-10 Work Program. These contracts are awaiting responses from the prospective contractor, with the prospective contractor for signature, or executed.

On March 5, 2010, the AQMD Governing Board approved an award to the Coachella Valley Association of Governments for the Coachella Valley Regional PM10 Street Sweeping Program. Also on March 5, 2010, the Board approved an award to the Los Angeles County Metropolitan Transportation Authority to provide clean fuel transit service to Dodger Stadium. Both awards were part of the MSRC's FY 2009-10 Work Program and both contracts are executed.

On July 9, 2010, the AQMD Governing Board approved 21 awards under the Heavy-Duty Alternative Fuel Engines for On-Road Vehicles Program as part of the FY 2009-10 Work Program. These contracts are under development, undergoing internal review, or with the prospective contractor for signature.

2008-09 Work Program

On July 11, 2008, the AQMD Governing Board approved six augmentations for projects which previously received partial awards under the FY 2007-08 Work Program, as well as six additional awards, for the Alternative Fuel Heavy-Duty Engines for On-Road Vehicles Program as part of the MSRC's FY 2008-09 Work Program. Also on July 11, 2008, the Board approved 26 awards under the Local Government Match Program and 22 awards under the Alternative Fuel Infrastructure Funding Opportunities Program as part of the MSRC's FY 2008-09 Work Program. Some of these projects also received partial funding as part of the MSRC's FY 2007-08 Work Program (see below). Lastly, on this date the Board approved a sole-source award to Administrative Services Co-Op/Long Beach Yellow Cab to place into service up to 15 dedicated CNG taxicabs. Except as detailed below, these contracts are executed:

- One of the augmented awards was to Diversified Truck Rental and Leasing for the purchase of ten natural gas refuse trucks. MSRC staff has been informed that the company was sold. After multiple attempts to obtain a response from the purchasing entity, they were informed that they must respond by July 16, 2010 or MSRC staff would recommend that the MSRC terminate negotiations. Diversified subsequently responded and MSRC staff is making final attempts to negotiate a contract.
- One of the Infrastructure awards was to the Regents of the University of California for the installation of a hydrogen fueling station at UCLA. Negotiations with UCLA have been productive and the contract is currently undergoing internal review.

On September 5, 2008, the AQMD Governing Board approved an augmented award under the Local Government Match Program for an application which had been misplaced and thus not considered with the original awards. This contract is executed. Also on September 5, 2008, the MSRC approved a sole-source award to FuelMaker Corporation to provide incentives for natural gas home refueling units. This contract was under development when MSRC staff learned that FuelMaker Corporation had been adjudged bankrupt by the Ontario (Canada) Superior Court. Subsequently, FuelMaker was purchased by IMPCO. MSRC staff is currently awaiting responses from IMPCO to determine what actions may be necessary to continue implementation of the Program.

On January 9, 2009, the AQMD Governing Board approved an award for a replacement CNG refueling station vendor in support of the Mountain Area CNG School Bus Demonstration Program. At their March 19, 2009 meeting, the MSRC approved an augmentation to this award, and the AQMD Board approved the increase on May 1, 2009; this contract is executed.

On March 6, 2009, the AQMD Governing Board approved two augmented awards under the Local Government Match Program for applications which had been misplaced and thus not considered with the original awards. These contracts are executed.

On September 11, 2009, the AQMD Governing Board approved 29 awards under the MSRC's FY 2008-09 Local Government Match Program. Some of these projects also received funding as part of the MSRC's FY 2009-10 Work Program (see above). Also on September 11, 2009, the Board approved modifications to the 511 Commuter Services Outreach and Public Awareness Campaign, reflecting the bifurcation of outreach efforts, as part of the MSRC's FY 2006-07 Work Program. These included a modified award changing the original contractor name to LA SAFE and reducing the award amount from $1,000,000 to $700,000, as well as new sole-source

awards to Riverside County Transportation Commission and the Better World Group. These contracts are with the prospective contractor for signature or executed.

2007-08 Work Program

Except as discussed below, contracts for this Work Program are executed or declined.

On December 7, 2007, the AQMD Governing Board approved two sole-source awards to implement Big Rig Freeway Service Patrol as part of the MSRC's FY 2007-08 Work Program. These contracts are under development or undergoing internal review.

On May 2, 2008, the Board approved nine awards for the Alternative Fuel Heavy-Duty Engines for On-Road Vehicles Program. As noted above, MSRC staff is making final attempts to conclude negotiations with the entity which purchased Diversified Truck Rental and Leasing.

On July 11, 2008, the AQMD Governing Board approved seven awards under the Alternative Fuel Infrastructure Funding Opportunities Program. As noted above, this contract is undergoing internal review.

2006-07 Work Program

Except as discussed below, contracts for this Work Program are executed or declined.

On October 5, 2007, the AQMD Governing Board approved 18 awards under the "Showcase" Program. Caltrans' contract is not executed as it was superseded by the MSRC's approval of an alternative contracting procedure—see below.

On December 5, 2008, the AQMD Board approved ten awards to manufacturers of diesel emission control systems under the "Showcase" Off-Road Diesel Construction Equipment Retrofit Program. These awards reallocated funding which was originally awarded to Caltrans in October 2007. Two awards have been declined; the remaining contracts have been awaiting confirmation of Caltrans' willingness to participate in accordance with Program terms. In July 2009, Caltrans suggested that they might want to try another approach, but they have not yet provided necessary information which would allow the contract process to move forward. Caltrans has recently indicated that they cannot participate in the Showcase Program at this time, and MSRC staff are recommending that negotiations with the manufacturers be terminated.

Work Program Status

Contract Status Reports for work program years with open and pending contracts are attached. MSRC or MSRC-TAC members may request spreadsheets covering any other work program year.

FY 2002-03 Work Program Contracts

One regular contract from this work program year is open. All Local Government Match Program contracts are now closed.

FY 2002-03 Regular Work Program Invoices Paid

One invoice in the amount of $22,953.00 was paid during this period.

FY 2003-04 Work Program Contracts

One regular contract from this work program year is open. However, the MSRC also authorized a replacement contract which is currently with the prospective contractor for signature.

FY 2003-04 Regular Work Program Invoices Paid
No invoices were paid during this period.

FY 2004-05 Work Program Contracts

One regular and five Local Match contracts from this work program year are open.

FY 2004-05 Regular Work Program Invoices Paid
One invoice in the amount of $300.00 was paid during this period.

FY 2004-05 Local Government Match Program Invoices Paid
No invoices were paid during this period.

FY 2004-05 Diesel Exhaust After-treatment Program Invoices Paid
No invoices were paid during this period.

FY 2005-06 Work Program Contracts

6 regular, 11 Local Match, and one Diesel Exhaust After-treatment contracts from this work program year are open; and 9 regular and 24 Local Match contracts are in "Open/Complete" status, having completed all obligations save ongoing operation.

FY 2005-06 Regular Work Program Invoices Paid
No invoices were paid during this period.

FY 2005-06 Local Government Match Program Invoices Paid
No invoices were paid during this period.

FY 2005-06 Diesel Exhaust After-treatment Program Invoices Paid
No invoices were paid during this period.

FY 2006-07 Work Program Contracts

25 regular and 13 Local Match contracts from this work program year are open; and 13 regular and 8 Local Match contracts are in "Open/Complete" status, having completed all obligations save ongoing operation. One contract passed into "Open/Complete" status during this period: CR&R, Contract #MS07057 – Purchase 28 Natural Gas Refuse Trucks. One contract closed during this period: City of Los Angeles, General Services Dept., Contract #MS07012 – Modify Maintenance Facility.

FY 2006-07 Regular Work Program Invoices Paid
Three invoices totaling $1,045,855.97 were paid during this period.

FY 2006-07 Local Government Match Program Invoices Paid
Two invoices totaling $358,224.26 were paid during this period.

FY 2007-08 Work Program Contracts

32 regular and 18 Local Match contracts from this work program year are open; and 6 regular and 7 Local Match contracts are in "Open/Complete status, having completed all obligations

save ongoing operation. Two contracts passed into "Open/Complete" status during this period: Hemet Unified School District, Contract #MS08064 – Expand Existing CNG Infrastructure, and City of Paramount, Contract #ML08046 – Purchase One Heavy-Duty CNG Vehicle. One contract was cancelled during this period: City of Irvine, Contract #ML08032 – Purchase Remote Diagnostic Devices for 36 vehicles.

FY 2007-08 Regular Work Program Invoices Paid
Four invoices totaling $690,419.89 were paid during this period.

FY 2007-08 Local Government Match Program Invoices Paid
One invoice in the amount of $97,500.00 was paid during this period.

FY 2008-09 Work Program Contracts

Four regular and 19 Local Match contracts from this work program year are open; and two Local Match contracts are in "Open/Complete" status.

FY 2008-09 Regular Work Program Invoices Paid
Three invoices totaling $200,000.00 were paid during this period.

FY 2008-09 Local Government Match Program Invoices Paid
No invoices were paid during this period.

FY 2009-10 Work Program Contracts

Two regular contracts from this work program year are open.

FY 2009-10 Regular Work Program Invoices Paid
No invoices were paid during this period.

Administrative Scope Changes

Two administrative scope changes were initiated during the period of August 26 through September 28, 2010.

- MS10019 (pending) – EDCO Disposal: Purchase 11 Heavy-Duty Natural Gas Refuse Trucks – allow truck location to be in either Los Angeles or Orange County
- ML06028 – City of Pasadena: Install CNG Station and Modify Maintenance Facility – modify project schedule to allow six additional months for maintenance facility (no change to contract term)

Attachments

- FY 2002-03 through FY 2009-10 Contract Status Reports

MSRC Database
Mobile Source Air Pollution Reduction Review Committee

2002-03 AB2766 Contract Status Report

10/27/2010

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
Open Contracts									
MS03069	City of Cathedral City	12/20/2006	11/19/2007	10/31/2009	$22,953.00	$22,953.00	Wind Fencing	$0.00	No
Total: 1									
Declined/Cancelled Contracts									
MS03039	Bureau of Automotive Repair				$500,000.00	$0.00	Repair Assistance Program	$500,000.00	No
MS03058	Ebensteiner Company				$705,936.00	$0.00	Repower 8 Wheel Scrapers	$705,936.00	No
MS03060	Clean Energy Fuels Corp.	12/5/2003	1/4/2005	1/4/2006	$250,000.00	$0.00	CNG Fueling Station - Palm Springs	$250,000.00	No
MS03061	Clean Energy Fuels Corp.	12/5/2003	1/4/2005	7/4/2006	$250,000.00	$0.00	CNG Fueling Station - Ontario Airport	$250,000.00	No
Total: 4									
Closed Contracts									
MS03001	A-Z Bus Sales, Inc.	4/11/2003	12/31/2003	12/31/2004	$1,773,333.00	$1,740,000.00	CNG School Bus Buydown	$33,333.00	Yes
MS03002	California Bus Sales	4/7/2003	12/31/2003	12/31/2004	$1,140,000.00	$1,140,000.00	CNG School Bus Buydown	$0.00	Yes
MS03003	BusWest	4/21/2003	12/31/2003	12/31/2004	$1,140,000.00	$540,000.00	CNG School Bus Buydown	$600,000.00	Yes
MS03004	Haaland Internet Productions (HIP D	5/28/2003	3/31/2005	12/31/2005	$35,000.00	$21,075.00	MSRC Website Maintenance	$13,925.00	Yes
MS03015	City of La Quinta	6/23/2003	3/23/2004	3/23/2005	$77,119.00	$59,698.47	Soil Stabilization	$17,420.53	Yes
MS03017	City of La Quinta	7/7/2003	8/7/2004		$139,285.00	$139,285.00	Purchase PM10 Certified Street Sweeper	$0.00	Yes
MS03018	Gateway Cities Council of Governme	9/3/2003	3/3/2005		$1,000,000.00	$1,000,000.00	Truck Fleet Modernization Program	$0.00	Yes
MS03022	City of Rancho Mirage	9/3/2003	6/3/2004	12/3/2004	$70,626.00	$70,626.00	Water Truck, Post Even Cleanup, Pave Porti	$0.00	Yes
MS03023	County of Riverside Transportation D	8/13/2003	7/13/2004		$62,396.00	$0.00	Pave Portions of Two Roads	$62,396.00	No
MS03025	Coachella Valley Association of Gov	7/11/2003	8/10/2006	10/10/2007	$20,730.00	$20,730.00	Wind Fencing	$0.00	Yes
MS03026	City of Palm Springs	2/12/2004	12/11/2004	3/11/2007	$44,529.00	$29,703.00	Pick-Up Truck, Soil Stabilization, Paving	$14,826.00	Yes
MS03027	City of Riverside	5/6/2004	1/5/2006		$52,402.00	$43,597.00	1 CNG Street Sweeper, 3 CNG Refuse Truc	$8,805.00	Yes
MS03028	Johnson/Ukropina Creative Marketin	7/7/2003	8/31/2004		$805,000.00	$802,373.73	Implement "Rideshare Thursday" Campaign	$2,626.27	Yes
MS03029	County Sanitation Districts of L.A. C	9/25/2003	6/24/2005	8/24/2006	$416,500.00	$416,500.00	Repower 3 Dual-Engine Scrapers, 1 Wheel	$0.00	Yes
MS03030	McLaughlin Engineering & Mining, In	9/5/2003	4/4/2005		$564,360.00	$564,360.00	Repower 6 dual-engine scrapers	$0.00	Yes
MS03031	City of Cathedral City	9/30/2003	10/29/2004	10/29/2008	$79,036.00	$79,036.00	Wind Fencing & Soil Stabilization	$0.00	Yes
MS03033	Coachella Valley Association of Gov	7/22/2003	11/21/2005		$291,808.00	$115,343.75	Street Sweeping Vehicles & Equipment	$176,464.25	Yes
MS03034	Sukut Equipment, Inc.	9/3/2003	1/3/2005		$557,653.00	$557,653.00	Repower 4 wheel scrapers, 1 wheel dozer	$0.00	Yes
MS03035	Jagur Tractor	7/22/2003	11/22/2004		$261,742.00	$261,742.00	2 Dual-engine wheel scrapers	$0.00	Yes
MS03036	PEED Equipment Co.	8/1/2003	12/1/2004		$72,363.00	$72,363.00	One Dozer	$0.00	Yes
MS03037	City of Coachella	3/22/2004	4/21/2005		$11,969.00	$11,969.00	Purchase CNG Street Sweeper	$0.00	Yes
MS03038	TransVironmental Solutions, Inc.	9/5/2003	12/5/2005	11/4/2006	$615,200.00	$552,952.04	Regional Vanpool Program	$62,247.96	No

MSRC Database
Mobile Source Air Pollution Reduction Review Committee

2003-04 AB2766 Contract Status Report

10/27/2010

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
Open Contracts									
MS04061	Riverside County Transportation Co	6/29/2009	8/31/2010		$225,000.00	$0.00	Regional Rideshare Database Enhancement	$225,000.00	No
MS04062	Los Angeles County MTA	10/1/2010	3/31/2011		$53,500.00	$0.00	Regional Rideshare Database Enhancement	$53,500.00	No
Total: 2									
Declined/Cancelled Contracts									
MS04002	City of Riverside				$58,096.00	$0.00	3 Refuse Trucks, 3 Dump Trucks, 2 Water T	$58,096.00	No
MS04051	NorthStar, Inc.				$250,000.00	$0.00	New LNG Station	$250,000.00	No
MS04053	Clean Energy Fuels Corp.				$250,000.00	$0.00	New CNG Station - Mid-Wilshire	$250,000.00	No
MS04054	Clean Energy Fuels Corp.				$250,000.00	$0.00	New CNG Station - Mission Viejo	$250,000.00	No
Total: 4									
Closed Contracts									
MS04001	City of Ontario	8/27/2004	9/26/2005		$35,082.00	$35,082.00	2 CNG Refuse Trucks	$0.00	Yes
MS04003	Long Beach Transit	8/27/2004	6/26/2006		$335,453.00	$330,453.00	27 Gasoline-Electric Hybrid Buses/Mech. Tr	$5,000.00	Yes
MS04005	City of Norwalk Transportation Dept.	11/27/2004	1/27/2007		$118,052.00	$88,539.00	4 Gas-Electric Hybrid Vehicles	$29,513.00	Yes
MS04006	Orange County Transportation Autho	10/1/2004	4/30/2006	7/31/2008	$405,000.00	$405,000.00	2 Gas-Electric Hybrid and 20 CNG Transit B	$0.00	Yes
MS04007	Foothill Transit Agency	6/24/2005	11/23/2006		$715,000.00	$714,100.00	75 CNG Buses, Fueling Station	$900.00	No
MS04008	Los Angeles County MTA	11/1/2004	9/30/2007		$854,050.00	$854,050.00	50 CNG Buses	$0.00	Yes
MS04017	Road Builders, Inc.	10/13/2004	4/12/2006	12/31/2006	$953,080.00	$953,080.00	Repower 12 Scrapers & 1 Loader	$0.00	Yes
MS04027	Larry Jacinto Construction	9/13/2004	3/12/2006		$454,510.00	$454,510.00	Repower 6 Scrapers	$0.00	Yes
MS04029	Herigstad Equipment Rental	9/16/2004	3/15/2006		$1,190,024.00	$830,172.00	Repower 10 Scrapers	$359,852.00	Yes
MS04036	Sukut Equipment, Inc.	12/15/2004	2/15/2006		$466,807.00	$466,807.00	Repower 4 Scrapers & 3 Dozers	$0.00	Yes
MS04039	CR&R, Inc.	1/25/2005	3/24/2007	2/24/2009	$463,168.00	$461,550.00	30 LNG Refuse Trucks	$1,618.00	Yes
MS04041	CR&R, Inc.	7/25/2005	9/24/2007	9/24/2008	$155,468.00	$153,850.00	10 LNG Refuse Trucks, Mechanic Training	$1,618.00	Yes
MS04050	R.F. Dickson Co., Inc.	6/3/2005	6/2/2006	10/2/2007	$250,000.00	$250,000.00	Upgrade CNG Station	$0.00	Yes
MS04052	Downs Energy	5/6/2005	6/5/2006	6/30/2009	$250,000.00	$250,000.00	New LNG/L-CNG Station	$0.00	Yes
MS04058	American Honda Motor Company	11/2/2005	6/30/2007	3/31/2008	$300,000.00	$4,000.00	Home Refueling Apparatus Lease Incentives	$296,000.00	Yes
MS04059	FuelMaker Corporation	9/9/2005	6/30/2006	12/31/2006	$100,000.00	$100,000.00	Home Refueling Apparatus Incentives	$0.00	Yes
Total: 16									
Closed/Incomplete Contracts									
MS04004	Athens Services, Inc.	9/3/2004	3/2/2006	9/2/2006	$311,421.00	$197,503.50	14 LNG Waste Haulers, Maint. Facility. Mod	$113,917.50	No
MS04055	Riverside County Transportation Co	6/29/2006	8/28/2007	2/28/2008	$225,000.00	$0.00	Regional Rideshare Database Enhancement	$225,000.00	No
MS04056	Los Angeles County MTA	6/13/2006	12/12/2007	1/12/2010	$120,000.00	$66,488.40	Regional Rideshare Database Enhancement	$53,511.60	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
MS03040	City of Redondo Beach	9/30/2003	7/30/2004		$100,000.00	$100,000.00	Expand CNG Fueling Station	$0.00	Yes
MS03041	Orange County Transportation Autho	6/15/2004	8/14/2008	1/14/2009	$1,360,000.00	$1,360,000.00	68 CNG Buses	$0.00	Yes
MS03042	Riverside Transit Agency	1/19/2004	12/18/2005	6/18/2006	$100,000.00	$100,000.00	Construct CNG Fueling Station	$0.00	Yes
MS03050	City of Culver City Transportation De	10/10/2003	6/9/2005	4/9/2008	$294,286.00	$294,286.00	8 CNG Buses/Fueling Sta. Mods.	$0.00	Yes
MS03051	San Bernardino Associated Govern	12/5/2003	10/5/2006	3/1/2008	$375,000.00	$353,249.52	Freeway Service Patrol	$21,750.48	Yes
MS03052	The Better World Group	10/3/2003	10/3/2004	10/2/2007	$163,561.00	$141,333.83	Programmatic Outreach	$22,227.17	Yes
MS03055	Riverside County Transportation Co	11/7/2003	5/7/2006		$275,400.00	$165,939.62	Freeway Service Patrol	$109,460.38	Yes
MS03056	Los Angeles County MTA	3/1/2004	9/30/2006		$862,200.00	$825,190.60	Expanded Freeway Service Patrol	$37,009.40	Yes
MS03057	Cattrac Construction, Inc.	1/9/2004	5/9/2005		$155,325.00	$155,325.00	Repower wheel loader, dozer, scraper	$0.00	Yes
MS03059	Orange County Transportation Autho	12/23/2003	8/23/2006		$375,000.00	$374,999.39	Freeway Service Patrol	$0.61	Yes
MS03062	Clean Energy Fuels Corp.	1/21/2004	2/20/2005	2/20/2006	$250,000.00	$250,000.00	CNG Fueling Station - Canoga Park	$0.00	Yes
MS03067	County of Riverside Transportation D	2/4/2005	11/3/2005	6/7/2008	$62,396.00	$62,396.00	Pave Portions of Two Roads	$0.00	No
MS03068	City of Palm Desert	12/3/2004	10/2/2005	4/2/2006	$42,339.00	$21,217.01	Soil Stabilization, Wind Fencing & Vegitation	$21,121.99	Yes
MS03070	City of Desert Hot Springs	7/13/2007	10/12/2007		$2,965.00	$2,965.00	Purchase One CNG Pickup Truck	$0.00	Yes
Total: 36									
Closed/Incomplete Contracts									
MS03016	City of Palm Desert	6/23/2003	8/23/2004		$42,339.00	$0.00	Soil Stabilization, Wind Fencing & Vegitation	$42,339.00	Yes
MS03024	City of Desert Hot Springs	6/23/2003	9/23/2006		$42,979.00	$24,956.05	Street Sweeper, Skip Loader, Post-Event Cl	$18,022.95	Yes
MS03032	City of Cathedral City	10/18/2004	7/17/2006		$24,895.00	$0.00	Wind Fencing	$24,895.00	No
MS03048	Coachella Valley Association of Gov	10/16/2003	6/16/2004	12/16/2004	$27,000.00	$0.00	Stabilize Six Unpaved Parking Lots	$27,000.00	No
MS03063	Clean Energy Fuels Corp.	7/22/2004	8/21/2005	8/21/2006	$250,000.00	$0.00	CNG Fueling Station - Hollywood	$250,000.00	Yes
MS03064	Clean Energy Fuels Corp.	3/12/2004	4/11/2005		$250,000.00	$0.00	LNG Fueling Station - XRT San Bernardino	$250,000.00	No
Total: 6									

MSRC Database
Mobile Source Air Pollution Reduction Review Committee

2003-04 AB2766 Local Government Match Program Contract Status Report

10/22/2009

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
Open Contracts									
ML04038	County of Orange Transportation Dept	2/3/2006	8/2/2007	2/2/2010	$420,000.00	$70,000.00	4 HD CNG Vehicles, 1 MD CNG Vehicles an	$350,000.00	No
Total: 1									
Declined/Cancelled Contracts									
ML04010	Los Angeles County Department of Publi				$140,000.00	$0.00	7 LPG Street Sweepers	$140,000.00	No
ML04011	City of Palm Desert				$20,000.00	$0.00	1 CNG Street Sweeper	$20,000.00	No
ML04022	Los Angeles County Dept of Beaches &				$255,000.00	$0.00	2 CNG M.D., 1 CNG Dump Truck, 1 CNG D	$255,000.00	No
ML04023	Los Angeles County Dept of Beaches &				$205,000.00	$0.00	1 CNG M.D., 1 CNG Crane Carrier Refuse T	$205,000.00	No
ML04024	Los Angeles County Department of Publi				$60,000.00	$0.00	3 30-foot LPG Buses	$60,000.00	No
ML04025	Los Angeles County Department of Publi				$20,000.00	$0.00	1 LPG Airport Sweeper	$20,000.00	No
ML04028	City of Lawndale	1/28/2005	1/27/2006	7/27/2006	$20,000.00	$0.00	1 CNG F-450 Cutaway	$20,000.00	No
ML04031	City of Santa Clarita				$20,000.00	$0.00	1 CNG Dump Truck	$20,000.00	No
ML04044	Los Angeles County Department of Publi	6/29/2006	12/28/2007	12/28/2008	$80,000.00	$0.00	Park & Ride Rehab.-Ventura	$80,000.00	No
ML04049	County of Los Angeles				$26,956.00	$0.00	Expanded Videoconferencing	$26,956.00	No
ML04057	City of Tustin				$40,000.00	$0.00	2 H.D. LPG Vehicles	$40,000.00	No
Total: 11									
Closed Contracts									
ML04009	City of Montclair	1/7/2005	12/6/2005		$50,000.00	$50,000.00	3 CNG Medium Duty, 1 CNG Paratransit	$0.00	Yes
ML04012	City of Whittier	10/1/2004	8/31/2005	12/31/2008	$153,333.00	$153,333.00	2 H.D., 3 M.D. CNG Vehicles, CNG Station	$0.00	Yes
ML04013	City of Beaumont	9/9/2005	8/8/2006	10/8/2006	$220,400.00	$30,000.00	1 CNG Dump Truck, 3 M.D. CNG Vehicles,	$190,400.00	Yes
ML04014	City of Baldwin Park	10/10/2004	9/9/2005	3/9/2006	$63,350.00	$63,350.00	2 M.D. CNG Vehicles, 2 CNG Stations	$0.00	Yes
ML04015	City of San Bernardino	10/1/2004	8/31/2005		$80,000.00	$80,000.00	8 M.D. CNG Vehicles	$0.00	Yes
ML04016	City of Burbank	10/12/2004	4/11/2006		$270,000.00	$180,000.00	7 Refuse Trks, 3 Street Sweepers, 2 Aerial	$90,000.00	Yes
ML04018	City of Inglewood	6/21/2005	8/20/2006	10/20/2007	$312,500.00	$272,500.00	3 CNG Street Sweepers, 2 CNG Dump Truc	$40,000.00	Yes
ML04019	City of La Verne	8/26/2005	1/25/2007	5/25/2008	$120,259.00	$104,348.58	3 CNG M.D., 1 CNG Street Sweeper, CNG	$15,910.42	Yes
ML04020	City of Orange Public Works Department	12/3/2004	7/2/2005		$20,000.00	$20,000.00	1 CNG Street Sweeper	$0.00	Yes
ML04021	City of Colton	10/1/2004	7/31/2005		$40,000.00	$40,000.00	4 M.D. CNG Vehicles	$0.00	Yes
ML04026	Los Angeles World Airports	11/19/2004	11/18/2005		$40,000.00	$40,000.00	1 LNG Refuse Truck, 1 CNG Street Sweepe	$0.00	Yes
ML04030	City of Los Angeles, Environmental Affair	2/4/2005	8/3/2006	2/3/2007	$420,000.00	$300,000.00	21 CNG Street Sweepers	$120,000.00	Yes
ML04032	City of Hemet Public Works	6/3/2005	11/2/2006		$60,000.00	$60,000.00	3 CNG Refuse Trucks	$0.00	Yes
ML04033	City of Riverside	1/20/2005	7/19/2006		$190,000.00	$180,000.00	5 CNG M.D., 3 CNG Refuse Trucks, 2, CNG	$10,000.00	Yes
ML04034	City of Lakewood	11/5/2004	7/4/2005		$10,000.00	$10,000.00	1 M.D. CNG Vehicle	$0.00	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
ML04035	City of Hawthorne	11/15/2004	11/14/2005	5/14/2006	$20,000.00	$20,000.00	1 CNG Crane Carrier	$0.00	Yes
ML04037	City of San Fernando	1/21/2005	3/20/2006	12/20/2007	$262,042.00	$166,400.00	2 CNG MD, 1CNG Aerial Lift Truck, 2 CNG	$95,642.00	Yes
ML04040	City of Moreno Valley	1/24/2005	9/23/2005	3/23/2006	$30,000.00	$30,000.00	1 M.D., 1 H.D. CNG Vehicles	$0.00	Yes
ML04042	Los Angeles County Department of Publi	9/23/2005	3/22/2007	9/22/2007	$100,000.00	$100,000.00	Park & Ride Rehab.-Fairplex	$0.00	Yes
ML04043	City of Cathedral City	1/7/2005	10/6/2005	1/6/2008	$50,000.00	$50,000.00	3 CNG M.D. Vehicles, 1 CNG Dump Truck	$0.00	Yes
ML04045	City of Bellflower	1/7/2005	11/6/2005		$60,000.00	$60,000.00	6 M.D. CNG Vehicles	$0.00	Yes
ML04046	City of Desert Hot Springs	5/12/2005	5/11/2006	2/28/2007	$40,000.00	$0.00	2 M.D. CNG Vehicles, Infrastructure	$40,000.00	No
ML04047	County of San Bernardino Public Works	3/22/2005	7/21/2006	1/21/2007	$120,000.00	$100,000.00	1 LNG Water Truck, 2 LNG Water Trucks, 3	$20,000.00	No
ML04048	City of Los Angeles, Bureau of Sanitation	3/30/2005	9/29/2006	1/29/2008	$29,032.00	$29,032.00	Expand Video Conf. Equipment	$0.00	Yes
ML04060	City of Desert Hot Springs	7/17/2007	7/16/2008		$20,000.00	$20,000.00	Construct Time-Fill CNG Station	$0.00	No

Total: 25

MSRC Database
Mobile Source Air Pollution Reduction Review Committee

2004-05 MSRC Diesel Exhaust After-treatment Retrofit Program Contract Status Report

10/22/2009

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
Open Contracts									
PT05055	Los Angeles County Department of Publi	6/29/2006	3/28/2008	12/28/2008	$212,500.00	$194,658.96	Diesel Exhaust Retrofit Program	$17,841.04	No
PT05063	Orange County Transportation Authority	3/26/2006	12/25/2007	3/25/2009	$425,000.00	$425,000.00	Diesel Exhaust Retrofit Program	$0.00	No
PT05064	Atlantic Express of California, Inc.	3/26/2006	12/25/2007	12/1/2009	$67,500.00	$0.00	Diesel Exhaust Retrofit Program	$67,500.00	No
Total: 3									
Declined/Cancelled Contracts									
PT05068	Yucaipa Bus Service Inc.				$153,000.00	$0.00	Diesel Exhaust Retrofit Program	$153,000.00	No
Total: 1									
Closed Contracts									
PT05053	City of Montclair	11/10/2005	8/9/2007		$68,000.00	$48,731.52	Diesel Exhaust Retrofit Program	$19,268.48	Yes
PT05054	City of Hemet Public Works	10/2/2005	7/1/2007		$34,000.00	$34,000.00	Diesel Exhaust Retrofit Program	$0.00	Yes
PT05056	County Sanitation Districts of Los Angele	3/20/2006	12/19/2007		$348,000.00	$348,000.00	Diesel Exhaust Retrofit Program	$0.00	Yes
PT05057	First Student, Inc.	3/30/2006	12/29/2007		$442,500.00	$442,499.94	Diesel Exhaust Retrofit Program	$0.06	Yes
PT05058	City of Long Beach, Fleet Services Burea	10/22/2007	4/21/2009		$144,000.00	$123,500.00	Diesel Exhaust Retrofit Program	$20,500.00	Yes
PT05059	City of San Bernardino	10/26/2005	7/25/2007		$150,000.00	$144,215.71	Diesel Exhaust Retrofit Program	$5,784.29	Yes
PT05060	Los Angeles Department of Water and P	2/13/2006	11/12/2007	12/31/2008	$2,244,000.00	$2,065,442.33	Diesel Exhaust Retrofit Program	$178,557.67	Yes
PT05061	City of Pomona	1/23/2006	10/22/2007		$42,500.00	$42,500.00	Diesel Exhaust Retrofit Program	$0.00	Yes
PT05062	Caltrans Division of Equipment	4/17/2006	1/16/2008		$144,000.00	$144,000.00	Diesel Exhaust Retrofit Program	$0.00	Yes
PT05065	Eastern Municipal Water District	11/10/2005	8/9/2007		$150,000.00	$129,786.10	Diesel Exhaust Retrofit Program	$20,213.90	Yes
PT05066	CR&R, Inc.	4/7/2006	10/6/2007		$110,500.00	$110,500.00	Diesel Exhaust Retrofit Program	$0.00	Yes
PT05067	USA Waste of California/Waste Manage	7/7/2006	4/6/2008		$153,000.00	$42,500.00	Diesel Exhaust Retrofit Program	$110,500.00	Yes
PT05069	City of Corona, Fleet Services Division	3/28/2006	12/27/2007		$150,000.00	$150,000.00	Diesel Exhaust Retrofit Program	$0.00	Yes
Total: 13									

MSRC Database
Mobile Source Air Pollution Reduction Review Committee

2004-05 AB2766 Contract Status Report

10/27/2010

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
Open Contracts									
MS05070	Haaland Internet Productions (HIP D	6/24/2005	5/31/2007	5/31/2011	$97,415.00	$88,658.24	Design, Host & Maintain MSRC Website	$8,756.76	No
Total: 1									
Declined/Cancelled Contracts									
MS05030	City of Inglewood				$31,662.00	$0.00	2 CNG Street Sweepers	$31,662.00	No
MS05032	H&C Disposal				$34,068.00	$0.00	2 CNG Waste Haulers	$34,068.00	No
MS05044	City of Colton				$78,720.00	$0.00	CNG Station Upgrade	$78,720.00	No
Total: 3									
Closed Contracts									
MS05001	A-Z Bus Sales, Inc.	2/4/2005	12/31/2005	12/31/2006	$1,385,000.00	$1,385,000.00	CNG School Bus Buydown	$0.00	Yes
MS05002	California Bus Sales	2/4/2005	12/31/2005	12/31/2006	$1,800,000.00	$1,800,000.00	CNG School Bus Buydown	$0.00	Yes
MS05003	BusWest	1/28/2005	12/31/2005	12/31/2006	$2,100,000.00	$1,620,000.00	CNG School Bus Buydown	$480,000.00	Yes
MS05004	Johnson/Ukropina Creative Marketin	11/27/2004	1/18/2006	4/18/2006	$1,000,000.00	$994,612.56	Implement "Rideshare Thursday" Campaign	$5,387.44	Yes
MS05031	City of Ontario	7/22/2005	3/21/2007		$191,268.00	$191,268.00	11 CNG Waste Haulers	$0.00	Yes
MS05033	Waste Management of the Desert	9/26/2005	5/25/2007		$202,900.00	$202,900.00	10 CNG Waste Haulers	$0.00	Yes
MS05034	Sukut Equipment, Inc.	9/9/2005	5/8/2007		$1,151,136.00	$1,151,136.00	Repower 12 Scrapers	$0.00	Yes
MS05035	Varner Construction Inc.	11/28/2005	4/27/2007	2/27/2008	$334,624.00	$334,624.00	Repower 5 Off-Road H.D. Vehicles	$0.00	Yes
MS05036	Camarillo Engineering	8/18/2005	1/17/2007		$1,167,276.00	$1,167,276.00	Repower 12 Scrapers	$0.00	Yes
MS05037	Road Builders, Inc.	11/21/2005	4/20/2007	6/20/2008	$229,302.00	$229,302.00	Repower 2 Scrapers	$0.00	Yes
MS05038	SunLine Transit Agency	3/30/2006	9/29/2007		$135,000.00	$135,000.00	15 CNG Buses	$0.00	Yes
MS05039	Los Angeles County MTA	4/28/2006	4/27/2008		$405,000.00	$405,000.00	75 CNG Buses	$0.00	Yes
MS05040	Orange County Transportation Autho	3/23/2006	12/22/2007	6/22/2008	$200,000.00	$200,000.00	25 CNG Buses	$0.00	Yes
MS05041	The Regents of the University of Cali	9/5/2006	8/4/2007	9/4/2008	$15,921.00	$15,921.00	CNG Station Upgrade	$0.00	Yes
MS05042	City of Ontario	11/21/2005	9/20/2006	7/20/2007	$117,832.00	$74,531.27	CNG Station Upgrade	$43,300.73	Yes
MS05043	Whittier Union High School District	9/23/2005	7/22/2006		$15,921.00	$15,921.00	CNG Station Upgrade	$0.00	Yes
MS05045	City of Covina	9/9/2005	7/8/2006		$10,000.00	$7,435.61	CNG Station Upgrade	$2,564.39	Yes
MS05046	City of Inglewood	1/6/2006	5/5/2007		$139,150.00	$56,150.27	CNG Station Upgrade	$82,999.73	Yes
MS05047	Orange County Transportation Autho	10/20/2005	10/19/2006	1/19/2007	$75,563.00	$75,563.00	CNG Station Upgrade	$0.00	Yes
MS05048	City of Santa Monica	7/24/2006	11/23/2007		$150,000.00	$150,000.00	CNG Station Upgrade	$0.00	Yes
MS05049	Omnitrans	9/23/2005	2/22/2007		$25,000.00	$7,250.00	CNG Station Upgrade	$17,750.00	Yes
MS05050	Gateway Cities Council of Governme	12/21/2005	4/20/2010		$1,464,839.00	$1,464,838.12	Truck Fleet Modernization Program	$0.88	Yes
MS05051	Jagur Tractor	1/16/2006	4/15/2007	10/15/2007	$660,928.00	$660,928.00	Repower 6 Scrapers	$0.00	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
MS05052	Caufield Equipment, Inc.	8/3/2005	1/2/2007		$478,000.00	$478,000.00	Repower 4 Scrapers	$0.00	Yes

Total: 24

MSRC Database
Mobile Source Air Pollution Reduction Review Committee

2004-05 AB2766 Local Government Match Program Contract Status Report

10/27/2010

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
Open Contracts									
ML05009	Los Angeles County Department of	6/22/2006	12/21/2007	9/30/2011	$56,666.00	$0.00	2 Propane Refueling Stations	$56,666.00	No
ML05013	Los Angeles County Department of	1/5/2007	7/4/2008	7/4/2011	$313,000.00	$0.00	Traffic Signal Synchronization	$313,000.00	No
ML05014	Los Angeles County Department of	5/21/2007	11/20/2008	6/20/2012	$204,221.00	$0.00	Traffic Signal Synchronization	$204,221.00	No
ML05071	City of La Canada Flintridge	1/30/2009	1/29/2011		$20,000.00	$0.00	1 CNG Bus	$20,000.00	No
ML05072	Los Angeles County Department of	8/24/2009	5/23/2010	1/23/2011	$349,000.00	$0.00	Traffic Signal Synchronization (LADOT)	$349,000.00	No
Total: 5									
Declined/Cancelled Contracts									
ML05005	City of Highland				$20,000.00	$0.00	2 Medium Duty CNG Vehicles	$20,000.00	No
ML05008	Los Angeles County Department of				$140,000.00	$0.00	7 Heavy Duty LPG Street Sweepers	$140,000.00	No
ML05010	Los Angeles County Department of				$20,000.00	$0.00	1 Heavy Duty CNG Bus	$20,000.00	No
Total: 3									
Closed Contracts									
ML05006	City of Colton	7/27/2005	7/26/2006		$30,000.00	$30,000.00	3 Medium Duty CNG Vehicles	$0.00	Yes
ML05007	Los Angeles County Dept of Beache	6/23/2006	6/22/2007	12/22/2007	$50,000.00	$0.00	5 Medium Duty CNG Vehicles	$50,000.00	No
ML05011	Los Angeles County Department of	8/10/2006	12/9/2007	6/9/2008	$52,409.00	$51,048.46	3 Heavy Duty LPG Shuttle Vans	$1,360.54	Yes
ML05015	City of Lawndale	7/27/2005	7/26/2006		$10,000.00	$10,000.00	1 Medium Duty CNG Vehicle	$0.00	Yes
ML05016	City of Santa Monica	9/23/2005	9/22/2006	9/22/2007	$350,000.00	$350,000.00	6 MD CNG Vehicles, 1 LPG Sweep, 13 CNG	$0.00	Yes
ML05017	City of Signal Hill	1/16/2006	7/15/2007		$126,000.00	$126,000.00	Traffic Signal Synchronization	$0.00	Yes
ML05018	City of San Bernardino	4/19/2005	4/18/2006		$40,000.00	$40,000.00	4 M.D. CNG Vehicles	$0.00	Yes
ML05019	City of Lakewood	5/6/2005	5/5/2006		$10,000.00	$10,000.00	1 M.D. CNG Vehicle	$0.00	Yes
ML05020	City of Pomona	6/24/2005	6/23/2006		$10,000.00	$10,000.00	1 M.D. CNG Vehicle	$0.00	Yes
ML05021	City of Whittier	7/7/2005	7/6/2006	4/6/2008	$100,000.00	$80,000.00	Sweeper, Aerial Truck, & 3 Refuse Trucks	$20,000.00	Yes
ML05022	City of Claremont	9/23/2005	9/22/2006		$20,000.00	$20,000.00	2 M.D. CNG Vehicles	$0.00	Yes
ML05024	City of Cerritos	4/18/2005	3/17/2006		$10,000.00	$10,000.00	1 M.D. CNG Vehicle	$0.00	Yes
ML05025	City of Malibu	5/6/2005	3/5/2006		$10,000.00	$10,000.00	1 Medium-Duty CNG Vehicle	$0.00	Yes
ML05026	City of Inglewood	1/6/2006	1/5/2007	2/5/2009	$60,000.00	$60,000.00	2 CNG Transit Buses, 1 CNG Pothole Patch	$0.00	Yes
ML05027	City of Beaumont	2/23/2006	4/22/2007	6/22/2010	$20,000.00	$20,000.00	1 H.D. CNG Bus	$0.00	Yes
ML05028	City of Anaheim	9/8/2006	9/7/2007	5/7/2008	$85,331.00	$85,331.00	Traffic signal coordination & synchronization	$0.00	Yes
ML05029	Los Angeles World Airports	5/5/2006	9/4/2007		$140,000.00	$140,000.00	Seven CNG Buses	$0.00	Yes
Total: 17									
Closed/Incomplete Contracts									

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
ML05012	Los Angeles County Department of	11/10/2006	5/9/2008	1/9/2009	$349,000.00	$0.00	Traffic Signal Synchronization (LADOT)	$349,000.00	No
ML05023	City of La Canada Flintridge	3/30/2005	2/28/2006	8/28/2008	$20,000.00	$0.00	1 CNG Bus	$20,000.00	No

Total: 2

MSRC Database
Mobile Source Air Pollution Reduction Review Committee

2005-06 AB2766 Contract Status Report

10/22/2009

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
Open Contracts									
MS06001	Riverside County Transportation Comm	8/3/2007	9/2/2011		$825,037.00	$532,600.45	New Freeway Service Patrol	$292,436.55	No
MS06002	Orange County Transportation Authorit	11/7/2007	11/6/2013		$928,740.00	$413,731.00	New Freeway Service Patrol	$515,009.00	No
MS06003	San Bernardino Associated Governme	10/19/2006	6/18/2010		$804,240.00	$704,624.44	New Freeway Service Patrol	$99,615.56	No
MS06004	Los Angeles County MTA	8/10/2006	7/9/2010		$1,391,983.00	$1,321,379.69	New Freeway Service Patrol	$70,603.31	No
MS06013	City of Commerce	1/9/2008	7/8/2014		$350,000.00	$0.00	New L/CNG Station - Commerce	$350,000.00	No
MS06043X	Westport Fuel Systems, Inc.	2/3/2007	12/31/2010	9/30/2011	$2,000,000.00	$2,000,000.00	Advanced Natural Gas Engine Incentive Pro	$0.00	No
MS06048	Newport-Mesa Unified School District	6/25/2007	8/24/2013	8/24/2014	$50,000.00	$0.00	CNG Fueling Station	$50,000.00	No
MS06051	Menifee Union School District	3/2/2007	7/1/2014		$150,000.00	$0.00	CNG Fueling Station	$150,000.00	No
Total: 8									
Declined/Cancelled Contracts									
MS06009	Clean Energy Fuels Corp.	6/23/2006	12/22/2012		$250,000.00	$0.00	New CNG Station - Laguna Niguel	$250,000.00	Yes
MS06040	Capistrano Unified School District				$136,000.00	$0.00	New CNG Fueling Station	$136,000.00	No
MS06041	Clean Energy Fuels Corp.	12/1/2006	3/31/2013	6/18/2009	$250,000.00	$0.00	New CNG Station-Newport Beach	$250,000.00	No
MS06046	City of Long Beach, Dept. of Public Wo				$250,000.00	$0.00	LNG Fueling Station	$250,000.00	No
Total: 4									
Open/Complete Contracts									
MS06010	US Airconditioning Distributors	12/28/2006	6/27/2012		$83,506.00	$83,506.00	New CNG Station - Industry	$0.00	Yes
MS06011	County Sanitation Districts of L.A. Coun	6/1/2006	7/31/2012		$150,000.00	$150,000.00	New CNG Station - Carson	$0.00	Yes
MS06012	Consolidated Disposal Service	7/14/2006	9/13/2012		$297,981.00	$297,981.00	New LNG Station & Facility Upgrades	$0.00	Yes
MS06042	Clean Energy Fuels Corp.	1/5/2007	1/4/2013		$150,000.00	$150,000.00	New CNG Station-Baldwin Park	$0.00	No
MS06045	Orange County Transportation Authorit	8/17/2007	12/16/2013		$200,000.00	$200,000.00	CNG Fueling Station/Maint. Fac. Mods	$0.00	Yes
MS06047	Hemet Unified School District	9/19/2007	11/18/2013		$125,000.00	$125,000.00	CNG Refueling Station	$0.00	Yes
MS06049	Clean Energy Fuels Corp.	4/20/2007	7/19/2013		$250,000.00	$228,491.18	CNG Fueling Station - L.B.P.D.	$21,508.82	Yes
MS06050	Rossmoor Pastries	1/24/2007	10/23/2012		$18,750.00	$14,910.50	CNG Fueling Station	$3,839.50	Yes
Total: 8									

MSRC Database
Mobile Source Air Pollution Reduction Review Committee

2005-06 AB2766 Local Government Match Program Contract Status Report

10/27/2010

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
Open Contracts									
ML06020	Los Angeles Department of Water a	3/19/2007	9/18/2013	4/18/2014	$25,000.00	$0.00	CNG Aerial Truck	$25,000.00	No
ML06025	City of Santa Monica	1/5/2007	11/4/2012	12/14/2014	$300,000.00	$125,000.00	12 H.D. CNG Vehicles	$175,000.00	No
ML06028	City of Pasadena	9/29/2006	11/28/2012	3/28/2014	$245,000.00	$0.00	New CNG Station & Maint. Fac. Upgrades	$245,000.00	No
ML06031	City of Inglewood	4/4/2007	6/3/2013	9/3/2015	$150,000.00	$65,602.40	Purchase 4 H-D LPG Vehicles & Install LPG	$84,397.60	No
ML06035	City of Hemet, Public Works	11/10/2006	12/9/2012	6/9/2013	$414,000.00	$175,000.00	7 Nat Gas Trucks & New Nat Gas Infrastruct	$239,000.00	No
ML06039	City of Inglewood	2/9/2007	2/8/2008	4/8/2011	$50,000.00	$0.00	Modify Maintenance Facility for CNG Vehicle	$50,000.00	No
ML06054	Los Angeles County Department of	6/17/2009	6/16/2016		$150,000.00	$0.00	3 CNG & 3 LPG HD Trucks	$150,000.00	No
ML06058	City of Santa Monica	7/12/2007	7/11/2013		$149,925.00	$0.00	3 H.D. CNG Trucks & CNG Fueling Station	$149,925.00	No
ML06060	City of Temple City	6/12/2007	6/11/2013		$31,885.00	$0.00	Upgrade existing CNG infrastructure	$31,885.00	No
ML06061	City of Chino Hills	4/30/2007	4/29/2013		$25,000.00	$0.00	One H.D. CNG Vehicle	$25,000.00	No
ML06070	City of Colton	4/30/2008	2/28/2015		$50,000.00	$0.00	Two CNG Pickups	$50,000.00	No
Total: 11									
Declined/Cancelled Contracts									
ML06018	Los Angeles County Dept of Beache				$375,000.00	$0.00	New CNG Station & 2 CNG Dump Trucks	$375,000.00	No
ML06019	Los Angeles County Dept of Beache				$250,000.00	$0.00	New CNG Station & 2 CNG Dump Trucks	$250,000.00	No
ML06023	City of Baldwin Park	6/16/2006	9/15/2012		$20,000.00	$0.00	CNG Dump Truck	$20,000.00	No
ML06024	City of Pomona	8/3/2007	7/2/2013	7/2/2014	$286,450.00	$0.00	New CNG Station	$286,450.00	No
ML06030	City of Burbank	3/19/2007	9/18/2011		$287,700.00	$0.00	New CNG Fueling Station	$287,700.00	No
ML06037	City of Lynwood				$25,000.00	$0.00	1 Nat Gas Dump Truck	$25,000.00	No
ML06055	City of Los Angeles, Dept. of Genera				$125,000.00	$0.00	5 Gas-Electric Hybrid Buses	$125,000.00	No
ML06059	City of Fountain Valley				$25,000.00	$0.00	One H.D. CNG Truck	$25,000.00	No
Total: 8									
Closed Contracts									
ML06056	City of Los Angeles, Dept. of Genera	11/30/2007	11/29/2008		$350,000.00	$350,000.00	Maintenance Facility Mods.	$0.00	Yes
Total: 1									
Open/Complete Contracts									
ML06016	City of Whittier	5/25/2006	5/24/2012	11/24/2012	$50,000.00	$50,000.00	2 CNG Refuse Trucks	$0.00	Yes
ML06017	City of Claremont	8/2/2006	4/1/2012		$50,000.00	$50,000.00	2 CNG Refuse Trucks	$0.00	Yes
ML06021	Los Angeles World Airports	9/13/2006	5/12/2013		$150,000.00	$150,000.00	6 CNG Buses	$0.00	Yes
ML06022	City of Los Angeles, Bureau of Sanit	5/4/2007	1/3/2014		$1,250,000.00	$1,250,000.00	50 LNG Refuse Trucks	$0.00	Yes
ML06026	City of Cerritos	10/27/2006	9/26/2010		$60,500.00	$60,500.00	CNG Station Upgrade	$0.00	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
ML06027	City of Redondo Beach	9/5/2006	5/4/2012	10/4/2012	$50,000.00	$50,000.00	2 Heavy-Duty CNG Trucks	$0.00	Yes
ML06029	City of Culver City Transportation De	9/29/2006	12/28/2012		$50,000.00	$50,000.00	2 CNG Heavy-Duty Trucks	$0.00	Yes
ML06032	City of Rancho Cucamonga	2/13/2007	3/12/2013	2/12/2014	$237,079.00	$237,079.00	New CNG Station & 2 CNG Dump Trucks	$0.00	Yes
ML06033	City of Cathedral City	11/17/2006	12/16/2012	12/16/2013	$125,000.00	$125,000.00	5 Heavy-Duty CNG Trucks	$0.00	Yes
ML06034	City of South Pasadena	9/25/2006	9/24/2012		$16,422.42	$16,422.42	2 Nat. Gas Transit Buses	$0.00	Yes
ML06036	City of Riverside	3/23/2007	3/22/2013		$200,000.00	$200,000.00	8 Heavy-Duty Nat Gas Vehicles	$0.00	Yes
ML06038	City of Los Angeles, Environmental	5/21/2007	1/20/2014		$625,000.00	$625,000.00	25 CNG Street Sweepers	$0.00	Yes
ML06044	City of Pomona	12/15/2006	3/14/2013		$50,000.00	$50,000.00	2 CNG Street Sweepers	$0.00	Yes
ML06052	City of Hemet, Public Works	4/20/2007	2/19/2013		$25,000.00	$25,000.00	Purchase One CNG Dump Truck	$0.00	Yes
ML06053	City of Burbank	5/4/2007	7/3/2013		$125,000.00	$125,000.00	Five Nat. Gas Refuse Trucks	$0.00	Yes
ML06057	City of Rancho Cucamonga	8/28/2007	6/27/2013	8/27/2014	$100,000.00	$100,000.00	4 H.D. Nat. Gas Vehicles	$0.00	Yes
ML06062	City of Redlands	5/11/2007	5/10/2013		$100,000.00	$100,000.00	4 H.D. LNG Vehicles	$0.00	Yes
ML06063	City of Moreno Valley	3/23/2007	11/22/2012		$25,000.00	$25,000.00	One H.D. CNG Vehicle	$0.00	Yes
ML06064	City of South Pasadena	1/25/2008	11/24/2013	11/24/2014	$50,000.00	$50,000.00	2 H.D. CNG Vehicles	$0.00	Yes
ML06065	City of Walnut	6/29/2007	6/28/2013		$44,203.00	$44,203.00	Upgrade Existing CNG Infrastructure	$0.00	Yes
ML06066	City of Ontario	5/30/2007	1/29/2013		$125,000.00	$125,000.00	5 H.D. CNG Vehicles	$0.00	Yes
ML06067	City of El Monte	3/17/2008	5/16/2014	11/16/2014	$157,957.00	$157,957.00	Upgrade existing CNG infrastructure	$0.00	Yes
ML06068	City of Claremont	8/28/2007	6/27/2013		$60,000.00	$60,000.00	Expand existing CNG infrastructure	$0.00	Yes
ML06069	City of Palos Verdes Estates	11/19/2007	11/18/2013		$25,000.00	$25,000.00	One H.D. CNG Vehicle	$0.00	Yes

Total: 24

MSRC Database
Mobile Source Air Pollution Reduction Review Committee

2005-06 Diesel Exhaust Retrofit Program Contract Status Report

10/27/2010

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
Open Contracts									
PT06006	Los Angeles County Sheriff's Depart	5/15/2006	2/14/2008		$98,000.00	$0.00	Diesel Exhaust Aftertreatment Program	$98,000.00	No
Total: 1									
Closed Contracts									
PT06005	Los Angeles County Department of	6/29/2006	3/28/2008	12/28/2008	$184,500.00	$184,500.00	Diesel Exhaust Aftertreatment Program	$0.00	Yes
PT06007	County Sanitation Districts of L.A. C	6/16/2006	12/15/2007	12/28/2008	$108,000.00	$108,000.00	Diesel Exhaust Aftertreatment Program	$0.00	Yes
PT06008	City of Los Angeles, Bureau of Sanit	9/6/2006	6/5/2008		$184,500.00	$184,500.00	Diesel Exhaust Aftertreatment Program	$0.00	Yes
PT06014	Los Angeles Department of Water a	2/8/2007	8/7/2008	9/30/2009	$112,500.00	$103,500.00	Diesel Exhaust Aftertreatment Program	$9,000.00	Yes
PT06015	City of San Bernardino	10/23/2006	4/22/2008		$66,000.00	$66,000.00	Diesel Exhaust Aftertreatment Program	$0.00	Yes
Total: 5									

MSRC Database
Mobile Source Air Pollution Reduction Review Committee

2006-07 AB2766 Contract Status Report

10/27/2010

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
Open Contracts									
MS07008	City of Los Angeles, Department of T	9/18/2009	5/17/2020		$2,040,000.00	$0.00	Purchase 102 Transit Buses	$2,040,000.00	No
MS07011	Los Angeles Service Authority for Fr	3/12/2010	5/31/2011		$700,000.00	$0.00	"511" Commuter Services Campaign	$700,000.00	No
MS07019	City of Cathedral City	1/9/2009	6/8/2010		$32,500.00	$32,500.00	Maintenance Facility Modifications	$0.00	No
MS07022	California State University, Los Ange	10/30/2009	12/29/2015		$250,000.00	$0.00	New Hydrogen Fueling Station	$250,000.00	No
MS07049	Palm Springs Disposal Services	10/23/2008	11/22/2014	11/22/2015	$96,000.00	$57,600.00	Three Nat. Gas Refuse Trucks	$38,400.00	No
MS07054	Republic Services, Inc./Allied Waste	3/7/2008	9/6/2014	9/6/2016	$1,280,000.00	$1,152,000.00	40 Nat. Gas Refuse Trucks	$128,000.00	No
MS07058	The Better World Group	11/17/2007	11/16/2009	11/16/2011	$247,690.00	$120,475.92	MSRC Programmatic Outreach Services	$127,214.08	No
MS07059	County Sanitation Districts of L.A. C	9/5/2008	9/4/2010	7/14/2011	$248,300.00	$124,400.00	Off-Road Diesel Equipment Retrofit Program	$123,900.00	No
MS07060	Community Recycling & Resource R	3/7/2008	1/6/2010	7/6/2011	$177,460.00	$74,371.00	Off-Road Diesel Equipment Retrofit Program	$103,089.00	No
MS07061	City of Los Angeles, Department of	10/31/2008	8/30/2010	10/30/2010	$85,200.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$85,200.00	No
MS07063	Shimmick Construction Company, In	4/26/2008	2/25/2010	8/25/2011	$80,800.00	$11,956.37	Off-Road Diesel Equipment Retrofit Program	$68,843.63	No
MS07064	Altfillisch Contractors, Inc.	9/19/2008	7/18/2010	1/18/2011	$160,000.00	$155,667.14	Off-Road Diesel Equipment Retrofit Program	$4,332.86	No
MS07066	Skanska USA Civil West California D	6/28/2008	4/27/2010	10/27/2010	$111,700.00	$36,128.19	Off-Road Diesel Equipment Retrofit Program	$75,571.81	No
MS07068	Sukut Equipment Inc.	1/23/2009	11/22/2010	5/22/2012	$26,900.00	$26,900.00	Off-Road Diesel Equipment Retrofit Program	$0.00	No
MS07069	City of Burbank	5/9/2008	3/8/2010	9/8/2011	$8,895.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$8,895.00	No
MS07070	Griffith Company	4/30/2008	2/28/2010	8/28/2011	$230,705.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$230,705.00	No
MS07071	Tiger 4 Equipment Leasing	9/19/2008	7/18/2010	1/18/2012	$333,967.00	$84,308.97	Off-Road Diesel Equipment Retrofit Program	$249,658.03	No
MS07072	City of Culver City Transportation De	4/4/2008	2/3/2010	8/3/2011	$72,865.00	$72,865.00	Off-Road Diesel Equipment Retrofit Program	$0.00	No
MS07073	PEED Equipment Co.	10/31/2008	8/30/2010		$11,600.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$11,600.00	No
MS07075	Dan Copp Crushing	9/17/2008	7/16/2010	1/16/2012	$73,600.00	$40,200.00	Off-Road Diesel Equipment Retrofit Program	$33,400.00	No
MS07076	Reed Thomas Company, Inc.	8/15/2008	6/14/2010	12/14/2011	$348,050.00	$19,500.00	Off-Road Diesel Equipment Retrofit Program	$328,550.00	No
MS07078	Waste Management Collection and	5/1/2009	12/31/2014		$256,000.00	$201,600.00	Eight Nat. Gas Refuse Trucks (Dewey's)	$54,400.00	No
MS07079	Riverside County Transportation Co	1/30/2009	7/29/2013	12/31/2011	$20,000.00	$6,885.45	BikeMetro Website Migration	$13,114.55	No
MS07080	City of Los Angeles, Bureau of Sanit	10/31/2008	8/30/2010	2/29/2012	$63,192.00	$52,265.00	Off-Road Diesel Equipment Retrofit Program	$10,927.00	No
MS07092	Riverside County Transportation Co	9/1/2010	10/31/2011		$350,000.00	$0.00	"511" Commuter Services Campaign	$350,000.00	No
Total: 25									
Pending Execution Contracts									
MS07081	Clean Diesel Technologies, Inc.				$240,347.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$240,347.00	No
MS07082	DCL International, Inc.				$153,010.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$153,010.00	No
MS07085	Engine Control Systems Limited				$155,746.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$155,746.00	No
MS07086	Huss, LLC				$84,871.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$84,871.00	No

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
MS07087	Mann+Hummel GmbH				$189,361.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$189,361.00	No
MS07088	Nett Technologies, Inc.				$118,760.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$118,760.00	No
MS07089	Rypos, Inc.				$68,055.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$68,055.00	No
MS07090	Sud-Chemie				$27,345.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$27,345.00	No
Total: 8									
Declined/Cancelled Contracts									
MS07010	Palos Verdes Peninsula Transit Auth				$80,000.00	$0.00	Repower 4 Transit Buses	$80,000.00	No
MS07014	Clean Energy Fuels Corp.				$350,000.00	$0.00	New L/CNG Station - SERRF	$350,000.00	No
MS07015	Baldwin Park Unified School District				$57,500.00	$0.00	New CNG Station	$57,500.00	No
MS07016	County of Riverside Fleet Services D				$36,359.00	$0.00	New CNG Station - Rubidoux	$36,359.00	No
MS07017	County of Riverside Fleet Services D				$33,829.00	$0.00	New CNG Station - Indio	$33,829.00	No
MS07018	City of Cathedral City				$350,000.00	$0.00	New CNG Station	$350,000.00	No
MS07021	City of Riverside				$350,000.00	$0.00	New CNG Station	$350,000.00	No
MS07050	Southern California Disposal Co.				$320,000.00	$0.00	Ten Nat. Gas Refuse Trucks	$320,000.00	No
MS07062	Caltrans Division of Equipment				$1,081,818.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$1,081,818.00	No
MS07065	ECCO Equipment Corp.				$174,525.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$174,525.00	No
MS07067	Recycled Materials Company of Calif				$99,900.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$99,900.00	No
MS07074	Albert W. Davies, Inc.	1/25/2008	11/24/2009		$39,200.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$39,200.00	No
MS07083	Dinex Exhausts, Inc.				$52,381.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$52,381.00	No
MS07084	Donaldson Company, Inc.				$42,416.00	$0.00	Off-Road Diesel Equipment Retrofit Program	$42,416.00	No
Total: 14									
Closed Contracts									
MS07001	A-Z Bus Sales, Inc.	12/28/2006	12/31/2007	2/29/2008	$1,920,000.00	$1,380,000.00	CNG School Bus Buydown	$540,000.00	Yes
MS07002	BusWest	1/19/2007	12/31/2007	3/31/2008	$840,000.00	$840,000.00	CNG School Bus Buydown	$0.00	Yes
MS07005	S-W Compressors	3/17/2008	3/16/2010		$60,000.00	$7,500.00	Mountain CNG School Bus Demo Program-	$52,500.00	Yes
MS07006	Coachella Valley Association of Gov	2/28/2008	10/27/2008		$400,000.00	$400,000.00	Coachella Valley PM10 Reduction Street Sw	$0.00	Yes
MS07012	City of Los Angeles, General Service	6/13/2008	6/12/2009	6/12/2010	$50,000.00	$50,000.00	Maintenance Facility Modifications	$0.00	Yes
MS07091	BusWest	10/16/2009	3/15/2010		$33,660.00	$33,660.00	Provide Lease for 2 CNG School Buses	$0.00	Yes
Total: 6									
Closed/Incomplete Contracts									
MS07004	BusWest	7/2/2007	7/1/2009		$90,928.00	$68,196.00	Provide Lease for 2 CNG School Buses	$22,732.00	No
Total: 1									
Open/Complete Contracts									
MS07003	Westport Fuel Systems, Inc.	11/2/2007	12/31/2011	6/30/2013	$1,500,000.00	$1,499,990.00	Advanced Nat. Gas Engine Incentive Progra	$10.00	Yes
MS07007	Los Angeles World Airports	5/2/2008	11/1/2014		$420,000.00	$420,000.00	Purchase CNG 21 Transit Buses	$0.00	Yes
MS07009	Orange County Transportation Autho	5/14/2008	4/13/2016		$800,000.00	$800,000.00	Purchase 40 Transit Buses	$0.00	Yes
MS07013	Rainbow Disposal Company, Inc.	1/25/2008	3/24/2014		$350,000.00	$350,000.00	New High-Volume CNG Station	$0.00	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
MS07020	Avery Petroleum	5/20/2009	7/19/2015		$250,000.00	$250,000.00	New CNG Station	$0.00	Yes
MS07051	City of San Bernardino	8/12/2008	12/11/2014		$480,000.00	$480,000.00	15 Nat. Gas Refuse Trucks	$0.00	Yes
MS07052	City of Redlands	7/30/2008	11/29/2014		$160,000.00	$160,000.00	Five Nat. Gas Refuse Trucks	$0.00	No
MS07053	City of Claremont	7/31/2008	12/30/2014		$96,000.00	$96,000.00	Three Nat. Gas Refuse Trucks	$0.00	Yes
MS07055	City of Culver City Transportation De	7/8/2008	9/7/2014		$192,000.00	$192,000.00	Six Nat. Gas Refuse Trucks	$0.00	Yes
MS07056	City of Whittier	9/5/2008	3/4/2015		$32,000.00	$32,000.00	One Nat. Gas Refuse Trucks	$0.00	Yes
MS07057	CR&R, Inc.	7/31/2008	8/30/2014	6/30/2015	$896,000.00	$896,000.00	28 Nat. Gas Refuse Trucks	$0.00	No
MS07077	Waste Management Collection and	5/1/2009	12/31/2014		$160,000.00	$160,000.00	Five Nat. Gas Refuse Trucks (Santa Ana)	$0.00	Yes

Total: 12

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Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
Open Contracts									
ML07023	City of Riverside	6/20/2008	10/19/2014		$462,500.00	$350,000.00	CNG Station Expansion/Purch. 14 H.D. Vehi	$112,500.00	No
ML07024	City of Garden Grove	3/7/2008	9/6/2014	7/6/2016	$75,000.00	$50,000.00	Three H.D. CNG Vehicles	$25,000.00	No
ML07028	City of Los Angeles, General Service	3/13/2009	3/12/2014		$350,000.00	$0.00	New CNG Refueling Station/Hollywood Yard	$350,000.00	No
ML07033	City of La Habra	5/21/2008	6/20/2014	7/31/2015	$75,000.00	$25,000.00	One H.D. Nat Gas Vehicle/Expand Fueling S	$50,000.00	No
ML07034	City of Los Angeles, General Service	3/13/2009	3/12/2014		$350,000.00	$0.00	New CNG Refueling Station/Van Nuys Yard	$350,000.00	No
ML07036	City of Alhambra	1/23/2009	2/22/2015		$145,839.00	$50,000.00	3 H.D. CNG Vehicles/Expand CNG Station	$95,839.00	No
ML07039	City of Baldwin Park	6/6/2008	6/5/2014	8/5/2015	$50,000.00	$0.00	Two N.G. H.D. Vehicles	$50,000.00	No
ML07043	City of Redondo Beach	9/28/2008	7/27/2014		$125,000.00	$0.00	Five H.D. CNG Transit Vehicles	$125,000.00	No
ML07044	City of Santa Monica	9/8/2008	3/7/2015		$600,000.00	$50,000.00	24 H.D. Nat. Gas Vehicles	$550,000.00	No
ML07045	City of Inglewood	2/6/2009	4/5/2015		$75,000.00	$25,000.00	3 H.D. Nat. Gas Vehicles	$50,000.00	No
ML07048	City of Cathedral City	9/19/2008	10/18/2010		$100,000.00	$54,660.80	Street Sweeping Operations	$45,339.20	No
Total: 11									
Declined/Cancelled Contracts									
ML07031	City of Santa Monica				$180,000.00	$0.00	Upgrade N.G. Station to Add Hythane	$180,000.00	No
ML07032	City of Huntington Beach Public Wor				$25,000.00	$0.00	One H.D. CNG Vehicle	$25,000.00	No
ML07035	City of Los Angeles, General Service				$350,000.00	$0.00	New CNG Refueling Station/Southeast Yard	$350,000.00	No
ML07038	City of Palos Verdes Estates				$25,000.00	$0.00	One H.D. LPG Vehicle	$25,000.00	No
Total: 4									
Closed Contracts									
ML07025	City of San Bernardino	8/12/2008	7/11/2010		$350,000.00	$350,000.00	Maintenance Facility Modifications	$0.00	Yes
ML07042	City of La Quinta	8/15/2008	9/14/2010		$100,000.00	$100,000.00	Street Sweeping Operations	$0.00	Yes
Total: 2									
Open/Complete Contracts									
ML07026	City of South Pasadena	6/13/2008	6/12/2014		$25,000.00	$25,000.00	One H.D. CNG Vehicle	$0.00	Yes
ML07027	Los Angeles World Airports	6/3/2008	7/2/2014		$25,000.00	$25,000.00	One H.D. LNG Vehicle	$0.00	Yes
ML07029	City of Los Angeles, General Service	3/13/2009	3/12/2014		$350,000.00	$350,000.00	New CNG Refueling Station/Venice Yard	$0.00	Yes
ML07030	County of San Bernardino Public Wo	7/11/2008	9/10/2015		$200,000.00	$200,000.00	8 Natural Gas H.D. Vehicles	$0.00	Yes
ML07037	City of Los Angeles, General Service	10/8/2008	10/7/2015		$255,222.00	$255,222.00	Upgrade LNG/LCNG Station/East Valley Yar	$0.00	Yes
ML07040	City of Moreno Valley	6/3/2008	9/2/2014		$25,000.00	$25,000.00	One Heavy-Duty CNG Vehicle	$0.00	Yes
ML07041	City of La Quinta	6/6/2008	6/5/2014		$25,000.00	$25,000.00	One CNG Street Sweeper	$0.00	Yes
ML07046	City of Culver City Transportation De	5/2/2008	5/1/2014		$25,000.00	$25,000.00	One H.D. Nat. Gas Vehicle	$0.00	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
ML07047	City of Cathedral City	6/16/2008	9/15/2014	3/15/2015	$225,000.00	$225,000.00	Two H.D. Nat. Gas Vehicles/New CNG Fueli	$0.00	Yes

Total: 9

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Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
Open Contracts									
MS08005	Burrtec Waste Industries, Inc.	10/23/2008	11/22/2014	10/22/2015	$450,000.00	$405,000.00	15 H.D. Nat. Gas Vehicles - Azusa	$45,000.00	No
MS08006	Burrtec Waste Industries, Inc.	10/23/2008	11/22/2014	10/22/2015	$450,000.00	$405,000.00	15 H.D. Nat. Gas Vehicles - Saugus	$45,000.00	No
MS08007	United Parcel Service	12/10/2008	10/9/2014		$300,000.00	$0.00	10 H.D. Nat. Gas Vehicles	$300,000.00	No
MS08009	Los Angeles World Airports	12/24/2008	12/23/2014		$870,000.00	$0.00	29 H.D. Nat. Gas Vehicles	$870,000.00	No
MS08012	California Cartage Company, LLC	12/21/2009	10/20/2015	4/20/2016	$480,000.00	$432,000.00	12 H.D. Nat. Gas Yard Tractors	$48,000.00	No
MS08013	United Parcel Service	12/10/2008	10/9/2014		$480,000.00	$216,000.00	12 H.D. Nat. Gas Yard Tractors	$264,000.00	No
MS08014	City of San Bernardino	12/5/2008	6/4/2015		$390,000.00	$324,000.00	13 H.D. Nat. Gas Vehicles	$66,000.00	No
MS08015	Yosemite Waters	5/12/2009	5/11/2015		$180,000.00	$117,813.60	11 H.D. Propane Vehicles	$62,186.40	No
MS08016	TransVironmental Solutions, Inc.	1/23/2009	12/31/2010	6/30/2011	$227,198.00	$50,700.63	Rideshare 2 School Program	$176,497.37	No
MS08017	Omnitrans	12/13/2008	12/12/2015		$900,000.00	$729,000.00	30 CNG Buses	$171,000.00	No
MS08018	Los Angeles County Department of	8/7/2009	10/6/2016		$90,000.00	$0.00	3 CNG Vehicles	$90,000.00	No
MS08019	Enterprise Rent-A-Car Company of L	2/12/2010	7/11/2016		$300,000.00	$300,000.00	10 CNG Vehicles	$0.00	No
MS08021	CalMet Services, Inc.	1/9/2009	1/8/2016		$900,000.00	$675,000.00	30 CNG Vehicles	$225,000.00	No
MS08052	Burrtec Waste Industries, Inc.	12/24/2008	11/23/2014	11/23/2015	$100,000.00	$0.00	New CNG Station - Fontana	$100,000.00	No
MS08053	City of Los Angeles, Bureau of Sanit	2/18/2009	12/17/2015		$400,000.00	$0.00	New LNG/CNG Station	$400,000.00	No
MS08055	Clean Energy Fuels Corp.	11/26/2009	3/25/2016		$400,000.00	$0.00	New LNG Station - Long Beach-Pier S	$400,000.00	No
MS08056	Clean Energy Fuels Corp.	11/26/2009	2/25/2015		$400,000.00	$160,000.00	New LNG Station - POLB-Anah. & I	$240,000.00	No
MS08057	Orange County Transportation Autho	5/14/2009	7/13/2015		$400,000.00	$360,000.00	New CNG Station - Garden Grove	$40,000.00	No
MS08058	Clean Energy Fuels Corp.	11/26/2009	3/25/2016	3/25/2017	$400,000.00	$0.00	New CNG Station - Ontario Airport	$400,000.00	No
MS08059	Burrtec Waste Industries, Inc.	12/24/2008	11/23/2014		$100,000.00	$0.00	New CNG Station - San Bernardino	$100,000.00	No
MS08061	Clean Energy Fuels Corp.	12/4/2009	3/3/2015		$400,000.00	$160,000.00	New CNG Station - L.A.-La Cienega	$240,000.00	No
MS08062	Go Natural Gas	9/25/2009	1/24/2016		$400,000.00	$0.00	New CNG Station - Rialto	$400,000.00	No
MS08063	Go Natural Gas	9/25/2009	1/24/2016		$400,000.00	$0.00	New CNG Station - Moreno Valley	$400,000.00	No
MS08066	Clean Energy Fuels Corp.	11/26/2009	2/25/2015		$400,000.00	$160,000.00	New CNG Station - Palm Spring Airport	$240,000.00	No
MS08067	California Trillium Company	3/19/2009	6/18/2015		$311,600.00	$254,330.00	New CNG Station	$57,270.00	No
MS08069	Perris Union High School District	6/5/2009	8/4/2015		$225,000.00	$0.00	New CNG Station	$225,000.00	No
MS08070	Clean Energy Fuels Corp.	11/26/2009	2/25/2015		$400,000.00	$160,000.00	New CNG Station - Paramount	$240,000.00	No
MS08072	Clean Energy Fuels Corp.	12/4/2009	3/3/2015		$400,000.00	$150,785.76	New CNG Station - Burbank	$249,214.24	No
MS08073	Clean Energy Fuels Corp.	11/26/2009	2/25/2015		$400,000.00	$160,000.00	New CNG Station - Norwalk	$240,000.00	No
MS08076	Azusa Unified School District	10/17/2008	11/16/2014		$172,500.00	$0.00	New CNG station and maint. Fac. Modificati	$172,500.00	No
MS08078	SunLine Transit Agency	12/10/2008	6/9/2015		$189,000.00	$0.00	CNG Station Upgrade	$189,000.00	No
MS08079	ABC Unified School District	1/16/2009	12/15/2009	12/15/2010	$50,000.00	$0.00	Maintenance Facility Modifications	$50,000.00	No

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
Total: 32									
Pending Execution Contracts									
MS08001	Los Angeles County MTA				$1,500,000.00	$0.00	Big Rig Freeway Service Patrol	$1,500,000.00	No
MS08002	Orange County Transportation Autho				$1,500,000.00	$0.00	Big Rig Freeway Service Patrol	$1,500,000.00	No
MS08008	Diversified Truck Rental & Leasing				$300,000.00	$0.00	10 H.D. Nat. Gas Vehicles	$300,000.00	No
MS08068	The Regents of the University of Cali				$400,000.00	$0.00	Hydrogen Station	$400,000.00	No
Total: 4									
Declined/Cancelled Contracts									
MS08010	Orange County Transportation Autho				$10,000.00	$0.00	20 H.D. Nat. Gas Vehicles	$10,000.00	No
MS08011	Green Fleet Systems, LLC				$10,000.00	$0.00	30 H.D. Nat. Gas Vehicles	$10,000.00	No
MS08054	Clean Energy Fuels Corp.				$400,000.00	$0.00	New LNG Station - Fontana	$400,000.00	No
MS08060	Burrtec Waste Industries, Inc.	12/24/2008	11/23/2014		$100,000.00	$0.00	New CNG Station - Azusa	$100,000.00	No
MS08074	Fontana Unified School District	11/14/2008	12/13/2014		$200,000.00	$0.00	Expansion of Existing CNG station	$200,000.00	No
MS08077	Hythane Company, LLC				$144,000.00	$0.00	Upgrade Station to Hythane	$144,000.00	No
Total: 6									
Closed Contracts									
MS08003	A-Z Bus Sales, Inc.	5/2/2008	12/31/2008	2/28/2009	$1,480,000.00	$1,400,000.00	Alternative Fuel School Bus Incentive Progr	$80,000.00	Yes
MS08004	BusWest	5/2/2008	12/31/2008		$1,440,000.00	$1,440,000.00	Alternative Fuel School Bus Incentive Progr	$0.00	Yes
Total: 2									
Open/Complete Contracts									
MS08020	Ware Disposal Company, Inc.	11/25/2008	2/24/2016		$900,000.00	$900,000.00	30 CNG Vehicles	$0.00	Yes
MS08022	SunLine Transit Agency	12/18/2008	3/17/2015		$311,625.00	$311,625.00	15 CNG Buses	$0.00	Yes
MS08064	Hemet Unified School District	1/9/2009	3/8/2015		$75,000.00	$75,000.00	Expansion of Existing Infrastructure	$0.00	Yes
MS08065	Pupil Transportation Cooperative	11/20/2008	7/19/2014		$10,500.00	$10,500.00	Existing CNG Station Modifications	$0.00	Yes
MS08071	ABC Unified School District	1/16/2009	1/15/2015		$63,000.00	$63,000.00	New CNG Station	$0.00	Yes
MS08075	Disneyland Resort	12/10/2008	2/1/2015		$200,000.00	$200,000.00	Expansion of Existing CNG Infrastructure	$0.00	Yes
Total: 6									

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Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
Open Contracts									
ML08023	City of Villa Park	11/7/2008	10/6/2012		$6,500.00	$0.00	Upgrade of Existing Refueling Facility	$6,500.00	No
ML08024	City of Anaheim	7/9/2010	7/8/2017		$425,000.00	$0.00	17 LPG Buses	$425,000.00	No
ML08025	Los Angeles County Department of	10/30/2009	3/29/2011		$75,000.00	$0.00	150 Vehicles (Diagnostic)	$75,000.00	No
ML08026	Los Angeles County Department of	7/20/2009	7/19/2016		$275,000.00	$0.00	11 LPG Heavy-Duty Vehicles	$275,000.00	No
ML08027	Los Angeles County Department of	7/20/2009	1/19/2011		$6,901.00	$0.00	34 Vehicles (Diagnostic)	$6,901.00	No
ML08028	City of Santa Monica	9/11/2009	9/10/2016		$600,000.00	$0.00	24 CNG Heavy-Duty Vehicles	$600,000.00	No
ML08030	City of Azusa	5/14/2010	3/13/2016		$25,000.00	$0.00	1 CNG Heavy-Duty Vehicle	$25,000.00	No
ML08034	County of San Bernardino Public Wo	3/27/2009	7/26/2015		$200,000.00	$0.00	8 CNG Heavy-Duty Vehicles	$200,000.00	No
ML08036	City of South Pasadena	5/12/2009	7/11/2013		$169,421.00	$0.00	New CNG Station	$169,421.00	No
ML08038	Los Angeles Department of Water a	7/16/2010	7/15/2017		$1,050,000.00	$0.00	42 CNG Heavy-Duty Vehicles	$1,050,000.00	No
ML08040	City of Riverside	9/11/2009	9/10/2016		$505,500.00	$0.00	16 CNG Vehicles, Expand CNG Station & M	$505,500.00	No
ML08041	City of Los Angeles, Dept of Transpo	8/6/2010	7/5/2011		$14,600.00	$0.00	73 Vehicles (Diagnostic)	$14,600.00	No
ML08043	City of Desert Hot Springs	9/25/2009	3/24/2016		$25,000.00	$0.00	1 CNG Heavy-Duty Vehicle	$25,000.00	No
ML08047	City of Culver City Transportation De	5/12/2009	8/11/2015		$150,000.00	$150,000.00	6 CNG Heavy-Duty Vehicles	$0.00	No
ML08049	City of Cerritos	3/20/2009	1/19/2015		$25,000.00	$0.00	1 CNG Heavy-Duty Vehicle	$25,000.00	No
ML08050	City of Laguna Beach	8/12/2009	4/11/2016		$75,000.00	$0.00	3 LPG Trolleys	$75,000.00	No
ML08080	City of Irvine	5/1/2009	5/31/2015		$50,000.00	$0.00	Two Heavy-Duty Nat. Gas Vehicles	$50,000.00	No
Total: 17									
Declined/Cancelled Contracts									
ML08051	City of Colton				$75,000.00	$0.00	3 CNG Heavy-Duty Vehicles	$75,000.00	No
Total: 1									
Closed Contracts									
ML08033	County of San Bernardino Public Wo	4/3/2009	2/2/2010		$14,875.00	$14,875.00	70 Vehicles (Diagnostic)	$0.00	Yes
ML08035	City of La Verne	3/6/2009	11/5/2009		$11,925.00	$11,925.00	53 Vehicles (Diagnostic)	$0.00	Yes
ML08045	City of Santa Clarita	2/20/2009	6/19/2010		$3,213.00	$3,150.00	14 Vehicles (Diagnostic)	$63.00	Yes
Total: 3									
Closed/Incomplete Contracts									
ML08032	City of Irvine	5/1/2009	8/31/2010		$9,000.00	$0.00	36 Vehicles (Diagnostic)	$9,000.00	No
Total: 1									
Open/Complete Contracts									
ML08029	City of Gardena	3/19/2009	1/18/2015		$25,000.00	$25,000.00	1 Propane Heavy-Duty Vehicle	$0.00	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
ML08031	City of Claremont	3/27/2009	3/26/2013	3/26/2015	$97,500.00	$97,500.00	Upgrade of Existing CNG Station, Purchase	$0.00	Yes
ML08037	City of Glendale	5/20/2009	5/19/2015		$325,000.00	$325,000.00	13 CNG Heavy-Duty Vehicles	$0.00	Yes
ML08039	City of Rancho Palos Verdes	6/5/2009	8/4/2015		$50,000.00	$50,000.00	2 LPG Transit Buses	$0.00	Yes
ML08042	City of Ontario	5/1/2009	1/31/2016		$175,000.00	$175,000.00	7 CNG Heavy-Duty Vehicles	$0.00	Yes
ML08044	City of Chino	3/19/2009	3/18/2015		$25,000.00	$25,000.00	1 CNG Heavy-Duty Vehicle	$0.00	Yes
ML08046	City of Paramount	2/20/2009	2/19/2015		$25,000.00	$25,000.00	1 CNG Heavy-Duty Vehicle	$0.00	No
ML08048	City of Santa Clarita	2/20/2009	6/19/2015		$25,000.00	$25,000.00	1 CNG Heavy-Duty Vehicle	$0.00	Yes

Total: 8

MSRC Database
Mobile Source Air Pollution Reduction Review Committee

2008-09 AB2766 Contract Status Report

10/27/2010

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
Open Contracts									
MS09001	Administrative Services Co-Op/Long	3/5/2009	6/30/2012	12/31/2013	$225,000.00	$150,000.00	15 CNG Taxicabs	$75,000.00	No
MS09002	A-Z Bus Sales, Inc.	11/7/2008	12/31/2009	12/31/2010	$2,340,000.00	$2,280,000.00	Alternative Fuel School Bus Incentive Progr	$60,000.00	No
MS09005	Gas Equipment Systems, Inc.	6/19/2009	10/18/2010		$71,000.00	$71,000.00	Provide Temp. Fueling for Mountain Area C	$0.00	No
MS09047	BusWest	7/9/2010	12/31/2010		$240,000.00	$120,000.00	Alternative Fuel School Bus Incentive Progr	$120,000.00	No
Total: 4									
Declined/Cancelled Contracts									
MS09003	FuelMaker Corporation				$296,000.00	$0.00	Home Refueling Apparatus Incentives	$296,000.00	No
Total: 1									
Closed Contracts									
MS09004	A-Z Bus Sales, Inc.	1/30/2009	3/31/2009		$156,000.00	$156,000.00	Alternative Fuel School Bus Incentive Progr	$0.00	Yes
Total: 1									

MSRC Database
Mobile Source Air Pollution Reduction Review Committee

2008-09 AB2766 Local Government Match Program Contract Status Report

10/27/2010

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
Open Contracts									
ML09007	City of Rancho Cucamonga	2/26/2010	4/25/2012		$117,500.00	$0.00	Maintenance Facility Modification	$117,500.00	No
ML09008	City of Culver City Transportation De	1/19/2010	7/18/2016		$200,000.00	$0.00	8 Nat. Gas Heavy-Duty Vehicles	$200,000.00	No
ML09010	City of Palm Springs	1/8/2010	2/7/2016		$25,000.00	$0.00	1 Nat. Gas Heavy-Duty Vehicle	$25,000.00	No
ML09011	City of San Bernardino	2/19/2010	5/18/2016		$250,000.00	$0.00	10 Nat. Gas Heavy-Duty Vehicles	$250,000.00	No
ML09012	City of Gardena	3/12/2010	11/11/2015		$25,000.00	$0.00	1 Nat. Gas Heavy-Duty Vehicle	$25,000.00	No
ML09013	City of Riverside Public Works	9/10/2010	12/9/2011		$144,470.00	$0.00	Traffic Signal Synchr./Moreno Valley	$144,470.00	No
ML09014	City of Riverside Public Works	9/10/2010	12/9/2011		$113,030.00	$0.00	Traffic Signal Synchr./Corona	$113,030.00	No
ML09015	City of Riverside Public Works	9/10/2010	12/9/2011		$80,060.00	$0.00	Traffic Signal Synchr./Co. of Riverside	$80,060.00	No
ML09016	County of San Bernardino Public Wo	1/28/2010	3/27/2014		$50,000.00	$0.00	Install New CNG Station	$50,000.00	No
ML09017	County of San Bernardino Public Wo	1/28/2010	7/27/2016		$200,000.00	$0.00	8 Nat. Gas Heavy-Duty Vehicles	$200,000.00	No
ML09018	Los Angeles Department of Water a	7/16/2010	9/15/2012		$850,000.00	$0.00	Retrofit 85 Off-Road Vehicles w/DECS	$850,000.00	No
ML09020	County of San Bernardino	8/16/2010	2/15/2012		$49,770.00	$0.00	Remote Vehicle Diagnostics/252 Vehicles	$49,770.00	No
ML09021	City of Palm Desert	7/9/2010	3/8/2012		$39,450.00	$0.00	Traffic Signal Synchr./Rancho Mirage	$39,450.00	No
ML09027	Los Angeles County Department of	7/23/2010	3/22/2012		$150,000.00	$0.00	Freeway Detector Map Interface	$150,000.00	No
ML09030	City of Los Angeles GSD/Fleet Servi	6/18/2010	6/17/2011		$22,310.00	$0.00	Remote Vehicle Diagnostics/107 Vehicles	$22,310.00	No
ML09035	City of Fullerton	6/17/2010	6/16/2017		$450,000.00	$0.00	2 Nat. Gas Heavy-Duty Vehicles & CNG Sta	$450,000.00	No
ML09036	City of Long Beach Department of P	5/7/2010	5/6/2017		$875,000.00	$0.00	Purchase 35 LNG Refuse Trucks	$875,000.00	No
ML09037	City of Redondo Beach	6/18/2010	6/17/2016		$50,000.00	$0.00	Purchase Two CNG Sweepers	$50,000.00	No
ML09038	City of Chino	9/27/2010	5/26/2017		$250,000.00	$0.00	Upgrade Existing CNG Station	$250,000.00	No
ML09041	City of Los Angeles, Bureau of Sanit	10/1/2010	9/30/2017		$875,000.00	$0.00	Purchase 35 H.D. Nat. Gas Vehicles	$875,000.00	No
ML09043	City of Covina	10/8/2010	4/7/2017		$186,591.00	$0.00	Upgrade Existing CNG Station	$186,591.00	No
ML09046	City of Newport Beach	5/20/2010	5/19/2016		$162,500.00	$0.00	Upgrade Existing CNG Station, Maintenance	$162,500.00	No
Total: 22									
Pending Execution Contracts									
ML09009	City of South Pasadena				$152,000.00	$0.00	CNG Station Expansion	$152,000.00	No
ML09023	Los Angeles County Department of				$50,000.00	$0.00	2 Heavy-Duty Alternative Fuel Transit Vehic	$50,000.00	No
ML09024	Los Angeles County Department of				$400,000.00	$0.00	Maintenance Facility Modifications	$400,000.00	No
ML09025	Los Angeles County Department of				$50,000.00	$0.00	Remote Vehicle Diagnostics/85 Vehicles	$50,000.00	No
ML09026	Los Angeles County Department of				$250,000.00	$0.00	5 Off-Road Vehicle Repowers	$250,000.00	No
ML09028	Riverside County Waste Manageme				$140,000.00	$0.00	Retrofit 7 Off-Road Vehicles w/DECS	$140,000.00	No
ML09031	City of Los Angeles, Environmental				$825,000.00	$0.00	33 Nat. Gas Heavy-Duty Vehicles	$825,000.00	No

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
ML09032	Los Angeles World Airports				$475,000.00	$0.00	19 Nat. Gas Heavy-Duty Vehicles	$475,000.00	No
ML09033	City of Beverly Hills				$550,000.00	$0.00	10 Nat. Gas Heavy-Duty Vehicles & CNG St	$550,000.00	No
ML09039	City of Inglewood				$310,000.00	$0.00	Purchase 12 H.D. CNG Vehicles and Remot	$310,000.00	No
ML09040	City of Cathedral City				$83,125.00	$0.00	Purchase 3 H.D. CNG Vehicles and Remote	$83,125.00	No
ML09042	Los Angeles Department of Water a				$1,400,000.00	$0.00	Purchase 56 Dump Trucks	$1,400,000.00	No
ML09044	City of San Dimas				$425,000.00	$0.00	Install CNG Station and Purchase 1 CNG S	$425,000.00	No
ML09045	City of Orange				$125,000.00	$0.00	Purchase 5 CNG Sweepers	$125,000.00	No
Total: 14									
Declined/Cancelled Contracts									
ML09019	City of San Juan Capistrano Public	12/4/2009	11/3/2010		$10,125.00	$0.00	Remote Vehicle Diagnostics/45 Vehicles	$10,125.00	No
ML09022	Los Angeles County Department of				$8,250.00	$0.00	Remote Vehicle Diagnostics/15 Vehicles	$8,250.00	No
Total: 2									
Open/Complete Contracts									
ML09029	City of Whittier	11/6/2009	4/5/2016		$25,000.00	$25,000.00	1 Nat. Gas Heavy-Duty Vehicle	$0.00	Yes
ML09034	City of La Palma	11/25/2009	6/24/2015		$25,000.00	$25,000.00	1 LPG Heavy-Duty Vehicle	$0.00	Yes
Total: 2									

MSRC Database
Mobile Source Air Pollution Reduction Review Committee

2009-10 AB2766 Contract Status Report

10/27/2010

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
Open Contracts									
MS10001	Los Angeles County MTA	3/25/2010	2/28/2011		$300,000.00	$53,235.93	Clean Fuel Transit Bus Service to Dodger St	$246,764.07	No
MS10002	Coachella Valley Association of Gov	6/18/2010	2/17/2011		$400,000.00	$400,000.00	Coachella Valley PM10 Reduction Street Sw	$0.00	No
MS10005	Domestic Linen Supply Company, In	10/8/2010	7/7/2016		$47,444.00	$0.00	Purchase 5 Gas-Electric Hybrid Vehicles	$47,444.00	No
Total: 3									
Pending Execution Contracts									
MS10003	City of Sierra Madre				$13,555.00	$0.00	Purchase 1 H.D. CNG Vehicle	$13,555.00	No
MS10004	Linde LLC				$56,932.00	$0.00	Purchase 6 H.D. CNG Vehicles	$56,932.00	No
MS10006	Nationwide Environmental Services				$94,887.00	$0.00	Purchase 10 H.D. CNG Vehicles	$94,887.00	No
MS10007	Enterprise Rent-A-Car Company of L				$18,977.00	$0.00	Purchase 2 H.D. CNG Vehicles	$18,977.00	No
MS10008	Republic Services, Inc./Allied Waste				$123,354.00	$0.00	Purchase 4 CNG, 9 LNG H.D. Vehicle	$123,354.00	No
MS10009	Ware Disposal Company, Inc.				$123,353.00	$0.00	Purchase 13 H.D. CNG Vehicles	$123,353.00	No
MS10010	New Bern Transport Corporation				$113,865.00	$0.00	Purchase 12 H.D. CNG Vehicles	$113,865.00	No
MS10011	Foothill Transit Agency				$113,865.00	$0.00	Purchase 12 H.D. CNG Vehicles	$113,865.00	No
MS10012	Foothill Transit Agency				$85,399.00	$0.00	Purchase 9 H.D. Electric Vehicles	$85,399.00	No
MS10013	City of San Bernardino				$68,834.00	$0.00	Purchase 9 H.D. LNG Vehicles	$68,834.00	No
MS10014	Serv-Wel Disposal				$18,977.00	$0.00	Purchase 2 H.D. CNG Vehicles	$18,977.00	No
MS10015	County of Los Angeles Department o				$37,955.00	$0.00	Purchase 4 H.D. CNG Vehicles	$37,955.00	No
MS10016	Rio Hondo Community College				$16,077.00	$0.00	Purchase 2 H.D. CNG Vehicles	$16,077.00	No
MS10017	Ryder Truck Rental, Inc.				$651,382.00	$0.00	Purchase 60 H.D. CNG and LNG Vehicles	$651,382.00	No
MS10019	EDCO Disposal Corporation				$379,549.00	$0.00	Purchase 40 H.D. CNG Vehicles	$379,549.00	No
MS10020	American Reclamation, Inc.				$18,977.00	$0.00	Purchase 2 H.D. CNG Vehicles	$18,977.00	No
MS10021	City of Glendora				$9,489.00	$0.00	Purchase 1 H.D. CNG Vehicle	$9,489.00	No
MS10023	Dix Leasing				$105,000.00	$0.00	Purchase 3 H.D. LNG Vehicles	$105,000.00	No
MS10024	Frito-Lay North America				$47,444.00	$0.00	Purchase 5 Electric Vehicles	$47,444.00	No
MS10025	Elham Shirazi				$199,449.00	$0.00	Telework Demonstration Program	$199,449.00	No
Total: 20									
Declined/Cancelled Contracts									
MS10018	Shaw Transport Inc.				$81,332.00	$0.00	Purchase 6 H.D. LNG Vehicles	$81,332.00	No
MS10022	Los Angeles World Airports				$123,353.00	$0.00	Purchase 13 H.D. CNG Vehicles	$123,353.00	No
Total: 2									

Back to Agenda

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 33

REPORT: California Air Resources Board Monthly Meeting

SYNOPSIS: The California Air Resources Board met on October 21, 2010. The following is a summary of this meeting.

RECOMMENDED ACTION:
Receive and file.

Ronald O. Loveridge, Member
SCAQMD Governing Board

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The Air Resources Board's (ARB or Board) October meeting was held in Sacramento. Key items presented are summarized below.

1. Research Update: Air Pollution Research, Fiscal Year 2010-2011

ARB approved the 2010-11 Annual Research Plan, allocating approximately $6.5 million toward 25 projects in five general categories as shown in the following table.

Research Category	Budget (millions)
Health Effects and Exposure	$1.5
Emissions Reductions	$2.8
Climate Change, Energy Efficiency, & Conservation	$1.3
Economic Analysis	$0.5
Technology Research & Development	$0.4
TOTAL*	$6.5

* Categories do not add to total shown due to rounding

The Research Plan also identifies four additional projects to be considered if additional funding becomes available; total recommended ARB support for these projects would be $1.3 million.

2. Legislative Update

ARB Legislative Director Rob Oglesby reviewed the fate of air quality legislation considered in the recently concluded 2009-2010 legislative session. The Legislature was focused on the State's economy and introduced few air quality or climate change bills, although it did hold 13 special hearings on air quality topics ranging from AB 32 Climate Change program implementation to carpool lanes. Significantly, the Legislature rejected several bills designed to roll back or delay climate change and diesel emission reduction programs.

The Governor signed into law the following major air quality bills:

- AB 2289 (Eng), which will provide for faster, more effective, and less expensive smog checks for passenger vehicles equipped with advanced on-board diagnostic system (OBD II). Over 70 percent of cars subject to Smog Check are equipped with the OBD II on-board computer system, which was pioneered by ARB. The on-board computers provide detailed engine performance data that allow Smog Check technicians to better assess each vehicle's emissions and diagnose emission system problems. AB 2289 will provide 70 tons per day emission reductions, equivalent to removing 800,000 vehicles from the road.
- AB 1500 (Lieu) and SB 535 (Yee), which extends high occupancy vehicle (HOV) lane access for alternate fuel and hybrid vehicles.
- SB 1402 (Dutton), which requires ARB to provide written information on how ARB-imposed penalties are determined, and requires the Board to adopt a written penalty policy.
- SB 855, the Budget Trailer Bill, which requires each State agency implementing the AB 32 climate change program to prepare a zero-based AB 32 budget for fiscal year 2011-12, and to submit that budget to the Legislature by April 1, 2011.
- AB 1507 (Lieu), which expands the Carl Moyer emission reduction incentive program to include mobile source projects that provide greenhouse gas (GHG) benefits, provided the GHG controls do not reduce criteria pollutant benefits.

Governor Schwarzenegger vetoed AB 1405 (De Leon), which would have established the California Climate Change Community Benefits fund to distribute ten percent of the proceeds from any cap-and-trade program adopted by ARB to

projects in environmental justice communities, noting that ARB is still designing the cap-and-trade program.

3. Report on the Implementation of the AB 32 Scoping Plan

Staff provided an update to the Board on implementation of the AB 32 Climate Change Scoping Plan measures and other climate change program activities. With last month's approval of the Renewable Electricity Standard and SB 375 regional GHG reduction targets, ARB and other State agencies have enacted measures that achieve over half of the reductions needed to meet the 2020 GHG emission reduction target established in AB 32. ARB staff is preparing two major regulations for the near-term consideration: the GHG cap-and-trade regulation and the Advanced Clean Cars program. These regulations are tentatively scheduled for Board consideration in December 2010 and January 2011, respectively. ARB staff is also evaluating the impact of the economic downturn on the GHG inventory and progress towards meeting the AB 32 GHG reduction goals.

Staff reported that the U.S. Environmental Protection Agency (U.S. EPA) is developing GHG emission requirements for the largest industrial GHG emission sources. U.S. EPA staff is working on GHG requirements that would be incorporated into the Clean Air Act's New Source Review (NSR) and Title V reporting requirements, and would be phased in over several years. The NSR changes would mandate the use of best available control technology to reduce GHG emissions from new and significantly modified sources.

On the international front, Governor Schwarzenegger will co-host the third international Governors' Global Climate Summit with the United Nations Development and Environment Program at U.C. Davis on November 15 and 16. Among other issues, attendees will discuss carbon trading market design issues with the goal of ensuring that markets are compatible across borders.

4. Update on Recent Federal and ARB Activities to Support Development of More Stringent Greenhouse Gas Emission Standards for Model Year 2017-2025 Passenger Vehicles

Chief Deputy Executive Officer Tom Cackette summarized the findings of the "Interim Joint Technical Assessment Report on Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2017-2025" that was developed jointly by U.S. EPA, the National Highway Traffic Safety Administration (NHTSA) and ARB. The technical assessment included meetings with stakeholders, studies to evaluate new technologies, and modeling to identify the costs, fuel savings and GHG emission

reductions from various mixes of technologies. The proposed technologies include mass reduction, improved gasoline engines, increased numbers of hybrids (conventional and plug-in), and increased numbers of zero emission vehicles (battery and fuel cell). These advanced technology vehicles will cost more to purchase, but these costs will be offset by significant fuel savings. ARB is tentatively scheduled to present an Advanced Clean Cars regulation to the Board in early 2011. U.S. EPA and NHTSA are expected to release more stringent GHG emission standards for model year 2017- 2025 vehicles in early 2012. ARB staff will evaluate the federal standards at that time and consider harmonization with them.

5. Proposed Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines

The Board approved proposed amendments to ARB's Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition (Diesel) Engines, adopted in 2004, to align the requirements more closely with U.S. EPA's New Source Performance Standards for this source category, promulgated in 2006. The amendments primarily affect the requirements for new diesel engines used on a stand-by basis in non-agricultural operations. These engines are typically operated for less than 30 hours per year. The amendment will save businesses and public agencies approximately $46 million through 2020 without significantly impacting the steep emission reductions provided by the ATCM. The ATCM also allows local air districts to establish more stringent requirements either through local rulemaking, or on a site-specific basis through the district permitting process.

6. Proposed Minor Amendments to the Periodic Smoke Inspection Program in Response to the Inclusion of Diesel Vehicles in Smog Check (Assembly Bill 1488, Mendoza 2007)

ARB staff presented proposed revisions to ARB's Periodic Smoke Inspection Program (PSIP) for diesel trucks that would remove some smoke inspection requirements for trucks that are also subject to the Diesel Smog Check program established by AB 1488 (Mendoza, 2008). The PSIP, which was implemented by the Board in 1998, requires truck fleets to perform annual smoke opacity inspections, and to repair or remove from service failing trucks. AB 1488 requires all 1998 and newer diesel trucks that weigh 14,000 pounds and less (generally light- and medium-duty pick-up trucks) to undergo biennial Smog Check inspections, including a visual tamper inspection, an OBD check, and a visual smoke test.

The ARB staff proposed to waive the PSIP smoke opacity inspections for trucks subject to the new Diesel Smog Check program during the years when the trucks

are required to go through the Smog Check program. The Board elected to enact an alternative presented by staff, which would exempt trucks subject to the Diesel Smog Check program from the PSIP entirely. In aggregate the smaller diesel trucks that are subject to Diesel Smog Check requirements account for less than one percent of the particulate matter emissions from all diesel trucks; ARB staff estimated that eliminating the PSIP requirement for this class of trucks would increase diesel particulate matter emissions by 0.01 ton per day statewide. The amendment will save truck fleets an estimated $4.2 million per year.

Attachment
CARB October 21, 2010 Meeting Agenda

California Environmental Protection Agency
AIR RESOURCES BOARD

LOCATION OF THE MEETING:
Air Resources Board
1001 I Street, 2nd Floor
Byron Sher Auditorium
Sacramento, California 95814

PUBLIC MEETING AGENDA

October 21, 2010

Electronic Board Book

WEBCAST

This facility is accessible by public transit. For transit information, call: (916) 321-BUSS, website http://www.sacrt.com/
(This facility is accessible to persons with disabilities.)

TO SUBMIT WRITTEN COMMENTS ON AN AGENDA ITEM IN ADVANCE OF THE MEETING GO TO:

http://www.arb.ca.gov/lispub/comm/bclist.php

October 21, 2010
9:00 a.m.

CONSENT CALENDAR:

All items on the consent calendar will be voted on by the Board immediately after the start of the public meeting. Any item may be removed from the consent calendar by a Board member or if someone in the audience wishes to speak on that item. The following item is on the consent calendar:

Consent Item #	Agenda Topic
	None.

DISCUSSION ITEMS:

Note: The following agenda items may be heard in a different order at the Board meeting.

Agenda Item #	Agenda Subject/Topic

10-9-1 **Public Meeting to Hear a Staff Presentation on the Draft Planned Air Pollution Research, Fiscal Year 2010-2011**

Staff will present the portfolio of proposed research projects for FY 2010-2011. Research has been selected to support the Board's decision-making, support effective implementation of our regulatory programs, and address knowledge gaps critical to the Board's mission.

More Information Staff Presentation

10-9-4 **Public Meeting to Hear the 2010 Legislative Update**

ARB Legislative Director and staff will present a review of legislation from the recently concluded 2009-2010 legislative session.

Staff Presentation

10-8-3 **Public Meeting To Update the Board on the Implementation of the AB 32 Scoping Plan**

Staff will update the Board on implementation of the Scoping Plan measures and other climate change program activities.

More Information Staff Presentation

10-9-5 **Public Meeting to Hear an Informational Update on Recent Federal and ARB Activities to Support Development of More Stringent Greenhouse Gas Emission Standards for Model Year 2017-2025 Passenger Vehicles**

Staff will report on the recent publication of a Technical Assessment Report, jointly prepared by ARB, U.S. EPA, and U.S. DOT, on greenhouse gas emission reduction standards for model year 2017-2025 passenger vehicles and the related federal Notice of Intent to conduct a rulemaking.

Staff Presentation

10-9-2 **Public Hearing to Consider Proposed Amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines**

Staff will propose amendments to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines (ATCM) to more closely align the requirements in the ATCM with those in the federal Standards of Performance for Stationary Compression-Ignition Internal Combustion Engines that was promulgated on July 11, 2006, help clarify provisions in the ATCM, address new information, and remove provisions no longer needed.

More Information Staff Presentation

10-9-3 **Public Hearing to Consider Minor Amendments to the Periodic Smoke Inspection Program in Response to the Inclusion of Diesel Vehicles in Smog Check (Assembly Bill 1488, Mendoza 2007**)

Staff will present to the Board minor amendments to the Periodic Smoke Inspection Program (PSIP) to mitigate the duplicative testing requirements resulting from the implementation of the statutory requirements of AB 1488 and the existing testing requirements of PSIP. This action will eliminate duplicative emissions tests thereby lowering administrative costs to affected California fleets with diesel vehicles.

More Information Staff Presentation

CLOSED SESSION – LITIGATION

The Board will hold a closed session, as authorized by Government Code section 11126(e), to confer with, and receive advice from, its legal counsel regarding the following pending or potential litigation:

Pacific Merchant Shipping Association v. Goldstene, U.S. District Court (E.D. Cal Fresno), Case No. 2:09-CV-01151-MCE-EFB.

American Trucking Associations, et al. v. U.S. Environmental Protection Agency, et al., U.S. Court of Appeals, District of Columbia Circuit, Case No. 09-1090.

POET, LLC, et al. v. Goldstene, et al., Superior Court of California (Fresno County), Case No. 09CECG04850.

Rocky Mountain Farmers Union, et al. v. Goldstene, U.S. District Court (E.D. Cal. Fresno), Case No. 1:09−cv−02234−LJO−DLB.

National Petrochemical & Refiners Association, et al. v. Goldstene, et al., U.S. District Court (E.D. Cal. Fresno) Case No. 1:10-cv-00163-AWI-GSA.

OPPORTUNITY FOR MEMBERS OF THE BOARD TO COMMENT ON MATTERS OF INTEREST

Board members may identify matters they would like to have noticed for consideration at future meetings and comment on topics of interest; no formal action on these topics will be taken without further notice.

OPEN SESSION TO PROVIDE AN OPPORTUNITY FOR MEMBERS OF THE PUBLIC TO ADDRESS THE BOARD ON SUBJECT MATTERS WITHIN THE JURISDICTION OF THE BOARD

Although no formal Board action may be taken, the Board is allowing an opportunity to interested members of the public to address the Board on items of interest that are within the Board's jurisdiction, but do not specifically appear on the agenda. Each person will be allowed a maximum of three minutes to ensure that everyone has a chance to speak.

TO SUBMIT WRITTEN COMMENTS ON AN AGENDA ITEM IN ADVANCE OF THE MEETING GO TO:

http://www.arb.ca.gov/lispub/comm/bclist.php

IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT THE CLERK OF THE BOARD

1001 I Street, 23rd Floor, Sacramento, CA 95814, (916) 322-5594

ARB Homepage: http://www.arb.ca.gov

SPECIAL ACCOMMODATION REQUEST

Special accommodation or language needs can be provided for any of the following:

- An interpreter to be available at the hearing;
- Documents made available in an alternate format (i.e., Braille, large print, etc.) or another language;
- A disability-related reasonable accommodation.

To request these special accommodations or language needs, please contact the Clerk of the Board at (916) 322-5594 or by facsimile at (916) 322-3928 as soon as possible, but no later than 10 business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Comodidad especial o necesidad de otro idioma puede ser proveído para alguna de las siguientes:
- Un intérprete que esté disponible en la audiencia;
- Documentos disponibles en un formato alterno (por decir, sistema Braille, o en impresión grande) u otro idioma;
- Una acomodación razonable relacionados con una incapacidad.

Para solicitar estas comodidades especiales o necesidades de otro idioma, por favor llame a la oficina del Consejo al (916) 322-5594 o envíe un fax a (916) 322-3928 lo más pronto posible, pero no menos de 10 días de trabajo antes del día programado para la audiencia del Consejo. TTY/TDD/Personas que necesiten este servicio pueden marcar el 711 para el Servicio de Retransmisión de Mensajes de California.

SMOKING IS NOT PERMITTED AT MEETINGS OF THE CALIFORNIA AIR RESOURCES BOARD

Back to Agenda

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 34

PROPOSAL: Proposed Rule 1420.1 – Emissions Standard for Lead from Large Lead-acid Battery Recycling Facilities

SYNOPSIS: On October 15, 2008 the U.S. EPA amended the National Ambient Air Quality Standard (NAAQS) for Lead. The standard has been lowered from 1.5 µg/m^3 to 0.15 µg/m^3 in order to provide an adequate margin of safety that would ensure the protection of public health. Based on current monitoring data, large lead-acid battery recycling facilities are one of the largest sources of lead. Proposed Rule 1420.1 establishes additional requirements for large lead-acid battery recycling facilities to meet attainment of the new NAAQS for lead.

COMMITTEE: Stationary Source, November 20, 2009, April 16, 2010, May 21, 2010, June 18, 2010, July 23, 2010, September 24, 2010, October 15, 2010, Reviewed

RECOMMENDED ACTION:
Adopt the attached resolution:
1. Certifying the Final Environmental Assessment (EA) for Proposed Rule 1420.1 – Emissions Standard for Lead from Large Lead-acid Battery Recycling Facilities; and
2. Adopting Proposed Rule 1420.1 – Emissions Standard for Lead from Large Lead-acid Battery Recycling Facilities.

Barry R. Wallerstein, D.Env.
Executive Officer

EC:LT:SN:CAM: EK

Background
The federal Clean Air Act requires the U.S. Environmental Protection Agency (U.S. EPA) to set National Ambient Air Quality Standards (NAAQS) for criteria pollutants. On October 15, 2008, the U.S. EPA amended the NAAQS for lead from 1.5 $\mu g/m^3$ to 0.15 $\mu g/m^3$. Based on review of new health studies, the U.S. EPA has determined that a primary and secondary standard of 0.15 $\mu g/m^3$ is requisite to provide an adequate margin of safety that would ensure the protection of the environment and public health regarding health effects from lead exposure.

In 1992, the AQMD's Governing Board adopted Rule 1420 – Emissions Standard for Lead which applies to facilities that use or process lead, including large lead acid-battery recycling facilities. Rule 1420 requires affected facilities to meet a lead emission standard of 1.5 $\mu g/m^3$, vent point sources to an emissions collection system, and to submit a compliance plan providing information about the amount of lead processed and emission estimates.

Basin's Attainment Status
The California Air Resources Board has recommended to U.S. EPA that the South Coast Air Basin (Basin) portion of Los Angeles County be designated as non-attainment for the 2008 lead NAAQS based on data from monitors near lead-acid battery recycling facilities in the Basin. Final designation of attainment status for the Basin by the U.S. EPA is expected by October 15, 2010. The 2008 lead NAAQS requires attainment by each state no later than five years with three years of clean data after final designations are received.

Health Effects of Lead
Over the past two decades, more than 6,000 new studies on lead health effects have been published showing that adverse effects occur at much lower levels of lead in the blood than previously thought. Lead is a criteria pollutant and is also identified as a carcinogenic toxic air contaminant by the Office of Environmental Health Hazard Assessment. Chronic health effects include problems such as nervous and reproductive system disorders, neurological and respiratory damage, cognitive and behavioral changes, and hypertension. Exposure to lead can also potentially increase the risk of contracting cancer or result in other adverse health effects. Young children are especially susceptible to the effects of environmental lead, both from inhalation and ingestion, because their bodies accumulate lead more readily than do those of adults, and because they are more vulnerable to certain biological effects of lead including learning disabilities, behavioral problems, and deficits in IQ.

Affected Industry
Based on annual facility reports for lead emissions received for AQMD's Annual Emissions Reporting Program, the AQMD staff has determined that the lead-acid battery recycling industry is the highest stationary source of lead emissions in the Basin.

Based on available monitoring data, staff's analysis has also shown that this industry currently demonstrates ambient air lead concentration measurements that cause non-attainment with the new lead NAAQS. Pursuant to California Health & Safety Code §40001(a), the AQMD is required to adopt and enforce rules and regulations to achieve and maintain federal ambient air quality standards in all areas affected by emission sources under their jurisdiction. Therefore, the purpose of Proposed Rule 1420.1 (PR 1420.1) is to set additional requirements for large lead-acid battery recycling facilities to address the amended NAAQS for lead and help ensure that the Basin can achieve the revised standard.

PR 1420.1 applies to large lead-acid battery recycling facilities. There are currently two facilities within the AQMD that the proposed rule will apply to: Exide Technologies in the city of Vernon and Quemetco, Inc. in the City of Industry. These two facilities are the only large lead-acid battery recyclers in the state of California and in the western United States, with the next nearest large lead-acid battery recycling facility located in Texas. These facilities receive spent lead-acid batteries and other lead-bearing materials, recycle them, and recover the lead.

The provisions of PR 1420.1 are in addition to Rule 1420 – Emissions Standard for Lead. Rule 1420 is planned for a future amendment to address other lead sources in the Basin and the 2008 NAAQS for lead.

Proposal

PR 1420.1 applies to lead-acid battery recycling facilities that process or have ever processed 50,000 tons of lead annually. The purpose of the proposed rule is to protect public health and establish requirements that will help ensure that the Basin meets attainment status with the 2008 NAAQS for lead. As a result, the rule proposes:

- An ambient air lead concentration standard of 0.15 µg/m^3 averaged over any 30 consecutive days effective January 1, 2012;
- Requirements to reduce lead point source emissions through:
  - a total facility mass lead emission rate of 0.045 lb/hr;
  - a maximum lead emission rate of 0.01 lb/hr for any lead point source;
  - secondary lead control devices on dryers; and
  - use of high efficiency bags and filters for lead control devices;
- Requirements to reduce fugitive lead emissions through:
  - total enclosures of process areas used in the lead-acid battery recycling operation;
  - housekeeping requirements including periodic cleanings of facility grounds, rooftops, and surface impoundments; storage and transport requirements for lead-containing materials; and
  - requirements for lead abatement procedures when conducting specific types of maintenance activity;

- Submittal of a "Contingency" Compliance Plan if the facility approaches 80 percent of the ambient air lead concentration standard on and after July 1, 2011, containing additional lead emission reduction measures. The plan would only be implemented if the facility exceeds an ambient air lead concentration of 0.15 $\mu g/m^3$;
- Public notification of unplanned shutdown of any lead control device, planned turnaround or shutdown, and specific maintenance activities; and
- Additional requirements for source testing, ambient air concentration monitoring, siting for new facilities, public notifications, reporting, and recordkeeping.

Public Process

A PR 1420.1 Working Group was formed to provide an opportunity to discuss the proposed rule in greater detail and provide input to the AQMD staff throughout the rule development process. The working group was comprised of a variety of stakeholders including representatives and consultants for the regulated industry; other agency representatives; environmental and community representatives; and other interested parties. The Working Group met three times during the rule development process on April 22, 2010, May 18, 2010, and August 24, 2010. In addition, a Public Workshop was held on April 14, 2010, and updates to the Stationary Source Committee were presented throughout the rule development process.

Key Outstanding Issues

Proposed Rule 1420.1 Approach

One PR 1420.1 facility has commented that the approach of the proposed rule should be based on a compliance plan with no core requirements. This approach would be similar to Rule 1420. Facilities would implement a compliance plan and be required to achieve the ambient air quality standard. Past experience with Rule 1420 shows that a compliance plan approach alone is not sufficient to demonstrate compliance with the lead ambient air quality standard. Moreover, with the more stringent lead standard, even greater assurances in the specificity of the control measures is needed.

Lower Lead Point Source Emission Rate from 0.045 lbs/hr to 0.003 lbs/hr

One PR 1420.1 facility has requested that the lead point source emission rate be lowered from 0.045 lbs/hr to 0.003 lbs/hr. The AQMD staff appreciates the investment in pollution control equipment that this facility has installed. This facility is located approximately one-tenth of a mile from a densely populated residential neighborhood. Pollution control equipment was installed primarily for compliance with the AB2588 Toxics Hot Spots program to control other toxic metals to reduce their cancer burden, which concurrently reduced lead emissions.

Based on point source modeling, the AQMD staff believes that the other lead-acid battery recycling facility can achieve the new lead standard through controlling lead point source emissions to 0.045 lbs/hr and strict adherence to housekeeping provisions

of PR 1420.1. At this point, there is not sufficient information to substantiate the need to require this facility to go beyond an expected 99% point source reduction at an additional cost of $15 to $20 million. The ambient monitors will be the ultimate test of compliance. If this facility's lead concentration approaches 80% of the new standard, they will be required to submit a Compliance Plan that will identify additional lead point source controls and housekeeping provisions.

The Staff Report, Environmental Analysis and Socioeconomic Analysis are based on PR 1420.1, which requires a total stack mass emission rate of 0.045 lbs/hr from all point sources of lead emissions at a facility. If the Governing Board were to direct staff to incorporate a total stack emission rate of 0.003 lbs/hr of lead, either as a core requirement, or in the contingency Compliance Plan, additional environmental and economic analyses would be needed. The Board could, however, select an option that would require the facility to evaluate the feasibility of a total stack emission rate of 0.003 lb/hr of lead if the facility triggered the need for a compliance plan. If it is determined that it is both feasible and necessary to lower the total stack emission rate, Rule 1420.1 could be amended and the appropriate environmental and socioeconomic analyses would be conducted.

Allow Use of Alternative Stack Geometries to Achieve Lead Point Source Emission Rate
One PR 1420.1 facility has expressed concern that the facility-wide lead emission rate of 0.045 lbs/hr only considers alternate emission rate scenarios to achieve compliance and does not allow the possibility of alternate stack geometries. This facility believes that "the *problem* with these stacks is NOT that their emissions are too great or any way indicative of inadequate control effectiveness, but that they are simply too short."

Based on careful review of source tests from this facility, the AQMD staff believes that the "problem" is that emissions are too great from some of the lead point sources. It is the AQMD staff's understanding that this facility would like to have the flexibility of reducing their fence line lead concentration by increasing their stack height to increase dispersion of emissions. The AQMD staff disagrees with this approach as it does not reduce lead emissions. In addition, lead accumulates on the ground and may be re-entrained into the air. Additional lead controls will be needed to achieve the new lead standard of 0.15 $\mu g/m^3$. Also, Clean Air Act Section 123 prohibits the use of excessive stack height or other dispersion technique in lieu of reducing emissions.

PR 1420.1 Violation Funds for Mitigation in Impacted Community
Environmental and community groups requested that monies collected from violations of PR 1420.1 be used for mitigation projects in communities impacted by the violation. Traditionally the AQMD staff seeks to implement programs and projects in highly impacted areas. To the extent feasible, the AQMD staff will continue to seek opportunities to use monies to fund programs and projects in highly impacted areas.

Requirement for Additional Monitors Funded by Affected Facility and Operated by the AQMD

One PR 1420.1 facility has requested that the proposed rule include a provision that would require facilities to fund the installation, operation, and maintenance of three to four additional monitors that would be operated by the AQMD. These monitors would be in addition to the monitors operated by the affected facilities and the monitors managed by the AQMD staff for compliance with the NAAQS. The AQMD staff appreciates this request, however, the AQMD staff believes that the existing monitoring network for both affected facilities is sufficient. There are currently four facility-operated monitors and one AQMD-operated monitor at Quemetco, and six facility-operated monitors and two AQMD-operated monitors at Exide. If new information shows a need, additional monitors can be installed.

AQMP and Legal Mandates

Pursuant to Health & Safety Code Section 40460 (a), the South Coast Air Quality Management District (AQMD) is required to adopt an Air Quality Management Plan (AQMP) demonstrating compliance with all federal regulations and standards such as the lead NAAQS for the Basin. The AQMD is required to adopt rules and regulations that carry out the objectives of the AQMP. Currently, there are no AQMD measures for lead. However, the proposed rule will be submitted as a part of the State Implementation Plan that outlines the strategy to demonstrate attainment with the lead NAAQS. The lead emission reductions from this proposed rule will help achieve compliance with the 2008 federal ambient air quality standard for lead.

California Environmental Quality Act (CEQA)

The AQMD, as lead agency, prepared a Draft Environmental Assessment (EA) pursuant to CEQA Guidelines §15252 for Proposed Rule 1420.1. No significant adverse environmental impact was identified. The Draft EA was released for a 30-day public review and comment period beginning on April 27, 2010 and ending on January May 26, 2010. No comments were received.

Subsequent to the public circulation of the Draft EA for proposed project, Proposed Rule 1420.1 was modified. The modifications were analyzed and AQMD staff concluded that recirculation was not necessary per CEQA Guidelines §15073.5, because the modifications were determined not to be a substantial revision (i.e., a new, avoidable significant effect that requires mitigation measure or project revisions to reduce the effect to insignificance or that project effects cannot be reduced to insignificant and new measures or project revisions are required).

Socioeconomic Assessment

PR 1420.1 will help achieve the latest amendments to the federal NAAQS for Lead, as adopted by the U.S. EPA on October 15, 2008. PR 1420.1 also proposes to include total enclosures, installation of secondary lead control devices on dryers, detailed housekeeping requirements, increased monitoring, and annual emissions testing of lead

control devices. The total annual cost for both facilities to comply with PR 1420.1 is estimated at $0.41 million for the first year, and $0.32 million annually thereafter. Some requirements of PR 1420.1 are currently being implemented by both facilities due to conditions found in Rule 1420 compliance plans or orders for abatement, and the costs assessed for compliance with these requirements are not included in the assessment. The socioeconomic assessment was made available to the public at least 30 days prior to the Public Hearing and is included as part of the Public Hearing package.

Implementation and Resource Impact

Existing AQMD resources will be used to implement Proposed Rule 1420.1.

Attachments

A. Summary of Proposal
B. Key Issues and Responses
C. Rule Development Process
D. Key Contacts List
E. Resolution
F. Proposed Rule 1420.1 Rule Language
G. Proposed Rule 1420.1 Staff Report
H. Socioeconomic Assessment
I. Final Environmental Assessment

ATTACHMENT A

SUMMARY OF PROPOSAL

Proposed Rule 1420.1 – Emissions Standard for Lead from Large Lead-acid Battery Recycling Facilities
Proposed Rule 1420.1 establishes requirements for large lead-acid battery recycling facilities in order to help ensure attainment status with the 2008 NAAQS for lead in the Basin. The proposed rule establishes the following requirements: • Prior to January 1, 2012, meet an ambient air lead concentration of 1.5 µg/m^3 averaged over 30 days as required under Rule 1420; • On and after January 1, 2012, meet an ambient air lead concentration standard of 0.15 µg/m^3 averaged over any 30 consecutive days; • Reduce lead point source emissions through: o Total facility mass lead emission rate of 0.045 lb/hr; o Maximum lead emission rates for lead point sources of 0.01 lb/hr; o Secondary lead control devices on dryers; and o Use of high efficiency bags and filters for lead control devices; • Reduce fugitive lead-dust emissions through: o Total enclosures of process areas used in the lead-acid battery recycling operation; o Housekeeping requirements including periodic cleanings of facility grounds, rooftops, and surface impoundments; storage and transport requirements for lead-containing materials; and o Requirements for lead abatement procedures when conducting specific types of maintenance activity; • Submittal of a "Contingency" Compliance Plan if the facility approaches 80 percent of the ambient air lead concentration standard, containing additional lead emission reduction measures. The plan would only be implemented if the facility exceeds an ambient air lead concentration of 0.15 µg/m^3; • Public notification of unplanned shutdown of any lead control device, planned turnaround or shutdown, and specific maintenance activities; and • Source testing, ambient air concentration monitoring, siting for new facilities, public notifications, reporting, and recordkeeping.

ATTACHMENT B

KEY ISSUES AND RESPONSES

Proposed Rule 1420.1 – Emissions Standard of Lead for Large Lead-acid Battery Recycling Facilities
• Issue: One PR 1420.1 facility has commented that the approach of the proposed rule is too prescriptive and that instead, PR 1420.1 should be based on the lead emission standard with a compliance plan with no core requirements. Response: The suggested approach would be similar to Rule 1420. Facilities would implement a compliance plan and be required to achieve the ambient air quality standard. Past experience with Rule 1420 shows that a compliance plan approach is not sufficient to demonstrate compliance with the lead ambient air quality standard. Moreover, with the more stringent lead standard, even greater assurances in the specificity of the control measures is needed. • Issue: One PR 1420.1 facility has requested to lower the lead point source emission rate from 0.045 lbs/hr to 0.003 lbs/hr. Response: The AQMD staff appreciates the investment in pollution control equipment that this facility has installed. Pollution control equipment was installed primarily for compliance with the AB2588 Toxics Hot Spots program to control other toxic metals to reduce their cancer burden, which concurrently reduced lead emissions. Based on point source modeling, the AQMD staff believes that it is possible that the other lead-acid battery recycling facility can achieve the new lead standard through controlling lead point source emissions to 0.045 lbs/hr and strict adherence to housekeeping provisions of PR 1420.1. At this point, there is not sufficient information to substantiate the need to require this facility to go beyond an expected 99% reduction at an additional investment in pollution controls of $15 to $20 million. The ambient monitors will be the ultimate test of compliance. If this facility's lead concentration approaches 80% of the new standard, they will be required to submit a Compliance Plan that will identify additional lead point source controls and housekeeping provisions. • Issue: One PR 1420.1 facility has expressed concern that the facility-wide lead emission rate of 0.045 lbs/hr only considers alternate emission rate scenarios to achieve compliance and does not allow the possibility of alternate stack geometries. This facility believes that "the "problem" with these stacks is NOT that their emissions are too great or any way indicative of inadequate control effectiveness, but that they are simply too short."

Response: Based on review of source tests from this facility, the AQMD staff believes that the "problem" is that emissions are too great from some of the lead point sources. It is the AQMD staff's understanding that this facility would like to have the flexibility of reducing their fence line lead concentration by increasing their stack height to increase dispersion of emissions. The AQMD staff disagrees with this approach as it does not reduce lead emissions. Additional lead controls will be needed to achieve the new lead standard of 0.15 $\mu g/m^3$.

- Issue: Environmental and community groups requested funding for mitigation.

  Response: Traditionally the AQMD staff seeks to implement programs and projects in highly impacted areas. To the extent feasible, the AQMD staff will continue to seek opportunities to use monies to fund programs and projects in highly impacted areas.

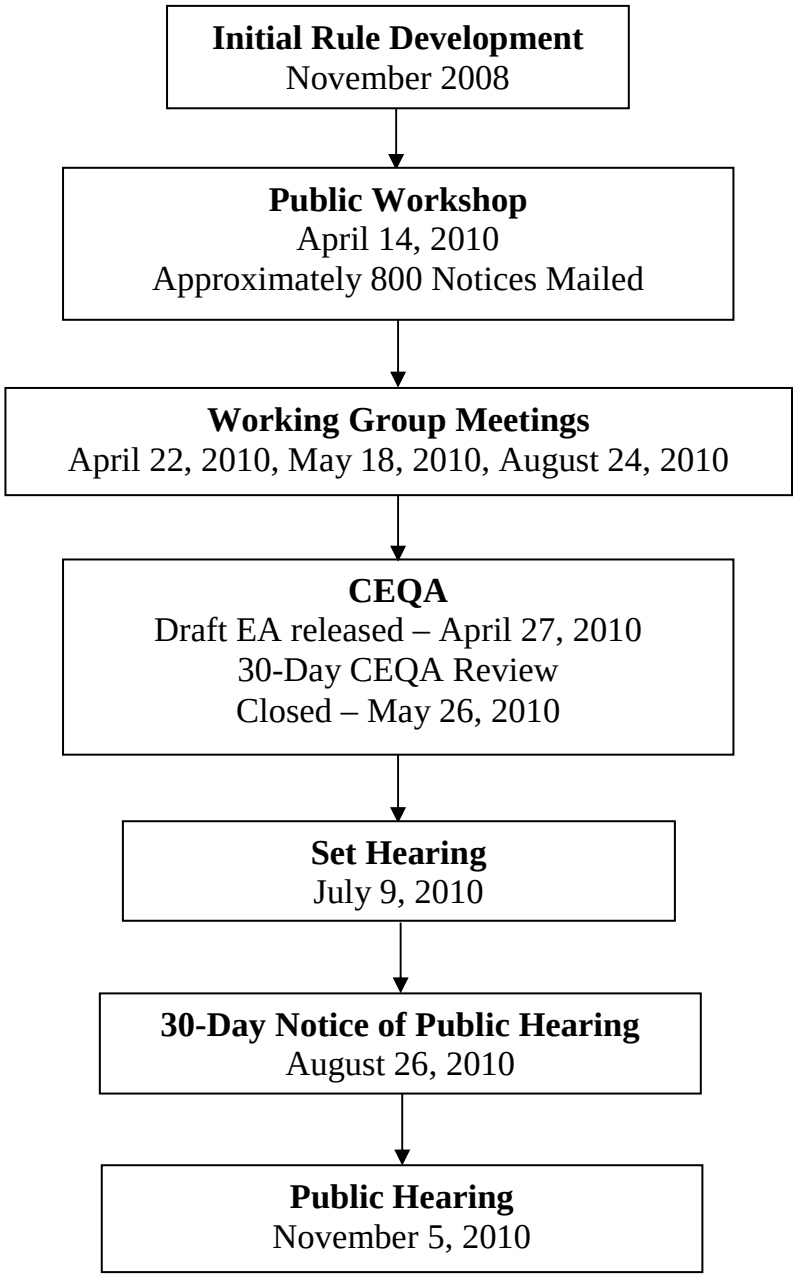
- Issue: PR 1420.1 should require that facilities fund the installation, operation, and maintenance of three to four additional monitors that would be run by the AQMD and used for compliance with the ambient air lead concentration, ambient air monitoring, and Compliance Plan requirements of PR 1420.1.

  Response: These monitors would be in addition to the monitors operated by the affected facilities and the monitors managed by the AQMD staff for compliance with the NAAQS. The AQMD staff appreciates this request, however, the AQMD staff believes that the existing monitoring network for both affected facilities is sufficient. There are currently four facility-operated monitors and one AQMD-operated monitor at Quemetco, and six facility-operated monitors and two AQMD-operated monitors at Exide. If new information shows a need, additional monitors can be installed.

ATTACHMENT C

RULE DEVELOPMENT PROCESS

Proposed Rule 1420.1 – Emissions Standard for Lead from Large Lead-acid Battery Recycling Facilities



Total Time Spent In Rule Development Pre-Board Hearing: 24 Months

ATTACHMENT D
KEY CONTACTS LIST

Baghouse & Industrial Sheet Metal Service, Inc
California Air Resources Board
Clean Air Matters
Department of Toxic Substances Control
Duncan McKee (Quemetco Community Member)
East Yard Communities for Environmental Justice
ENVIRON International Corporation
Envitech, Inc
Exide Technologies
Professional Environmental Services, Inc
Quemetco, Incorporated
Resurrection Watch
Thomas Lohff (Quemetco Community Member)

ATTACHMENT E

RESOLUTION NO. 10-_____

A Resolution of the Governing Board of the South Coast Air Quality Management District (AQMD) certifying the Final Environmental Assessment (EA) for Proposed Rule 1420.1 – Emissions Standard for Lead from Large Lead-acid Battery Recycling Facilities.

A Resolution of the AQMD Governing Board Adopting Proposed Rule 1420.1 – Emissions Standard for Lead from Large Lead-acid Battery Recycling Facilities.

WHEREAS, the AQMD Governing Board finds and determines that Proposed Rule 1420.1 – Emissions Standard for Lead from Large Lead-acid Battery Recycling Facilities (PR 1420.1) is considered a "project" pursuant to the California Environmental Quality Act (CEQA); and

WHEREAS, the AQMD has had its regulatory program certified pursuant to Public Resources Code §21080.5 and has conducted CEQA review and analysis pursuant to such program (AQMD Rule 110); and

WHEREAS, AQMD staff has prepared a Draft EA pursuant to its certified regulatory program and CEQA Guidelines §15168 and §15252, setting forth the potential environmental consequences of PR 1420.1; and

WHEREAS, the Draft EA determined the proposed project would result in no significant adverse environmental impacts; and

WHEREAS, the Draft EA was circulated for 30-day public review and comment period, no comments were received, and the Draft EA has been revised such that it is now a Final EA; and

WHEREAS, it is necessary that the adequacy of the Final EA be determined by the AQMD Governing Board prior to its certification; and

WHEREAS, the Governing Board prior to voting on PR 1420.1 – Emissions Standard for Lead from Large Lead-acid Battery Recycling Facilities, has reviewed and considered the Final EA; and

WHEREAS, a Mitigation Monitoring Plan pursuant to Public Resources Code §21081.6, has not been prepared since no mitigation measures are necessary; and

WHEREAS, the AQMD Governing Board finds and determines, taking into consideration the factors in §(d)(4)(D) of the Governing Board Procedures, that the modifications adopted which have been made to PR 1420.1 since notice of public hearing was published do not significantly change the meaning of the proposed project within the meaning of Health and Safety Code §40726 and would not constitute significant new information requiring recirculation of the Draft CEQA document pursuant to CEQA Guidelines §15073.5; and

WHEREAS, lead has been identified as a toxic air contaminant by the Office of Environmental Health Hazard Assessment (OEHHA); and

WHEREAS, lead has been identified by the U.S. Environmental Protection Agency (U.S. EPA) as a criteria air pollutant for national ambient air quality standards, and the South Coast Air Basin has been recommended for designation by U.S. EPA as non-attainment status for the 2008 lead NAAQS; and

WHEREAS, California Health & Safety Code §40001(c) requires districts, prior to adopting any rule or regulation to reduce criteria pollutants, to determine that there is a problem that the proposed rule or regulation will alleviate and that the rule or regulation will promote the attainment or maintenance of federal ambient air quality standards; and

WHEREAS, the AQMD staff conducted a public workshop regarding PR 1420.1; and

WHEREAS, California Health and Safety Code §40727 requires that prior to adopting, amending or repealing a rule or regulation, the AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report; and

WHEREAS, the AQMD Governing Board has determined that a need exists to adopt PR 1420.1 in order to 1) achieve the 2008 National Ambient Air Quality Standard for Lead, 2) impose requirements intended to reduce lead emissions from the source category that has caused non-attainment designation of the Los Angeles County portions of the South Coast Air Basin, and 3) protect public health by reducing cancer risk and other health effects from exposure to lead; and

WHEREAS, the AQMD Governing Board obtains its authority to adopt, amend or repeal rules and regulations from sections 39002, 39650 et. seq., 39669.5,

40000, 40001, 40440, 40702, 40725 through 40728, 41508, 41700, 41706, 44365, and 44390 through 44394 of the Health and Safety Code; and

WHEREAS, the AQMD Governing Board has determined that PR 1420.1 is written and displayed so that the meaning can be easily understood by persons directly affected by it; and

WHEREAS, the AQMD Governing Board has determined that PR 1420.1 is in harmony with, and not in conflict with, or contradictory to, existing statutes, court decisions, or state or federal regulations; and

WHEREAS, the AQMD Governing Board has determined that PR 1420.1 does not impose the same requirements as any existing state or federal regulations, and the proposed project is necessary and proper to execute the powers and duties granted to, and imposed upon, the AQMD; and

WHEREAS, by adopting PR 1420.1, the AQMD Governing Board will be implementing, interpreting or making specific the provisions of the California Health and Safety Code Sections 40001 (rules to achieve and maintain ambient air quality standards), 41700 (nuisance), 41706(b) (emission standards for lead compounds from non-vehicular sources), Federal Clean Air Act Section 112 (Hazardous Air Pollutants), and the 2008 National Ambient Air Quality Standard for Lead; and

WHEREAS, pursuant to California Health and Safety §40001(c), the AQMD has determined that there is a lead problem that PR 1420.1 will alleviate, and that the proposed rule will promote the attainment and maintenance of the 2008 National Ambient Air Quality Standard for Lead; and

WHEREAS, PR 1420.1 is not a control measure in the 2007 Air Quality Management Plan (AQMP) and thus, was not ranked by cost-effectiveness relative to other AQMP control measures in the 2007 Air Quality Management Plan, and furthermore, pursuant to Health and Safety Code §40910, cost-effectiveness in terms of dollars per ton of pollutant reduced is only applicable to rules regulating ozone, carbon monoxide, sulfur dioxide, and nitrogen dioxide and does not apply to toxic air contaminants; and

WHEREAS, PR 1420.1 applies to lead and not ozone, CO, SOx, NOx, and their precursors, and thus the incremental cost effectiveness analysis required by California Health and Safety Code §40920.6 does not apply; and

WHEREAS, Health and Safety Code §40727.2 requires the AQMD to prepare a written analysis of existing federal air pollution control requirements applicable to the same source type being regulated whenever it adopts, or amends a rule,

and that the AQMD's comparative analysis of PR 1420.1 is included in the staff report; and

WHEREAS, the AQMD Governing Board has determined that the Socioeconomic Impact Assessment of PR 1420.1 is consistent with the March 17, 1989 and October 14, 1994 Governing Board Socioeconomic Resolutions for rule adoption; and

WHEREAS, the AQMD Governing Board has determined that PR 1420.1 will result in increased costs to the large lead-acid battery recycling facilities, yet are considered to be reasonable, with a total annualized cost as specified in the Socioeconomic Impact Assessment; and

WHEREAS, the affected facilities have been required to add air pollution controls and implement additional housekeeping and maintenance activities outside of PR 1420.1 and costs incurred to comply with these other requirements, such as revised Rule 1420 compliance plans, settlement agreements, orders for abatement, or AB2588 were not included in the Socioeconomic Impact Assessment of PR 1420.1; and

WHEREAS, the AQMD Board has actively considered the Socioeconomic Impact Assessment and has made a good faith effort to minimize such impacts; and

WHEREAS, the AQMD Governing Board has determined that the Socioeconomic Impact Assessment is consistent with the provisions of the California Health and Safety Code Sections 40440.8, 40728.5, 40920.6; and

WHEREAS, the AQMD Governing Board specifies the Manager of PR 1420.1 as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of this proposed project is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

WHEREAS, a public hearing has been properly noticed in accordance with all provisions of Health and Safety Code §40725; and

WHEREAS, the AQMD Governing Board has held a public hearing in accordance with all provisions of law; and

NOW, THEREFORE BE IT RESOLVED, that the AQMD Governing Board hereby certifies, pursuant to the authority granted by law, the Final EA for PR 1420.1 – Emissions Standard for Lead from Large Lead-acid Battery Recycling Facilities; and

BE IT FURTHER RESOLVED, that because no significant adverse environmental impacts were identified as a result of implementing PR 1420.1, a Statement of Findings, a Statement of Overriding Considerations, and a Mitigation Monitoring Plan are not required; and

BE IT FURTHER RESOLVED, that the AQMD staff will work with PR 1420.1 impacted communities to develop a list of email addresses of those interested in receiving public notifications from PR 1420.1 facilities regarding shutdowns, turnarounds, and specific maintenance activities, and provide the list to the appropriate PR 1420.1 facility; and

BE IT FURTHER RESOLVED, that the AQMD Governing Board does hereby adopt, pursuant to the authority granted by law, PR 1420.1 as set forth and incorporated herein by this reference.

DATE: _____

_____

CLERK OF THE BOARDS

PROPOSED RULE 1420.1. EMISSIONS STANDARD FOR LEAD FROM LARGE LEAD-ACID BATTERY RECYCLING FACILITIES

(a) Purpose

(1) The purpose of this rule is to protect public health by reducing exposure and emissions of lead from large lead-acid battery recycling facilities, and to help ensure attainment of the National Ambient Air Quality Standard for Lead.

(b) Applicability

(1) This rule applies to all persons who own or operate a lead-acid battery recycling facility that has processed more than 50,000 tons of lead a year in any one of the five calendar years prior to [*Date of Adoption*], or annually thereafter, hereinafter a large lead-acid battery recycling facility. Applicability shall be based on facility lead processing records required under subdivision (m) of this rule, and Rule 1420 – Emissions Standards for Lead. Compliance with this rule shall be in addition to other applicable rules such as Rule 1420.

(c) Definitions

For the purposes of this rule, the following definitions shall apply:

(1) AGGLOMERATING FURNACE means a furnace used to melt flue dust that is collected from a lead control device, such as a baghouse, into a solid mass.

(2) AMBIENT AIR for purposes of this rule ~~is~~means outdoor air.

(3) BATTERY BREAKING AREA means the plant location at which lead-acid batteries are broken, crushed, or disassembled and separated into components.

(4) DRYER means a chamber that is heated and that is used to remove moisture from lead-bearing materials before they are charged to a smelting furnace.

(5) DRYER TRANSITION PIECE means the junction between a dryer and the charge hopper or conveyor, or the junction between the dryer and the smelting furnace feed chute or hopper located at the ends of the dryer.

(6) DUCT SECTION means a length of duct including angles and bends which is contiguous between two or more process devices (e.g., between a furnace and heat exchanger; baghouse and scrubber; scrubber and stack; etc.).

(7) EMISSION COLLECTION SYSTEM ~~is~~means any equipment installed for the purpose of directing, taking in, confining, and conveying an air contaminant, and which at minimum conforms to design and operation specifications given in the most current edition of *Industrial Ventilation, Guidelines and Recommended Practices,* published by the American Conference of Government and Industrial Hygienists, at the time a complete permit application is on file with the District.

(8) FUGITIVE LEAD-DUST means any solid particulate matter containing lead that is in contact with ambient air and has the potential to become airborne.

(9) FURNACE AND REFINING/CASTING AREA means any area of a large lead-acid battery recycling facility in which:

(a) Smelting furnaces or agglomerating furnaces are located; or

(b) Refining operations occur; or

(c) Casting operations occur.

(10) LEAD-ACID BATTERY RECYCLING FACILITY ~~is~~means any facility, operation, or process in which lead-acid batteries are disassembled and recycled into elemental lead or lead alloys through smelting.

(11) LEAD means elemental lead, alloys containing elemental lead, or lead compounds, calculated as elemental lead.

(12) LEAD CONTROL DEVICE means any equipment installed in the ventilation system of a lead point source or emission collection system for the purposes of collecting and containing lead emissions.

(13) LEAD POINT SOURCE means any process, equipment, or total enclosure used in the lead-acid battery recycling operation, including, but not limited to, agglomerating furnaces, dryers, and smelting furnaces, that pass through a stack or vent designed to direct or control its exhaust flow prior to release to the atmosphere.

(14) LEEWARD WALL means the furthest exterior wall of a total enclosure that is opposite the windward wall.

(15) MAINTENANCE ACTIVITY means any of the following activities conducted outside of a total enclosure that generates fugitive lead-dust:

(a) building construction, renovation, or demolition;

(b) replacement or repair of refractory, filter bags, or any internal or external part of equipment used to process, handle, or control lead-containing materials;

(c) replacement of any duct section used to convey lead-containing exhaust;

(d) metal cutting or welding that penetrates the metal structure of any equipment, and its associated components, used to process lead-containing material, such that lead dust within the internal structure or its components can become fugitive lead-dust; or

(e) resurfacing, repair, or removal of ground, pavement, concrete, or asphalt.

(16) MATERIALS STORAGE AND HANDLING AREA means any area of a large lead-acid battery recycling facility in which lead-containing materials including, but not limited to, broken battery components, reverberatory furnace slag, flue dust, and dross, are stored or handled between process steps. Areas may include, but are not limited to, locations in which materials are stored in piles, bins, or tubs, and areas in which material is prepared for charging to a smelting furnace.

(17) MEASURABLE PRECIPITATION means any on-site measured rain amount of greater than 0.01 inches in any complete 24-hour calendar day (i.e., midnight to midnight).

(18) PARTIAL ENCLOSURE for purposes of this rule ~~is~~means a structure comprised of walls or partitions on at least three sides or three-quarters of the perimeter that surrounds areas where maintenance activity is conducted, in order to prevent the generation of fugitive lead-dust.

(19) PROCESS means using lead or lead-containing materials in any operation including, but not limited to, the charging of lead-containing materials to smelting furnaces, lead refining and casting operations, and lead-acid battery breaking.

(20) RENOVATION for purposes of this rule ~~is~~means the altering of a building or permanent structure, or the removal of one or more of its components that generates fugitive lead-dust emissions.

(21) SENSITIVE RECEPTOR means any residence including private homes, condominiums, apartments, and living quarters; education resources such as preschools and kindergarten through grade twelve (k-12) schools;

daycare centers; and health care facilities such as hospitals or retirement and nursing homes. A sensitive receptor includes long term care hospitals, hospices, prisons, and dormitories or similar live-in housing.

(22) SLAG means the inorganic material by-product discharged, in molten state, from a lead smelting furnace that has a lower specific gravity than lead metal and contains lead compounds. This shall include, but not limited to, lead sulfate, lead sulfide, lead oxides, and lead carbonate consisting of other constituents charged to a smelting furnace which are fused together during the pyrometallurgical process.

(23) SMELTING means the chemical reduction of lead compounds to elemental lead or lead alloys through processing in high temperatures greater than 980° C.

(24) SMELTING FURNACE means any furnace where smelting takes place including, but not limited to, blast furnaces, reverberatory furnaces, rotary furnaces, and electric furnaces.

(25) TOTAL ENCLOSURE means a permanent containment building/structure, completely enclosed with a floor, walls, and a roof to prevent exposure to the elements, (e.g., precipitation, wind, run-on), with limited openings to allow access and egress for people and vehicles, that is free of cracks, gaps, corrosion, or other deterioration that could cause or result in fugitive lead-dust.

(26) WINDWARD WALL means the exterior wall of a total enclosure which is most impacted by the wind in its most prevailing direction determined by a wind rose using data required under paragraph (j)(5) of this rule, or other data approved by the Executive Officer.

(d) General Requirements

The owner or operator of a large lead-acid battery recycling facility shall be subject to the following requirements:

(1) Prior to January 1, 2012, emissions shall not be discharged into the atmosphere which contribute to ambient air concentrations of lead that exceed 1.5 micrograms per cubic meter ($\mu g/m^3$) pursuant to District Rule 1420.

(2) On and after January 1, 2012, emissions shall not be discharged into the atmosphere which contribute to ambient air concentrations of lead that exceed 0.15 $\mu g/m^3$ averaged over any 30 consecutive days. The ambient

air concentrations of lead shall be determined by monitors pursuant to subdivision (j) or at any District-installed monitor.

(3) No later than July 1, 2011, install, maintain, and operate total enclosures pursuant to subdivision (e) and lead point source emission control devices pursuant to subdivision (f). The owner or operator of a large lead-acid battery recycling facility shall comply with both subparagraphs (d)(3)(A) and (d)(3)(B):

(A) Submit complete permit applications for all construction and necessary equipment within 30 days of [*Date of Adoption*].

(B) Complete all construction within 180 days of receiving Permit to Construct approvals from the Executive Officer, or by July 1, 2011, whichever is earlier.

(C) The Executive Officer may approve a request for an extension of the compliance deadline date if the facility can demonstrate that it timely filed all complete permit applications and is unable to meet the deadline due to reasons beyond the facility's control. The request shall be submitted to the Executive Officer no less than 30 days before the compliance deadline date.

(4) On and after July 1, 2011 submit a Compliance Plan pursuant to subdivision (g) if emissions are discharged into the atmosphere which contribute to ambient air concentrations of lead that exceed 0.12 ($\mu g/m^3$) averaged over any 30 consecutive days determined by monitors pursuant to subdivision (j) or at any District-installed monitor.

(e) Total Enclosures

(1) Enclosure Areas

The owner or operator of a large lead-acid battery recycling facility shall enclose within a total enclosure the following areas in groups or individually:

(A) Battery breaking areas;

(B) Materials storage and handling areas, excluding areas where unbroken lead-acid batteries and finished lead products are stored;

(C) Dryer and dryer areas including transition pieces, charging hoppers, chutes, and skip hoists conveying any lead-containing material;

(D) Smelting furnaces and smelting furnace areas charging any lead-

containing material;

(E) Agglomerating furnaces and agglomerating furnace areas charging any lead-containing material; and

(F) Refining and casting areas.

(2) Total Enclosure Lead Emissions Control

The owner or operator of a large lead-acid battery recycling facility shall vent each total enclosure to an emission collection system that ducts the entire gas stream to a lead control device pursuant to subdivision (f).

(3) Total Enclosure Ventilation

Ventilation of the total enclosure at any opening including, but not limited to, vents, windows, passages, doorways, bay doors, and roll-ups shall continuously be maintained at a negative pressure of at least 0.02 mm of Hg (0.011 inches H_2O) measured pursuant to paragraph (e)(4).

(4) Digital Differential Pressure Monitoring Systems

The owner or operator of a large lead-acid battery recycling facility shall install, operate, and maintain a digital differential pressure monitoring system for each total enclosure as follows:

(A) A minimum of one building digital differential pressure monitoring system shall be installed and maintained at each of the following three walls in each total enclosure having a total ground surface area of 10,000 square feet or more:

(i) The leeward wall;

(ii) The windward wall ; and

(iii) An exterior wall that connects the leeward and windward wall at a location defined by the intersection of a perpendicular line between a point on the connecting wall and a point on its furthest opposite exterior wall, and intersecting within plus or minus ten ($\pm$10) meters of the midpoint of a straight line between the two other monitors specified in clauses (e)(4)(A)(i) and (e)(4)(A)(ii). The midpoint monitor shall not be located on the same wall as either of the other two monitors described in clauses (e)(4)(A)(i) or (e)(4)(A)(ii).

(B) A minimum of one building digital differential pressure monitoring system shall be installed and maintained at the leeward wall of each total enclosure that has a total ground surface area of

less than 10,000 square feet.

(C) Digital differential pressure monitoring systems shall be certified by the manufacturer to be capable of measuring and displaying negative pressure in the range of 0.01 to 0.2 mm Hg (0.005 to 0.11 inches H_2O) with a minimum accuracy of plus or minus 0.001 mm Hg (0.0005 inches H_2O).

(D) Digital differential pressure monitoring systems shall be equipped with a continuous strip chart recorder or electronic recorder approved by the Executive Officer. If an electronic recorder is used, the recorder shall be capable of writing data on a medium that is secure and tamper-proof. The recorded data shall be readily accessible upon request by the Executive Officer. If software is required to access the recorded data that is not readily available to the Executive Officer, a copy of the software, and all subsequent revisions, shall be provided to the Executive Officer at no cost. If a device is required to retrieve and provide a copy of such recorded data, the device shall be maintained and operated at the facility.

(E) Digital differential pressure monitoring systems shall be calibrated in accordance with manufacturer's specifications at least once every 12 calendar months or more frequently if recommended by the manufacturer.

(F) Digital differential pressure monitoring systems shall be equipped with a backup, uninterruptible power supply to ensure continuous operation of the monitoring system during a power outage.

(5) In-draft Velocity

The in-draft velocity of the total enclosure shall be maintained at $\geq$ 300 feet per minute at any opening including, but not limited to, vents, windows, passages, doorways, bay doors, and roll-ups. In-draft velocities for each total enclosure shall be determined by placing an anemometer, or an equivalent device approved by the Executive Officer, at the center of the plane of any opening of the total enclosure.

(f) Lead Point Source Emissions Controls

(1) The owner or operator of a large lead-acid battery recycling facility shall vent emissions from each lead point source to a lead control device that

meets the requirements of this subdivision and is approved by the Executive Officer.

(2) The total facility mass lead emissions from all lead point sources shall not exceed 0.045 pounds of lead per hour. The maximum emission rate for any single lead point source shall not exceed 0.010 pounds of lead per hour. The total facility and maximum emission rates shall be ~~based on~~determined using the most recent source tests conducted by the facility or the District~~pursuant to subdivision (k)~~.

(3) The owner or operator of a large lead-acid battery recycling facility shall install a secondary lead control device that controls lead emissions from the exhaust of the primary lead control device used for a dryer. ~~If t~~The secondary lead control device shall be~~is~~ fitted with dry filter media, and the secondary lead control device shall only be used to vent the primary lead control device used for the dryer. An alternative secondary lead control method that is equally or more effective for the control of lead emissions may be used if a complete application is submitted as part of the permit application required under paragraph (d)(3) and approved by the Executive Officer.

(4) For any lead control device that uses ~~HEPA and/or cartridge type~~ filter media other than a filter bag(s), including, but not limited to, HEPA and cartridge-type filters, the filter(s) used shall be rated by the manufacturer to achieve a minimum of 99.97% capture efficiency for 0.3 micron particles.

(5) For any lead control device that uses a filter bag(s), the filter bag(s) used shall be polytetrafluoroethylene membrane-type, or any other material that is equally or more effective for the control of lead emissions, and approved for use by the Executive Officer.

(6) Each emission collection system and lead control device shall, at minimum, be inspected, maintained, and operated in accordance with the manufacturer's specifications.

(g) Compliance Plan

On and after July 1, 2011 ~~T~~the owner or operator of a large lead-acid battery recycling facility shall submit a Compliance Plan ~~that~~if emissions are discharged~~s~~ into the atmosphere ~~emissions~~ which contribute to ambient air ~~lead~~ concentrations of lead that exceed 0.12 $\mu g/m^3$ averaged over any 30 consecutive

days ~~measured at any~~ determined by monitors pursuant to subdivision (j) or at any District-installed monitor shall:

(1) Notify the Executive Officer in writing within 72 hours of when the facility knew or should have known of exceeding an ambient air lead concentration of 0.12 µg/m^3 averaged over any 30 consecutive days. Notification shall only be required for the first time the ambient air lead concentration of 0.12 µg/m^3 is exceeded;

(2) Submit, within 30 calendar days of exceeding an ambient air lead concentration of 0.12 µg/m^3 averaged over any 30 consecutive days, a complete Compliance Plan to the Executive Officer for review and approval, subject to plan fees as specified in Rule 306. The Compliance Plan shall, at a minimum, include the following:

(A) A description of additional lead emission reduction measures to achieve the ambient lead concentration of 0.15 µg/m^3 averaged over any 30 consecutive days, as required under paragraph (d)(2). including, but not limited to, requirements for the following:

(i) Housekeeping, inspection, and maintenance activities;

(ii) Additional total enclosures;

(iii) Modifications to lead control devices;

(iv) Installation of multi-stage lead control devices;

(v) Process changes including reduced throughput limits; and

(vi) Conditional curtailments including, at a minimum, information specifying the curtailed processes, process amounts, and length of curtailment.

(B) The locations within the facility and method(s) of implementation for each lead reduction measure of subparagraph (g)(2)(A); and

(C) An implementation schedule for each lead emission reduction measure of subparagraph (g)(2)(A) to be implemented if lead emissions discharged from the facility contribute to ambient air concentrations of lead that exceed 0.15 µg/m^3 averaged over any 30 consecutive days measured at any monitor pursuant to subdivision (j) or at any District-installed monitor. The schedule shall also include a list of the lead reduction measures of subparagraph (g)(2)(A) that can be implemented immediately prior to plan approval.

(3) The Executive Officer shall notify the owner or operator in writing

whether the Compliance Plan is approved or disapproved. Determination of approval status shall be based on, at a minimum, submittal of information that satisfies the criteria set forth in paragraph (g)(2). If the Compliance Plan is disapproved, the owner or operator shall resubmit the Compliance Plan, subject to plan fees specified in Rule 306, within 30 calendar days after notification of disapproval of the Compliance Plan. The resubmitted Compliance Plan shall include any information necessary to address deficiencies identified in the disapproval letter. If the resubmitted Compliance Plan is denied, the operator or owner may appeal the denial by the Executive Officer to the Hearing Board under Rule 216 – Appeals and Rule 221 - Plans.

(4) The owner or operator shall implement measures based on the schedule in the approved Compliance Plan if lead emissions discharged from the facility contribute to ambient air concentrations of lead to exceed 0.15 $\mu g/m^3$ averaged over any 30 consecutive days measured at any monitor pursuant to subdivision (j) or at any District-installed monitor.

(5) The owner or operator may make a request to the Executive Officer to modify or update an approved Compliance Plan.

(h) Housekeeping Requirements

No later than 30 days after [*Date of Adoption*], the owner or operator of a large lead-acid battery recycling facility shall control fugitive lead-dust by conducting all of the following housekeeping practices:

(1) Clean by wet wash or a vacuum equipped with a filter(s) rated by the manufacturer to achieve a 99.97% capture efficiency for 0.3 micron particles in a manner that does not generate fugitive lead-dust, the following areas at the specified frequencies, unless located within a total enclosure vented to a lead control device. Days of measurable precipitation in the following areas occurring within the timeframe of a required cleaning frequency may be counted as a cleaning:

(A) Monthly cleanings of roof tops on structures $\leq$ 45 feet in height that house areas associated with the storage, handling or processing of lead-containing materials; and

(B) Quarterly cleanings, no more than 3 calendar months apart, of roof tops on structures > 45 feet in height that house areas associated with the storage, handling or processing of lead-containing

materials; and

(C) Weekly cleanings of all areas where lead-containing wastes generated from housekeeping activities are stored, disposed of, recovered or recycled.

(D) Initiate immediate cleaning, no later than one hour, after any maintenance activity or event including, but not limited to, accidents, process upsets, or equipment malfunction, that causes deposition of fugitive lead-dust onto areas specified in subparagraph (h)(1)(A) through (h)(1)(C). Immediate cleanings of roof tops shall be completed within 72 hours if the facility can demonstrate that delays were due to safety or timing issues associated with obtaining equipment required to implement this requirement.

(2) Inspect all total enclosures and facility structures that house, contain or control any lead point source or fugitive lead-dust emissions at least once a month. Any gaps, breaks, separations, leak points or other possible routes for emissions of lead or fugitive lead-dust to ambient air shall be permanently repaired within 72 hours of discovery. The Executive Officer may approve a request for an extension beyond the 72-hour limit if the request is submitted before the limit is exceeded.

(3) Upon receipt, any lead-acid battery that is cracked or leaking shall be immediately sent to the battery breaking area for processing or stored pursuant to paragraph (h)(6).

(4) Pave, concrete, asphalt, or otherwise encapsulate all facility grounds as approved by the Executive Officer. Facility grounds used for plant life that are less than a total surface area of 100 square feet shall not be subject to encapsulation. Facility grounds requiring removal of existing pavement, concrete, asphalt or other forms of encapsulation, necessary for maintenance purposes shall not require encapsulation while undergoing work, and shall be re-encapsulated immediately after all required work is completed. All work shall be conducted in accordance with subdivision (i).

(5) Remove any weather cap installed on any stack that is a source of lead emissions.

(6) Store all materials capable of generating any amount of fugitive lead-dust including, but not limited to, slag and any other lead-containing waste

generated from housekeeping requirements of subdivision (h) and maintenance activities of subdivision (i), in sealed, leak-proof containers, unless located within a total enclosure.

(7) Transport all materials capable of generating any amount of fugitive lead-dust including, but not limited to, slag and any other waste generated from housekeeping requirements of subdivision (h), within closed conveyor systems or in sealed, leak-proof containers, unless located within a total enclosure.

(8) Initiate ~~R~~removal~~e~~ of any lead-containing material, including sludge, from the entire surface area of any surface impoundment pond or reservoir holding storm water runoff or spent water from housekeeping activities within 1~~2~~24 hour~~s~~ after the water level is ≤ 1 inch at any point above the bottom of the pond or reservoir. Thereafter, surfaces shall be washed down weekly in a manner that does not generate fugitive lead-dust until the pond or reservoir is used again for holding water.

(9) Maintain and Use an Onsite Mobile Vacuum Sweeper or Vacuum

The owner or operator of a large lead-acid battery recycling facility shall maintain an onsite mobile vacuum sweeper that is in compliance with District Rule 1186, or a vacuum equipped with a filter(s) rated by the manufacturer to achieve a 99.97% capture efficiency for 0.3 micron particles to conduct the following sweeping activities:

(A) Vacuum sweep all paved, concreted or asphalted facility areas subject to vehicular or foot traffic three times per day and occurring at least once per operating shift with each event not less than four hours apart, unless located within a total enclosure vented to a lead control device.

(B) Immediately vacuum sweep any area specified in subparagraph (h)(9)(A), no later than one hour after any maintenance activity or event including accidents, process upsets, or equipment malfunction that results in the deposition of fugitive lead-dust.

(C) Vacuum sweeping activities specified in paragraph (h)(9) shall not be required during days of measurable precipitation.

(i) Maintenance Activity

(1) Beginning [*Date of Adoption*], the owner or operator of a large lead-acid battery recycling facility shall conduct any maintenance activity in a

negative air containment enclosure, vented to a permitted negative air machine equipped with a filter(s) rated by the manufacturer to achieve a 99.97% capture efficiency for 0.3 micron particles, that encloses all affected areas where fugitive lead-dust generation potential exists, unless located within a total enclosure or approved by the Executive Officer. Any maintenance activity that cannot be conducted in a negative air containment enclosure due to physical constraints, limited accessibility, or safety issues when constructing or operating the enclosure shall be conducted:

(A) In a partial enclosure, barring conditions posing physical constraints, limited accessibility, or safety issues;

(B) Using wet suppression or a vacuum equipped with a filter(s) rated by the manufacturer to achieve a 99.97% capture efficiency for 0.3 micron particles, at locations where the potential to generate fugitive lead-dust exists prior to conducting and upon completion of the maintenance activity. Wet suppression or vacuuming shall also be conducted during the maintenance activity barring safety issues;

(C) While collecting 24-hour samples~~In conjunction with sample collections~~ at monitors ~~pursuant to subdivision (j)~~ for every day that maintenance activity is occurring notwithstanding paragraph (j)(2); and

(D) Shall be stopped immediately when instantaneous wind speeds are ≥ 25 mph. Maintenance work may be continued if it is necessary to prevent the release of lead emissions.

(2) Store or ~~C~~clean by wet wash or a vacuum equipped with a filter(s) rated by the manufacturer to achieve a 99.97% capture efficiency for 0.3 micron particles, all lead-contaminated equipment and materials used for any maintenance activity immediately after completion of work in a manner that does not generate fugitive lead-dust.

(j) Ambient Air Monitoring and Sampling Requirements

Prior to January 1, 2011, ambient air monitoring and sampling shall be conducted pursuant to District Rule 1420. No later than January 1, 2011, the owner or operator of a large lead-acid battery recycling facility shall conduct ambient air monitoring and sampling as follows:

(1) Collect samples from a minimum of four sampling sites. Locations for sampling sites shall be approved by the Executive Officer.

(A) Locations for sampling sites shall be based on maximum expected ground level lead concentrations, at or beyond the property line, as determined by Executive Officer-approved air dispersion modeling calculations and emission estimates from all lead point sources and fugitive lead-dust sources, and other factors including, but not limited to, population exposure and seasonal meteorology.

(B) The Executive Officer may require one or more of the four sampling sites to be at locations that are not based on maximum ground level lead concentrations, and that are instead at locations at or beyond the property line that are representative of upwind or background concentrations.~~Sampling sites at the property line may be located just inside the fence line on facility property if logistical constraints preclude placement outside the fence line at the point of maximum expected ground level lead concentrations.~~

(C) Sampling sites at the property line may be located just inside the fence line on facility property if logistical constraints preclude placement outside the fence line at the point of maximum expected ground level lead concentrations.~~The Executive Officer may require one or more of the four sampling sites to be at locations that are not based on maximum ground level lead concentrations, and that are instead at locations representative of upwind or background concentrations.~~

(2) Collect 24-hour, midnight-to-midnight, samples at all sites for 30 consecutive days from the date of initial sampling, followed by one 24-hour, midnight-to-midnight, sample collected at least once every three calendar days, on a schedule approved by the Executive Officer.

(3) Submit samples collected pursuant to paragraphs (j)(1) and (j)(2) to a laboratory approved under the SCAQMD Laboratory Approval Program for analysis within three calendar days of collection and calculate ambient lead concentrations for individual 24-~~-~~hour samples within 15 calendar days of the end of the calendar month in which the samples were collected. Duplicate samples shall be made available and submitted to the District upon request by the Executive Officer.

(4) Sample collection shall be conducted using Title 40, CFR 50 Appendix B

- *Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*, or U.S. EPA-approved equivalent methods, and sample analysis shall be conducted using Title 40, CFR 50 Appendix G - *Reference Method for the Determination of Lead in Suspended Particulate Matter Collected from Ambient Air*, or U.S. EPA-approved equivalent methods.

(5) Continuously record wind speed and direction data at all times using equipment approved by the Executive Officer at a minimum of one location and placement approved by the Executive Officer.

(6) Ambient air quality monitoring shall be conducted by persons approved by the Executive Officer and sampling equipment shall be operated and maintained in accordance with U.S. EPA-referenced methods.

(7) All ambient air quality monitoring systems required by this subdivision shall be equipped with a backup, uninterruptible power supply to ensure continuous operation of the monitoring system during a power outage.

(8) Cleaning activities including, but not limited to, wet washing and misting, that result in damage or biases to samples collected shall not be conducted within 10 meters of any sampling site required under this subdivision.

(9) On and after January 1, 2012, if the owner or operator of a large lead-acid battery recycling facility exceeds an ambient air lead concentration 0.15 $\mu g/m^3$ measured pursuant to paragraph (d)(2), the owner or operator shall:

(A) Begin daily ambient air monitoring and sampling no later than three calendar days of the time the facility knew or should have known of the exceedance. Conduct daily ambient air monitoring and sampling for sixty (60) consecutive days at each sampling site that measured an exceedance with paragraph (d)(2).

(B) The 60 consecutive-day period shall be restarted for any subsequent exceedance.

(k) Source Tests

(1) The owner or operator of a large lead-acid battery recycling facility shall conduct a source test of all lead point sources at least annually to demonstrate compliance with the control standards specified in subdivision (f). If the results of the most recent source test for a lead point source demonstrating compliance with the lead emission standard of subdivision (f) ~~indicate~~ demonstrate emissions of 0.0025 pounds of lead

per hour or less, the next test for that lead point source shall be performed no later than 24 months after the date of the most recent test.

(2) The owner or operator of a large lead-acid battery recycling facility with an existing lead control device in operation before [*Date of Adoption*] shall conduct a source test for it no later than January 1, 2011. The owner or operator of a large lead-acid battery recycling facility with a new or modified lead control device with initial start-up on or after [*Date of Adoption*] shall conduct the initial source test for it within 60 calendar days after initial start-up.

(3) Prior to the owner or operator of a large lead-acid battery recycling facility conducting a source test pursuant to paragraph (k)(1) or (k)(2), shall submit a pre-test protocol to the Executive Officer for approval at least 60 calendar days prior to conducting the source test. The pre-test protocol shall include the source test criteria of the end user and all assumptions, required data, and calculated targets for testing the following:

(A) Target lead control standard;

(B) Preliminary lead analytical data;

(C) Planned sampling parameters; and

(D) Information on equipment, logistics, personnel, and other resources necessary for an efficient and coordinated test.

(4) The owner or operator of a large lead-acid battery recycling facility shall notify the Executive Officer in writing one week prior to conducting any source test required by paragraph (k)(1) or (k)(2).

(5) The owner or operator of a large lead-acid battery recycling facility shall notify the Executive Officer within ~~72 hours~~three business days, including Mondays, of when the facility knew or should have known of any source test result that exceeds any of the emission standards specified in paragraph (f)(2). Notifications shall be made to 1-800-CUT-SMOG.

(6) Source tests shall be conducted while operating at a minimum of 80% of equipment maximum capacity and in accordance with any of the following applicable test methods:

(A) SCAQMD Method 12.1 - *Determination of Inorganic Lead Emissions from Stationary Sources Using a Wet Impingement Train*

(B) ARB Method 12 – *Determination of Inorganic Lead Emissions*

from Stationary Sources

(C) EPA Method 12 – *Determination of Inorganic Lead Emissions from Stationary Sources*

(D) ARB Method 436 – *Determination of Multiple Metal Emissions from Stationary Sources*

(7) The average of triplicate samples, obtained according to approved test methods specified in paragraph (k)(6), shall be used to determine compliance.

(8) The operator may use alternative or equivalent source test methods as defined in U.S. EPA 40 CFR 60.2, approved in writing by the Executive Officer, the Air Resources Board, and the U.S. EPA.

(9) The operator shall use a test laboratory approved under the SCAQMD Laboratory Approval Program for the source test methods cited in this subdivision. If there is no approved laboratory, then approval of the testing procedures used by the laboratory shall be granted by the Executive Officer on a case-by-case basis based on SCAQMD protocols and procedures.

(10) When more than one source test method or set of source test methods are specified for any testing, the application of these source test methods to a specific set of test conditions is subject to approval by the Executive Officer. In addition, a violation established by any one of the specified source test methods or set of source test methods shall constitute a violation of the rule.

(11) An existing source test conducted on or after January 1, 2009 for lead control devices existing before [*Date of Adoption*] may be used as the initial source test specified in paragraph (k)(1) to demonstrate compliance with the control standard of subdivision (f) upon Executive Officer approval. The source test shall meet, at a minimum, the following criteria:

(A) The test is the most recent conducted since January 1, 2009;

(B) The test demonstrated compliance with the control standard of subdivision (f); and

(C) The test is representative of the method to control emissions currently in use; and

(D) The test was conducted using applicable and approved test methods specified in paragraphs (k)(6), (k)(8), or (k)(9).

(l) New Facilities

The owner or operator of a large lead-acid battery recycling facility beginning construction or operations on or after [*Date of Adoption*] shall:

(1) Demonstrate to the satisfaction of the Executive Officer that the facility is not located in an area that is zoned for residential or mixed use; and

(2) Demonstrate to the satisfaction of the Executive Officer that the facility is not located within 1,000 feet from the property line of a sensitive receptor, a school under construction, park, or any area that is zoned for residential or mixed use. The distance shall be measured from the property line of the new facility to the property line of the sensitive receptor.

(3) Submit complete permit applications for all equipment required by this rule prior to beginning construction or operations, and otherwise on or before the time required by District rules.

(m) Recordkeeping

(1) The owner or operator of a large lead-acid battery recycling facility shall keep records of the following:

(A) Daily records indicating amounts of lead-containing material processed, including, but not limited to, purchase records, usage records, results of analysis, or other District-approved verification to indicate processing amounts;

(B) Results of all ambient air lead monitoring, meteorological monitoring, and other data specified by subdivision (j); and

(C) Records of housekeeping activities completed as required by subdivision (h), maintenance activities of subdivision (i), and lead control device inspection and maintenance requirements of paragraph (f)(6), including the name of the person performing the activity, and the dates and times on which specific activities were completed.

(D) Records of unplanned shutdowns of any smelting furnace including the date and time of the shutdown, description of the corrective measures taken, and the re-start date and time.

(2) The owner or operator of a large lead-acid battery recycling facility shall maintain all records for five years, at least two years onsite.

(n) Reporting

(1) Ambient Air Monitoring Reports

(A) Beginning no later than January 1, 2011, the owner or operator of a large lead-acid battery recycling facility shall report by the 15th of each month to the Executive Officer, the results of all ambient air lead and wind monitoring for each preceding month, or more frequently if determined necessary by the Executive Officer. The report shall include the results of individual 24-hour samples and 30-day averages for each day within the reporting period.

(B) Any exceedances of ambient air lead concentrations specified in paragraph (d)(2) shall be reported with a notification made to the 1-800-CUT-SMOG within 24 hours of receipt of the completed sample analysis required in paragraph (j)(3), followed by a written report to the Executive Officer no later than three calendar days after the notification. The written report shall include the causes of the exceedance and the specific corrective actions implemented.

(2) Shutdown, Turnaround, and Maintenance Activity Notification

The owner or operator of a large lead-acid battery recycling facility shall:

(A) Notify the Executive Officer and the public within one hour after an unplanned shutdown of any lead control device has occurred. The notification shall include the associated processes or equipment vented by the shutdown lead control device. If the unplanned shutdown involves a breakdown pursuant to Rule 430, the breakdown notification report required by Rule 430 shall serve in lieu of this notification to the Executive Officer.

(B) Notify the Executive Officer and the public at least ten calendar days prior to a planned turnaround or shutdown of any smelting furnace, battery breaker, or lead control device that result in lead emissions. The notification shall specify the subject equipment and the start and end date of the turnaround or shutdown period.

(C) Notify the Executive Officer at least ten calendar days prior to the beginning of maintenance activity, as defined in paragraph (c)(15), that is conducted routinely on a monthly or less frequent basis. The notification and report required under subparagraph (n)(2)(E) shall include, at a minimum, the following:

(i) Dates, times, and locations of activities to be conducted;
(ii) Description of activities;
(iii) Name of person(s)/company conducting the activities;
(iv) Lead abatement procedures, including those specified in subdivision (i), to be used to minimize fugitive lead-dust emissions; and
(v) Date of expected re-start of equipment.

(D) Notify the public at least ten calendar days prior to the beginning of building construction, renovation, or demolition, and resurfacing, repair, or removal of ground pavement, concrete or asphalt if such activities are conducted outside of a total enclosure and generate fugitive lead-dust. The notification shall include, at a minimum, the following:
(i) Dates, times, and locations of activities to be conducted;
(ii) Description of activities;
(iii) Date of expected re-start of equipment.

(E) Provide the notification to the Executive Officer required under subparagraphs (n)(2)(A), (n)(2)(B), and (n)(2)(C) to 1-800-CUT-SMOG followed by a written notification report to the Executive Officer no later than three business days, including Mondays, after the unplanned shutdown occurred.

(F) Provide notification to the public required under subparagraphs (n)(2)(A), (n)(2)(B), and (n)(2)(D) through a facility contact or pre-recorded notification center that is accessible 24 hours a day, 7 days a week, and through electronic mail using a list of recipients provided by the Executive Officer. Another method of notification to the public may be used provided it is approved by the Executive Officer.

(G) Install a sign indicating the phone number for the facility contact or pre-recorded notification center that meets the following requirements, unless otherwise approved in writing by the Executive Officer:
(i) Installed within 50 feet of the main entrance of the facility and in a location that is visible to the public;
(ii) Measures at least 48 inches wide by 48 inches tall;
(iii) Displays lettering at least 4 inches tall with text contrasting

with the sign background; and

(iv) Located between 6 and 8 feet above grade from the bottom of the sign.

(3) Initial Facility Status Report

(A) Initial Facility Status Report Due Date

The owner or operator of a large lead-acid battery recycling facility existing before [*Date of Adoption*] shall submit an initial facility status report to the Executive Officer no later than January 1, 2011. Large lead-acid battery recycling facilities beginning construction or initial operations after [*Date of Adoption*] shall submit the initial compliance status report upon start-up.

(B) The initial facility status report shall contain the information identified in Appendix 1.

(4) Ongoing Facility Status Report

The owner or operator of a large lead-acid battery recycling facility shall submit a summary report to the Executive Officer to document the ongoing facility status.

(A) Frequency of Ongoing Facility Status Reports

The report shall be submitted annually on or before February 1 for all sources and shall include information covering the preceding calendar year.

(B) The content of ongoing facility status reports shall contain the information identified in Appendix 2.

(5) Adjustments to the Timeline for Submittal and Format of Reports

The Executive Officer may adjust the timeline for submittal of periodic reports, allow consolidation of multiple reports into a single report, establish a common schedule for submittal of reports, or accept reports prepared to comply with other state or local requirements. Adjustments shall provide the same information and shall not alter the overall frequency of reporting.

Appendix 1 – Content of Initial Facility Status Reports

Initial compliance status reports shall contain, at a minimum, the following information:

1. Facility name, District Facility ID number, facility address, owner/operator name, and telephone number.
2. The distance from the property line of the facility to the property line of the nearest commercial/industrial building and sensitive receptor.
3. Worker and sensitive receptor locations, if they are located within one-quarter mile from the center of the facility.
4. Building parameters
    - Stack heights in feet (point sources); or
    - Building area in square feet (volume sources).
5. A description of the types of lead processes performed at the facility.
6. The following information shall be provided for each of the last five calendar years prior to the [*Date of Adoption*]:
    - Annual amount of lead-containing material processed;
    - The maximum and average daily and monthly operating schedules;
    - The maximum and average daily and monthly lead-processing rates for all equipment and processes;
    - The maximum and average daily and annual emissions of lead from all emission points and fugitive lead-dust sources.
7. The approximate date of intended source tests for all lead control devices, as required by subdivision (k) of this rule.
8. Engineering drawings, calculations or other methodology to demonstrate compliance with paragraphs (d)(1) through (d)(3) and (k).
9. Air dispersion modeling calculations using procedures approved by the Executive Officer to determine the location of sampling sites as required by subdivision (j).
10. All information necessary to demonstrate means of compliance with subdivision (j).
11. The name, title, and signature of the responsible official certifying the accuracy of the report, attesting to whether the source has complied with the provisions of this rule.
12. The date of the report.

Appendix 2 – Content of Ongoing Facility Status Reports

Ongoing facility status reports shall, at a minimum, contain the following information:

1. Facility name, District Facility ID number, facility address, owner/operator name, and telephone number.
2. The beginning and ending dates of the calendar year for the reporting period.
3. The following information shall be provided for each of the last 12 calendar months of the reporting period:
    - Annual amounts of lead-containing material processed;
    - The maximum and average daily and monthly lead-processing rates for all equipment and processes;
    - The maximum and average daily and annual emissions of lead from all emission points and fugitive lead-dust sources.
4. Worker and sensitive receptor distances, if they are located within ¼ of mile from the center of the facility and facility maximum operating schedule, if changed since submittal of the initial compliance status report or prior year's ongoing compliance status and emission reports.
5. A description of any changes in monitoring, processes, or controls since the last reporting period.
6. The name, title, and signature of the responsible official certifying the accuracy of the report.
7. The date of the report.

ATTACHMENT G

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Staff Report
Proposed Rule 1420.1 – Emissions Standard for Lead from Large Lead-Acid Battery Recycling Facilities

~~October~~November 2010

Deputy Executive Officer
Planning, Rule Development, and Area Sources
Elaine Chang, DrPH

Assistant Deputy Executive Officer
Planning, Rule Development, and Area Sources
Laki Tisopulos, Ph.D., P.E.

Planning and Rules Manager
Planning, Rule Development, and Area Sources
Susan Nakamura

Author:	Eugene Kang - AQ Specialist
Contributors:	Philip Fine – Atmospheric Measurements Manager Ed Pupka – Senior Enforcement Manager Jay Chen – Senior AQ Engineering Manager Rudy Eden – Senior Enforcement Manager Teresa Barrera – Senior Deputy District Counsel Michael Garibay – Supervising Air Quality Engineer David Jones – AQ Analysis & Compliance Supervisor Charlie Tupac – AQ Analysis & Compliance Supervisor Thomas Liebel – Senior AQ Engineer Bob Gottschalk – AQ Specialist Jillian Baker – AQ Specialist Marco Polo – AQ Engineer II Michal Haynes – AQ Inspector III Carmelita Benitez – AQ Inspector II
Reviewed by:	Cheryl Marshall – Program Supervisor William Wong – Principal Deputy District Counsel

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD

Chairman: WILLIAM A. BURKE, Ed.D.
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Cities Representative, Los Angeles County, Eastern Region

BILL CAMPBELL
Supervisor, Third District
County of Orange

JANE W. CARNEY
Senate Rules Committee Appointee

JOSIE GONZALES
Supervisor, Fifth District
San Bernardino County Representative

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Mayor, City of Riverside
Cities Representative, Riverside County

JOSEPH K. LYOU, Ph.D.
Governor's Appointee

JUDY MITCHELL
Councilmember, City of Rolling Hills Estates
Cities Representative, Los Angeles County, Western Region

JAN PERRY
Councilmember, City of Los Angeles
City of Los Angeles

MIGUEL PULIDO
Mayor, City of Santa Ana
Cities Representative, Orange County

EXECUTIVE OFFICER:

BARRY R. WALLERSTEIN, D.Env.

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BACKGROUND

The South Coast Air Quality Management District (AQMD) is responsible for developing and enforcing air pollution control rules and regulations in the South Coast Air Basin (Basin). By state law, the AQMD is required to adopt an Air Quality Management Plan (AQMP) demonstrating compliance with all federal regulations and standards such as National Ambient Air Quality Standards (NAAQS) for the Basin [H&S Code Section 40460 (a)]. On October 15, 2008, the U.S. Environmental Protection Agency (U.S. EPA) amended both the primary and secondary NAAQS for lead from a level of 1.5 $\mu g/m^3$ to 0.15 $\mu g/m^3$ averaged over a rolling 3-month period, along with changes to monitoring and reporting requirements.

The purpose of Proposed Rule 1420.1 (PR 1420.1) is to propose a new rule for large lead-acid battery recycling facilities which are the highest stationary source emitters of lead in the Basin. In addition, PR 1420.1 is designed to address the amended NAAQS for lead to ensure the Basin can achieve the revised standard. Other lead-emitting sources will be addressed in a future amendment to AQMD Rule 1420 – Emission Standards for Lead.

PUBLIC PROCESS

PR 1420.1 was developed through a public process. A PR 1420.1 Working Group was formed to provide an opportunity to discuss the proposed rule in greater detail and provide input to the AQMD staff throughout the rule development process. The working group was comprised of a variety of stakeholders including representatives and consultants from the regulated industry, the DTSC and other agency representatives, environmental and community representatives, and other interested parties. A Public Workshop was also held to present the proposed rule and receive public comment. Throughout the process, comments received have been addressed in the staff report and changes made to the proposed rule where appropriate. Appendix A is a summary of comments from the Public Workshop and written comments received thus far.

LEAD

Lead is a naturally occurring metal found in the earth's crust. The metal is grayish in color and is soft, malleable, and ductile. It is also a limited electrical conductor and highly impervious to corrosion. This unique combination of physical properties has led to its many uses in industries such as construction, piping, roofing, and lead-acid storage battery manufacturing. Due to its value, some business operations are based solely on recovering lead from lead-bearing materials through secondary smelting operations.

Lead is classified as a "criteria pollutant" under the federal Clean Air Act. It is also identified as a carcinogenic toxic air contaminant (TAC) by the Office of Environmental Health Hazard Assessment (OEHHA). Chronic health effects include problems such as nervous and reproductive system disorders, neurological and respiratory damage, cognitive and behavioral changes, and hypertension. Exposure to lead can also potentially increase the risk of contracting cancer or result in other adverse health effects. Young children are especially susceptible to the effects of environmental lead because their bodies accumulate lead more readily than do those of

adults, and because they are more vulnerable to certain biological effects of lead including learning disabilities, behavioral problems, and deficits in IQ.

ATTAINMENT STATUS WITH 2008 NAAQS

The 2008 NAAQS for lead requires that each state install and operate a network of ambient air lead monitors in order to determine attainment status with the standard. Two types of monitors are required; those that are population-based referred to as "non-source-oriented," and those that are facility-based referred to as "source-oriented." The lead attainment assessment conducted by the state of California was based on data from both sets of monitoring networks. Data values from measurements made at non-source-oriented monitors in the Basin were reviewed for years 2007 through 2009 and showed concentrations well below the new lead NAAQS. For source-oriented monitors, the lead-acid battery recycling industry demonstrated exceedances with the new standard in 2005 at monitors for one facility, and all 3-month averages from February 2008 through January 2010 at monitors for another facility. Based on this data, in October 2009 the California Air Resources Board (CARB) recommended to the U.S. EPA that the South Coast portion of Los Angeles County be designated as non-attainment for the 2008 federal lead standard based. Final designation of attainment status by the U.S. EPA is expected by October 15, 2010 and would require the Basin to be in attainment with the new NAAQS no later than five years thereafter. A State Implementation Plan (SIP), outlining the strategy to demonstrate attainment with the lead NAAQS, must also be submitted by the AQMD within 18 months of the final designation date.

AFFECTED INDUSTRY

PR 1420.1 applies to large lead-acid battery recycling facilities. There are currently two facilities within the AQMD that the proposed rule will apply to: Exide Technologies and Quemetco, Inc. Exide and Quemetco are the only large lead-acid battery recyclers in the state of California and in the western United States, with the next nearest large lead-acid battery recycling facility located in Texas. These facilities receive spent (used) lead-acid batteries and other lead-bearing materials and recycle them, recovering the lead. Lead is recycled because of its value and is primarily used to manufacture new batteries.

Over the past several years, both facilities have been the subject of several legal actions resulting from violations of AQMD rules. Violations have led to modifications of facility compliance plans, permit conditions, and in some cases, additional conditions of orders for abatement. Many of the conditions have included additional housekeeping requirements, process changes, and more stringent monitoring. In addition to air quality regulations, the two facilities are subject to other toxics requirements under the California Department of Toxic Substances Control (DTSC).

Even with the recent modifications at both facilities, monitoring data shows that additional requirements are necessary in order to meet the ambient lead standard of 0.15 $\mu g/m^3$. PR 1420.1 incorporates many of the provisions currently being implemented at affected facilities with additional safeguards to help ensure that the Basin will achieve the 2008 federal lead standard.

OVERALL APPROACH FOR PROPOSED RULE 1420.1

During the rule development process, the AQMD staff considered the following three approaches for Proposed Rule 1420.1: (1) Compliance Plan; (2) Core Requirements with No Compliance Plan; and (3) Core Requirements with a "Contingency" Compliance Plan. The three approaches were evaluated with consideration of health effects of lead, potential causes of past exceedances, complaints received, and AQMD staff experience. In addition, the AQMD staff considered whether or not each approach would afford the public an opportunity to participate and provide input. The AQMD staff selected the hybrid approach of Core Requirements with a "Contingency" Compliance Plan as it is more proactive than the other two approaches, provides regulatory certainty for the affected facilities by establishing core requirements in the proposed rule, and the "Contingency" Compliance Plan is designed to minimize and/or eliminate potential delays to implement additional measures if the facility exceeds the ambient lead standard.

PROPOSED RULE 1420.1

PR 1420.1 is designed to address lead emissions from the lead-acid battery recycling industry in order to achieve attainment with the 0.15 $\mu g/m^3$ standard by as early as 2015 based on U.S. EPA timeframes. Currently, emissions of lead from stationary sources, including lead-acid battery recycling facilities, are regulated by AQMD Rule 1420 – Emissions Standard for Lead. Rule 1420 was adopted in August 1992 and controls emissions of lead from stationary sources which use or process lead-containing materials. The rule was adopted to help ensure that facilities would not discharge emissions which would cause ambient air concentrations of lead to exceed the 1978 federal and state ambient air quality standards for lead of 1.5 $\mu g/m^3$. Rule 1420 ensures that the standard is met through requirements for emission control systems, monitoring, and good housekeeping practices.

Although lead-acid battery recycling facilities are subject to Rule 1420, separate and more stringent requirements relating to operations and processes specific to lead-acid battery recycling facilities are necessary to ensure that the new standard is met. PR 1420.1 will require large lead-acid battery recycling facilities to:

- Meet an ambient air lead concentration of 0.15 $\mu g/m^3$ averaged over any 30-day period by January 2012;
- Install total enclosures of all areas used for the processing or storage of lead-containing materials associated with lead-acid battery recycling operations;
- Vent total enclosures and all other lead emission points to control devices capable of meeting a facility total emission rate of 0.045 pounds of lead per hour from all lead point sources, and a maximum emission rate of 0.010 pounds of lead per hour for any individual lead point source;
- Install specifically rated filters/bags for lead control devices;
- Install secondary controls on dryers;
- Submit a Compliance Plan containing additional lead emission reduction measures if ambient air lead concentrations exceed 0.12 $\mu g/m^3$ averaged over any 30-day period on or after July 1, 2011;

- Conduct more stringent housekeeping practices to minimize fugitive lead-dust emissions;
- Conduct annual source testing of all lead point source control devices;
- Conduct ambient air lead monitoring; and
- Conduct recordkeeping and reporting, including public notifications, for specific maintenance activity, turnarounds, and shutdowns.

IMPACT ASSESSMENT

A socioeconomic assessment has been conducted to analyze the costs associated with compliance under PR 1420.1. PR 1420.1 impacted facilities will be required to install additional digital differential pressure monitors for total enclosures. One facility will be required to install secondary lead controls on a dryer. Additional housekeeping practices will also be required. Annual source tests will need to be conducted for all lead point source control devices to meet proposed emission standards. The total annual cost for both facilities to comply with PR 1420.1 is estimated at $0.41 million for the first year, and $0.32 million annually thereafter.

Pursuant to California Environmental Quality Act Guidelines §15252 and AQMD Rule 110, the AQMD has prepared an Environmental Assessment for PR 1420.1. The Draft Environmental Assessment was released for a 30-day public review and comment period beginning April 27, 2010 and ending May 26, 2010. No comments were received.

CHAPTER 1: BACKGROUND

INTRODUCTION

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INTRODUCTION

PR 1420.1 addresses exposure to lead emissions from lead-acid battery recycling facilities. The purpose of the proposed rule is to protect public health and help ensure attainment with the amended lead NAAQS. As required by the federal Clean Air Act, the U.S. EPA periodically reviews the standard to determine if changes are warranted. Based on review of health studies, the U.S. EPA has determined that the standard of 1.5 $\mu g/m^3$ set in 1978 was not sufficient to protect public health and welfare with an adequate margin of safety. The standard has been lowered to 0.15 $\mu g/m^3$ based on studies that demonstrate health effects at much lower levels of lead exposure than previously believed. The new standard provides increased protection for children and other at-risk populations against an array of health effects, most notably neurological effects in children, including neurocognitive and neurobehavioral effects.

The lead-acid battery recycling industry has been determined by AQMD staff to be the highest stationary source emitters of lead in the Basin. Staff's analysis has also shown this industry to be the only known source category that currently demonstrates ambient air lead concentration measurements that cause non-attainment with the new lead NAAQS. PR 1420.1 is in addition to Rule 1420 – Emissions Standard for Lead which addresses lead emissions from any stationary source that uses or processes lead-containing material. Rule 1420 applies to all non-vehicular lead sources and currently implements the existing lead NAAQS. Although Rule 1420 also applies to lead-acid battery recycling facilities, it does not contain specific and adequate control measures for this source category to minimize lead emission exposure such that ambient air lead concentrations will comply with the new lead NAAQS. Other lead-emitting sources in the Basin will be further analyzed and addressed in a future amendment to Rule 1420.

PUBLIC PROCESS

PR 1420.1 was developed through a public process. A PR 1420.1 Working Group was formed to provide an opportunity to discuss the proposed rule in greater detail and provide input to the AQMD staff throughout the rule development process. The working group was comprised of a variety of stakeholders including representatives and consultants for the regulated industry; the DTSC and other agency representatives; environmental and community representatives; and other interested parties who met with AQMD staff to discuss elements of the proposed rule in more detail. The Working Group met three times during the rule development process, on April 22, 2010, May 18, 2010, and August 24, 2010.

In addition, a Public Workshop was held on April 14, 2010 to present the proposed rule and receive public comment. PR 1420.1 progress reports and updates to the AQMD Governing Board's Stationary Source Committee, Environmental Justice Advisory Group, and Local Government and Small Business Assistance Advisory Group provided additional opportunities for public comment. Based on comments received at the Stationary Source Committee from residents and community representatives from the City of Commerce, Boyle Heights, and Maywood, the AQMD staff held a meeting with representatives of East Yard Communities for Environmental Justice to brief them on the proposed rule and receive additional input. The meeting was held at their offices in the City of Commerce which is near one of the lead-acid

battery recycling facilities. Throughout the process, comments received have been addressed in the staff report and changes made to the proposed rule where appropriate. Appendix A is a summary of comments from the Public Workshop and written comments received thus far.

HEALTH EFFECTS OF LEAD

Human exposure to lead occurs in a variety of ways with common routes being that of inhalation and ingestion. Ingestion of lead-containing paint chips and soil with deposited atmospheric lead is a source of concern for exposure for children. The most widely used indicator of lead exposure in many studies is the amount of lead measured in whole blood because of the direct relationship with blood lead (PbB) levels and health effects. Clinical effects resulting from high-level lead exposure include nervous and reproductive system disorders, neurological and physical developmental effects, cognitive and behavioral changes, and hypertension. Young children are especially susceptible to the effects of environmental lead because they are more vulnerable to certain biological effects of lead including learning disabilities, deficits in IQ, and behavioral problems.[1] Health & Safety Code Section 39669.5, "Special Provisions for Infants and Children," required CARB to identify up to five TACs that may cause infants and children to be especially susceptible to illness. The "Prioritization of Toxic Air Contaminants Under the Children's Environmental Health Protection Act" document released in 2001 by the Office of Environmental Health Hazard Assessment (OEHHA) lists lead as one of the original five toxic air contaminants.

Lead is classified as a probable human carcinogen by both the International Agency for Research on Cancer and the U.S. EPA. OEHHA classified lead as a carcinogenic toxic air contaminant and it was added to the AQMD Rule 1401 list of TACs in 1992. AQMD's "Risk Assessment Procedures for Rules 1401 and 212" Tier 1 screening value for lead indicates that a lifetime exposure (70 years for residential and sensitive receptors, 40 years for worker receptors) to 0.628 pounds of lead a year at 25 meters could potentially cause one additional case of cancer out of a one million population.

Under the federal Clean Air Act, lead is classified as a "criteria pollutant." Lead has observed health effects at ambient concentrations. The U.S. EPA has thoroughly reviewed the lead exposure and health effects research, and has prepared substantial documentation in the form of a Criteria Document to support the selection of the 2008 NAAQS for lead. The Criteria Document used for the development of the 2008 NAAQS for lead states that studies and evidence strongly substantiate that PbB concentrations in a range of 5-10 µg/dL, or possibly lower, could likely result in neurocognitive effects in children. The report further states that "there is no level of lead exposure that can yet be identified with confidence, as clearly not being associated with some risk of deleterious health effects." [2]

Based on studies conducted by the Clean Air Scientific Advisory Committee (CASAC), it was concluded that a "population loss of 1-2 IQ points" resulting from exposure to ambient air lead

[1] Environmental Protection Agency, "Lead in Air," (*http://www.epa.gov/air/lead/health.html*), June 12, 2009.

[2] Environmental Protection Agency, Office of Research and Development, "Air Quality Criteria Document for Lead, Volumes I-II," October 2006.

concentrations "is highly significant from a public health perspective." The U.S. EPA has determined that a primary and secondary standard of 0.15 $\mu g/m^3$ is requisite to provide an adequate margin of safety that would ensure the protection of public health and the environment regarding the aforementioned population IQ loss and other health effects from lead exposure. [3]

There have been several health studies conducted in communities around Quemetco, Inc. (Quemetco), located in the City of Industry. In 1994, the Los Angeles County Department of Health Services (DHS) conducted studies on the impact of lead emissions from Quemetco on PbB levels of children living in a nearby community and in 2002, the DHS conducted lead testing for students and community members within one mile of Quemetco. Although the results of the studies revealed that no detectable differences in PbB levels were exhibited in nearby communities when compared to a control community, soil lead levels were found to be higher. It should be noted that the distance between the nearest resident and lead emitting stack at the facility is approximately 700 feet. In 2002, the DHS conducted lead testing for students and community members within one mile of Quemetco. Of 169 children and 75 adults that were tested, one adult exhibited increased PbB levels which were attributed to occupational exposure. The Keck Cancer Surveillance Program of University of Southern California conducted an analysis of 1972-1999 census data and determined that there was no causal link between cancer and residential proximity to Quemetco. Although these studies have not shown significant health impacts due to proximity to a lead-acid battery recycler, increased levels of lead found in soils can potentially cause health problems if ingested.

REGULATORY HISTORY

Lead-acid battery recyclers have been subject to regulation for more than two decades. Below is a chronology of regulatory activity:

- In November 1970, CARB set the state ambient air quality standard for lead at 1.5 $\mu g/m^3$ averaged over 30 days.
- In October 1978, the U.S. EPA adopted the NAAQS for lead requiring attainment with a lead ambient concentration of 1.5 $\mu g/m^3$ averaged over a calendar quarter.
- In September 1992, the AQMD adopted Rule 1420 – Emissions Standard for Lead. The rule incorporated the state ambient air quality standard and required control devices on lead emission points, control efficiency requirements for lead control devices, housekeeping, and monitoring or modeling of ambient air quality.
- In October 1992, OEHHA classified lead as a carcinogenic toxic air contaminant and assigned to it a cancer potency factor and a cancer unit risk factor.
- In January 1993, CARB adopted the Airborne Toxic Control Measure for Emissions of Toxic Metals from Non-Ferrous Metal Melting. The state regulation required control devices for lead and other toxic metal emission points, control efficiency requirements for control devices, fugitive emission control, and recordkeeping.
- In June 1997, the U.S. EPA adopted the National Emissions Standards for Hazardous Air Pollutants (NESHAP) from Secondary Lead Smelting. The federal regulation required

[3] Environmental Protection Agency, "National Ambient Air Quality Standards for Lead; Final Rule," 40 CFR Parts 50, 51, 53, and 58, November 2008.

lead emission concentration limits of lead control devices, control of process fugitive emissions, monitoring, recordkeeping, and reporting.

- On October 15, 2008, the U.S. EPA signed into ~~legislation~~ regulation an amended NAAQS for lead of 0.15 µg/m^3.

The following provides additional background information about Rule 1420 and the 2008 NAAQS for lead.

Rule 1420

Rule 1420 was adopted in September 1992 and has not been amended since its adoption. Rule 1420 applies to facilities that process or use lead-containing materials which includes, but is not limited to, primary or secondary lead smelters, foundries, lead-acid battery manufacturers or recyclers, and lead-oxide, brass and bronze producers. Rule 1420 is based on the current state ambient air quality standard of 1.5 µg/m^3 averaged over a 30-day period. The rule includes requirements for point source controls, monitoring, sampling, recordkeeping, and reporting. Rule 1420 requires facilities that process more than two tons of lead per year to submit a Compliance Plan that provides information on how the facility will conduct monitoring, air dispersion modeling, and implement requirements to install and implement point source controls.

2008 NAAQS for Lead

Since U.S. EPA established the initial standard of 1.5 µg/m^3 in 1978, scientific evidence about lead and health has expanded dramatically. More than 6,000 new studies on lead health effects, environmental effects, and lead in the air have been published since 1990. Evidence from health studies shows that adverse effects occur at much lower levels of lead in the blood than previously thought. As a result, U.S. EPA amended the NAAQS for lead which now reduces the ambient air quality standard from 1.5 µg/m^3 to 0.15 µg/m^3. The 2008 lead NAAQS requires full attainment by each state no later than five years after final designations for attainment status are made. Demonstration of attainment is based on measurements using a rolling 3-month averaging form to be evaluated over a 3-year period. Measurements are to be determined by U.S. EPA-required monitoring networks within each state which consist of both source-oriented and non-source-oriented monitors. The AQMD has already established the required monitoring network for both source and non-source-oriented lead monitors.

ATTAINMENT STATUS WITH 2008 NAAQS

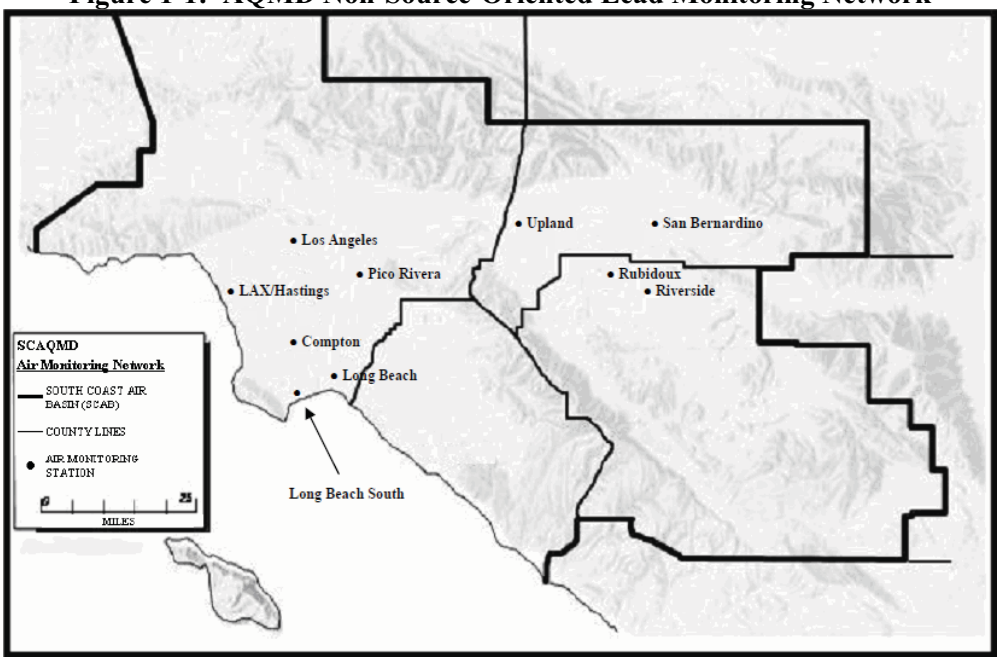
The 2008 NAAQS for lead requires that each state install and operate a network of ambient air lead monitors in order to determine attainment status with the standard. Two types of monitors are required; those that are population-based referred to as "non-source-oriented," and those that are facility-based referred to as "source-oriented." The lead attainment assessment conducted by the state of California was based on data from both sets of monitoring networks. CARB recommended to the U.S. EPA that the South Coast portion of Los Angeles County be designated as non-attainment for the 2008 federal lead standard based on data from the ATSF and Rehrig-Pacific Street monitors for Exide Technologies (Exide) as discussed in more detail below. Final designation of attainment status by the U.S. EPA is expected by October 15, 2010 and would require the Basin to be in attainment with the new NAAQS no later than five years thereafter. A State Implementation Plan (SIP), outlining the strategy to demonstrate attainment

with the lead NAAQS, must also be submitted by the AQMD within 18 months of the final designation date. Details pertaining to the monitors and data used for the assessment are explained below.

Non-Source-Oriented Monitors

The AQMD currently operates a non-source-oriented monitoring network of 10 locations throughout the Basin. The spatial distribution of these sites is shown below in Figure 1-1. The AQMD's current lead monitoring network meets the minimum requirements for the U.S. EPA non-source-oriented monitoring network as specified in the new lead NAAQS, therefore data from the existing monitors were used to provide an indication of lead attainment status on a regional scale. Data values from measurements made at non-source-oriented monitors in the Basin were reviewed for years 2007 through 2009 and showed concentrations well below the new lead NAAQS of 0.15 $\mu g/m^3$ and range from 0.01 $\mu g/m^3$ to 0.03 $\mu g/m^3$.

Figure 1-1: AQMD Non-Source-Oriented Lead Monitoring Network



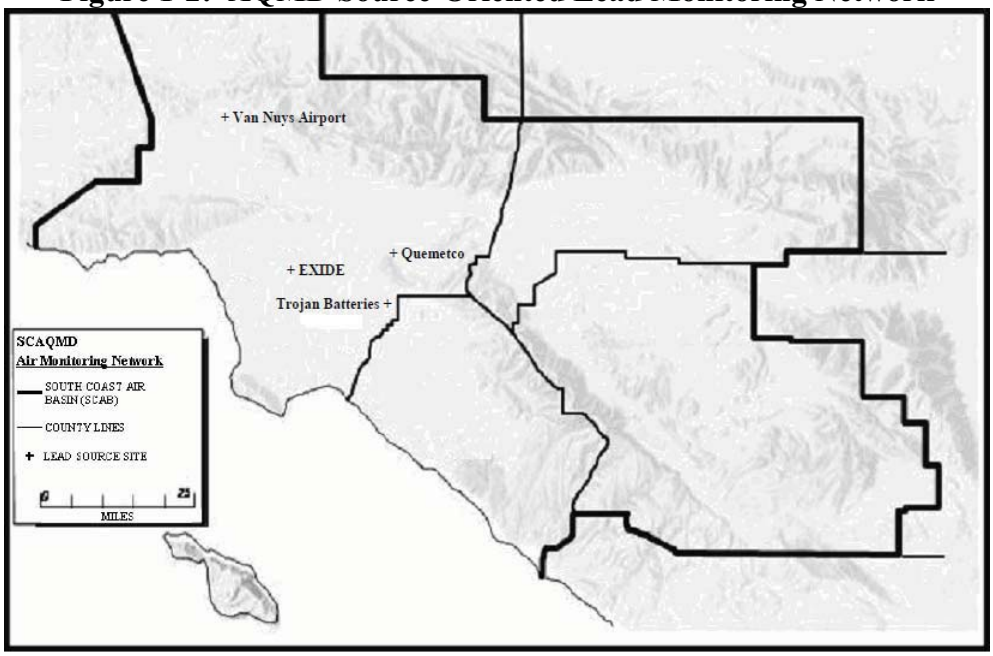
Source-Oriented Monitors

40 CFR Part 58, Appendix D, Paragraph 4.5 requires installation of source-oriented monitors at lead sources that are expected to or have been shown to contribute to violations of the lead NAAQS. The U.S. EPA requires agencies to have, at a minimum, one source-oriented State and Local Air Monitoring Station (SLAMS) site located at each lead source with lead emissions of 1.0 or more tons/year. The monitoring location is to be determined based on the modeled point of maximum impact, taking into consideration population exposure and logistical considerations.

The AQMD currently operates existing source-oriented monitoring networks at the following three facilities: Trojan Battery Company in Santa Fe Springs, Quemetco, Inc. in the City of Industry, and Exide Technologies in Vernon, and one additional network recently installed at Van Nuys Airport to meet the monitoring requirements of the new lead NAAQS. General aviation aircraft use leaded aviation fuel, and have been identified as a source of lead emissions.

Although required to conduct source-oriented monitoring of this source according to U.S. EPA regulations, the AQMD currently does not have jurisdiction for regulating the aviation gas formulation or the aircraft emissions since it is a mobile source. Figure 1-2 below shows the locations of AQMD's current source-oriented monitoring networks and their respective lead sources.

Figure 1-2: AQMD Source-Oriented Lead Monitoring Network



Based on data from AER reporting years 2005 through 2007, lead emissions at Trojan Battery, a battery manufacturer located in Santa Fe Springs, are reported as 0.0145 tons/yr and sampling is conducted at one site. The site operates on a 1-in-6 day sampling schedule and had its highest monthly average of 0.23 $\mu g/m^3$ in May 2007. Since September 2007, all monthly averages have been below the new lead NAAQS with an average concentration of 0.07 $\mu g/m^3$.

At Quemetco, Inc., a lead-acid battery recycling facility located in the City of Industry, lead emissions are reported as 0.32 tons/yr and sampling is currently conducted at one site based on AER data for reporting years 2005 through 2007. Monthly averages last exceeded the concentration of 0.15 $\mu g/m^3$ in 2005 at 0.38 $\mu g/m^3$. In 2006, monthly averages ranged between 0.02 and 0.10 $\mu g/m^3$. Sampling did not take place in 2007 and most of 2008 due to loss of access to the AQMD sampling location. Monitoring resumed in October 2008 with monthly measurements through January 2010 below 0.15 $\mu g/m^3$ and a monthly average of 0.07 $\mu g/m^3$.

Based on data from AQMD's AER program for lead emissions reported from years 2005 through 2007, Exide is the only non-aviation source currently emitting over 1.0 ton/yr with an annual average of 1.5 tons/yr. Sampling is conducted at two locations with monitors identified as "Rehrig" and "ATSF". All 3-month averages for ambient air lead concentrations from February 2008 through January 2010 from the monitor located at Rehrig exceeded the new lead NAAQS of 0.15 $\mu g/m^3$. Concentrations from the ATSF monitor exceeded the new lead NAAQS for all 3-

month averaging periods from February 2008 through May 2008, and September 2008 through November 2008.

RULE APPLICABILITY

PR 1420.1 will affect large lead-acid battery recycling facilities that process more than 50,000 tons of lead a year. The provisions of PR 1420.1 are in addition to Rule 1420 and the other lead sources in the district will be addressed through future rulemaking efforts. The decision to address large lead-acid battery recycling facilities was due in part to the AQMD's source-oriented monitors that have historically shown that this industry category has the potential to exceed the new lead ambient air quality standard and their annual mass emissions.

The AQMD staff analyzed multiple data sources, including AQMD's AER program for years 2005 through 2007, permitting data, and compliance data to initially identify the universe of lead-emitting sources. Approximately 600 lead sources were identified and analyzed. Almost all facilities located within the Basin emit less than 0.15 tons of lead per year, an amount far below U.S. EPA's 1.0 ton per year threshold warranting source-oriented monitoring at these facilities. Based on the AQMD's AER program between 2005 and 2007, the industry category with the largest stationary source lead emissions is lead-acid battery recycling.

AFFECTED INDUSTRY

PR 1420.1 applies to large lead-acid battery recycling facilities. There are currently two facilities within the AQMD that the proposed rule will apply to: Exide Technologies and Quemetco, Inc. Exide and Quemetco are the only large lead-acid battery recyclers in the state of California and in the western United States, with the next nearest large lead-acid battery recycling facility located in Texas. These facilities receive spent (used) lead-acid batteries and other lead-bearing materials and recycle them, recovering the lead. Approximately 98 percent of lead acid batteries in the United States are recycled and all components of the batteries are recycled, primarily lead, plastic, and acid. Through the recycling process, approximately 95 percent of the lead in the batteries is recovered. Lead is recycled because of its value and is primarily used to manufacture new batteries.

Exide is located in the city of Vernon on about 24 acres of land. Exide has the highest stationary source lead emissions in the District. Based on AER data for 2005 through 2007, Exide has an average of more than 1.5 tons of lead emission per year, with its highest annual emissions of 1.99 tons of lead per year in 2006-2007 AER reporting year. The facility has an average production of 100,000 to 120,000 tons of lead per year. This is equivalent to recycling approximately 11 million automotive batteries. The facility also recycles lead-bearing plant scrap and other lead-bearing materials.

Figure 1-3
Exide Technologies
Vernon, CA 90058

Quemetco is located in the City of Industry on approximately 14 acres of land. Based on AER data for 2005 through 2007, Quemetco has the second highest average lead emissions of 0.28 tons per year with a high of 0.32 tons per year for the 2006-2007 AER reporting year. Spent automotive batteries account for almost all of the lead processed by Quemetco. The facility processed more than 110,000 tons of lead in 2009. Quemetco processes approximately 10 million automotive batteries per year.

Figure 1-4
Quemetco, Inc.
City of Industry, CA 91746

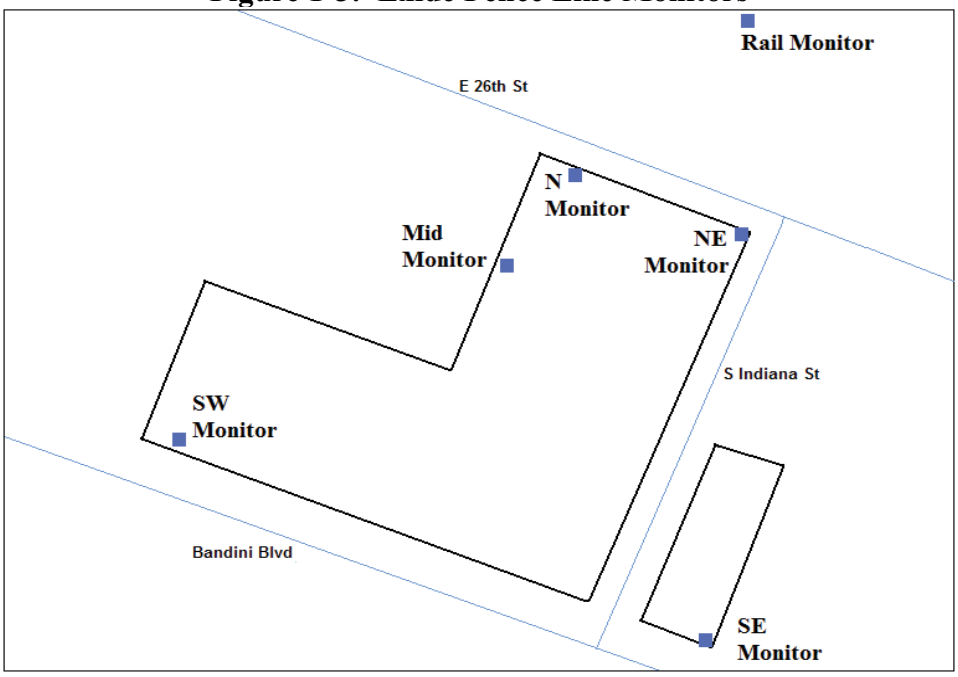
FENCE LINE MONITORS

Under Rule 1420, Exide and Quemetco are required to maintain and operate two fence line monitors to collect samples to demonstrate compliance with the Rule 1420 ambient lead standard of 1.5 µg/m^3. Each facility currently operates an ambient air monitoring and sampling network (fence line monitors) pursuant to requirements of Rule 1420. The fence line monitors are installed at locations that are based on the maximum expected ground-level concentrations of lead at or beyond the facility's property line.

Exide Fence Line Monitors

As shown in Figure 1-5 below, Exide currently maintains six fence line monitors. The AQMD maintains and operates two source-oriented monitors near Exide which are not shown in the figure. Exide conducts sampling at least once every three days at six monitors. The SW, SE, and Rail monitors have been in operation for over ten years. Due to exceedances of the ambient air quality standard of Rule 1420, the facility was required to modify its ambient air monitoring plan to add three additional monitors. The N and NE monitors were installed in the beginning of 2009 with the MID monitor installed at the end of 2009.

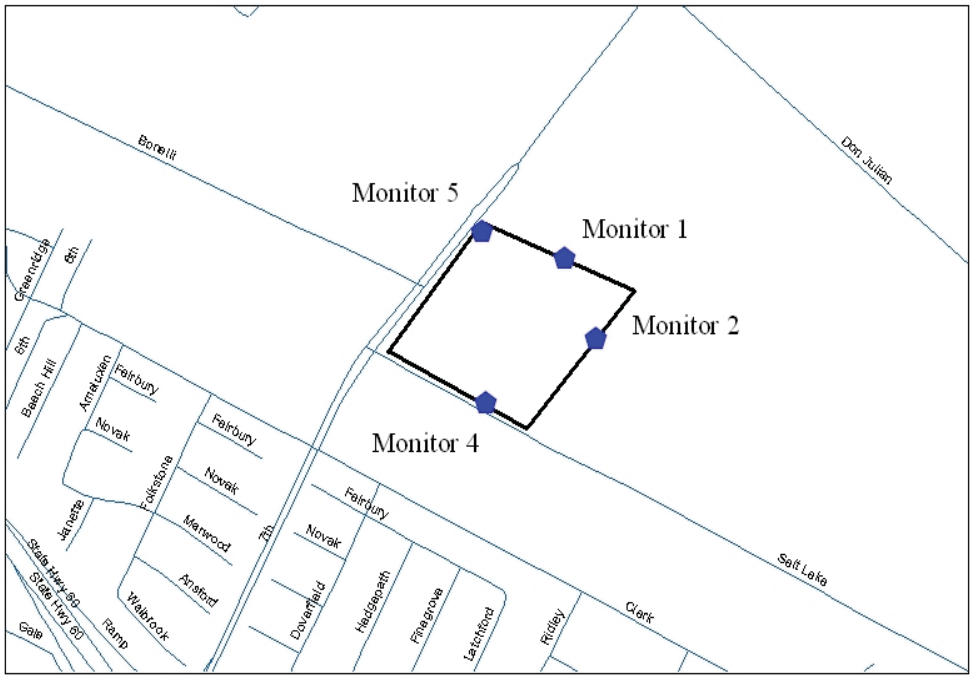
Figure 1-5: Exide Fence Line Monitors



Quemetco Fence Line Monitors

Quemetco collects daily samples at four monitors that have been in operation for over ten years. Monitor 3 was renamed Monitor 5 and moved to the northwest corner of the facility in late 2007 in response to complaints from residents requesting sampling at a location upwind from their neighborhood. Locations of fence line monitors at Quemetco are shown in Figure 1-6 below. The AQMD maintains and operates one source-oriented monitor near Quemetco which is not shown in the figure.

Figure 1-5: Quemetco Fence Line Monitors



COMPLIANCE HISTORY

The following briefly describes the compliance history for each facility with respect to the ambient air lead concentrations, complaints, and other toxic regulations.

Exide

Over the past five years, Exide has been required to increase their fence line monitors and implement changes within their facility to reduce lead emissions. In 2004, the AQMD began receiving complaints from neighbors and the surrounding community which prompted installation of additional monitors. In 2007, the AQMD installed an additional monitor at the Rehrig facility. During 2007-2008, lead concentrations from the Rehrig monitor exceeded the Rule 1420 lead standard of 1.5 µg/m^3. This led to extensive revisions to Exide's Rule 1420 Compliance Plan and issuance of an Order for Abatement in 2009. The AQMD staff continues to work with Exide to ensure all measures in the Compliance Plan and Order for Abatement are being implemented. A brief chronology is described below.

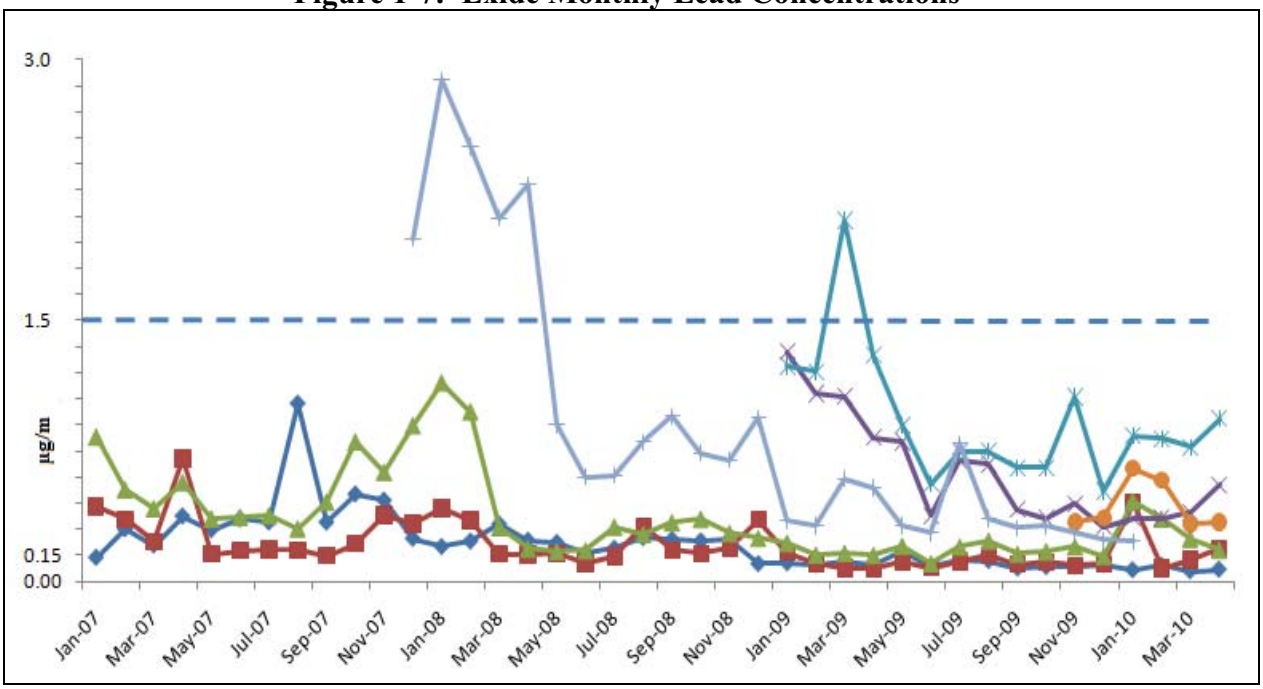
- November 2007: AQMD installs additional monitor at Rehrig facility next to Exide based on complaints alleging Exide as a source of dust, smoke, and odors.
- December 2007 – April 2008: Exide exceeded the ambient air lead concentration requirement of Rule 1420. Monthly averages during this time range from 2.0 to 2.9 µg/m^3.
- 2008: AQMD revised Exide's Compliance Plan to include upgrades to lead control devices, additional housekeeping, extensive housekeeping requirements including building roof tops and perimeter sidewalks and public roadways, and expanded ambient air monitoring.

- January 2009: AQMD staff required two more fence line monitors at Exide.
- December 2009: AQMD staff required one more fence line monitor at Exide.
- June 2009: AQMD issued an Order for Abatement which included further, more stringent requirements beyond those specified in Rule 1420 and existing permit and Compliance Plan conditions. Requirements included total enclosures of two lead processing areas, lead control device upgrades, process curtailments if ambient concentrations approached or exceeded the lead standard, and additional housekeeping and monitoring requirements.

Monthly Lead Concentrations at Exide

Average monthly lead concentrations for all fence line monitors at Exide from 2007 to the beginning of 2010 are 0.47 µg/m^3 with a high of 2.08 µg/m^3. Average monthly concentrations from source-oriented monitors for Exide to date are 0.99 µg/m^3 with a high of 2.88 µg/m^3. Exide received multiple violations for exceedances with the 1.5 µg/m^3 concentration standard of Rule 1420 between December 2007 and June 2008 at a source-oriented monitor, including a violation in March 2009 for an exceedance measured at a fence line monitor. Figure 1-7 below shows Exide monthly lead concentrations at each monitor from 2007 to the beginning of 2010.

Figure 1-7: Exide Monthly Lead Concentrations



Quemetco

From 2000 to 2001, Quemetco was issued violations by the AQMD for exceeding the Rule 1420 ambient air lead concentration standard of 1.5 µg/m^3. As a result, Quemetco was required to modify conditions of their Rule 1420 Compliance Plan and reduce charging limits on furnaces used in their lead smelting process.

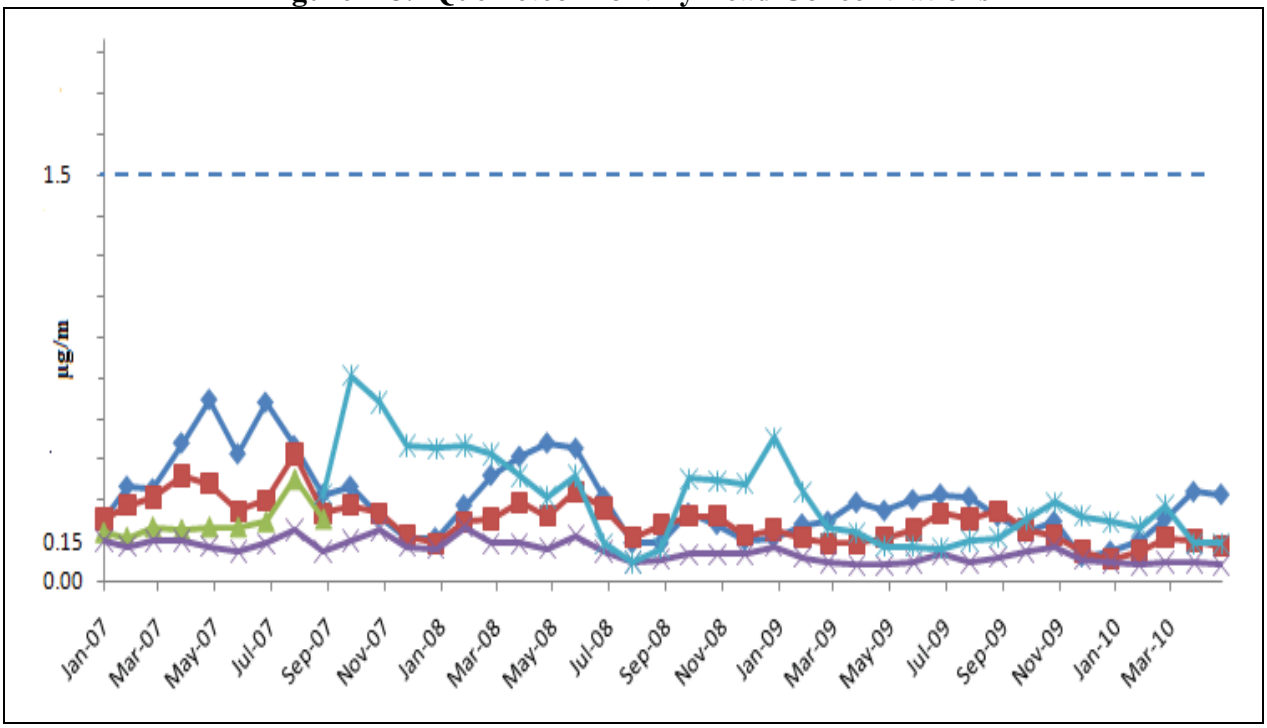
In 2000, Quemetco submitted a health risk assessment (HRA) approved by the District in 2005, showing that the maximum cancer risk for the facility was 22 in one million, primarily from

arsenic and 1,3-butadiene emissions, and that the cancer burden was 1.15. Under Rule 1402, the facility was required to perform public notice and hold a public meeting because the cancer risk exceeded 10 in one million, and was required to reduce risk because the cancer burden exceeded 0.5. In order to reduce the health risk, Quemetco installed a wet electrostatic precipitator (WESP) to control particulate and metal emissions and regenerative thermal oxidation (RTO) to control organic emissions. Following installation of controls and subsequent emissions testing, their approved HRA from February 2010 shows a maximum cancer risk of 4.4 in one million and a cancer burden of 0.023. Average monthly ambient air lead concentration readings at the facility fence line monitors have also been reduced by 40% after control upgrades were made at the facility.

Monthly Lead Concentrations at Quemetco

Average monthly lead concentrations for all fence line monitors at Quemetco from 2007 until the middle of 2008 were 0.29 µg/m^3 with a high of 0.76 µg/m^3. After installation of the WESP in the third quarter of 2008, average concentrations to date have dropped to an average of 0.18 µg/m^3. Although the facility is still above the ambient air lead concentration requirement of the proposed rule, it is expected that completion of the total enclosure for the battery breaking area and additional housekeeping measures to be implemented at the facility will decrease ambient concentrations levels of lead required for compliance. Figure 1-8 below shows fence line average monthly lead concentrations at each monitor for Quemetco between 2007 and 2010.

Figure 1-8: Quemetco Monthly Lead Concentrations



PROCESS DESCRIPTION AND LEAD EMISSION POINTS

Lead-acid battery recycling facilities are secondary lead smelting operations where spent lead-acid batteries, mostly automotive, and other lead-bearing materials are received from various

sources and processed to recover lead, plastics, and acids. The process mainly involves the sorting, melting, and refining of lead-acid batteries, which ultimately produces lead ingots that are then sold to other entities. Emission points consist of those from lead point sources and fugitive lead-dust emissions. Lead point source emissions are generally discharged as the main exhaust of the battery breaking process, smelting furnaces, and refining kettles and vented through ductwork or a stack. Fugitive lead-dust emissions are from facility roadways subject to wind, vehicular, or foot traffic, materials handling and storage areas, battery breaking areas, and smelting and refining areas. Below is a general description of the process including potential lead emission points:

I. **Phase I – Raw Materials Processing**: Lead-bearing materials recovered from lead-acid batteries are prepared and processed prior to being charged (loaded) to a smelting furnace. Lead point source emissions may result during the crushing process of lead-acid batteries. Fugitive lead-dust emissions may result from areas surrounding the crushing process and from the handling and transporting of lead-bearing materials.

   a. **Receiving and Storage:** Spent lead-acid batteries are usually received on pallets that are either stored or sent directly to conveyors for immediate crushing.

   b. **Battery Breaking/Crushing:** The spent lead-acid batteries are unloaded from conveyors and loaded into a hammer mill system where they are crushed whole. The crushed material is then placed into a series of tanks filled with water in order to clean materials of the acids. Through gravity separation, the crushed material sinks to the bottom of the tanks and goes through a series of screens to further isolate lead-bearing materials. The materials are then typically stored in open or partially covered piles if not required for immediate charge preparation.

   c. **Charge Preparation/Rotary Drying/Sweating**: Recovered lead-bearing materials are prepared by blending them with stored lead scrap and reagents prior to being charged to a furnace. The metallic scrap materials are placed in dryers to remove moisture prior to charging to a furnace in order to reduce furnace upsets (puffs and explosions). The materials are then sweated (subjected to temperatures above the melting temperature of lead, but below that of the other metals) to separate lead from other metals with higher melting points.

II. **Phase II – Smelting:** Smelting is the production of crude lead by melting and separating the lead from metallic and non-metallic contaminants and by reducing oxides to elemental lead. Smelting is carried out in blast, reverberatory, and rotary kiln furnaces. These furnaces emit high levels of lead point source emission from the lead fumes during the charging and tapping processes. Fugitive lead-dust may result during the handling of the charged materials and surrounding areas.

   a. **Blast furnaces**: Typically, "hard" lead, or antimonial lead (containing ~10% antimony) is produced in blast furnaces. Scrap metal, re-run slag, scrap iron, coke, recycled dross, flue dust, and limestone are used as charge materials to the

furnace. Process heat is produced by the reaction of the charged coke with blast air that is blown into the furnace.

b. **Reverberatory furnaces**: Semi-soft lead (containing ~3-4% antimony) is produced in reverberatory furnaces. Lead scrap, metallic battery parts, oxides, dross, and other residues are used as charge materials to the furnace. The charge materials are heated directly using natural gas, oil, or coal.

III. **Phase III – Refining and Casting:** Refining and casting the crude lead from the smelting process can consist of softening, alloying, and oxidation, depending on the degree of purity or alloy type desired. Crude lead produced during smelting operations is remelted and refined by the addition of reagents, such as sulfur and caustic soda. The purified lead is then cast into molds or ingots. Refining furnaces and kettles are typically gas or oil-fired and maintained at operating temperatures between 600-1300 degrees F. Both lead point source and fugitive lead-dust emissions result from lead fumes that may be emitted when molten lead is transferred to refining kettles and lead particulates may become airborne off refining kettle surfaces due to updrafts created by thermal rise.

a. **Alloying furnaces:** Alloying furnaces are kettle furnaces used to simply melt and mix ingots of lead and alloy materials, such as antimony, tin, arsenic, copper, and nickel.

b. **Refining furnaces**: Refining furnaces are used to either remove copper and antimony for soft lead production, or to remove arsenic, copper, and nickel for hard lead production. Sulfur may be added to the molten lead to remove copper. The resultant copper sulfide is skimmed off as dross and may be processed in a blast furnace to recover residual lead. Aluminum chloride is used to remove copper, antimony, and nickel.

c. **Oxidizing furnaces:** Either kettle or reverberatory units are used to oxidize lead and to entrain the product lead oxides in the combustion air stream for subsequent recovery in high-efficiency baghouses.

CONTROL STRATEGIES

Several types of controls for lead emissions are currently used at the lead-acid battery recycling facilities in the Basin. Lead emissions at lead-acid battery recycling facilities are generally categorized as point and fugitive lead emissions. Point source emissions are those emissions that are vented to a stack where the stack can be from a specific piece of equipment such as a furnace or building. Fugitive emissions are particulate matter that contain lead, is in contact with the ambient air, and can become airborne. Point source emissions that are vented through a control device, but not captured and contained can become fugitive emissions. The following discusses lead point source controls and fugitive source control strategies.

Lead Point Source Control Strategies

The following describes lead point source control strategies. As with any type of control device, maintenance and proper operation of the control device are important to ensure the control device can achieve its maximum control efficiency. The following provides a description of baghouses and filter controls, wet scrubbers, high efficiency particulate arrestors (HEPA), electrostatic precipitators and wet electrostatic precipitators. Use of multistage point source controls such as use of baghouse filters and HEPA filters can improve the capture efficiency and provide additional protection. Lead emissions from lead processes discussed in the previous section are vented to one or more lead control devices listed below:

Baghouses and Filters

Baghouses operate by collecting particles on a fabric filter. Typically, they consist of fabric bags of tubular or envelope shapes. As an air stream flows through the bags, small particles are initially captured and retained on the fabric filter by one or a combination of the following collection mechanisms: impaction, direct interception, diffusion, electrostatic attraction, and gravitational settling. Once dust has accumulated on the walls of the bags, the "dust mat" acts as a sleeve to further increase particulate matter capture. Bags of polytetrafluoroethylene membrane-type are currently considered to be the most effective for the control of lead emissions.

Arrays of filters are also used to collect particulate matter. They can be used after the bags in a baghouse to further reduce emissions or can be used alone as in a spray booth. Filters are often used in combination with a pre-filter which is "changed out" on a regular basis allowing the bank of filter cartridges to last longer. HEPA and cartridge-type filters are currently the most effective filters used in the lead-acid battery recycling industry.

Baghouses are commonly used in metal melting operations. They have one of the highest control efficiencies for particulate emissions, and the captured particulate can be recycled to recover metal. Operating parameters of melting operations, such as exhaust stream temperature, gas stream velocity, and particulate chemical properties must be taken into account when designing the baghouse.

Daily maintenance and monitoring of the baghouse is necessary to ensure that it continuously meets the required standard of efficiency. Gas volume, temperature, pressure drop, and dust load are monitored continuously or intermittently. Baghouse shaking and sending pulses of air backwards through the bags is done at specific intervals, or when the bags are overloaded, to remove the captured particulate matter from the bags and drop it into a hopper below the bags.

Baghouse and filter technology combined can achieve an overall particulate matter capture efficiency certifiable up to 99.97 percent. It is important that baghouses are designed and use parts, bags, and filters according to manufacturer's recommendations in order to achieve optimal performance and control of emissions. The well designed baghouse can control 99 percent of particulate emissions. The capture efficiency of lead particulates is anticipated to be slightly lower, since metals are found in greater amounts on smaller particles. The lead removal efficiency is at least 98 percent for a baghouse with 99 percent efficiency for particulates. Demonstrated removal efficiencies may be improved with the addition of secondary controls or several baghouses in series. Secondary controls also serve as a back-up or fail safe for the

control of lead emissions in the event that lead control devices upstream are not properly maintained or encounter breakdowns or malfunctions, resulting in leaks or complete failure to filters or bags.

All facilities subject to this rule would be able to use baghouses or filter systems to control particulate lead emissions from most all operations in the lead-acid battery recycling processes. Examples include lead emissions coming from the battery breaking areas and all smelting, refining, and casting operations.

Wet Scrubbers

Wet scrubbers remove both particulate matter and gases from industrial process gas streams. In lead-acid battery recycling operations, wet scrubbers are typically used to remove residual lead particulates and sulfur oxides from the exhaust of baghouses that control emissions from rotary dryers and smelting furnaces. There are a variety of scrubber designs. However, only a limited number can remove small particulates from an exhaust stream. Wet scrubbers are capable of 98 percent collection efficiencies for particles as small as 5 microns in size. Two scrubbers designed to remove small particulates are the ionizing wet scrubber and the venturi scrubber.

In an ionizing wet scrubber, the gas stream first enters a chamber where a high voltage is used to ionize the gas stream. The second chamber is a wet scrubbing chamber, where the ionized particles and gases are attracted to the surface of the chamber and the scrubbing liquid. Larger size particles are removed by water through inertial impaction.

Venturi scrubbers are used by some facilities in the District. In these scrubbers, the exhaust stream is passed through a constriction (the venturi) where the scrubbing liquid is sprayed in. The turbulence at and after the venturi promotes contact of particles with the scrubbing liquid droplets. High particulate matter removal efficiencies for small particles can be achieved with this type of scrubber.

High-Efficiency Particulate Arrestors (HEPA)

Used in conjunction with a pre-filter, high-efficiency particulate air filters can trap particles as small as 0.3 μm at an efficiency of 99.97 percent or greater. Like cartridge filters, HEPA filter elements are of pleated construction. HEPA filters are generally limited to ambient temperature (100^{o}F), though special applications for higher temperatures are available. Unlike bags or cartridge filters, HEPA filters are not automatically cleaned. When a HEPA filter element becomes loaded with particulate matter such as lead particles, the element is changed out and disposed of as hazardous waste. Filters can be combined or applied to controls such as baghouses to reduce lead emissions from lower temperature exhaust streams and fugitive lead-dust emissions collected within total enclosures. They can also be utilized in negative air equipment or vacuums used to conduct housekeeping activities throughout the facility.

Electrostatic Precipitators/Wet Electrostatic Precipitators

Electrostatic precipitators operate by charging the effluent particulate matter with a highly ionized gas stream and then attracting the charged particles to an oppositely charged metal wall. Typically, a cylindrical metal tube is used with an ionized wire running through it. As the ions move outward toward the oppositely charged cylinder, the particles are also ionized, and are deposited on the cylinder. The cylinder wall is periodically vibrated to collect particulate matter

into a hopper. This technology can achieve 99 percent efficiency for total particulate matter as small as 1 μm. Electrostatic precipitators in lead-acid battery recycling operations are typically used downstream from other lead controls such as baghouses, and treat exhaust streams with smaller lead particulates.

Fugitive Lead-Dust Control

Fugitive lead-dust at lead-acid battery recycling facilities can be a major source of lead emissions. Fugitive lead-dust accumulates in and around process areas, from lead point sources, on roof tops, in and around facility, and during maintenance operations to name a few. There are a variety of housekeeping and containment strategies that can be implemented to minimize fugitive lead dust. Housekeeping activities must be implemented frequently and properly to ensure they are effective. The concept behind many of these strategies is to either contain or remove lead dust so it cannot become airborne. Housekeeping practices specifying adequate frequencies and locations for all cleanings to be performed are also critical in the effectiveness to control fugitive lead-dust emissions. The following summarizes some potential fugitive lead dust control strategies:

- Pave roadways subject to vehicular and foot traffic;
- Clean paved areas through vacuuming, vacuum sweepers, and use of wet suppression;
- Wet wash or vacuum areas where lead particulate and accumulate such as roof tops, areas where lead-containing wastes are stored or disposed of;
- Clean areas where lead dust may accumulate due to accidents, process upsets or equipment malfunctions;
- Clean surface impoundments ponds before lead-containing sludge dries and can become a source of fugitive lead-dust;
- Use of enclosures or containment areas during maintenance activities or storage of lead-containing materials; and
- Use of total enclosures under negative air pressure vented to point lead point source controls to ensure that lead dust that accumulates in and around process areas does not become fugitive.

CHAPTER 2: SUMMARY OF PROPOSED RULE 1420.1

OVERVIEW

PR 1420.1 will address lead emissions produced by lead-acid battery recycling facilities. In addition to protecting public health, the major impetus for the rule is to establish requirements that will help ensure that the Basin meets attainment status with the 2008 NAAQS for lead. As a result, the rule proposes standards for total facility mass lead emission rates, maximum lead emission rates for lead control devices, secondary lead control devices on dryers, and concentrations for ambient air lead levels resulting from the facility. Fugitive lead emissions are addressed through housekeeping and maintenance activity requirements, and total enclosures of process areas used in the lead-acid battery recycling operation. Additionally, source testing, ambient air concentration monitoring, and recordkeeping requirements have been added to ensure continuous compliance.

OVERALL APPROACH

Rule Approach

During the rule development process, the AQMD staff considered the following three approaches for Proposed Rule 1420.1: (1) Compliance Plan; (2) Core Requirements with No Compliance Plan; and (3) Core Requirements with a "Contingency" Compliance Plan. The three approaches were evaluated with consideration of health effects of lead, past experience with affected facilities considering potential causes of past exceedances, complaints received, and AQMD staff experience. In addition, the AQMD staff considered whether or not each approach would afford the public an opportunity to participate and provide input. The following describes the three approaches and discusses why the third approach for PR 1420.1 was selected.

Compliance Plan Approach

The Compliance Plan approach is based on an approach similar to Rule 1420. The proposed rule facilities would be required to submit and implement a compliance plan and meet a lead ambient air quality standard of 0.15ug/m^3. Past experience with Rule 1420 shows that compliance plan approaches are not sufficient to demonstrate compliance with the lead ambient air quality standard. Moreover, with the more stringent lead standard, even greater assurances in the specificity of the control measures are needed. Strictly relying on an individual facility-specific compliance plan provides the facility with less regulatory certainty of the types of control measures that must be included. In addition, there are potential delays to develop, approve and implement a compliance plan. Compliance plans are generally developed between the affected facility and the AQMD staff with limited to no public process in the plan approval. As a result, the AQMD staff did not pursue this approach for the proposed rule.

Core Requirements with No Compliance Plan Approach

The Core Requirements with No Compliance Plan approach would establish core requirements that would be included in the proposed rule for point and fugitive sources, similar to PR 1420.1. Establishing core requirements in the proposed rule provides regulatory certainty for affected facilities of the key required controls for point sources and housekeeping requirements. This approach also allows public input during the development of core requirements. Under this approach, facilities would be required to implement the core requirements and meet an

established lead ambient air quality standard of 0.15 ug/m^3. If facilities exceeded the lead ambient air quality standard, legal remedies would be implemented. In the event that the standard is exceeded, there can be delays in requiring additional measures to ensure future compliance.

Core Requirements with a "Contingency" Compliance Plan Approach

The third approach is a hybrid approach between the first and second approaches. This approach is similar to the second approach but includes a "Contingency" Compliance Plan that would be submitted if the facility approaches the lead ambient air quality standard, and would only be implemented if the facility exceeded the ambient lead standard of 0.15 ug/m^3. The AQMD staff believes that the Compliance Plan element is needed to ensure that measures can be identified prior to exceeding the 0.15 ug/m^3 standard and are ready to begin implementation if the 0.15 ug/m^3 standard is exceeded. This approach provides greater assurance that the ambient lead standard will be achieved, and additional measures are in place if needed. The AQMD staff selected this approach as it is more proactive than the other two approaches, provides regulatory certainty for the affected facilities by establishing core requirements in the proposed rule, and is designed to minimize and/or eliminate potential delays to implement additional measures if the facility exceeds the ambient lead standard.

PROPOSED RULE 1420.1

As discussed in more detail below, PR 1420.1 provides a comprehensive approach to addressing lead emissions from large lead-acid battery recyclers with the additional safeguard of a "Contingency" Compliance Plan. The proposed rule establishes core requirements, many of which are currently used at the affected lead facilities and takes into account the value that this industry provides in recycling lead. Core requirements for lead point sources are based on a facility-wide emission rate for the facility's lead point sources and are more stringent than the efficiency requirement under Rule 1420. Core requirements for fugitive lead sources include a comprehensive list of housekeeping and maintenance activities. The efficacy of controlling fugitive emissions, however, are in part based on the operator, such as how well sweeping activities are conducted, how carefully maintenance activities are implemented to contain fugitive dust emissions, etc. In addition, the proposed rule includes more frequent source testing, expanded monitoring network, and increased sampling and monitoring requirements than Rule 1420. In addition, PR 1420.1 provides additional reporting requirements and public notification of key activities that occur at the facility.

Applicability

PR 1420.1 applies to lead-acid battery recycling facilities in the AQMD that processed more than 50,000 tons of lead a year. In the Basin, this industry currently processes an average of at least 300 tons of lead a day per facility. As discussed in Chapter 1, there are currently two facilities in the district that meet the applicability of the proposed rule. These facilities represent the largest stationary source of lead in emissions in the Basin. In addition, data from AQMD monitors in 2005 for Quemetco and as recent as 2009 for Exide have shown that monthly averages for these facilities have exceeded the new federal lead standard of 0.15 µg/m^3. In order to first target the largest lead sources, a minimum process limit of 50,000 tons of lead a year was set as the threshold for rule applicability. The amount was derived by assuming an operating

scenario of 5 days a week, 50 weeks a year, at 50 percent of the lowest current facility throughput limit for this industry in the Basin (~400 tons of lead/day) in order to account for years of decreased production. The language of "large" throughout the rule has been used solely to differentiate these facilities from those that are below the applicability threshold of the rule. Smaller lead-acid battery recycling facilities and other stationary lead sources are currently subject to Rule 1420. The AQMD staff will be amending Rule 1420 to address further reductions from these other lead sources.

Definitions

PR 1420.1 includes definitions of the following terms used in the proposed rule. Please refer to subdivision (c) of PR 1420.1 for the definitions:

- Agglomerating Furnace
- Ambient Air
- Battery Breaking Area
- Dryer
- Dryer Transition Piece
- Duct Section
- Emission Collection System
- Fugitive Lead-Dust
- Furnace and Refining/Casting Area
- Lead-acid Battery Recycling Facility
- Lead
- Lead Control Device
- Lead Point Source
- Leeward Wall
- Maintenance Activity
- Materials Storage and Handling Area
- Measurable Precipitation
- Partial Enclosure
- Process
- Renovation
- Sensitive Receptor
- Slag
- Smelting
- Smelting Furnace
- Total Enclosure
- Windward Wall

Requirements

Subdivision (d) of PR 1420.1 establishes key requirements. This subdivision includes requirements for the ambient air quality lead concentration, total enclosures, and lead point source controls.

Ambient Air Lead Concentration

Until January 1, 2012, large lead-acid battery recycling facilities will be required to meet an ambient air lead concentration standard of 1.5 $\mu g/m^3$ averaged over 30 days pursuant to Rule 1420. Beginning January 1, 2012, large lead-acid battery recycling facilities subject to PR 1420.1 will not be allowed to discharge into the atmosphere emissions which contribute to ambient air concentrations of lead that exceed 0.15 $\mu g/m^3$ averaged over any 30 consecutive days. Measurements recorded at any rule-required ambient air lead monitor, including those operated by the District that have been installed as source-oriented monitors for the facility, are subject to compliance with the standard. The averaging time for PR 1420.1 is shorter than that of the lead NAAQS with a more frequent sampling requirement of one sample in three days versus the NAAQS which requires one sample in six days.

Total Enclosures

Under PR 1420.1, no later than July 1, 2011, all areas used in the lead-acid battery recycling operation to process or store lead-containing material will be required to be located within a total enclosure vented to a lead control device. The areas may be enclosed individually or in groups. The intent of this requirement is to provide maximum containment and minimize fugitive lead-dust emissions generated in areas where processing, handling and storage of lead-containing materials occur. Areas for total enclosure will include:

- Battery breaking areas;
- Material storage and handling areas, excluding areas where unbroken lead-acid batteries and finished lead products are stored;
- Dryer and dryer areas including transition pieces, charging hoppers, chutes, and skip hoists conveying any lead-containing material;
- Smelting furnace and smelting furnace areas charging any lead-containing material;
- Agglomerating furnace and agglomerating furnace areas; and
- Refining and casting areas.

Facilities will be required to submit complete permit applications for all construction and necessary equipment for total enclosures within 30 days of the date of adoption for PR 1420.1. Construction is required to be completed within 180 days of receiving Permit to Construct approvals from the Executive Officer, or by July 1, 2011, whichever is earlier. In order to account for unexpected delays, facilities may be granted extensions to the compliance deadline date if they can demonstrate that all complete permit applications were timely filed, and that compliance deadlines cannot be met due to reasons beyond the facility's control. The request shall be submitted to the Executive Officer no less than 30 days before the compliance deadline date.

Areas with a total ground surface area of 10,000 square feet or more require a minimum of three digital differential pressure monitors: one at the leeward wall of the total enclosure, one at the windward wall, and one at an exterior wall that connects the leeward and windward wall at a location defined by the intersection of a perpendicular line between this wall and a straight line between the other two monitors in order to account for shifts in draft direction throughout the enclosure. Each total enclosure is required to be maintained at a negative pressure of at least 0.02 mm of Hg (0.011 inches H_2O) and an in-draft velocity of at least 300 feet per minute at any opening such as vents, windows, passages, doorways, bay doors, and roll-ups. For smaller enclosures, at least one differential pressure monitor, continuously measuring the negative pressure of the total enclosure, is required to be installed on the leeward wall.

Digital differential pressure monitors must be capable of measuring and displaying negative pressure in the range of 0.01 to 0.2 mm Hg (0.005 to 0.11 inches H_2O) with a minimum accuracy of plus or minus 0.001 mm Hg (0.0005 inches H_2O). Digital differential pressure monitoring systems will also need to be equipped with a continuous strip chart recorder or electronic recorder approved by the Executive Officer. If the facility elects to use an electronic recorder, the recorder will need to be capable of writing data on a medium that is secure and tamper-proof. The recorded data needs to be readily accessible upon request by the Executive Officer. A copy of any software that is not readily available to the Executive Officer and required to access the recorded data, including all subsequent revisions, must be provided to the Executive Officer at no cost. If a device is needed to retrieve and provide a copy of such recorded data, the device must be maintained and operated at the facility.

Additionally, to ensure availability of data that may be useful in determining reasons for changes in ambient air lead concentrations during power outages, installation of a backup, uninterruptible power supply will be required on all digital differential pressure monitors. The amount of backup power supplied must be capable of sufficiently powering the monitors until processes and equipment at the facility can be safely brought down if the power outage is for a substantial period.

Lead Point Source Emission Controls

Lead point sources are defined by the proposed rule as any location where lead is emitted into the atmosphere from processes or equipment used in the lead-acid battery recycling operation that pass through a stack or vent designed to direct or control its exhaust flow. All lead emissions from lead point sources are required to be vented to an emissions collection system that ducts the entire gas stream to a lead control device. Proposed requirements for lead point source emission controls will be effective beginning July 1, 2011 in order to give facilities ample time to apply for permits and construct all necessary lead control devices. Requirements for the submittal of complete permit applications, construction, compliance deadlines, and extensions for lead control devices are the same as those specified earlier for total enclosures.

The total facility mass lead emission rate for all lead point sources shall not exceed 0.045 pounds of lead per hour, with a maximum emission rate for any single lead point source not to exceed 0.010 pounds of lead per hour. The total facility and maximum emission rates shall be determined using the most recent source tests conducted by the facility or the District. The facility mass emission rate for all lead point sources requires a greater control efficiency than the 99 percent control efficiency required under Rule 1420. The total facility mass emission rate standard of 0.045 pounds of lead per hour was selected based on modeling emissions from the facilities' existing lead emission point sources. The air dispersion modeling performed was consistent with the modeling in the most recent HRAs for each facility, and used updated stack parameters, meteorological data, and source test results for each point source. Calculations do not include background lead concentrations.

In order to meet the 0.15 $\mu g/m^3$ standard, considering stack emissions only, modeling resulted in an emission rate threshold of 0.0009 g/s or 0.007 lbs/hr for each stack for Exide and 0.002 g/s or 0.016 lbs/hr for each stack for Quemetco. The modeled emission rates do not ensure that the

standard will be met, but provide a correlation between the stack emission rate and potential ambient lead concentration. Since overall facility emissions are a combination of lead point source emissions and fugitive emissions, to achieve the lead standard of 0.15 µg/m^3, the stack emissions must be sufficiently controlled to provide some margin for fugitive emissions. Using the most recent source tests from both facilities, the AQMD staff found that the emission rates from one of the affected facilities were not sufficiently controlled and through air dispersion modeling would exceed the 0.15 µg/m^3 lead standard.

Requiring a mass emission rate from all lead point sources of 0.045 pounds per hour ensures point sources are controlled to allow a 30 percent margin for fugitive emissions. It is difficult to determine if a 30 percent margin for fugitive emissions is sufficient because the fugitive emissions are based on how well the facility can implement housekeeping and containment provisions. Under PR 1420.1, if the facility approaches 0.12 µg/m^3 averaged over any 30 consecutive days, the facility is required to submit a Compliance Plan that will specify additional control strategies to further control lead point sources and fugitive emissions. If lead point sources are further controlled, this would provide a greater margin to work with for fugitive emissions. If additional housekeeping control strategies are added, this will further reduce fugitive emissions.

The maximum emission rate of 0.010 lb/hr for any individual lead control device was selected to adequately provide a protective limit for exposure to lead emissions and the ambient standard. Additionally, modeling of each individual stack for both facilities was conducted and results showed that a single stack emitting 0.01 lb/hr would not exceed 0.15 µg/m^3 standard at the fence line. Both the total facility and maximum individual stack emission rates, if exceeded, serve as a screening tool to indicate whether facilities need to reassess their lead control strategy to address other factors that affect the ambient air quality standard, such as controlling fugitive lead-dust emissions.

Facilities will also be required to install a secondary lead control device that is fitted with dry filter media and controls lead emissions from the exhaust of the primary lead control device used for a dryer. Staff has reviewed historical source test data, modeling results, breakdown reports, and maintenance records for the dryer at one facility and has determined that it requires a secondary lead control device due to its high emissions. If the secondary lead control device for the dryer is fitted with dry filter media, it shall only be used to vent the primary lead control device for the dryer to ensure that breakdowns or malfunctions resulting from events such as filters or bags catching fire are appropriately attributed to and isolated to the dryer, avoiding impacts to the performance or emissions of other control devices. This will also ensure that emissions from other control devices are not affected if the secondary lead control device fails due to the failure of the primary lead control device for the dryer. A facility may use an alternative secondary lead control method that is equally or more effective for the control of lead emissions if a complete permit application is submitted as part of the permit application required under paragraph (d)(3) and approved by the Executive Officer.

Furthermore, all filters and filter bags used in any lead control device are required to be rated by the manufacturer to achieve a minimum of 99.97% capture efficiency for 0.3 micron particles, or made of polytetrafluoroethylene membrane material. Any other material that is equally or more

effective for the control of lead emissions may be used so long as it is approved by the Executive Officer.

Staff reviewed source test results conducted for existing lead control devices at both facilities. Results indicate that existing lead control devices at one facility will meet both the proposed average and maximum emission rate limits. The other facility is anticipated to install a secondary lead control device on an existing baghouse controlling a dryer, and upgrade the filter media for a primary lead control device ventilating a total enclosure in order to comply with the proposed rule emission rate limits.

Compliance Plan

Compliance with PR 1420.1 is primarily based on an ambient concentration of lead at fence line monitors. The proposed rule is designed to control lead point source emissions and fugitive lead-dust emissions to achieve the ambient lead standard. Due to the uncertainties involved in controlling fugitive lead-dust, however, a Compliance Plan is proposed as a contingency if a facility approaches the ambient lead standard after all control strategies are implemented. The Compliance Plan is a "safety net" to ensure that the facility will achieve the 0.15 ug/m^3 lead standard. Beginning July 1, 2011, any facility that exceeds an ambient air lead concentration of 0.12 µg/m^3 averaged over any 30 consecutive days will be required to submit a Compliance Plan that identifies additional lead emission reduction measures to ensure that the ambient air quality concentration of 0.15 µg/m^3 is not exceeded. The purpose of this provision is to address those facilities that still may have difficulty demonstrating compliance with the ambient air lead concentration even after full implementation of PR 1420.1 requirements. The Compliance Plan will identify additional measures to be implemented if the 0.15 µg/m^3 concentration is exceeded. At a minimum, each Compliance Plan submittal shall include:

- A comprehensive list of additional short term and long term lead emission reduction measures to be implemented in the event that ambient concentrations of lead exceed 0.15 µg/m^3 averaged over any 30 consecutive days. Additional lead emission reduction measure must include, but are not limited to:
    - More stringent housekeeping measures, such as installation and maintenance of vehicle wet wash areas additional areas for cleaning, and increased cleaning frequencies;
    - Additional areas for total enclosures that may result in exceedances or are a significant source of lead emissions;
    - Modification to lead control devices,
    - Installation of multi-stage control devices;
    - Process changes including reduced throughput limits; and
    - Conditional curtailments including, at a minimum, information specifying the curtailed processes, process amounts, and length of curtailment;
- Locations within the facility and method(s) of implementation for each lead reduction measure; and
- An implementation schedule for each lead reduction measure if ambient air concentrations of lead exceed 0.15 µg/m^3 averaged over any 30 consecutive days, including a schedule for those that can be implemented immediately prior to plan approval.

Under the proposed rule, facilities are only required to submit a Compliance Plan if the ambient air concentration of lead is above 0.12 µg/m^3 averaged over any 30 consecutive days. Facilities will be required to notify the Executive Officer in writing within 72 hours of when the facility knew or should have known of exceeding an ambient air concentration of lead above 0.12 µg/m^3 averaged over any 30 consecutive days. Facilities will then be required to submit the Compliance Plan to the Executive Officer for review and approval within 30 calendar days of exceeding the ambient air lead concentration of 0.12 µg/m^3. The Executive Officer will notify the facility in writing whether the Compliance Plan is approved or disapproved. Determination of approval status will be based on, at a minimum, submittal of information that satisfies the criteria set forth in paragraph (g)(2) of the proposed rule.

If the Compliance Plan is disapproved, the owner or operator will be required to resubmit the Compliance Plan within 30 calendar days after notification of disapproval. The resubmitted Compliance Plan shall include any information necessary to address deficiencies identified in the disapproval letter. If the resubmitted Compliance Plan is denied, the operator or owner may appeal the denial by the Executive Officer to the Hearing Board under Rule 216 – Appeals and Rule 221 - Plans.

Lead reduction measures identified in the Compliance Plan will be implemented based on the schedule of the approved Compliance Plan. Implementation of measures will begin if ambient concentrations of lead exceed 0.15 µg/m^3 averaged over any 30 consecutive days. It should be noted that exceeding the 0.15 µg/m^3 standard will only trigger implementation of the Compliance Plan if it occurs before January 1, 2012. Thereafter, an exceedance of the standard will constitute a violation, as well as triggering implementation of the Compliance Plan.

Housekeeping Requirements

The following housekeeping requirements are proposed to minimize fugitive lead-dust emissions. All requirements will be effective within 30 days of rule adoption.

- Clean by wet wash or a vacuum equipped with a filter(s) rated by the manufacturer to achieve a 99.97% capture efficiency for 0.3 micron particles. This shall be done in a manner that does not generate fugitive lead-dust. The following areas shall be cleaned at the specified frequencies, unless located within a total enclosure vented to a lead control device:
    - Monthly cleanings of roof tops on structures ≤ 45 feet in height that house areas that are associated with the storage, handling or processing of lead-containing materials;
    - Quarterly cleanings of roof tops of structures > 45 feet in height that house areas associated with the storage, handling or processing of lead-containing materials;
    - Weekly cleanings of all areas where lead-containing wastes generated from housekeeping activities are stored, disposed of, recovered or recycled; and
    - Initiate immediate cleaning after any maintenance activity or event, including, but not limited to, process upsets or equipment malfunction that causes deposition of lead-containing materials onto any of the above areas.
- Monthly structural integrity inspections of any structures that house, contain, or control lead emission points or fugitive lead-dust emissions.

- Storage or processing of any lead-acid battery that is cracked or leaking upon receipt at the facility.
- Encapsulation (paving, asphalting, etc.) of all facility grounds for the purpose of providing a surface that accommodates ease of cleaning.
- Removal of weather caps on any stack that is a lead emissions source.
- Storage of all materials capable of generating any amount of fugitive lead-dust in sealed, leak-proof containers, unless located within a total enclosure. Examples of materials include slag, spent filters used in lead control devices, and lead-containing waste generated from housekeeping requirements.
- Transport of all materials capable of generating any amount of fugitive lead-dust emissions within closed conveyor systems or in sealed, leak-proof containers, unless conducted within a total enclosure.
- Surface impoundment pond cleanings.
- Facility grounds cleaning using onsite mobile vacuum sweepers.

Surface Impoundment Cleaning

The proposed rule requires cleanings of surface impoundment ponds or reservoirs. These ponds are typically exposed to the atmosphere and used to hold storm water and spent water used for washing down areas or objects that may contain fugitive-lead dust. These holding areas pose the potential for release of lead to the atmosphere when they are drained or when water evaporates. This provision will require facilities to initiate removal~~e~~ of any lead-containing material, including sludge, from the entire surface area of any surface impoundment pond or reservoir within 1~~2~~24 hour~~s~~ after the water level is equal to or less than one inch at any point above the bottom of the pond or reservoir. Removal of lead-containing material is required to be completed as soon as possible, and no later than six calendar days after the time initiation of the removal was required. Surfaces shall be washed down in a manner that does not generate fugitive lead-dust weekly thereafter until used again for holding water.

Onsite Mobile Vacuum Sweepers

Another proposed requirement intended to reduce fugitive lead-dust emissions is periodic facility sweepings using onsite mobile vacuum sweepers or vacuums equipped with a filter(s) rated by the manufacturer to achieve a 99.97% capture efficiency for 0.3 micron particles. Facilities will be required to vacuum sweep all facility areas subject to vehicle and foot traffic with a vacuum or an onsite mobile vacuum sweeper that is in compliance with District Rule 1186. Vacuum sweeping will be required three times each day, occurring at least once per operating shift with each event not less than four hours apart. Additionally, any accidents, mishaps and/or process upsets occurring in the aforementioned areas that result in the deposition of lead-containing material or dust shall be vacuum swept immediately, no later than one hour after occurrence. Further, sweeping will not be required on any day where the onsite measured rain amount is greater than 0.01 inches in any 24-hour calendar day. Facilities may use locally recorded and reported measured rain amounts.

Maintenance Activity

For purposes of the proposed rule, maintenance activity is defined as any of the following activities conducted outside of a total enclosure that generates fugitive lead-dust:

- Building construction, renovation, or demolition;
- Replacement or repair of refractory, filter bags, or any internal or external part of equipment used to process, handle, or control lead-containing materials;
- Replacement of any duct section used to convey lead-containing exhaust;
- Metal cutting or welding that penetrates the metal structure of any equipment used to process lead-containing material, and its associated components, such that lead dust within the internal structure or its components can become fugitive lead-dust; or
- Resurfacing, repair, or removal of ground, pavement, concrete, or asphalt.

Upon adoption of the rule, the owner or operator of a large lead-acid battery recycling facility will be required to conduct any maintenance activity that is not done in a total enclosure, inside a negative air containment enclosure that is vented to a permitted negative air machine equipped with a filter(s) rated by the manufacturer to achieve a 99.97% capture efficiency for 0.3 micron particles. The negative air containment shall enclose all affected areas where the potential for fugitive lead-dust generation exists. If the maintenance activity cannot be conducted in a negative air containment enclosure due to physical constraints, limited accessibility, or safety issues when constructing or operating the enclosure, the facility will be required to conduct the activity under the following conditions:

- In a partial enclosure, barring conditions posing physical constraints, limited accessibility, or safety issues;
- Using wet suppression or a vacuum equipped with a filter(s) rated by the manufacturer to achieve a 99.97% capture efficiency for 0.3 micron particles, at locations where the potential to generate fugitive lead-dust exists prior to conducting and upon completion of the maintenance activity. Wet suppression or vacuuming will also be required during the maintenance activity barring safety issues;
- While collecting 24-hour samples ~~In conjunction with sample collections at ambient air~~ at monitors for every day that maintenance activity is occurring notwithstanding paragraph (j)(2). For unplanned maintenance activity, if sampling is not being conducted on the day the incident occurs, sample collection shall begin at midnight at the end of the day on which the incident occurs; and
- Maintenance activity conducted outside a negative enclosure must cease immediately if instantaneous wind speeds are 25 miles per hour or greater. Maintenance work may be continued if it is necessary to prevent the release of lead emissions.

All lead-contaminated equipment and materials used for any maintenance activity requires immediate storage or cleaning after completion of work, by wet wash or a vacuum equipped with a filter(s) rated by the manufacturer to achieve a 99.97% capture efficiency for 0.3 micron particles. Storage and cleaning must be done in a manner that does not generate fugitive lead-dust. Facilities will also be required to notify the public regarding specific types of maintenance activity (see below in *Notifications to the Public*).

Ambient Air Monitoring and Sampling Requirements

Under PR 1420.1, each facility will be required to collect and analyze ambient air lead samples to determine compliance with the ambient air quality lead concentration standard of PR 1420.1. Prior to January 1, 2011, facilities will be required to conduct ambient air monitoring and

sampling pursuant to Rule 1420. No later than January 1, 2011, facilities shall conduct ambient air monitoring and sampling as follows:

- Collect samples from a minimum of four sampling sites approved by the Executive Officer, at locations that are based on maximum expected ground level lead concentrations at or beyond the property line of the facility.
    - Locations are to be determined by air dispersion modeling calculations approved by the Executive Officer and emission estimates from all lead point sources and fugitive lead-dust sources. Other factors to be considered when determining sampling locations include, but are not limited to, population exposure and seasonal meteorology.
    - Sampling sites at the property line may be located just inside the fence line on facility property if logistical constraints preclude placement outside the fence line at the point of maximum expected ground level lead concentrations.
    - One or more of the four sampling sites may be required by the Executive Officer to be at locations that are not based on maximum impact, and that are instead at locations at or beyond the property line that is representative of upwind or background concentrations. A minimum of one of the four sampling sites, however, will be required to be based on maximum impact.
- Collect 24-hour, midnight-to-midnight, samples at all sites for 30 consecutive days from the date of initial sampling, followed by one 24-hour, midnight-to-midnight, sample collected at least once every three calendar days, on a schedule and frequency approved by the Executive Officer;
- Submit collected samples to a laboratory approved under the SCAQMD Laboratory Approval Program for analysis within three calendar days of collection and provide duplicate samples to the District upon request by the Executive Officer; and
- Calculate 30-day average ambient lead concentrations for individual 24 hour samples within 15 calendar days of the end of the calendar month.

Facilities will also be required to continuously monitor wind speed and direction for the ambient air quality monitoring system at all times to supplement data analysis of samples collected. Only personnel approved by the Executive Officer will be allowed to conduct ambient air quality monitoring, and sampling equipment shall be operated and maintained in accordance with U.S. EPA-referenced methods.

Cleaning activities, such as wet washing and misting, that result in damage or biases to samples collected, will not be allowed within 10 meters of any sampling site required by the rule. Additionally, all ambient air quality monitoring systems will be required to be equipped with a backup, uninterruptible power supply for use during a power outage. The backup power supplied must be sufficient to power the monitors until processes and equipment at the facility can be safely brought down.

Facilities will be required to collect samples at least once every three days. Current Rule 1420 requires at least one sample to be collected every six days, however, approvals of Rule 1420 ambient air monitoring plans over the past years have required facilities to sample at frequencies proposed in PR 1420.1. Staff believes that sampling every three days provides sufficient

information to accurately reflect the ambient air concentrations at the facility during normal operations. The AQMD staff agrees that if the facility does see a spike, that more frequent sampling should be implemented as discussed below. Community members commented that sampling once every three days does not account for fluctuations in throughput and feel that a daily sampling would provide for a more comprehensive look regarding ambient air lead concentrations. Based on historical monitoring data, in most cases exceedances have been due to housekeeping or maintenance activities and were not related to throughput fluctuations. As discussed under "Housekeeping Requirements," PR 1420.1 includes a number of requirements to address these potential emissions spikes.

On and after January 1, 2012, facilities that exceed an ambient air lead concentration of 0.15 $\mu g/m^3$ averaged over any 30 consecutive days, measured at any fence line monitor required by the rule, will be required to increase ambient air monitoring and sampling to a daily frequency. Daily ambient air monitoring and sampling will be required to begin no later than three calendar days of the time the facility knew or should have known of the exceedance. Daily monitoring and sampling will be required to be conducted for a period of sixty consecutive days at each sampling site that measured an exceedance. Any subsequent exceedance at a monitor that measured an exceedance shall require restarting the 60 consecutive-day period.

Any existing ambient air monitoring network currently in use for Rule 1420 may be used for compliance with PR 1420.1 so long as all rule requirements have been met.

Source Tests

The proposed rule will require annual source tests for all lead control devices in order to demonstrate compliance with the facility total lead mass emission rate standard of 0.045 lb/hr, and the maximum individual stack lead emission rate standard of 0.01 lb/hr. Initial source tests for new and modified lead control devices with an initial start-up date on or after the adoption date of the proposed rule will be required within 60 days of initial start-up. Existing lead control devices in operation before the adoption date of the rule will require a source test no later than six months after adoption of the rule. An existing source test, for existing lead control devices, conducted on or after January 1, 2009 may be used as the initial source test as long as the test:

- Is the most recent conducted since January 1, 2009;
- Demonstrated compliance with the applicable control standard;
- Is representative of the method to control emissions currently in use; and
- Was conducted using applicable and approved test methods.

The rule lists the following applicable test methods:

- SCAQMD Method 12.1;
- CARB Methods 12 and 436; and
- EPA Method 12.

Use of an alternative or equivalent test method will be allowed as long as it is approved in writing by the Executive Officer, CARB, and the U.S. EPA. Facilities will be required to submit a pre-test protocol to the Executive Officer at least 60 calendar days prior to conducting the source test. Notification to the Executive Officer in writing shall also be required one week prior to conducting the source test.

The proposed rule provides an incentive for lead control devices that demonstrate exemplary lead emission rate source test results. If the results of the most recent source test for a single lead point source control device indicate emissions of 0.0025 pounds of lead per hour or less, the next test for that lead control device may be performed within 24 months after the date of the most recent test. The rate of 0.0025 pounds of lead per or hour represents 50% of the average rate required for an individual stack, based on modeling of the PR 1420.1 affected facilities, to meet the 0.045 pounds of lead per hour rate for all facility lead point sources.

New Facilities

Under PR 1420.1, any new facility that begins construction or operations on or after rule adoption shall not be located in an area that is zoned for residential or mixed use. In addition, any new facility shall not be located within 1,000 feet from the property line of a sensitive receptor, a school under construction, park, or any area that is zoned for residential or mixed use. A siting provision for new facilities is proposed to avoid the possibility of high lead exposure for nearby residences and sensitive receptors from any new lead-acid battery recycling facility. This provision was included in PR 1420.1 due to the persistent nature of lead and the potential for lead particle accumulation over time. Individual events of small amounts of lead emitted by the facility may not trigger non-attainment status with the new lead NAAQS, however, chronic, cumulative lead exposure is a concern.

Recordkeeping

PR 1420.1 will require records indicating amounts of lead-containing material processed at the facilities to be maintained by the facility. Examples of records include purchase records, usage records, results of lead content analysis, or other AQMD-approved verification to indicate processing amounts. Records for all rule-required housekeeping, maintenance activity, ambient air lead monitoring, lead control device inspection and maintenance, and unplanned shutdowns of any smelting furnaces must also be maintained. All records shall be maintained for five years and maintained onsite for at least two years.

Reporting

Ambient Air Monitoring

Under the proposed rule, facilities will be required to submit reports for monthly ambient air monitoring results for lead and wind data measured at each sampling location on a monthly basis. Reports must be submitted starting no later than January 1, 2011 and must include the results of individual 24-hour samples and 30-day averages for each day within the reporting period. In addition, any exceedance of the ambient air quality concentration shall be reported to the Executive Officer (1-800-CUT-SMOG) within 24 hours of receipt of completed sample analysis, followed by a written report to the Executive Officer no later than three ~~calendar~~ business days after the notification.

Shutdown and Turnarounds

PR 1420.1 requires notifications to the Executive Officer and the public of planned and unplanned shutdowns. Planned shutdown of any smelting furnace, battery breaker, or lead control device that results in lead emissions shall be reported to the Executive Officer by calling 1-800-CUT-SMOG at least ten days prior to shutdown. Unplanned shutdown of any lead control device shall be notified to the Executive Officer by calling 1-800-CUT-SMOG within 1 hour of

shutdown. The notification shall include the associated processes or equipment vented by the shutdown lead control device. For both shutdowns above, a written notification shall also be made to the Executive Officer no later than three calendar days after the shutdown has occurred. Provisions for public notifications are described below.

Maintenance Activity

Under PR 1420.1 facilities will be required to notify the Executive Officer at least ten days prior to the beginning of any maintenance activity that is conducted routinely on a monthly or less frequent basis. Notification information shall include a description of the activity including dates, times, name of person(s) conducting the activity, and specific locations at the facility where activities will be conducted. A description of lead abatement procedures that will be used to minimize lead emissions is also required. For the purpose of the proposed rule, maintenance activity means any maintenance activity defined in paragraph (c)(15) that is conducted outside a total enclosure and generates fugitive-lead dust as recognized by the Executive Officer. Below is a list of specific types of activities that require a notification if the potential for fugitive-lead dust generation exists:

- Building construction, renovation, or demolition;
- Replacement or repair of refractory, filter bags, or any internal or external part of equipment used to process or handle lead containing materials;
- Replacement of any duct section used to convey lead-containing exhaust;
- Metal cutting or welding that penetrates the metal structure of any equipment used to process lead-containing material; or
- Resurfacing, repair, or removal of ground, pavement, concrete, or asphalt.

Provisions for public notifications of these activities are described below.

Notifications to the Public

Through comments received at working group meetings for this rule, residents in close proximity to PR 1420.1 facilities have expressed their concern for the lack of awareness of various activities conducted at the plant that have the potential to result in increased ambient lead concentrations. Community members have requested that information be made available to them so that they can safely plan outdoor activities.

In response to these concerns, PR 1420.1 requires facilities to provide notifications to the public through a facility contact or pre-recorded notification center that is accessible 24 hours a day, 7 days a week, or by another method approved by the Executive Officer that informs the public when the facility will be conducting the specific activities. The facility will be required to install a sign displaying the phone number for the contact or the pre-recorded notification center that is visible to the public. In addition, the facility is required to send notifications via electronic mail. The AQMD staff will provide a list of people who would receive the electronic mail. Facility representatives have asked if information can be placed on their website. This approach would be acceptable provided the sign includes the website information.

The timing of the notifications is similar to notification requirements that are required for the Executive Officer. PR 1420.1 also specifies the type of information that must be included in the

notification such as the date, time, location, and description of the activity. PR 1420.1 requires that notification to the public be provided for the following activities:

- Roof washings;
- Resurfacing, repair, or removal of ground, pavement, concrete, or asphalt that are located outside of a total enclosure and generate fugitive lead-dust;
- Building construction, renovation, or demolition conducted outside of a total enclosure and generates fugitive lead-dust;
- Planned shutdowns or turnarounds of any smelting furnace, battery breaker, or lead control device that will result in lead emissions; or
- Unplanned shutdowns of any lead control device.

Initial Facility Status Report

Under PR 1420.1, no later than January 1, 2011, existing facilities will be required to submit an Initial Facility Status Report. Minimum information required in the report is specified in Appendix 1 of the proposed rule. Below is a summary of required information:

- General facility information (name, address, contact number);
- Worker and sensitive receptor locations with respect to the facility;
- Facility building parameters;
- Description of the lead processes at the facility;
- For all three calendar years dating back from the adoption of the rule:
  - ✓ Annual amounts of all lead-containing materials processed;
  - ✓ Maximum and average daily and monthly operating schedules;
  - ✓ Maximum and average daily and monthly lead-processing rates for all equipment and processes;
  - ✓ Maximum and average daily and annual lead emissions;
- Engineering drawings, calculations, or other methodology to demonstrate compliance with emission standards; total enclosures; ambient air lead monitoring and concentrations; and source tests;
- Intended source test dates for all lead control devices; and
- The name, title, and signature of the responsible official certifying the report.

Ongoing Facility Status Report

Facilities will be required to update the Executive Officer of facility status and changes through submittal of an Ongoing Facility Status Report under PR 1420.1. Reports will be due every year on or before February 1st and shall include information covering the preceding calendar year. Minimum information required in the report is specified in Appendix 2 of the proposed rule. Below is a summary of required information:

- ✓ General facility information (name, address, contact number);
- ✓ Quantities of lead-containing materials processed;
- ✓ Maximum and average daily and monthly lead-processing rates from all equipment and processes;
- ✓ Maximum and average daily and annual emissions of lead from all emission points and fugitive lead-dust sources;
- ✓ Description of changes in worker and sensitive receptor locations and distances since the previous reporting period;

- ✓ Description of changes in monitoring, processes, or controls since the previous reporting period; and
- ✓ The name, title, and signature of the responsible official certifying the report.

CHAPTER 3: IMPACT ASSESSMENT

INTRODUCTION

Various potential sources of lead emissions within the Basin were evaluated in order to plan strategies for attainment with the 2008 NAAQS. Staff has conducted an analysis of lead-emitting sources that may contribute to non-attainment status with the new lead NAAQS. Measurements taken at AQMD's monitoring network for ambient air lead concentrations were also reviewed for years 2007 through 2010, along with an analysis of lead emissions using multiple data sources including AQMD's AER program, permitting data, and compliance data for years 2005 through 2007. Additional information from AQMD's AB2588 air toxics program, including results of historical and current source test reports, were also included in the evaluation. Based on the analysis, the lead-acid battery recycling industry was identified as the largest source of lead emissions in the AQMD and is the industry affected by PR 1420.1.

Historical AQMD compliance data indicates that some exceedances of ambient air quality concentrations for lead have been related to fugitive lead-dust emissions from partially controlled emission points, process upsets, and minimal housekeeping practices at large lead-acid battery recycling facilities. PR 1420.1 requirements for total enclosures of all major lead recovery and storage processes along with enhanced housekeeping practices are expected to achieve reductions in fugitive lead-dust emissions and consequently reduce ambient air lead concentrations resulting from large lead-acid battery recycling facilities.

IMPACT ASSESSMENT FOR PROPOSED RULE 1420.1

A technical analysis of the impacts of requirements for facilities subject to PR 1420.1 was conducted to evaluate potential economic and environmental impacts of PR 1420.1. The impact analysis was based on compliance with requirements proposed to achieve attainment with the 2008 NAAQS for lead.

Implementation of PR 1420.1 will reduce lead point source and fugitive emissions from lead-acid battery recycling facilities. PR 1420.1 will result in a reduction in lead point source emissions through requirements for lead point source emission rates, installation of secondary controls on dryers, and use of specific filters/bags in lead control devices. Based on emission rates from the most recent source tests, implementation of PR 1420.1 will reduce overall facility lead emissions from point sources at Exide. PR 1420.1 is not expected to result in additional reductions to lead point source emissions at Quemetco since the most recent source tests for its lead control devices show they are well below the facility lead emission rate of 0.045 lbs/hour. However, proposed emission rates of the rule will require maintenance at these levels. Reductions of fugitive lead emission are expected at both facilities through PR 1420.1 housekeeping requirements and total enclosures, however, they are difficult to quantify due to the nature of these types of emissions, the types of control strategies that are used, and the manner and frequencies in which housekeeping is conducted. Ultimately facilities will be required to meet a new ambient air quality standard of 0.15 $\mu g/m^3$, which is tenfold lower than the previous standard.

Implementation of PR 1420.1 would result in a net environmental benefit due to the further reduction of lead exposure and associated health benefits. However, potential cost and environmental impacts may occur in association with the installation of air pollution control devices and implementation of other measures to control lead emissions.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

Pursuant to California Environmental Quality Act (CEQA) Guidelines §15252 and AQMD Rule 110, the AQMD has prepared an Environmental Assessment (EA) for PR 1420.1. The Draft EA was released for a 30-day public review and comment period beginning April 27, 2010 and ending May 26, 2010. No comments were received.

Subsequent to the public circulation of the Draft EA for proposed project, PR 1420.1 was modified as follows:

- Removal of 99 percent control efficiency compliance option for lead control devices
- Addition of total facility lead emission rate and maximum individual lead control device emission rate (pounds per hour)
- Addition to use specific filters/bags in lead control devices
- Addition of secondary lead controls on the dryer
- Removal of vehicle wet wash area requirement
- Public notifications for:
    - Unplanned and planned shutdowns/turnarounds of specific equipment
    - Specific types of maintenance activity

The modifications were analyzed and AQMD staff concluded that recirculation was not necessary per CEQA Guidelines §15073.5, because the modifications were determined not to be a substantial revision (i.e., a new, avoidable significant effect that requires mitigation measure or project revisions to reduce the effect to insignificance or that project effects cannot be reduced to insignificant and new measures or project revisions are required). Recirculation is not required, because mitigation is not required; the modifications were not a response to written or verbal comments on the proposed effects identified in the Draft EA; modifications were not required by CEQA, and do not create new significant environmental effects, and it is not necessary to mitigate an avoidable significant effect; and new information added to the proposed project makes insignificant modifications to the Draft EA.

SOCIOECONOMIC ASSESSMENT

PR 1420.1 will incorporate the latest amendments to the federal NAAQS for Lead, as adopted by the U.S. EPA on October 15, 2008. PR 1420.1 would also propose additional provisions beyond the NAAQS which include total enclosures, detailed housekeeping requirements, increased monitoring, and periodic emissions testing of add-on air pollution control devices. The total annual cost for both facilities to comply with PR 1420.1 is estimated at $0.41 million for the first year, and $0.32 million annually thereafter. The socioeconomic assessment ~~will be~~was made available to the public at least 30 days prior to the Public Hearing and will be included as part of the Public Hearing package.

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION 40727

Requirements to Make Findings

California Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report.

Necessity

A need exists to adopt Proposed Rule 1420.1 in order to 1) implement the more stringent National Ambient Air Quality Standard for lead set by the U.S. EPA adopted October 15, 2008, 2) impose requirements intended to reduce lead emissions from the source category that has caused non-attainment designation of the Los Angeles County portions of the Basin, and 3) to protect public health by reducing cancer risk and other health effects from exposure to lead emissions pursuant to California Health and Safety Code Sections 39669.5 and 44390 through 44394.

Authority

The AQMD Governing Board has authority to adopt Proposed Rule 1420.1 pursuant to the California Health and Safety Code Sections 39002, 39650 et. seq., 39669.5, 40000, 40001, 40440, 40441, 40702, 40725 through 40728, 41508, 41700, 41706, 44365, and 44390 through 44394.

Clarity

PR 1420.1 is written or displayed so that its meaning can be easily understood by the persons directly affected by it.

Consistency

PR 1420.1 is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions or state or federal regulations.

Non-Duplication

PR 1420.1 will not impose the same requirements as any existing state or federal regulations, other than implementing the NAAQS for lead. The requirements of PR 1420.1 are in addition to Rule 1420. The proposed rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the AQMD.

Reference

By adopting PR 1420.1, the AQMD Governing Board will be implementing, interpreting or making specific the provisions of the California Health and Safety Code Sections 40001 (rules to achieve and maintain ambient air quality standards), 41700 (nuisance), 41706(b) (emission standards for lead compounds from non-vehicular sources), Federal Clean Air Act Section 112 (Hazardous Air Pollutants), and the 2008 National Ambient Air Quality Standards for Lead.

Problem

Prior to adoption of a rule or regulation that reduces criteria pollutants, H&S Code 40001(c) requires districts to determine that there is a problem that the proposed rule or regulation will alleviate and that the rule or regulation will promote the attainment or maintenance of state or federal ambient air quality standards. It has been determined that ~~lead-acid battery recycling facilities~~the District will have a problem meeting the 2008 NAAQS for lead if further strategies are not implemented to control lead emissions from ~~their~~lead-acid battery recycling facilities. PR 1420.1 will help alleviate this problem and help ensure compliance with the 2008 NAAQS for lead.

Rule Adoption Relative to Cost-effectiveness

Health and Safety Code Section 40922 requires that a cost-effectiveness ranking of available and proposed control measures is to be assessed for plans prepared pursuant to and Health and Safety Code, Part 3, Chapter 10. PR 1420.1 is not a control measure in the 2007 Air Quality Management Plan (AQMP) and thus, was not ranked by cost-effectiveness relative to other AQMP control measures in the 2007 AQMP. Furthermore, pursuant to Health and Safety Code Section 40910, cost-effectiveness in terms of dollars per ton of pollutant reduced is only applicable to rules regulating ozone, carbon monoxide, sulfur dioxide, and nitrogen dioxide and does not apply to toxic air contaminants.

Incremental Cost-effectiveness

Health and Safety Code Section 40920.6 requires an incremental cost effectiveness analysis for Best Available Retrofit Control Technology (BARCT) rules or emission reduction strategies when there is more than one control option which would achieve the emission reduction objective of the proposed amendments, relative to ozone, CO, SOx, NOx, and their precursors. Since the proposed rule applies to lead, the incremental cost effectiveness analysis requirement does not apply. Furthermore, PR 1420.1 is not a BARCT rule for the listed pollutants, but rather is intended to bring the AQMD into compliance with the federal NAAQS.

AQMP and Legal Mandates

PR 1420.1 is not a measure in the AQMP. PR 1420.1 is a~~n air toxic~~ rule that would implement the requirements of the U.S. EPA's NAAQS for lead and would also reduce cancer and other risk.

COMPARATIVE ANALYSIS

Health and Safety Code section 40727.2 requires a comparative analysis of the proposed rule with any rules and regulations applicable to the same source. This comparative analysis does not include the state ambient air quality standard because it is still at 1.5 $\mu g/m^3$.

Table 3-1: Comparison of PR 1420.1 with District Rule 1420, the 2008 Lead NAAQS, and the NESHAP for Secondary Lead Smelters

Rule Element	PR 1420.1	District Rule 1420	2008 Lead NAAQS	NESHAP from Secondary Lead Smelting
Applicability	Lead-acid battery recycling facilities that have ~~ever~~ processed more than 50,000 lead-tons/year in the past 5 years or in any future year	Facilities that use or process lead-containing materials	All States	Secondary lead smelters
Ambient Air Quality Standard	On and after January 1, 2012, meet 0.15 µg/m^3 averaged over 30 consecutive days	1.5 µg/m^3 averaged over 30 days	0.15 µg/m^3: - 3-month average - Demonstrated over a 3-year period.	None
Total Enclosures	Total enclosures for main areas where processing, handling and storage of lead-containing materials occur	None[1]	None[2]	Total or partial enclosures for: - Smelting furnace and dryer charging hoppers, chutes, and skip hoists; - Smelting furnace lead taps, and molds during tapping; - Refining kettles; - Dryer transition pieces; and - Agglomerating furnace product taps
Emission Standard and Requirements for Lead Control	- Total facility mass emission rate of 0.045 lbs/hr of lead from all lead	99% control efficiency for particulate matter; 98% control efficiency	None	Concentration of 2.0 mg/dscm

[1] Total enclosures have been required through Compliance Plans and legal actions.

[2] Effective date for the NAAQS is five years after final attainment designation.

Rule Element	PR 1420.1	District Rule 1420	2008 Lead NAAQS	NESHAP from Secondary Lead Smelting
Devices	point sources; maximum emission rate of 0.010 lb/hr of lead for any individual lead point source - Use of filters or bags that are rated by the manufacturer to achieve 99.97 percent control efficiency on 0.3 micron particles or made of PTFE membrane material - Secondary lead controls on dryer	for lead		
Compliance Plan	Only required if a facility exceeds 0.12 µg/m^3; 30 consecutive day avg.; Identifies additional lead control measures beyond the rule; Begin implementation if facility exceeds 0.15 µg/m^3; 30 consecutive day avg.	Specifies general facility information[3]	None	None
Ambient Air Monitoring Requirements	- Minimum of four monitors at facility locations approved by the	- Minimum of two monitors at facility locations approved by the	For states, a minimum of: - One source-oriented monitor at all	None

[3] Additional facility requirements have been added through revised Compliance Plans.

Rule Element	PR 1420.1	District Rule 1420	2008 Lead NAAQS	NESHAP from Secondary Lead Smelting
	Executive Officer - Samples collected at least once every three days - Results reported monthly - Daily sampling if 0.15 µg/m^3 is exceeded after January 1, 2012	Executive Officer - Samples collected every six days - Results reported quarterly	facilities emitting 1.0 tons of lead/year; and - One non-source-oriented monitor in urban areas with a population of at least 500,000 people - Samples collected every six days	
Housekeeping Requirements	Prescribed requirements for cleaning frequencies of specific areas; maintenance activity; building integrity inspections; storage and transport of lead-containing materials; onsite mobile sweeping; and surface impoundment cleanings	Requirements for storage of dust-forming material; weekly cleaning of surfaces subject to vehicular or foot traffic; and storage, disposal, recovery, and recycling of lead or lead-containing wastes generated from housekeeping activities[4]	None	Periodic wash down of plant roadways (lower frequency than PR 1420.1); wet suppression of battery breaking area storage piles; vehicle wet washing of vehicles exiting the materials handling and storage areas
Reporting Requirements	- Ambient air lead and wind monitoring; - Shutdown, turnaround, and maintenance activity reports; - Public notifications for	Ambient air lead and wind monitoring for any lead-processing facility that is required or elects to do ambient air monitoring	For states: - State Implementation Plan submittal; - Periodic emissions reports from stationary source	- Lead control alarm/failure reports including fugitive dust control measures performed during failures

[4] Additional housekeeping measures have been required through revised Compliance Plans and legal actions.

Rule Element	PR 1420.1	District Rule 1420	2008 Lead NAAQS	NESHAP from Secondary Lead Smelting
	specific shutdown and maintenance activity; - Initial Facility Status Reports - Ongoing Facility Status Reports		monitors; - Ambient air quality data and associated assurance data	

REFERENCES

REFERENCES

"Air Quality Criteria Document for Lead, Volumes I-II," Environmental Protection Agency, Office of Research and Development, October 2006.

"Lead in Air," Environmental Protection Agency, (*http//www.epa.gov/air/lead.html*), June 12, 2009.

"National Ambient Air Quality Standards for Lead; Final Rule," 40 CFR Parts 50, 51, 53, and 58, Environmental Protection Agency, November 2008.

"National Emission Standards for Hazardous Air Pollutants (Secondary Lead Smelters), Notice of Proposed Rule; Notice of Public Hearing," 59 Federal Register 110, Environmental Protection Agency, June 1994.

"Prioritization of Toxic Air Contaminants Under the Children's Health Act," Environmental Protection Agency, Office of Environmental Health Hazard Assessment, October 2001.

"Secondary Lead Smelter eTool," United States Department of Labor, Occupational Safety and Health Administration, *(http://www.osha.gov/SLTC/etools/leadsmelter/index.html)*.

"Secondary Lead Smelting Background Information Document for Promulgated Standards," Environmental Protection Agency, Office of Air Quality Planning and Standards, June 1995.

"South Coast Air Quality Management District Lead (Pb) Monitoring Network Plan," South Coast Air Quality Management District, July 2009.

"Staff Report for Proposed Rule 1420: Emissions Standards for Lead," South Coast Air Quality Management District, August 1992.

APPENDIX A: COMMENTS AND RESPONSES

Comments from the Public Workshop held April 14, 2010 and those received in writing are addressed below.

APPLICABILITY

1. Comment: Requirements under PR 1420.1 should only apply to large lead-acid battery recycling facilities if they discharge emissions that cause ambient concentrations of lead to exceed 0.15 $\mu g/m^3$ at or beyond the facility property line.

Response: The federal standard was reduced tenfold from a concentration of 1.5 $\mu g/m^3$ to 0.15 $\mu g/m^3$. Achieving the new standard will be challenging. Based on experience with the Rule 1420 compliance plan approach, the AQMD staff decided that it is more health protective to establish base requirements in PR 1420.1. PR 1420.1 takes a more proactive approach to establish key requirements in the proposed rule that address point source and fugitive emissions. Many of these requirements are currently being implemented at one or both of the affected facilities. The approach that the commenter is suggesting may result in delays in implementing additional measures at the facility as these would likely be developed individually with the facility through a compliance plan that would need to be developed by the facility and reviewed and approved by the AQMD staff. In addition, the approach under PR 1420.1 provides certainty to the affected facilities of the requirements since they are specified upfront as opposed to later through a compliance plan.

2. Comment: Why was the processing of 50,000 tons of lead per year chosen as the applicability criteria for PR 1420.1? The staff report indicates that the threshold was selected because 50,000 tons per year is approximately 50 percent of the lowest "current facility" throughput limit; however, there is no rationale for why this constitutes a "large" recycling facility.

Response: Lead-acid battery recycling facilities with large throughputs are the largest lead emission sources in the Basin. The facilities currently process an average of at least 300 tons of lead a day each. Ambient air concentrations of lead from these facilities were, in large part, the reason CARB recommended a non-attainment designation for Los Angeles County with the 2008 NAAQS for lead. The description of these facilities as "large" is solely to differentiate them from smaller facilities that are below the applicability threshold of the rule and are not expected to exceed the new NAAQS standard. This rationale is further explained on page 2-2.

3. Comment: The applicability threshold limit should be lowered to include medium-sized facilities.

Response: Other lead sources will be addressed in a future amendment to Rule 1420 – Emissions Standard for Lead. The AQMD staff started with large lead-acid battery recyclers because they represent the largest stationary lead emission sources in the district. A number of the requirements under Proposed Rule 1420.1 are specific to lead-acid battery recycling. There are requirements, however, that will be applicable to other lead sources that will likely be included in amendments to Rule 1420.

4. Comment: The applicability is worded awkwardly and suggests that a facility is only subject to the rule if it has processed more than 50,000 tons of lead a year in any of the five calendar years prior to the date of adoption, AND annually thereafter. Such wording would exempt any new facility coming on line after the date of adoption since it would not satisfy both of the conditions linked by the "and."

Response: Staff agrees with the commenter and rule language has been revised to say "or" rather than "and."

5. Comment: Once a facility becomes subject to the rule, is it always subject?

Response: The intent of the rule is to include all large lead-acid battery recycling facilities that, in the past five years, have ~~ever~~ processed or will ever process 50,000 tons of lead-containing material per year, to always be subject to the rule. Rule language has been revised to clearly convey this. The AQMD staff believes that this important to ensure that a facility does not circumvent the rule based on the applicability.

6. Comment: Is the term "annually thereafter" to be assessed on a calendar year basis?

Response: The rule states that "calendar years" are to be used when reviewing years prior to the adoption date for determining applicability. For consistency, calendar years will also be used to determine applicability after the adoption date of the rule.

7. Comment: Rather than the prescriptive approach proposed, the approach for PR 1420.1 should simply specify reasonable compliance schedules for achieving the new lead NAAQS, require submittal of compliance plans by companies, and specify monitoring requirements.

Response: This approach would be similar to Rule 1420. Past experience with Rule 1420 shows that a Compliance Plan approach is not sufficient to demonstrate compliance with the lead ambient air quality standard. Reliance of a Compliance Plan to establish lead control measures will result in delays for implementation of lead control measures due to the time taken for development and District approvals. Moreover, with the

new lead standard being tenfold lower than previous, even greater assurances in the specificity of the control measures is needed. Please refer to the response to Comment #1.

8. Comment: The prescriptive approach of PR 1420.1 would undertake management of our facility as well as design our facility's air pollution control systems which is legally impermissible.

Response: For both affected facilities, many of the provisions under PR1420.1, including those for total enclosures and lead point source emission controls, are being implemented through an updated compliance plan, settlement agreement, compliance with Rule 1402, or an order for abatement. As previously discussed in Response to Comment #1 and #7, the affected facilities have demonstrated the need for a rule that includes core requirements.

PR 1420.1 will not undertake management of either facility. The AQMD staff agrees that the best compliance test for the lead air quality standard is the ambient monitors. To achieve the lead standard, lead point sources and fugitive sources must be well controlled. The AQMD staff has studied the lead point sources at each of the affected facilities and their emission rates. Based on source tested data and air dispersion modeling, it is clear that a minimum emission rate standard is needed for lead point sources. Affected facilities have a variety of options of which stacks to control and which control technologies to implement, if needed.

Based on source test data and air dispersion modeling, it is clear that the dryer has the greatest potential to impact fence line emissions. Thus, a requirement has been added to PR 1420.1 to install a secondary lead control device for dryer. Staff has added rule language to paragraph (f)(4) that requires the facility to include additional information in the permit application for equipment required under subdivision (f) – Lead Point Source Emission Controls, regarding an alternative secondary lead control method to compliance if requested by the facility.

The AQMD staff understands that there are physical alterations a facility can make to their stack parameters to change the dispersion of lead emissions from the point sources. Increasing the stack height or buoyancy may dilute the concentration at a fence line monitor, however, the same lead emissions are being dispersed in the atmosphere. Simply changing the air dispersion of emissions without overtly reducing emissions is not in the best interest for air quality and public health. In addition, the Clean Air Act, Section 123, prohibits use of stack height or other "dispersion" techniques~~t~~ in lieu of emission controls.

AMBIENT AIR QUALITY CONCENTRATION AND MONITORING

9~~7~~. Comment: Paragraph (d)(2) gives the Executive Officer sole authority to judge the evidence that might be provided by a facility to demonstrate that measured ambient air quality concentrations are not the result of that facility's emissions. The last line of the proposed language should be reworded by striking the phrase, "as approved by the Executive Officer."

Response: The rule language has been modified and now reads "The ambient air concentrations of lead shall be determined by monitors pursuant to subdivision (j) or at any District-installed monitor." Subdivision (j) contains all monitoring and sampling requirements and the referenced provision has been removed.

10~~8~~.Comment: The deadline to achieve the ambient concentration of 0.15 $\mu g/m^3$ by January 1, 2012 is not consistent with SCAQMD's stated intent to achieve attainment with the federal standard based on U.S. EPA timeframes. The deadline for final designations for initial non-attainment areas for areas with existing monitoring networks is no later than October 2010 with an effective date of January 1, 2011. The earliest final attainment date would then be five years later, or January 1, 2016. We suggest the compliance date for the ambient air concentration standard of the rule should be "no less than two years after the effective date of any final designation of non-attainment area." Such a compliance date would allow the collection of three years of compliant data necessary for attainment demonstration as required by U.S. EPA.

Response: We agree with the commenter's assessment for determining deadlines and timeframes regarding attainment with the NAAQS. However, staff believes that allotting only three years to collect compliant data does not allow any margin for additional attempts to demonstrate attainment in the event of an exceedance of the standard. In addition, staff believes that action to protect public health should be taken as soon as practicable, and that the requirements of the proposed rule to reduce exposure to lead emissions can be implemented by January 1, 2012.

11~~9~~.Comment: The requirement for ambient air monitoring to begin by January 1, 2011 does not consider how long it might take to arrive at a selection of sampling sites "approved by the Executive Officer" based on "Executive Officer-approved air dispersion modeling." Instead, the proposed rule should allow 120 days after approval of the sampling site(s), with more time allowed if property access issues arise.

Response: Both facilities currently operate an approved ambient air monitoring network required by Rule 1420 with at least four monitors. Both facilities currently meet the air monitoring network requirements under PR 1420.1.

No changes to the current networks are anticipated. Therefore, additional time is not needed.

12~~0~~.Comment: Determining compliance with the ambient air concentration standard based on concentrations "at or beyond the property line" is inappropriate. The placement of monitors "at or beyond the property line of the facility" given the proposed definition of "property line" could include locations as much as 25 feet inside the facility's property boundary. Such locations inside the facility do not constitute "ambient air" monitoring according to 40 CFR 58 Appendix E.

and

The definition of AMBIENT AIR as outdoor air is vague and ambiguous. The definition should be considered to be outside air unaffected by the local environment either upwind of an area in question, or a significantly diluted mixed environment downwind of an area in question.

Response: The definition of PROPERTY LINE has been removed from the rule and a definition of AMBIENT AIR has been added. For the purposes of this rule, ambient air will refer to any outdoor air which is similar to the California Air Resources Board definition rather than the federal definition. It should also be noted that the proposed rule and the 2008 NAAQS for lead requires compliance with ambient air lead standards based on facility emissions that *contribute* to exceedances, with facility emissions not having to be the sole cause.

13~~1~~.Comment: The SCAQMD does not have the authority to impose the proposed definition of AMBIENT AIR which is counter to that established by U.S. EPA in 40 CFR 50.1(e). We do not see where this overly expansive revised definition of ambient air would come into play.

Response: The concern is that ambient air monitors located at or beyond the facility property line used to measure maximum ground level concentrations have historically been placed slightly within the facility property line at the facility's request due to issues such as vandalism, theft, or property rights. In the past, the AQMD staff has approved the alternative siting requests. As a result, the subject monitors do not technically qualify as measuring "ambient air" under the federal definition, as they do not measure air that is accessed by the public. For these reasons, staff has chosen the broader definition of "ambient air" as defined by CARB which accommodates these "fence line" monitors that are located slightly within the property line.

14~~2~~.Comment: The sampling frequency associated with the federal standard is every sixth day, and not every three days as proposed in subdivision (j). There is no

rationale for selecting this sampling frequency in the preliminary draft staff report. U.S. EPA thoroughly considered a variety of sampling frequencies in the promulgation of the federal standard and consciously selected every sixth day sampling.

Response: In 1970, CARB set the California Ambient Air Quality Standard for lead at 1.5 µg/m^3 for a 30-day average. Subsequently in 1978, U.S. EPA established the National Ambient Air Quality Standard at 1.5 µg/m^3 averaged over a calendar quarter, with collection of samples once every six days. Although Rule 1420 only required facilities to sample once every six days, they are currently sampling once every three days and in some cases more frequently. PR 1420.1 maintains the same averaging period as Rule 1420, but proposes to increase the sampling requirement to once every three days. Based on more recent sampling at affected facilities, the AQMD staff believes that sample collections once every three days provides a good representation of lead emissions.

153.Comment: Paragraph (j)(5) is ambiguous and vague in terms of how many wind speed and direction monitors would be required at a given facility. This section should be revised to clarify the meaning of the word "system" such that it is clear that a single meteorological data system to record wind speed is required rather than one at each ambient monitor.

Response: Staff agrees and has modified the rule language to reflect the commenter's suggestion. Please refer to the proposed rule.

164.Comment: We request that a provision be added to the ambient air monitoring section to explicitly provide a mechanism for the consideration and exclusion of ambient monitoring data influenced by an "exceptional event" so that additional measures and/or enforcement are not unnecessarily triggered. The provision should be modeled after the procedures set forth in 40 CFR 50.14 with the incorporation of the definition of "exceptional event" as presented in 50 CFR 50(j).

Response: "Exceptional event" as referenced in 50 CFR 50(j) applies to data submitted to U.S. EPA to demonstrate attainment with any NAAQS. The purpose is to exclude emissions caused by uncontrollable events not expected to recur at a given location, such as fires, explosions, or accidents so that an area's attainment status is not affected. Therefore, no change has been made to the proposed rule.

175.Comment: There is no justification provided for using an averaging form of 30 consecutive days for compliance with the ambient air concentration standard. The federal standard is based on a three-month averaging form. Accordingly, given AQMD's stated purpose in promulgating PR 1420.1,

compliance with an ambient air concentration standard must be established based on the same averaging form.

Response: The Health and Safety Code allows local governments, such as AQMD, to require more stringent standards than those set forth federally or by the state if deemed necessary. Staff believes a more stringent averaging form provides for earlier detection of high ambient air lead concentrations and ample time that is necessary to implement measures that would reduce lead concentrations before a three-month average exceeding the new standard results.

18. Comment: Compliance with the proposed rule should not be based on data from air samples collected from on-site monitors. Revise subparagraph (j)(1)(C) to read "The Executive Officer may require one or more of the four sampling sites to be at locations that are not based on maximum ground level lead concentrations *that are not located within the fence line,* and that are instead at locations representative of upwind or background concentrations."

Response: The intent of monitors under this subparagraph is not to be located well into the facility where the lead recycling process occurs, but to be as close to the fence line as feasible. The AQMD staff does not anticipate that existing monitors located at either of the affected facilities would need to be moved. However, staff understands the commenter's concern and rule language has been modified to read "The Executive Officer may require one or more of the four sampling sites to be at locations that are not based on maximum ground level lead concentrations and that are instead at locations at or beyond the property line that are representative of upwind or background concentrations." It should be noted that Rule 1420 had similar language requiring that monitors be located "at or beyond the property line of the facility where maximum ground level lead concentrations are…"

TOTAL ENCLOSURES

19~~6~~.Comment: The definition of TOTAL ENCLOSURE is from the federal hazardous waste containment building regulations. It requires containment buildings to maintain the primary barrier free of significant cracks, gaps, corrosion or other deterioration that could cause hazardous waste to be released from the primary barrier. Since the total enclosures required in PR 1420.1 are utilized for areas that do not store hazardous waste (such as a battery wrecker or refinery area or a furnace), this definition places an unnecessary requirement on a smelter.

and

References to 40 CFR 264.1101 should be added to the TOTAL ENCLOSURE definition to ensure that these requirements apply to the permitted hazardous waste facilities that are considered large lead acid battery recycling facilities.

Response: The originally proposed definition of TOTAL ENCLOSURE has been changed to limit it to only those requirements that affect air quality and the applicable requirements are spelled out in the definition. In addition, the definition no longer contains references to the Code of Federal Regulations in order to avoid confusion.

20~~17~~. Comment: Consider exempting enclosures that are existing or under construction at the time of rule adoption from the strict definition of TOTAL ENCLOSURE for facilities meeting the fenceline standard at some early date.

Response: The AQMD staff believes that total enclosure of the specified areas is necessary to ensure that fugitive lead dust from such operations is properly contained and well controlled. Exempting existing enclosures or those that are under construction would relieve these structures from meeting the requirements for total enclosures. The proposed rule provides sufficient time for affected facilities to build new or upgrade existing enclosures to ensure they meet the total enclosure requirements.

21~~18~~. Comment: The requirement for total enclosures of any operation deemed necessary by the Executive Officer extends too much authority without any requirement to demonstrate the necessity for the enclosure.

Response: This language has been omitted from the rule. However, it should be noted that Compliance Plan requirements may contain additional measures for total enclosures of additional areas if they are determined to be a significant source of lead emissions or the cause of an exceedance of the ambient lead standard.

22~~19~~. Comment: The requirement for specified areas to be enclosed within total enclosures by January 1, 2011 does not account for the possibility that factors beyond the facility's control including, but not limited to, delays in processing of Permits to Construct applications by the AQMD staff in a timely manner, could prevent a facility from meeting the enclosure deadline despite its best efforts.

and

The requirement for total enclosure installations to be completed within 180 days of receiving Permits to Construct or by July 1, 2011, whichever is EARLIER should be reworded to LATER. Otherwise facilities might

not be given adequate construction time in the event Permits to Construct are issued too close to the July 1, 2011 deadline. Facilities have a reasonable expectation of reciprocal response, acknowledgement, and approval times. It is expected that if the District requests a response within a given timeframe, the facility has the expectation that the District shall similarly respond within the same timeframe.

and

Approvals for extensions should be based on reasonableness rather than discretionary.

Response: The timing for this requirement, along with the timing for lead control devices, has been changed in response to comments received. The previous deadline of January 1, 2011 has been extended by six months and now says that enclosures are to be installed and in operation no later than July 1, 2011. In order to account for potential delays for permit approvals, building department permits, and construction, an extension of the compliance date may be approved by the Executive Officer if the facility can demonstrate that it is unable to meet the deadline due to reasons beyond the facility's control. The request must be made prior to the compliance deadline and all complete permit applications must have been submitted in a timely manner according to due dates specified in the rule.

The dates specified under paragraph (d)(3) are based on estimates of how long that it will take to permit, build, and begin operation of equipment to comply with the provisions. It is the AQMD staff's understanding that both facilities have already begun the process to install total enclosures and have primary controls on all of point sources. If the facility is required to install secondary controls as required under subdivision (f), it is the AQMD staff's understanding that this would be the only additional requirement. The AQMD staff believes that the dates and times for compliance provide sufficient time for affected facilities to comply.

2~~0~~3.Comment: In subparagraph (d)(3)(B), for total enclosures, can construction begin prior to receipt of a Permit to Construct if that is what's necessary to meet the July 1, 2011 deadline?

Response: Construction can begin on anything that does not require a Permit to Construct consistent with the AQMD's interim rule interpretation for Rule 201, however, if a permit is required, the construction cannot begin until the permit is approved. Subparagraph (d)(3)(C) provides for an extension of the deadline if the facility can demonstrate that complete applications were filed within 30 days of the date of adoption of PR 1420.1 and that it cannot meet the deadline due to reasons beyond its control.

241.Comment: The rule specifies that each total enclosure be "vented to an emission collection system that ducts the entire gas stream to a lead control device..." The term "entire" is unnecessarily absolute and subject to potential misinterpretation. A more appropriate word would be "collected."

and

The word "collected" is not necessary because total enclosures are required to be maintained under negative air pressure and are free from leaks or cracks.

Response: Staff agrees that the word collected is not necessary and the language reads, "ducts the entire gas stream."

252.Comment: A requirement for both a negative pressure and an in-draft velocity to be measured at each total enclosure is redundant. Compliance with either criterion would ensure capture of potential fugitive emissions.

Response: The in-draft velocity requirement helps ensure that sufficient negative pressure is maintained at openings that do not have an associated differential pressure monitor. The requirement that periodic in-draft velocity measurements and recordkeeping have has been removed, however, maintaining the in-draft velocity at a minimum of 300 feet per minute is required and may be checked at any time to determine compliance.

263.Comment: No rationale or justification is provided for the selection of an in-draft velocity of at least 300 feet per minute.

Response: The in-draft velocity requirement of 300 feet per minute was derived from hood face velocity requirements for process fugitive emissions set forth in the NESHAP for Secondary Lead Smelters (40 CFR Part 63.544 (b)(1)). This requirement is currently being met at one of the PR 1420.1 affected facilities, as it was established as a condition for the facility through an order for abatement.

274.Comment: The "monitoring system" is required to be maintained at a negative pressure of at least 0.02 mm of Hg, when it is actually the "enclosure" that must be maintained at this negative pressure.

Response: Language has been changed as suggested by the commenter.

285.Comment: No justification is given as to why the accuracy of the pressure drop monitor must be to the nearest 0.001 mm Hg.

Response: The proposed rule requires that pressure differential monitors are digital. Readings to the nearest 0.001 mm Hg allows more accurate readings so that compliance with the 0.02 mm Hg standard can be determined.

296.Comment: The manufacturer's calibration requirement for differential pressure typically specifies calibration on an annual basis, not every six months.

Response: The language has been changed to require calibration every 12 months or more often if recommended by the manufacturer.

3027. Comment: Fitting each differential pressure monitoring system with a continuous chart recorder is unnecessary, redundant, wastes paper, and generates a recordkeeping hardship. Once established via periodic logging of pressure monitor data that the enclosure is fitted with ventilation sufficient to maintain negative pressure, the ongoing imposition of that negative pressure is assured as long as the ventilation fans keep running.

and

The requirement for continuous differential pressure monitoring is duplicative, beyond the normal checks and balances theory of regulation. Differential pressure should be a weekly or monthly performance criteria rather than continuous monitoring. Differential building pressure can be inferred from the operation of baghouse flowrate or by in-draft velocity measurements.

Response: An ongoing imposition of a fixed negative pressure based solely on ventilation fans running or baghouse flowrates being maintained as normal does not account for changes in negative pressure due to in-draft changes resulting from opening of doors or windows which can be demonstrated by the chart recorder and recordkeeping. The proposed rule also allows for the use of an electronic recorder as an alternative to the chart recorder eliminating the concern for generating paper waste.

3128. Comment: The District requests copies, provided at the expense of the facility, of any software necessary to review the output of the digital differential pressure monitoring system rather than requesting the output data file in a standard ASCII data format. This may be an issue of ethics and conflict of interest.

Response: The intent of the provision is to only provide software needed to access the recorded data that is not readily available to the Executive Officer. Rule language has been modified to reflect this.

329.Comment: Requiring backup power for differential pressure monitors is an unnecessary measure that will generate no meaningful additional information. If the facility loses electrical power, the fans imposing the

negative pressure on the total enclosure will not operate and the differential pressure will drop to zero requiring no further verification via monitoring.

Response: Staff agrees with the commenter if the assumption was that all power disruptions to a differential pressure monitor were a result of a complete facility power outage. However, backup power on the differential pressure monitor also accounts for instances where continuous power or connectivity problems affect only the differential pressure monitor. During these instances, it is necessary for monitoring to continue so that the negative pressure is measured and recorded.

33~~0~~.Comment: The proposed definition of WINDWARD WALL is ambiguous and unclear as to what data would inform selection of a "most prevailing" wind direction. The definition also does not sufficiently describe how to select the referenced "most impacted" wall.

Response: The definition of WINDWARD WALL has been changed to mean the "exterior wall of a total enclosure which is most impacted by the wind in its most prevailing direction determined by a wind rose using data required under paragraph (j)(5) of this rule, or other data approved by the Executive Officer."

34~~1~~.Comment: There is no justification given for the need to have three separate pressure drop monitors on buildings that are greater than 10,000 square feet in surface area, nor for the 10,000 square feet criteria. When determining the number of differential pressure monitoring systems for total enclosures, does the 10,000 square feet refer to the floor area of the building, or the entire surface area of the structure itself.

Response: The 10,000 square feet refers to the floor area of the building and rule language has been modified for clarification. The requirement for three monitors is intended to provide assurance that the negative air pressure requirements for total enclosures are being met. This requirement is currently being met at one of the PR 1420.1 affected facilities, as it was established as a condition for the facility through an order for abatement. The requirement allows smaller total enclosures to install only one monitor rather than three.

35~~2~~.Comment: Flexibility should be provided to allow pressure drop monitoring to be conducted in units of inches of water in lieu of mm Hg on an equivalency basis.

Response: Language has been added to provide both alternative measurements as suggested by the commenter.

LEAD POINT SOURCE EMISSIONS

363.Comment: Control efficiencies for lead control devices venting a total enclosure should be determined by a manufacturer's guarantee of particulate reduction. Demonstrating 99% or higher efficiency through inlet/outlet testing will be very difficult because of the small amount of particulate on either side of the control device and because the test methods are not consistently accurate enough to achieve a plus or minus 1% result. A better approach would be to establish an emission rate or standard similar to the NESHAP for Secondary Lead Smelting.

and

The requirement for lead control devices to meet a control efficiency of 99 percent or more for either lead or particulate matter is inappropriate in general because control device efficiency is an improper standard to select for the fabric filter control technologies typically employed at these facilities. Further, there is no justification for departing from the 98 percent control efficiency for lead as required in Rule 1420 without any discussion or supporting rationale.

Response: The control efficiency requirement for lead control devices has been replaced with a mass emission requirement which better characterizes the emissions from the stacks. The total lead emission rate from all lead point source control devices source tested pursuant to subdivision (k) may not exceed 0.045 pounds of lead per hour and no single device shall exceed 0.010 pounds of lead per hour. To address efficacy of controls, lead point source control devices using dry filter media are required to be fitted with filters rated by the manufacturer to meet 99.97 percent control for 0.3 micron particles and lead control devices using bags are required to use bags made of polytetrafluoroethylene membrane material or any other material that is equally or more effective and approved by the Executive Officer.

374. Comment: Our facility test results for lead emissions from three baghouses controlling process fugitive and fugitive dust emissions range between 0.00339 to 0.00499 lb/hr, and also have difficulty in achieving 99 percent control efficiency under testing. The outlet concentrations for baghouses are all substantially lower than the federal MACT standard level of 2 mg/dscm. For PR 1420.1 to imply that they are not, unless they can achieve some contrived target of 99 percent control efficiency is absurd.

and

U.S. EPA gave direct consideration to a mass emission rate form of that standard when promulgating the NESHAP for Secondary Lead and

specifically rejected it [59 FR 110, June 9, 1994, pg. 29766 and 29767). An outlet concentration form of the standard is the appropriate form.

and

We support the addition of a provision that allows reduced source testing frequency of lead control devices for exemplary performance. However, we disagree fundamentally with the mass emission rate form of the emission standards of the rule. The alternative compliance form should be a concentration level of 1 mg/dscm (one half the federal NESHAP level). Accordingly, reduced testing frequency should be afforded to any source with exhaust lead concentrations less than 0.5 mg/dscm.

Response: As stated above, the 99 percent control efficiency requirement has been removed from the rule. U.S. EPA explicitly stated in the rule summary document [pg. 2-13] that the goal of the NESHAP for Secondary Lead Smelting was not to achieve compliance with the lead NAAQS. Rather, the intent of the standards was to reduce HAP emissions from secondary lead smelters to the maximum degree achievable through the application of maximum achievable control technology (MACT). U.S. EPA rejected the emission standard format for process sources because they believed it could not account for differences in actual emission rates between different size smelting when trying to determine a MACT level [59 FR 110, June 9, 1994, pg. 29766 and 29767].

The intent of PR 1420.1 is to achieve attainment with the revised NAAQS for lead and not to determine a MACT level for the industry. An emission rate in lbs/hr is appropriate for PR 1420.1 because the total point source emissions and fugitive emissions from the facility affect the fence line concentration and, as evidenced by historical fenceline monitoring data, must be reduced significantly to meet the 2008 NAAQS. Reduced source testing frequency is allowed under subdivision (k) if the results of the most recent source test for a lead point source are 0.0025 pounds per hour or less in keeping with the pounds per hour standards.

3~~5~~8.Comment: It is unclear what AQMD means by having the mass rate emission standard apply to "one lead point source, or more than one lead point source if combined." Does this mean, for example, that a facility could test two or more lead point sources and combine those test results for comparison with the 0.0020 lb/hr limit, even if those lead point source exhausts are not physically combined into a common stack?

Response: All lead point sources that vent to the atmosphere must comply with the hourly maximum limit, whether they are venting a single process or multiple processes with emissions manifolded together. The 0.0020 lb/hr

emission standard has been changed as discussed in the response to Comment #363.

396.Comment: The requirement for installation of lead control devices by January 1, 2011 does not account for the possibility that factors beyond the facility's control including, but not limited to, delays in processing of applications for Permits to Construct by SCAQMD in a timely manner, could prevent a facility from meeting the compliance date despite its best efforts.

Response: The timing for this requirement, along with the timing for total enclosures, has been changed in response to comments received. The deadline has been extended by six months and now says that lead control devices are to be installed and in operation no later than July 1, 2011. In order to account for delays for permit approvals, building department permits, and construction, an extension of the compliance date may be approved by the Executive Officer if the facility can demonstrate that it is unable to meet the deadline due to reasons beyond the facility's control. The request must be made prior to the compliance deadline and all complete permit applications must have been submitted in a timely manner according to due dates specified in the rule.

4037. Comment: We would like to see an additional requirement capping annual facility-wide point source lead emissions at 25 pounds per year based on the most recent approved source tests and maximum permitted production.

Response: The AQMD staff does not object if a facility elects to self impose an emission cap on their point sources of 25 pounds per year. The AQMD staff is concerned that imposing an emissions cap at 25 pounds per year on all lead-acid battery recyclers may require installation of pollution controls beyond what is needed to achieve the PR 1420.1 lead standard of 0.15 µg/m^3. The measurement for the 25 pounds per year would be based on an annual or possibly biennial source test that is a "snap shot" of point source emissions. The AQMD staff believes that a better and more appropriate use of the source test data is to ensure the control equipment is properly operating and is achieving emission rates sufficient to achieve the ambient air quality standard. The AQMD staff believes that sampling the ambient air more than 120 times per year is a more appropriate test to ensure that facility-wide emissions of point and fugitive emissions do not exceed the PR 1420.1 lead standard of 0.15 µg/m^3.

4138. Comment: It is unclear how the maximum lead emission rate limit of 0.010 lb/hr for any lead point source was derived.

Response: Staff conducted air dispersion modeling of each individual stack for both facilities and results showed that out of approximately twenty lead point sources modeled, a stack emitting more than 0.013 lb/hr would exceed the

federal 0.15 μg/m^3 standard at the fence line for a given lead point source at one facility. Consequently, a maximum emission rate of 0.010 lb/hr for any individual lead point source was selected to adequately provide a protective limit for exposure to lead emissions and the ambient standard.

42~~39~~. Comment: The AQMD is specifying filter media and bags beyond the usual Best Available Control Technology (BACT). This could be a possible ethics and conflict of interest issue.

Response: The AQMD is not precluded from requiring available controls that are more effective than what is considered as BACT. Further, existing facilities are currently utilizing both forms of filtering media in some or most of their existing lead control devices.

43. Comment: We have determined that issues of ambient air lead concentrations have predominantly been due to fugitive emissions and stacks that are being affected by downwash. The solution is through a redesign of the geometry of the stacks rather than wasting resources on essentially unachievable emission limitations.

and

Neither the federal Clean Air Act nor relevant California or District rules would in any way prohibit the use of stack height increases to resolve adverse building downwash influences.

Response: Changing stack parameters may lower ground level lead concentrations, however, the emission rate does not change. Lead is a persistent toxic compound and establishing the proposed emission rates will reduce the amount of lead that is deposited by lead point sources. Additionally, the proposed emission limitations are currently being achieved by one PR 1420.1 affected facility.

44. Comment: Insufficient and faulty data was used to derive the emission rates. The back-calculated method did not take into account alternative emission stack heights, used Lynwood rather than Central Los Angeles as an incorrect meteorological station, and used different coordinate locations for modeling maximum impact than that of the facility's Rule 1420 monitoring plan.

Response: The AQMD staff used source test data and stack heights and other stack parameters provided to the AQMD staff from the affected facility to derive emission rates. In addition, the AQMD staff followed the same air dispersion modeling methodologies used to estimate health risk under the AB2588 Hot Spots program. The AQMD staff agrees that both the Lynwood site and Central Los Angeles sites are close to Exide. However,

the Central Los Angeles site consists of two years of meteorological data for modeling, whereas the Lynwood site has three years of data (see http://www.aqmd.gov/smog/metdata/AERMOD_Table1.html). Both sites are relatively close to Exide; the Lynwood site was chosen because there was one more year of meteorological data to establish the facility emission limit.

45. Comment: A facility-wide point source emission limit of 0.045 pounds of lead per hour, which equates to 394.2 pounds of lead per year, is not reflective of Best Available Control Technology (BACT) or Best Available Control Technology for Toxics (T-BACT) and is not health protective as achievable. A facility-wide point source emission limit of 0.003 to 0.004 pounds of lead per hour reflects achieved in practice BACT and T-BACT as demonstrated through District-approved source tests. Since lead is subject to a national air quality standard and is a toxic air contaminant, sources of lead emissions are subject to BACT and T-BACT. A facility–wide point source emission limit of 0.045 lbs/hr is not reflective of BACT or T-BACT. A facility-wide point source emission limit of 0.003 to 0.004 lbs/hr reflects achieved in practice BACT and T-BACT, as demonstrated through District-approved source tests.

Response: The AQMD staff agrees that the level of control your facility has achieved is likely to be the basis of BACT and T-BACT. For clarification, BACT applies to individual equipment and is not facility wide. As you are aware, Regulation XIII – New Source Review and Rule 1401 – Toxics New Source review are the rules that establish requirement for new and modified sources for criteria pollutants and toxic air contaminants, respectively. PR 1420.1, however, is not a new source review rule. ~~Proposed Rule 1420.1 is a Best Available Retrofit Control Technology (BARCT) rule for lead. Health and Safety Code Section 40406 defines Best Available Control Technology as "an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source."~~ The AQMD staff has evaluated source test data, conducted air dispersion modeling, and monitoring data. If PR1420.1 is implemented as required, the AQMD staff believes that the other facility can achieve the new lead standard of 0.15 $\mu g/m^3$. Achieving the lead standard is in large part based on the ability of the facility to control fugitive emissions and properly implement all housekeeping and maintenance provisions of the proposed rule. If, however, that facility approaches or exceeds this new lead standard, they will be required to submit a contingency compliance plan that will identify additional point source controls as well as measures to reduce fugitive emissions. If they exceed the new lead standard that compliance plan would need to be implemented. In addition, if through implementation of AB25888 and Rule 1402 – Control of Toxic Air Contaminants from Existing Sources,

additional controls are needed the facility may be required to install additional controls.

46. Comment: The requirement for the total facility lead emission rate of 0.045 lbs/hr from all lead point sources does not allow for the addition of point source controls such as a total enclosure used to reduce fugitive lead-dust emissions.

Response: The total facility lead emission rate of 0.045 lb/hour from all lead point sources does not prohibit use of a total enclosure to further reduce fugitive lead dust emission. The emission rate for all lead sources is the minimum standard that should be achieved. The proposed rule does not prohibit the ~~the~~ facility from implementing additional point source controls or measures to contain or reduce fugitive emissions. If the facility exceeds 0.12 µg/m^3, the facility will be required to submit a compliance plan. If the facility exceeds 0.15 µg/m^3, the facility will be required to implement the compliance plan. The AQMD staff encourages the affected facilities to continue to identify further point and fugitive controls that can be implemented in event the compliance plan is triggered.

47. Comment: It is entirely possible that our facility could emit lead from stationary sources at a greater emission rate than those proposed and still demonstrate compliance with 0.15 µg/m^3.

Response: Staff's review of facility emission rates and monitored ambient air lead concentration data indicate that current emission rates at your facility are higher than those proposed in the rule, and have led to concentrations higher than both the previous and current ambient standard of 1.5 and 0.15 µg/m^3, respectively. Based on point source modeling and monitored data, the AQMD staff believes that is unlikely that your facility can achieve compliance with the 0.15 µg/m^3 standard with an emission rate greater than 0.045 lb/hr.

48. Comment: A facility's emissions are equal to the contribution from stationary sources and fugitive sources. If the emission rate from fugitive sources is less than the rate assumed by the AQMD, then the 0.045 lbs/hr lead emission rate from all lead point sources would be overly restrictive, more so than would be required if a concentration limit determined compliance.

Response: Staff did not assume an emission rate for fugitives and rather provided a margin for fugitive emissions based on point source modeling. U.S. EPA literature and past monitoring data suggests that fugitive emissions play a large role in violations of ambient air standards. Strict adherence to the housekeeping provisions of the proposed rule will determine whether the facility is able to control fugitive emission to a level that is below the margin.

49. Comment: The requirement for a secondary filtration device on the facility's feed dryer is an arbitrary design edict that may not have any meaningful benefit to ambient air quality. The feed dryer at our facility is greatly affected by building downwash so further filtration may well not be the best overall improvement measure from an ambient air perspective. Further, a common approach for secondarily filtering baghouse-controlled sources is a HEPA filter system. The feed dryer drives off a great deal of moisture and HEPA filters do not work well with heavily moisture-laden emission due to potential plugging.

Response: Staff has reviewed historical source test data, modeling results, breakdown reports, and maintenance records for the dryer at your facility and has determined that it requires a secondary lead control device due to its high emissions. Modeled ambient air lead concentrations resulting from reduced lead emissions from the feed dryer at your facility also showed a benefit in that ambient air lead concentrations were decreased at locations of maximum ground lead level impacts. Historical maintenance records and breakdown reports also show that the primary control device for the facility's feed dryer is susceptible to failures and bag leaks due to hot embers of the process and maintenance issues. The addition of a secondary lead control device would provide for backup control of uncontrolled emissions that result during failures of the primary control. It should be noted that the rule does not solely specify the use of a HEPA filter system as the secondary control.

50. Comment: Paragraph (f)(4) states that HEPA and/or cartridge-type filter media used in lead control devices shall be rated by the manufacturer to achieve a minimum of 99.97% capture efficiency for 0.3 micron particles. The standard is based solely on HEPA filter performance. There is no reason to apply that standard to all cartridge filters. Unlike HEPA filters, cartridge-type fabric filter collects do not rely simply on the filtering media itself, and also receives additional filtration on the built-up filter cake. It is not appropriate, therefore, to lump cartridge-type filter media in with HEPA filters in a common performance requirement.

Response: The intent of this provision is to require the use of the highest efficiency filter media currently available for a lead control device. Although not the same as HEPA filters, cartridge-type filters that are rated by the manufacturer of achieving 99.97% capture efficiency for 0.3 micron particles are available for use. In order to more accurately reflect staff's intent for this provision, rule language has been modified to read "For any lead control device that uses filter media other than a filter bag(s), the filter(s) used shall be rated by the manufacturer to achieve a minimum of 99.97% capture efficiency for 0.3 micron particles."

51. Comment: Exide supports a longer test schedule for individual sources that meet an incentive. However, we believe the incentive emission threshold should be 50% of a concentration-based emission limit established in the proposed rule in order to be consistent with the concept under the federal NESHAP for this industry.

Response: The concept of an incentive that allows less frequent testing if a lead control device demonstrates source test results lower than a proposed emission standard can be applied regardless of the format selected. Staff believes that a mass emission rate standard is the more appropriate format for lead point source emission standards of the proposed rule. See response to Comment #37.

52. Comment: Paragraph (k)(6) requires that source tests shall be conducted while operating at a minimum of 80% of equipment maximum capacity. Equipment may have a permit condition that limits its operating capacity at a level below its maximum rated capacity. The section should be revised to have source tests conducted at a minimum of 80% of permitted maximum capacity.

Response: Language as suggested does not account for situations where an equipment maximum capacity may be lower based on historical operating data, economic situations, or other factors. The source tests are typically run at maximum capacity for the plant's current capability based on those factors. This value may be lower than both what is stated on the permit or by the manufacturer, and the suggested rule language would restrict determination of what the reasonable maximum capacity should be. Maximum capacity, permitted capacity, and capacity based on the plants current capability will be taken into consideration by AQMD staff during review and approval of a pre-test protocol submitted by the facility pursuant to paragraph (k)(3). The current language allows flexibility for both staff and the facility to choose the capacity which is appropriate at the time of testing.

53. Comment: Revise subparagraph (k)(5) to read "The owner or operator…shall notify the Executive Officer within *3 business days*" rather than 72 hours. Source test results are dependent upon the notification of the results from a third party, and if the facility were informed of the results late in the day on Friday, they would not have sufficient time to review the report to confirm whether the results did in fact exceed an emission rate standard or were in error.

Response: Staff has modified rule language to reflect the commenter's suggestion.

COMPLIANCE PLAN

5440. Comment: There is no justification for the selection of the 0.12 µg/m^3 trigger for a Compliance Plan.

and

Use of a 0.12 µg/m^3 trigger will likely cause submittal of a Compliance Plan in situations where an exceedance of the 0.15 µg/m^3 standard will never occur.

Response: Proposed Rule 1420.1 takes a proactive approach because of the toxicity and persistent nature of lead. The trigger of 0.12 µg/m^3 represents 80% of the 0.15 µg/m^3 standard. The AQMD staff selected 80% of the standard as a trigger to submit the compliance plan because it close enough to the standard to warrant concern that the 0.15 µg/m^3 lead concentration standard may be exceeded. This approach provides more assurance that if there is an exceedance, measures will be identified and implementation can begin immediately. It should be noted, that implementation of the Compliance Plan is required only if the facility exceeds the 0.15 µg/m^3 lead concentration standard.

5541. Comment: The imposition of the Compliance Plan trigger level on the basis of concentrations "at or beyond the property line" is inappropriate given the proposed definition of PROPERTY LINE, as concentrations measured within 25 feet of a facility's boundary is not "ambient."

Response: The definition of PROPERTY LINE has been removed and a definition of AMBIENT AIR has been added as discussed in the response to Comment #120.

5642. Comment: Since the requirement for a Compliance Plan is triggered by emissions from the lead-acid battery recycler, the concentration from the upwind monitor for the facility should be deducted from the downwind monitor(s) when determining whether the 0.12 µg/m^3 threshold is exceeded.

Response: The ambient air lead concentration of the rule is based on facility emissions that contribute to exceedances, with facility emissions not having to be the sole cause. See response to Comment #120.

5743. Comment: Use of the term "exceedance" for a monthly average between 0.12 µg/m^3 and 0.15 µg/m^3 is misleading.

Response: The language has been clarified to state that "...emissions which contribute to ambient air concentrations of lead that exceed 0.12 µg/m^3 averaged over any 30 consecutive days..." is only a trigger to submit the Compliance Plan. If the facility exceeds 0.15 µg/m^3 after July 1, 2011 or before January 1, 2012, it is not a violation of the proposed rule, however,

the facility would at that time be required to begin implementation of the approved Compliance Plan. If the facility exceeds the 0.15 µg/m^3 lead concentration standard on or after January 1, 2012, that would constitute a violation of the ambient lead standard and the facility would be required to begin implementation of the approved Compliance Plan.

5844. Comment: A Compliance Plan should not be required where an exceedance of the 0.15 µg/m^3 standard has not occurred. If an exceedance occurs, the facility needs to obtain a variance from the District's Hearing Board which will require Increments of Progress, or in other words, a Compliance Plan.

Response: Although submittal of a Compliance Plan will be required when the facility exceeds a concentration of 0.12 µg/m^3, the implementation of the plan will only be required if the facility actually exceeds the 0.15 µg/m^3 concentration. Staff believes that it is necessary to have a plan prepared in advance so that immediate implementation can occur.

5945. Comment: There is no justification provided for using a 30-day averaging form for multiple elements of the Compliance Plan (i.e., trigger for submittal, implementation of additional lead reduction measures). The federal standard is based on a three-month averaging form. Accordingly, given AQMD's stated purpose in promulgating PR 1420.1, targets for triggering a Compliance Plan must be established based on the same averaging form.

Response: Using the 30-day averaging form is consistent with the ambient lead concentration averaging form of Rule 1420. The response to Comment #175 provides the rationale behind use of the 30-day form.

6046. Comment: The Compliance Plan fee structure in subparagraph (d)(3)(C) potentially exposes a facility to repetitive payment solely at the discretion of the Executive Officer who may continually disapprove a submitted plan, resulting in the collection of additional fees each time.

and

Paragraph (g)(3) seems to imply that a denial of the originally submitted plan cannot be appealed. Please clarify that this is not the case.

Response: The language in the proposed rule has been changed so that disapproval occurs only once. At the disapproval stage, appeal is not necessary or appropriate because the AQMD staff is still working with the applicant. If the resubmitted plan does not adequately address the deficiencies identified in the disapproval, the plan will be denied. The denial may be appealed through the Hearing Board under Rule 216 – Appeals. The

Compliance Plan fees are consistent with fees in set forth in District Rule 306 – Plan Fees.

6147. Comment: The revised language has reduced the deadline for Compliance Plan submittal from 30 days to 10 days. This is totally inappropriate and unworkable as a timeframe for the production and submittal of a meaningful and thoughtful plan. AQMD is mandating (Expedited Review Processing) a fee (tax) schedule above that normally associated, which have not been subject public review or approvals. Fees assessed per schedule in Rule 306, where expedited review scheduling is mandated by timing requirement should be waived.

Response: ~~Staff agrees with the commenter and t~~The submittal time has been changed back to the original language of 30 days. This provides sufficient time for preparation of the plan without the need for expedited processing fees.

HOUSEKEEPING REQUIREMENTS

6248. Comment: The definition of FUGITIVE LEAD-DUST needs to include something describing particle size, de minimis level of lead content, or its capability to become airborne. The current definition could be misconstrued to mean any solid particle regardless of its capability to become airborne is FUGITIVE LEAD DUST;

and

The definition of FUGITIVE LEAD-DUST is vague, misleading, and not consistent with the Federal definition of "any particulate matter, containing lead, which becomes airborne and mixes with ambient air in quantifiable detectable quantities."

Response: Staff agrees with the commenter and rule language has been revised to clarify that the particle size is capable of becoming airborne. Staff has not, however, included the phrasing that the particulate matter containing lead have to become airborne and mix with ambient air. Defining it as such would allow particulate matter containing lead that has not yet become airborne to not constitute as fugitive lead-dust, and not trigger requirements of the proposed rule to address its prevention and clean-up. Additionally, any size lead particle that has the capability of becoming airborne, regardless of the level of lead content of the particle, should be contained as it would still impact ambient air lead concentrations.

6349. Comment: Rather than effective immediately, facilities should be given time to establish and implement procedures to comply with housekeeping requirements, such as maintenance of a vehicle wet washing area,

following a reasonable period of time, such as 60 days, after the date of rule adoption.

Response: Staff agrees with the commenter and has added that the housekeeping activities become effective no later than 30 days following rule adoption. The requirement to maintain a vehicle wet washing area has been removed.

64~~50~~. Comment: The building height differentiation that sets roof washing frequencies should be 45 feet instead of 65 feet. Access to roofs greater than 45 feet requires specialized equipment and techniques.

Response: Staff agrees and the proposed rule language has been modified to reflect the commenter's suggestion.

65~~51~~. Comment: There is no discussion in the preliminary draft staff report providing the rationale behind a weekly roof washing frequency, and the effectiveness of weekly versus monthly or semi-annual frequency.

and

We recommend that the frequency of roof washing for building heights above 45 feet be conducted on a semi-annual basis rather than a quarterly basis, and should not be required in months having measurable precipitation. Quarterly washing of these elevated surfaces is a hardship providing limited additional benefit beyond a semi-annual that has not been shown to be insufficient.

Response: For roofs that are greater than 45 feet in height, one facility is conducting washes semi-annually while the other conducts them at least monthly. Staff has reviewed 2010 monitoring data for both facilities and has observed that roofs semi-annually cleaning may result in lead concentration spikes at ambient air lead monitors due to an accumulation of lead dust. Therefore, staff believes that a quarterly washing frequency for the higher roofs is necessary to minimize the amount of lead particles that may be accumulated before it is cleaned up. Both facilities are currently conducting roof washings for roofs that are less than 45 feet in height at least monthly and, based on the historical monitoring data, staff believes monthly washings are appropriate. In addition, the rule allows for days of measurable precipitation to count as a washing for compliance.

66~~52~~. Comment: The proposed definition of MEASURABLE PRECIPITATION may require reprogramming of existing CEMS/DAHS systems to include precipitation data handling. The definition should be modified to included locally recorded & reported measured rain amounts (producing surface run-off) in any 24-hour calendar day.

Response: The definition of MEASURABLE PRECIPITATION has only been proposed to provide facilities the option to use days of rain to count as a cleaning/washing. There is no requirement that the facility demonstrate measurable precipitation readings in order to meet this cleaning/washing exemption. Chapter 2 of this report clarifies that MEASURABLE PRECIPITATION can be demonstrated by using locally recorded and reported measured rain amounts.

6753. Comment: Does the housekeeping requirement in subparagraph (h)(1)(C) for cleaning storage areas apply to outdoor storage only?

Response: Pursuant to paragraph (h)(1), cleanings are required in storage areas that are not located within a total enclosure vented to a lead control device.

6854. Comment: The timeframe of "immediate cleaning (within one hour)" of surfaces following maintenance activities or process upsets that cause lead deposition on the subject surfaces is completely unworkable, especially for the elevated surfaces greater than 45 feet in elevation. Such cleanup process would require more than one hour to initiate and complete as it is not possible to marshal the necessary lift equipment or resources within one hour. Also, no consideration is given to the fact that such an upset might occur at night. Access to elevated roofs for cleaning is only safe during daylight hours. Realistic timing is about 72 hours or 3 business days.

Response: Staff agrees and the proposed rule language has been modified to reflect the commenter's suggestion.

6955. Comment: The inspection, process, handling and storage of incoming batteries are regulated by DTSC. This section is redundant and should be deleted.

Response: Although a similar regulation exists, the purpose for inspection by DTSC relates more to minimizing the release of lead-acid as it hazardous waste. For the purposes of air quality, the provisions are necessary to prevent the generation and release of fugitive lead-dust into the air from damaged lead-acid batteries. Despite this differentiation, rule language has been modified to require action to prevent the generation and release of fugitive lead-dust upon discovery of a cracked or leaking lead-acid battery rather than a general requirement for inspection.

7056. Comment: Does the requirement for inspecting batteries in paragraph (h)(3) require every single battery to be inspected? This is really not practical and incredibly difficult to document. Batteries are not really a source of fugitive emission because they are wet with acid and stored inside a battery casing. The U.S. Department of Transportation regulates the

transport of batteries and is actively inspecting loads of batteries going into secondary lead smelters throughout the country.

Response: The intent of this provision was to prevent fugitive lead dust emissions by inspecting loads of batteries upon arrival and, if cracked or leaking, send the battery to be processed immediately or properly store it in a sealed container or inside a total enclosure. The language has been clarified to state that "upon receipt, any battery that is cracked or leaking shall be immediately sent to the . . ." See response to Comment #6955.

7157. Comment: Is paving required for all facility grounds, including areas where trees and plants are located?

Response: The intent of this requirement is to provide surfaces throughout the facility that facilitate the ease of cleaning or vacuum sweeping, and to avoid the chance for fugitive lead-dust to be entrained in large plots of soils, dirt, or other areas difficult to thoroughly clean. The proposed rule has been modified to allow that "…Facility grounds used for plant life that are less than a total surface area of 100 square feet shall not be subject to encapsulation."

7258. Comment: The final phrase of the requirement to encapsulate facility grounds that reads "as approved by the Executive Officer," should be struck from this condition as it is redundant and understood. Additionally, it should be made clear that facilities may be allowed to breach pavement or land cover as needed to accomplish maintenance or construction activities.

Response: The language has been clarify that "facility grounds requiring removal of existing pavement, concrete, asphalt or other forms of encapsulation, necessary for maintenance purposes shall not require encapsulation while undergoing work, and shall be re-encapsulated immediately after all required work is completed," and the phrase "as approved by the Executive Officer" has been removed.

7359. Comment: The requirement for surface impoundment ponds could be subject to misinterpretation and should be reworded to read "…after the water level falls below 1 inch above the pond…"

Response: Staff agrees with the commenter and language has been revised to read "…after the water level is ≤ 1 inch at any point above the bottom of the pond or reservoir."

7460. Comment: The retention pond is permitted and operated under the regulatory authority of DTSC. Our facility initiates removales of any sludge or sediment that accumulates in the storm water retention pond within 24 hours of accumulation or in as timely a manner as possible following

accumulation. There is no precedent for weekly wash downs once the pond has been drained and cleaned.

Response: The purpose of the DTSC regulation for the retention pond is different than the requirements of the proposed rule. The retention pond holds water that contains lead through storm water runoff and other washdown activities at the facility and the DTSC monitors the concentrations of lead and other hazardous compounds in the water in order to determine if the retention pond is in compliance with regulations for hazardous waste containment. The AQMD's purpose for the sludge cleanup is to prevent the generation of fugitive lead-dust resulting from the evaporation of the lead-laden water of the pond. The weekly washdowns are necessary as the pond's bottom surface is large and subject to deposition of lead dust similar to the paved areas.

75. Comment: Removal of lead-containing material from our storm water pond is a complex process that cannot be performed within a 24-hour period consistent with sound environmental practice. The provision should be revised to require initiation of lead-containing material removal within 24 hours and that cleanup should be completed as soon as possible.

Response: Staff has modified the rule language to reflect the comment. Based on historical time periods taken by the facility to conduct cleaning of the surface impoundment, the provision has been modified to "Initiate removal of any lead-containing material… within 1 hour after the water level is < 1 inch at any point above the bottom of the pond or reservoir. Removal of lead-containing material shall be completed as soon as possible, and no later than 6 calendar days after the time initiation of the removal was required."

76~~61~~. Comment: The DTSC supports the housekeeping requirement for the surface impoundment ponds.

Response: Staff thanks DTSC for the comment and appreciates their input during working group meetings in order to make sure that the requirements for surface impoundments are consistent with those set forth by DTSC.

77~~62~~. Comment: Vehicle wet washing should be limited to those vehicles exiting the facility which have traversed the facility areas associated with lead-acid battery recycling. Onsite mobile sweepers and other plant vehicles are washed at wash areas located within containment buildings. Also, the requirement to keep records of all vehicle wet washing is a complete waste of time and effort.

Response: This requirement has been removed from the proposed rule. However, if a facility triggers the requirement for a Compliance Plan, implementation of

a vehicle wet wash area may be required as an additional lead reduction measure if deemed necessary.

7863. Comment: In the 2009 Order for Abatement for Exide, the AQMD insisted on installation and use of a vehicle wet washing area without providing supporting justification for its necessity, control strategy, or effectiveness.

Response: Vehicle wet washing is an effective measure to reduce track out and is required to be used at Exide based on the Order for Abatement. Vehicle wet washing is used at a variety of facilities to minimize track out. Use of vehicle wet washing at Exide will ensure that potential fugitive emissions that settle on the pavement that are not swept~~,~~ will not be tracked out of the facility. In addition, if a facility triggers the requirement for a Compliance Plan, implementation of a vehicle wet wash area may be required as an additional lead reduction measure if deemed necessary.

7964. Comment: The requirement for sweepings around monitors not to occur on days when sampling is conducted does not take into consideration monitor locations that collect daily samples. The section should also be specific to cleaning and maintenance activities conducted surrounding a monitoring location.

Response: After review, staff determined that the proposed rule language would prevent the cleaning/sweeping of several areas throughout the facility, which was not the intent. The intent was to prevent samples and monitors from being damaged or altered. Therefore, the language has been removed.

MAINTENANCE ACTIVITY

8065. Comment: The proposed definition of TURNAROUND/MAINTENANCE is unnecessarily broad and encompassing, extending far beyond the scope of activities reasonably associated with major maintenance typically involved in plant turnarounds. Additionally, it should only apply to building, construction, renovation, resurfacing, ground removal activities, etc. which are associated with lead processing.

Response: Staff agrees that the definition originally proposed was overly encompassing as it did not provide a causal link to lead emissions. Therefore, the definition of MAINTENANCE ACTIVITY has been revised to include only specific activities that generate fugitive lead-dust and that are conducted outside of a total enclosure.

8166. Comment: The definition of TURNAROUND/MAINTENANCE requirements are tied to requirements for activities to be conducted in a negative air containment enclosure and notification requirements of four week notice

prior to commencement of work. Neither of these requirements is reasonable or feasible given the proposed definition.

and

Proposed notification requirements for turnaround/maintenance activities would place a facility in a state of constantly submitting four-week advance notifications, essentially every day, to cover the unnecessarily broad and encompassing number of activities that would constitute a "turnaround/maintenance activity." The combination of this notification requirement with the other requirements for turnaround/maintenance activity is infeasible and unworkable.

Response: In response to comments received, these requirements have been revised. The definition of TURNAROUND/MAINTENANCE has been replaced with a definition for MAINTENANCE ACTIVITY which has a narrower scope. The requirement to perform maintenance activities in a total enclosure has been expanded to include other options if total enclosure is not possible due to physical constraints, limited accessibility, or safety concerns. The noticing requirements have been changed to notification by telephone at least ten days prior to planned maintenance activities followed by a written notification.

8267. Comment: Architectural coating is defined as a turnaround/maintenance activity. Does this mean that painting the building would need to be performed in a negative air environment?

and

In the definition of renovations, could the word "alter" be construed to mean painting?

Response: Architectural coating has been removed from the definition and the definition of renovation has been clarified to say that it pertains to activities that generate fugitive lead dust.

8368. Comment: The rule requires complete replacement of certain ductwork sections after a maximum of two "corrosions leaks" or "patch repairs" for which no minimum size or definition is provided. There is no rationale provided for this requirement, and no consideration of the relative environmental benefit to undergoing the process disruption necessary to replace a large ductwork section which may, after patching or repairing a third time, not leak or release emissions to the atmosphere at all.

Response: Staff agrees with the commenter and this requirement has been omitted from the proposed rule and replaced with a requirement to conduct

periodic inspections of ducting to ensure structural integrity. In addition, duct replacement is now specified in the definition as one of the maintenance activities which requires notification and must be done in a negative air environment, or of the other options provided in subdivision (i) if that is not feasible, to reduce the potential for fugitive lead dust emissions.

8469. Comment: Does the requirement in subparagraph (i)(1)(B) for wet suppression include wet suppression during lifting activities, for example when a crane is lifting ductwork or a tank during rebuild? This is both impractical and unsafe. Please consider a safety exemption or specify that lifting is not subject to wet suppression.

Response: Staff agrees and has added a safety provision for wet suppression or vacuuming *during* maintenance activities. However, the requirement remains the same for *prior to* and *upon completion* of the maintenance activity.

85. Comment: In instances where maintenance is in response to upsets or equipment failures, it may well be the best for the environment to proceed with the maintenance (stopping releases) as expeditiously as possible without waiting for either erection of temporary enclosures or mobilization of vacuum equipment, etc.

Response: PR 1420.1 already provides flexibility in how a facility can implement lead abatement procedures during maintenance activity that results in fugitive lead-dust emissions. A hierarchy of what is to be implemented ranging from a full negative-air containment to wet suppression is based on physical constraints, limited accessibility, or safety issues.

8670. Comment: The requirement for specified maintenance activities to occur only on days when instantaneous wind speeds are < 25 mph is arbitrary and impractical. Large maintenance activities must be scheduled and orchestrated well in advance, and to predict ten days in advance what the maximum wind speed will be on a given day is not possible. Additionally, if work has commenced and an instantaneous wind speed spike > 25 mph occurs, the facility would be subject to a violation of PR 1420.1 for an unforeseeable meteorological event.

and

Stopping maintenance activities "immediately when instantaneous wind speeds are > 25 mph" is impractical and may not well be the best prescription for the environment. It may well be that maintenance to an enclosure, for example, is itself necessary because of a high wind storm situation damaging siding. Proceeding with the necessary maintenance,

even in the face of high wind, would be the best action for the environment, provided it can be done safely.

Response: Staff agrees with the commenter and the requirement has been modified to require maintenance activity conducted outside a negative containment enclosure to cease if an instantaneous wind speed spike of > 25 mph occurs. This requirement is necessary to prevent fugitive lead-dust from becoming airborne when maintenance activities are being conducted outside of a total enclosure. Staff has also modified the provision to allow maintenance work to continue during instantaneous wind speed spikes, if the maintenance work is necessary to prevent the release of lead emissions.

87. Comment: It is not possible to conduct a 24-hour ambient air lead sample in conjunction for any maintenance activity that is conducted in response to an unforeseen event.

Response: For unplanned maintenance activity, if sampling is not being conducted on the day the incident occurs, sample collection shall begin at midnight at the end of the day on which the incident occurs.

88. Comment: Equipment used for maintenance activity that is contaminated with lead should not require cleaning immediately upon completion of work if it is located within a partial or total enclosure.

Response: Staff agrees with the commenter and has modified rule language to read "Store or clean…all lead-contaminated equipment and materials immediately after completion of work in a manner that does not generate fugitive lead-dust."

89~~71~~. Comment: The entire reporting provisions are in need of a significant rewrite. This section will likely result in multiple notifications each day for things like feed augers getting stuck, the battery breaker jamming, the burner going off in the furnace, conveyor belts breaking, etc. This is completely impractical and will result in notifications for things that are really routine for mechanical operations. The facilities, public, and the AQMD will be so overwhelmed with notifications that the effect of the notifications for more significant breakdowns will be nullified.

Response: The notification requirements are intended to apply only to those activities that result in lead emissions. The language has been clarified in paragraph (n)(2) to clarify that only unplanned shutdowns of lead control devices are required, notifications to the Executive Officer are only required if the listed activities "result in lead emissions" and notifications to the public for planned construction; renovation; demolition; and resurfacing, repair, or removal of pavement, concrete, or asphalt are only required if the

activities take place outside a total enclosure and generate fugitive-lead dust.

9072. Comment: Section (n)(2) adds requirements for public notification approved by the Executive Officer and places the burden of the public notification on the facility in spite of the fact that: 1) AQMD is requiring the facility to notify AQMD through the 1-800-CUT-SMOG hotline; 2) Public notifications must be approved by the Executive Officer; 3) SCAQMD maintains an internet site where public notifications can be posted, and 4) SCAQMD has access to the Reverse 911 telephone notification.

and

While the facility contact is available 24/7, notifying the public via a prerecorded message AND e-mail notification may not be achievable within the time period proposed. In addition, the rule does not state what content of the prerecorded notice and the outgoing e-mail should require.

Response: In all AQMD rules, public notification requirements are the responsibility of the facility. The facility can satisfy the public notification requirements through a pre-recorded phone message OR a facility contact that the public can call or call into. In addition, the proposed rule allows the facility to suggest other alternative public notification approaches provided they are approved by the Executive Officer. The timeframe for the public notification is the same given for notification to the Executive Officer. Staff has modified rule language to provide what content is required in the notifications required by (n)(2)(A), (n)(2)(B), and (n)(2)(C).

91. Comment: Section (n)(2)(A) appears to be duplicative with the existing notification requirements under Rule 430. It is not clear what additional notification needs are being fulfilled by this proposed subsection. If this section is retained, we suggest that the language include the caveat that notification is based on an unplanned shutdown of a lead control device that results in excess emissions and revised for consistency with Rule 430.

Response: Subparagraph (n)(2)(A) is not a duplication of Rule 430, and is intended to be more inclusive than requirements of Rule 430 as it includes unplanned shutdowns of lead control devices that do not result in excess emissions. It should be noted that subparagraph (n)(2)(A) states that "If the unplanned shutdown involves a breakdown pursuant to Rule 430, the breakdown notification report required by Rule 430 shall serve in lieu of this notification to the Executive Officer."

92. Comment: Facilities often make verbal reports to the SCAQMD to err on the side of caution. Follow-up written reports can then be made to the SCAQMD to

provide additional detail about the incident. These notifications to the public could unnecessarily alarm the public and PR 1420.1 does not provide a mechanism for any follow-up written report.

Response: The proposed rule is clear that public notifications are only for those events that result in the generation of fugitive-lead dust or excess lead emissions. Community members have expressed their concern and interest in knowing of these types of incidents at PR 1420.1 facilities so they can plan their lifestyle to minimize lead exposure to themselves or other members in their care. The facility can implement their own protocol to improve communication to their neighbors and community. This would likely prove to be information to the community and your facility to establish an open dialogue.

OTHER COMMENTS

9373. Comment: The proposed definition of PERSON should be consistent, such that a PERSON refers to any individual that is differentiated from an ENTITY.

Response: A definition for PERSON has not been included in PR 1420.1 because PERSON is defined in Rule 102 – Definition of Terms.

9474. Comment: What is the purpose of maintaining records indicating quantities and lead content of each lead-containing material processed? We already know that these facilities handle and produce a lot of lead. We believe that this recordkeeping requirement has no value.

Response: Rule language regarding this matter has been changed to require "daily records indicating amounts of lead-containing material processed, including, but not limited to, purchase records, usage records, results of analysis, or other District-approved verification to indicate processing amounts." Records of lead-containing material processed are necessary to help verify compliance with furnace charging limits for existing facility permit conditions, and for determining compliance during incidents such as equipment breakdowns and ambient air lead concentration exceedance investigations.

9575. Comment: Consider the combination of the facilities funding three monitoring stations, maintained and operated by the AQMD, to be used for compliance, with a requirement to develop a compliance plan supported by proposed projects and modeling (based on the District's monitors) demonstrating how facilities would comply with and maintain the 0.15 µ~~#~~g/m^3 standard.

Response: The AQMD staff believes the compliance plan requirements in the proposed rule provide a necessary safety net. It is necessary to have measures identified that can be implemented immediately in the event of an exceedance of the ambient lead standard. If no exceedance occurs, the facility would not be required to implement measures in the plan. The offer to fund three monitoring stations for determining compliance with PR 1420.1 is generous, however, the AQMD ~~would not be able to locate the monitors at the fence line of the facility which could result in a location which is not at the point of maximum impact of lead emissions from the facility~~staff believes that the existing monitoring network for both affected facilities is sufficient. There are currently four facility-operated monitors and one AQMD-operated monitor at Quemetco, and six facility-operated monitors and two AQMD-operated monitors at Exide. If new information shows a need, additional monitors can be installed.

96~~76~~. Comment: How long does the uninterruptible power supply (UPS) need to be capable of supporting operations? Typically UPS can last a couple of hours which would be enough time to bring the plant down safely in the event of a power interruption. However, an earthquake or similar event that causes power to be out for extended periods of time cannot be covered entirely by UPS.

Response: The rule language has been changed to clarify that the uninterruptible power supply is to be used for power outages, and the staff report reflects that it needs to be operational long enough so that equipment and processes can be safely shutdown.

97~~77~~. Comment: Will previously performed and approved source tests and previously approved protocols comply with paragraphs (k)(2) and (k)(3)? Would source tests from 2009 be acceptable for equipment that is next scheduled to be tested in the first half of 2011?

Response: Yes, previously approved protocols are acceptable and paragraph (k)(11) has been revised to allow the 2009 source tests so long as they are the most recent conducted since January 1, 2009, demonstrate compliance with the lead control device standards, are representative of the control methods currently in use, and the test was conducted using approved methods in the proposed rule.

98~~78~~. Comment: Please clarify that the provision for new facilities applies to 100% new facilities and not changes/expansions/modifications of existing facilities.

Response: The provision applies to any facility beginning construction or beginning operations on or after the date of adoption of PR 1420.1. Therefore, in addition to totally new facilities, if an existing facility begins new lead battery recycling operations, this provision would apply.

99~~79~~. Comment: We are concerned that the AQMD is acting arbitrarily since there are significant proposed revisions to the rule language for the set hearing package since its original release at the March 18, 2010 public workshop. The AQMD is requesting comments to be received for the revisions to rule language within one week. This is an unreasonably short timeframe to provide comments especially due to the fact that the Draft Staff Report explaining the changes and rationale has not yet been provided. We suggest that the commenting period be extended until September 10, 2010 in order for our facility to provide comments and suggestions to revise the proposed rule so that it achieves compliance with the federal rule in a cost effective and technologically feasible and reliable manner.

Response: The request for comments to be received from the working group within one week was set in order to allow time for staff to include and address

any comments and suggestions that could be included in the set hearing package. The close of comments date established for the set hearing package does not preclude stakeholders and the public from providing comments for the overall rule development. Comments received will be addressed up until the public hearing date for this rule proposal. Additionally, the public will be given the opportunity to make comments at the public hearing. The set hearing package for this rule will be released on August 31, 2010 and will include the draft staff report.

100.Comment: ~~Two~~Several letters were received from employees of a company near one of the PR 1420.1 facilities expressing concerns about lead exposure and lack of notification of violations. The letters expressed support of the proposed rule lowering the ambient air lead concentration standard to 0.15 µg/m3.

Response: Staff thanks the commenters and appreciates their support. Staff would like to note that PR 1420.1 includes requirements for public notifications of shutdowns, turnarounds, and maintenance activities

101.Comment: Communities are concerned that lead monitoring once every three days allows facilities to tailor their production around the monitoring schedule. The rule needs to be rewritten to ensure that the facilities do not stop or reduce their production during sampling days and/or increase production when samples are not taken.

Response: A provision was added to the proposed rule to address the need for additional monitoring if the facility exceeds the new lead standard of 0.15 $\mu g/m^3$. Paragraph (j)(9) requires sampling to be conducted on a daily basis for sixty consecutive days if the facility exceeds the ambient air lead concentration standard of 0.15 $\mu g/m^3$ averaged over any 30 consecutive days. Normally, PR 1420.1 requires sampling one day in every three days. Historic sampling results indicate that spikes or excursions are typically not related to process emissions, but rather, to fugitive emissions from housekeeping or maintenance activities. Based on recent sampling at affected facilities, the AQMD staff believes that sample collections once every three days provides a good representation of lead emissions.

102.Comment: The original draft of the rule stated that enclosure may be required of "Any other area used in the lead-acid battery recycling operation to process or store lead-containing materials deemed necessary by the Executive Officer." We request this provision be reinstated as a valuable tool that can be utilized to further reduce lead emissions.

Response: Based on discussions at the PR 1420.1 Working Group meetings, additional enclosures are now required to be considered in the compliance plan requirements in subparagraph (g)(2)(A) as one of the additional lead

emissions reduction measures which can be implemented by the facility in the event of an exceedance of the 0.15 µg/m^3 ambient lead standard averaged over any 30 days. This provision was moved to the compliance plan because enclosures are already required in paragraph (e)(1) for areas of likely lead emissions such as: battery breaking areas; material storage and handling areas excluding areas where unbroken lead-acid batteries and finished lead products are stored; dryer and dryer areas including transition pieces; smelting furnaces and smelting furnace areas charging any lead containing material; agglomerating furnaces and agglomerating furnace areas charging any lead-containing materials; and refining and casting areas. Staff believes these enclosures should be sufficient.

103.Comment: The original draft of the rule stated that "Sweeping activities shall not be performed within 10 meters of any ambient air monitor location specified in subdivision (g) that is undergoing sample collection." We would like the wording to be restored along with additional language that specifies no fogging, misting, spraying of water or other liquids shall occur within 20 meters of any ambient air monitoring during sample collection. We understand that this has been a problem in the past.

Response: This provision has been changed from the original draft in response to similar comments made at the Working Group meetings. It has been moved to paragraph (j)(8) and now reads "Cleaning activities including, but not limited to, wet washing and misting, that result in damage or biases to samples collected shall not be conducted within 10 meters of any sampling site required under this subdivision."

104.Comment: In light of the many times hazardous waste levels of lead have been detected in the soils surrounding Quemetco, we would like the rule to require that the monitoring be conducted in such a way as to detect lead that is kicked up by wind or train or truck traffic. Quemetco released 7121 pounds of lead from their stacks and fugitive dust emissions between 1995 and 1999. Testing done by Quemetco and DTSC in 2004 revealed gross lead contamination surrounding the facility and that the contamination is more widespread and greater than originally expected. How does the AQMD plan on monitoring the air levels at the precise times when trucks and trains are kicking up dust that contains high lead levels.

Response: The AQMD maintains a U.S.-EPA approved network of source and non-source oriented monitors. Source-oriented monitors are located near lead-emitting facilities and non-source oriented monitors are located at 10 sites throughout the AQMD. Monitoring at the sites is required to be conducted as a 24 hour sample on a midnight to midnight basis. This means that all hours of the day are accounted for, including winds and traffic considerations. Quemetco's total lead emissions from point sources are currently less than 0.003 pounds per hour, considerably less than

several years ago. This reduction is due to additional controls Quemetco added to reduce air toxic emissions required by the AB 2588 Toxics "Hot Spots" program. Current air monitoring data from Quemetco's monitors shows that they are close to the new NAAQS and, with completion of their total enclosure for the battery breaking area and adherence to all PR 1420.1 requirements, the facility is expected to be in compliance with the new standard.

105.Comment: The rule requires facilities to pave over or encapsulate contaminated soil in areas other than locations less than 100 square feet used for planters. By not coordinating with the Department of Toxic Substances Control (DTSC), U.S.-EPA, and the Los Angeles Regional Water Quality Board to mandate clean up of the contamination that potentially threatens ground water; this requirement effectively facilitates a cover up and inhibits the implementation of responsible corrective action.

Response: This provision states that the facility shall "Pave, concrete, asphalt, or otherwise encapsulate all facility grounds as approved by the Executive Officer." The intent of the encapsulation requirement of PR 1420.1 is to prevent fugitive dust from being kicked up, facilitate cleaning of the areas, and minimize track out from the facility. Essentially all areas at both facilities are already in compliance with this requirement. The AQMD staff currently works closely with other regulatory agencies and agrees that the AQMD should cooperate and coordinate with DTSC, U.S.-EPA, and water boards. A DTSC representative participated as a member of the PR 1420.1 Working Group and worked closely with staff throughout the process of developing PR 1420.1 to ensure that requirements would not overlap or conflict with any of their requirements and ongoing efforts to address soil contamination. DTSC also sent a letter of support for the housekeeping requirements for surface impoundment ponds (see comment 76).

106.Comment: The manner in which the current rule is written with the compliance plan and timetable offers no immediate remedy to the community. We request that a provision be added that would require facilities to reduce their throughput and decrease the quantity of material processed when they exceed the 0.15 $\mu g/m^3$ limit. This would bring them into compliance in a timely manner while they implemented their Compliance Plan and is a similar provision to one included in Quemetco's previous Title V permit.

Response: If a facility exceeds the 0.15 $\mu g/m^3$ standard, the facility must begin implementing their compliance plan. The compliance plan includes measures for process changes including reduced throughput limits and conditional curtailments under clauses (g)(2)(A)(v) and (vi).

107.Comment: A proposal to change the facility total point source mass emission rate from 0.045 pounds per hour to 0.003 pounds per hour would constitute a major change to PR 1420.1. Any action by the Governing Board on this proposal at the October 1, 2010 meeting would violate the procedural rulemaking requirements of the California Health & Safety Code by not allowing time for performing additional environmental and socio-economic impact assessment. At a minimum, Health & Safety Code Section 40726 would require additional opportunity for public comment, and revisions to the District staff report and supporting assessments addressing such a major change.

and

The Staff Report, Environmental Assessment and Socioeconomic Impact Assessment do not contain the evaluations necessary to support the 0.003 lbs/hr emission rate. No workshops were held and no opportunity for public comment was allowed on this issue.

Response: Staff's proposal is a total facility lead mass emission rate limit for all lead point sources of 0.045 lb/hr and not the 0.003 lb/hr lead emission rate. If directed by the Board at the November 5, 2010 hearing to consider 0.003 lbs/hr as the emission rate for the proposed rule, AQMD staff will conduct the appropriate analyses and return to the Board at a later date.

108.Comment: Exide is unsure if the WESP control technology installed at the Quemetco facility is technically feasible and compatible with Exide's process. The Exide facility uses a fundamentally different furnace technology than Quemetco to process reverberatory furnace slag, and Exide has no basis to assume this difference is amenable to the WESP control technology. Neither Exide nor the SCAQMD has had sufficient time to review the technical feasibility and economic aspects of meeting a facility emission rate limit of 0.003 lb/hr from all point sources. Whether emissions from our facility would be below this limit with implementation of the WESP is unknown.

Response: Staff understands that the WESP control technology installed at Exide may result in different emission rates than those achieved at Quemetco. AQMD staff agrees that additional time is needed to further evaluate the technical feasibility, potential environmental impacts and economic impacts of such a proposal. Staff's proposal is to retain the total facility lead emission rate of 0.045 lb/hr.

109.Comment: It has been reported that Quemetco spent $18 million on installation of its emission control system, inclusive of the WESP. Exide's best cost estimate to achieve 0.003 lb/hr would be on the same order on the basis of no site or process-specific analysis. A cost of this magnitude will threaten

the economic viability of the Exide facility. Exide would have to consider the alternative of expanding operations at its other recycling facilities outside of California. Such would result in previously unconsidered significant adverse socioeconomic and environmental consequences including loss of jobs, loss of Basin lead-acid battery recycling capacity, and related air emission increases.

Response: Proposed Rule 1420.1 requires as a core requirement that affected facilities achieve a total stack emission rate of 0.045 lbs/hr. AQMD staff agrees that additional time is needed further evaluate the technical feasibility, potential environmental impacts and economic impacts of lowering the stack emission rate to 0.003 pounds per hour. Staff's proposal is to retain the total facility lead emission rate of 0.045 lbs/hr.

110.Comment: Exide has previously stated that an emission rate is not the proper control methodology for this rule and is not needed to ensure compliance with the ambient standard. If a facility mass emission rate limit is to be considered at all, Exide proposes that the rule require the emission rates if compliance with 0.15 $\mu g/m^3$ limit cannot be achieved by January 1, 2012. Both the total facility and individual point source emission rate limits would go into effect as components of the Contingency Compliance Plan.

Response: Based on air dispersion modeling using the most recent source tests results and stack parameters, the stack emissions of one affected facility would exceed the 0.15 ambient lead standard. As a result, Proposed Rule 1420.1 establishes a point source emission rate of 0.045 lbs/hour as a core requirement which modeling shows that at the point of maximum impact the ambient concentration about 30 percent below the 0.15 ambient lead standard in Proposed Rule 1420.1. The 30 percent "buffer" is necessary so the facility has an emissions budget for the fugitive emissions. Staff believes that if the emission standards are not required as a core requirement, at least one of the facilities would most likely exceed the standard and requirements for implementation of controls would be delayed if required under the Contingency Compliance Plan. Thus, staff's proposal of the emission rate limits as a core requirement stands.

111.Comment: Health and Safety Code Section 40001(d)(1) through (3) sets forth the appropriate balance between NAAQS compliance and allowing a facility to design the method by which it will comply. As stated in the statue: "A district shall allow the implementation of alternative methods of emission reduction, emission monitoring, or recordkeeping if a facility demonstrates to the satisfaction of the district that those alternative methods will provide equivalent performance." If the District specifies an "emission limit, " the District shall allow the facility to include operational and effectiveness measurement elements "that can be included as permit conditions by the District to ensure compliance with, and enforcement of,

the equivalent performance requirements…" The District's mandated facility mass emissions rate limit here functions both as an emission limit and control method. Though Exide opposes any mass emissions rate limit, at the very least PR 1420.1 must provide for, and allow, Exide an alternative compliance method in accordance with Health and Safety Code Section 40001(d). Though Exide opposes the inclusion of any facility stack mass emissions rate limit as a core rule requirement, at a minimum, Exide requests that language be added in subsection (f)(3) to allow for *"an alternative method that is equally or more effective to satisfy the ambient air concentration requirement."*

Response: PR 1420.1 does not specify the method or control approach that a facility must use to meet either the total facility lead emission rate of 0.045 lb/hr or individual point source lead emission rate of 0.010 lb/hr. Furthermore, Health and Safety Code Section 40001(d)(3) states that "if a district rule specifies an emission limit for a facility or system, the district shall not set operational or effectiveness requirements for any specific control equipment operating on a facility or system under that limit." PR 1420.1 simply requires achieving an emission rate limit and does not set any operational or effectiveness requirements for any specific emission control equipment operating on a facility or system under the proposed emission rate limit.

112.Comment: Proposed Rule 1420.1 attempts to impose an ATCM emissions limit on stack emissions to achieve the NAAQS lead standard. The District cites Health and Safety Code Section 39666 as legal authority for PR 1420.1. If the District relies on Section 39666, then it must satisfy its requirements to allow sources to submit to the District an alternative method or methods that will achieve an equal or greater amount of reduction in emission of that air toxic contaminant and its associated risk. The District shall approve the alternative method if it is demonstrated.

Response: The commenter's reference to the Health & Safety Code Section 39666(f) states, "Where an airborne toxic control measure requires the use of a specified method or methods to reduce, avoid, or eliminate the emissions of a toxic air contaminant, a source may submit to the district an alternative method or methods that will achieve an equal or greater amount of reduction in emissions of, and risk associated with, that toxic air contaminant…" PR 1420.1 does not implement an ATCM. As a result, the reference to Health and Safety Code Section 39666(d) is removed.

113.Comment: The District has stated in a staff response that PR 1420.1 is a BARCT rule for lead. BARCT is defined as "an emissions limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of

source." Exide contends that the District's rulemaking record is presently inadequate to even allow for Governing Board consideration as to whether the 0.045 lb/hr facility mass emissions rate limit is BARCT under Health and Safety Code Section 40920.6. The District must provide a BARCT analysis considering facility-specific economic and environmental impacts.

Response: The staff response has been revised in Response to Comment #45 reflecting that PR 1420.1 is not a BACT rule. The response no longer states that PR 1420.1 is a BARCT rule.

114.Comment: The District's socioeconomic analysis is insufficient because it does not properly and adequately consider the availability and cost-effectiveness of alternatives to the mass emissions rate limit as required by Health and Safety Code 40440.8, 40703, and 40922. The District avoids a relative cost-effectiveness analysis and does not cite to section 40922, presumably because the District takes the position that section 40922 only applies to rules meant to control ozone, CO, NOx and SOx. While the District generally considered certain compliance costs to reach its $0.41/$0.32 million per year estimate, it did not adequately consider the economic impact to Exide, particularly as to the newly-proposed alternative of a 0.003 lbs/hr facility mass emissions rate limit, and the District did not properly consider cost-effective alternatives that would still result in NAAQS compliance.

Response: Regarding requirements for availability and cost-effectiveness analyses required by the Health and Safety Code Sections referenced by the commenter, the District continues to take the position that section 40922 does not pertain to lead. Although Health and Safety Code Sections 40440.8 and 40703 require these analyses, both require the analyses pursuant to section 40922 which again only pertains to ozone, CO, SOx, and NOx. It should also be noted that staff's proposal remains at the 0.045 lb/hr and 0.010 lb/hr lead emission rate for total facility and individual point sources, respectively. See response to Comment #108.

115.Comment: The District rejected Exide's proposal to increase stack heights, stating that "the Clean Air Act prohibits using stack heights in lieu of emissions control" (Staff Response to Comment #8). The District is incorrect. Under the federal CAA, a facility can take full credit for improved dispersion provided by any stack height up to 65 meters without any justification required as dictated by good engineering practices. Good engineering practice means "the height necessary to ensure that emissions from the stack do not result in excessive downwash." "In no event may the Administrator prohibit any increase in any stack height or restrict in any manner the stack height of any source." Exide is significantly impacted by downwash at its stacks, which are barely taller than the

facility buildings. Increasing the stack height is a legally viable alternative to satisfy the NAAQS.

Response: Increasing the stack height or buoyancy would just be a dilution of fence line monitor concentrations, and that the same amount of lead emissions are being dispersed in the atmosphere. Lead is a persistent contaminant and would continue to accumulate on the ground in areas of dispersion. Simply changing the air dispersion of emissions without overtly reducing emissions is not in the best interest for air quality and public health.

116.Comment: The proposed 0.003 lbs/hr facility mass emissions rate limit alternative threatens the economic viability of Exide to remain operating in Southern California, resulting in significant adverse economic and environmental impacts not previously considered that require subsequent of supplemental socioeconomic and environmental impact assessments. Exide's closure as a result of "substantial changes" to the rule will result in significant adverse economic impacts and direct and indirect significant adverse environmental impacts necessitating the District to prepare subsequent or supplemental socioeconomic environmental impact assessments (14 CCR § 15162).

Response: Staff's proposal is a total facility mass emission rate limit of 0.045 lb/hr and not the 0.003 lb/hr rate. See response to Comment #108.

117.Comment: The statement in response to comment #45 that the 0.003 lbs/hr standard is "likely to be the basis of BACT and T-BACT" is unsupported. Staff should state that this response cannot be considered or acted upon in this rulemaking.

Response: Staff does not define BACT or T-BACT in this rulemaking. There is a specific process for determining if a given technology or emission limit is BACT and only new, modified, or relocated equipment or processes are subject to BACT and T-BACT. PR 1420.1 addresses existing sources of lead emissions. As such, BACT and T-BACT are not addressed under this rulemaking. See response to comment #37 regarding the intent of this rulemaking.

ATTACHMENT H

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Draft Socioeconomic Assessment for Proposed Rule 1420.1--Emissions Standard for Lead from Large Lead-Acid Battery Recycling Facilities

August 2010

Deputy Executive Officer
Planning, Rule Development & Area Sources
Elaine Chang, DrPH

Assistant Deputy Executive Officer
Planning, Rule Development & Area Sources
Laki Tisopulos, Ph.D., P.E.

Planning and Rules Manager
Planning, Rule Development & Area Sources
Susan Nakamura

Author: Tyler Kitchel, Air Quality Specialist

Reviewed By: Sue Lieu, Ph.D., Program Supervisor
Cheryl Marshall, Program Supervisor
Jill Whynot, Director, Strategic Initiatives
William Wong, Principal Deputy District Counsel

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

GOVERNING BOARD

Chairman: DR. WILLIAM A. BURKE
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Senate Rules Appointee

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Councilmember, Ninth District
City of Los Angeles

MIGUEL A. PULIDO
Mayor, Santa Ana
Cities of Orange County

EXECUTIVE OFFICER:

BARRY R. WALLERSTEIN, D.Env.

EXECUTIVE SUMMARY

A socioeconomic analysis was conducted to assess the impacts of Proposed Rule 1420.1– *Emissions Standard for Lead from Large Lead-Acid Battery Recycling Facilities*. A summary of the analysis and findings is presented below.

Elements of Proposed Rule	Proposed Rule (PR) 1420.1–*Emissions Standard for Lead from Large Lead-Acid Battery Recycling Facilities*–reduces exposure to and emissions of lead from large lead-acid battery recycling facilities. This rule would apply to any owner or operator of a lead-acid battery recycling facility that processes more than 50,000 tons of lead a year. An affected facility is required to control emissions such that ambient concentrations of lead do not exceed a 30-day average of 0.15 µg/m³. The proposed rule will require that point and fugitive lead emissions are controlled.
Affected Facilities and Industries	Proposed Rule 1420.1 affects two facilities that process greater than 50,000 tons of lead annually. These two facilities belong to the industry of secondary lead smelting, refining, and alloying of nonferrous metal.
Assumptions of Analysis	Currently, Exide Technologies has entered into a settlement agreement with the South Coast Air Quality Management District (AQMD) that includes many of the requirements in the proposed rule. Because these similar requirements are already independently required, they are excluded from the cost analysis. Quemetco is meeting many of the PR 1420.1 requirements through compliance with Rule 1420 and AB2588. In addition, both facilities are subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAPS) from Secondary Lead Smelting, which has some overlapping testing requirements in Proposed Rule 1420.1. The analysis focuses solely on the cost impact of the additional rule requirements for the two facilities. Information on costs were obtained from the two affected facilities, equipment vendors, and published sources.
Costs of Proposed Rule	The expected additional cost from the proposed rule is $0.32 million annually. The total cost is slightly higher in 2011 ($0.41 million) because of the public notification requirement (setup of one-time signs), hazardous waste disposal from construction of a secondary lead control device, potential compliance plan development, and the AQMD compliance plan review.

Employment and other Socioeconomic Impacts	PR 1420.1 is expected to result in an annual average of 11 jobs forgone in the four-county area from 2011 to 2025. This represents less than 0.0002 percent of the total employment in the four-county region and is within the noise of the model. The sector of primary metal manufacturing, where the two affected facilities belong, would have no jobs forgone, on average, between 2011 and 2025. The average annual jobs forgone in each of the other sectors are no more than one job between 2011 and 2025. Proposed Rule 1420.1 will have few impacts on the relative cost of production and delivered prices.

INTRODUCTION

Proposed Rule (PR) 1420.1–*Emissions Standard for Lead from Large Lead-Acid Battery Recycling Facilities*–reduces exposure to and emissions of lead from large lead-acid battery recycling facilities to protect public health and help attain the national ambient air quality standard for lead. This rule would apply to any owner or operator of a lead-acid battery recycling facility that processes more than 50,000 tons of lead a year. PR 1420.1 requires that affected lead acid battery recycling (secondary lead smelting) facilities install and maintain emissions control equipment, conduct ambient air monitoring, and perform regular housekeeping activities to control fugitive lead dust. An affected facility is required to control emissions such that ambient concentrations of lead do not exceed a 30-day average of 0.15 $\mu g/m^3$ at or beyond the property line of the facility.

LEGISLATIVE MANDATES

The socioeconomic assessments at the AQMD have evolved over time to reflect the benefits and costs of regulations. The legal mandates directly related to the assessment of the proposed amendments include the AQMD Governing Board resolutions and various sections of the California Health & Safety Code (H&SC).

AQMD Governing Board Resolutions

On March 17, 1989 the AQMD Governing Board adopted a resolution that calls for preparing an economic analysis of each proposed rule for the following elements:

- Affected Industries
- Range of Control Costs
- Cost Effectiveness
- Public Health Benefits

On October 14, 1994, the Board passed a resolution which directed staff to address whether the rules or amendments brought to the Board for adoption are in the order of cost effectiveness as defined in the AQMP. The intent was to bring forth those rules that are cost effective first.

Health & Safety Code Requirements

The state legislature adopted legislation that reinforces and expands the Governing Board resolutions for socioeconomic assessments. H&SC Sections 40440.8(a) and (b), which became effective on January 1, 1991, require that a socioeconomic analysis be prepared for any proposed rule or rule amendment that "will significantly affect air quality or emissions limitations." Specifically, the scope of the analysis should include:

- Type of Affected Industries
- Impact on Employment and the Economy of the District
- Range of Probable Costs, Including Those to Industries
- Emission Reduction Potential

- Necessity of Adopting, Amending or Repealing the Rule in Order to Attain State and Federal Ambient Air Quality Standards
- Availability and Cost Effectiveness of Alternatives to the Rule

For the emission reduction potential necessity of rule adoption and cost effectiveness of alternatives to the rule, please refer to the Staff Report for PR 1420.1, which is incorporated by reference. Additionally, the AQMD is required to actively consider the socioeconomic impacts of regulations and make a good faith effort to minimize adverse socioeconomic impacts. H&SC Section 40728.5, which became effective on January 1, 1992, requires the AQMD to:

- Examine the type of industries affected, including small businesses; and
- Consider Socioeconomic Impacts in Rule Adoption

H&SC Section 40920.6, which became effective on January 1, 1996, requires that incremental cost effectiveness be performed for a proposed rule or amendment relating to ozone, carbon monoxide (CO), oxides of sulfur (SOx), oxides of nitrogen (NOx), and their precursors. Incremental cost effectiveness is defined as the difference in costs divided by the difference in emission reductions between one level of control and the next more stringent control. PR 1420.1 regulates lead and is thus not subject to H&SC Section 40920.6.

AFFECTED INDUSTRIES

AQMD staff, using Annual Emissions Reporting program data for years 2004 through 2007, permitting data, and compliance data, identified two lead-acid battery recycling facilities that process more than 50,000 tons of lead-acid batteries per year. Exide Technologies is located in the City of Vernon. Quemetco is located in the City of Industry. These two facilities belong to the industry of secondary lead smelting, refining, and alloying of nonferrous metal [North American Industrial Classification System (NAICS) 331492] where spent lead-acid batteries, mostly automotive, and other lead-bearing materials are received from various sources and processed to recover lead, plastics, and acids. The process mainly involves the sorting, melting, and refining of lead-acid batteries, which ultimately produces lead ingots that are then sold to other entities.

Small Businesses

The AQMD defines a "small business" in Rule 102 as one which employs 10 or fewer persons and which earns less than $500,000 in gross annual receipts. In addition to the AQMD's definition of a small business, the federal Small Business Administration (SBA), the federal Clean Air Act Amendments (CAAA) of 1990, and the California Department of Health Services (DHS) also provide definitions of a small business.

The SBA's definition of a small business uses the criteria of gross annual receipts (ranging from $0.5 million to $25 million), number of employees (ranging from 100 to 1,500), megawatt hours generated (4 million), or assets ($150 million), depending on industry type. The SBA definitions of small businesses vary by 6-digit NAICS code. The size standard for a small business in the industry of secondary lead smelting, refining, and alloying of nonferrous metal, NAICS 331942, where the two affected facilities belong is 750 employees.

The CAAA classifies a facility as a "small business stationary source" if it: (1) employs 100 or fewer employees, (2) does not emit more than 10 tons per year of either VOC or NOx, and (3) is a small business as defined by SBA.

Exide Technologies has operations in 80 countries with fiscal year 2009 net sales of approximately $3.3 billion.[1] Quemetco, based in Indianapolis, Indiana, has operations in a few states. It has over 150 employees at the location in the City of Industry, CA. Neither facility is a small business based on the Rule 102 criteria. Corporate employment information is not available for either of the two facilities. Therefore, it is unknown whether they are small businesses under the U.S. SBA definition. Neither facility is a small business under the CAAA definition because both emit more than 10 tons of VOC or NOx annually.

COMPLIANCE COST IMPACT

The proposed rule would go into effect on various dates. Housekeeping requirements would go into effect 30 days after rule adoption. Total enclosure and lead control device requirements would go into effect on July 1, 2011, or 180 days after permits are approved by the AQMD, whichever is earlier. Until January 1, 2012, the owner or operator must meet the current lead ambient air quality standard of 1.5 µg/m³. On or after January 1, 2012, the owner or operator must meet the new lead ambient air quality standard of 0.15 µg/m³. The ambient air lead concentration requirement would go into effect on January 1, 2012. Therefore, it is expected that many of the equipment purchases, planning, and permitting activities will be completed in 2011. Beginning in 2012 and beyond, the major costs associated with this proposed rule will be operational expenses and equipment replacement.

Currently, Exide Technologies has entered into a settlement agreement with the AQMD that includes many of the requirements in the proposed rule. These similar requirements are excluded from the cost analysis. Quemetco is meeting many of the PR 1420.1 requirements through compliance with Rule 1420 and AB2588. ~~One alternative proposal that has been suggested is that the proposed rule require a total lead point source emission rate of 0.003 lbs/hr. In a letter from Quemetco, Inc. to the SCAQMD staff on September 22, 2010, the estimated cost to upgrade their facility to install state-of-the-art emission controls to reduce lead emissions from its facility to these low levels was approximately $18 million. Since Exide's throughput limits are comparable to Quemetco and the level of control to achieve 0.003 lbs/hr would be similar, the SCAQMD staff estimates the additional cost of control would be between $15 and $20 million.~~ Specifically, costs associated with the total enclosure of the areas used for processing and storage of lead-containing materials as well as ambient air quality monitoring are not included in the analysis. Total enclosures have been, or are currently being, constructed because of legal mandates prior to this rulemaking. The analysis focuses solely on the cost impact of the additional rule requirements for the two facilities.

The affected facilities are required to install digital differential pressure monitors to monitor the air pressure for the venting of the total enclosures. The purchase and installation cost for one facility is $2,000 per monitor and $30,000 for another. The cost differential was due to the lower

[1] Home Community. Exide Technologies. 2009-2010. http://www.exide.com/. Accessed 5/21/2010.

cost representing an upgrade of existing monitors to comply with the proposed rule and the higher cost representing the purchase and installation of necessary infrastructure to operate new monitors to comply with the proposed rule. A total of 11 monitors are assumed to be upgraded or purchased. It was assumed that five monitors will be upgraded at a cost of $2,000 per monitor, and six new monitors will be purchased and installed at a cost of $30,000 per monitor. The total annualized cost to the two facilities is $68,470 at the four percent interest rate and an assumed lifespan of three years, based on each individual facility's estimates of monitor prices.

The proposed rule would require the installation of a secondary lead control device, such as a HEPA filter, to reduce lead emissions from the exhaust of the primary lead control device used for a dryer. The cost of the device, including installation, is $200,000. The one-time cost for hazardous waste disposal resulting from construction of a HEPA filter will be $66,000. A filter to the device is to be replaced annually at a cost of $2,400. Information on the HEPA filter was obtained from an air pollution control vendor. The cost for the waste disposal was obtained from an affected facility. It is estimated that only one HEPA filter would be installed as a result of the proposed rule. The total annualized cost of the one-time expenditure at four percent interest rate and 10-year equipment life, and the annual filter replacement cost, is estimated to be $35,100.

The proposed rule requires more stringent housekeeping, recordkeeping, and maintenance practices to minimize fugitive lead dust emissions. This requirement will include the purchase of one mobile sweeper, at a cost of $100,000, according to a vendor. The mobile sweeper, with a 10 year lifespan at a four percent interest rate, is expected to have an annualized cost of $12,300. Staffing for sweeping, washing, annual inspections, secondary lead control HEPA filter maintenance, and recordkeeping is expected to cost approximately $130,000 annually for both facilities. The public notification requirement is estimated to add a one-time cost of $300 for creation of a sign at each facility. Costs on staffing were obtained from one of the affected facilities. For the other facility, information on prevailing wages for metal-refining furnace operators and tenders and office assistants were obtained from the California Employment Development Department, and was combined with industry estimated hours to determine the annual labor cost. The cost estimate for the sign was obtained from a vendor.

It is assumed that roof washing will be contracted out at a total cost of approximately $12,000 annually, based on data from an affected facility. Additional water usage for sweeping and roof washing is expected to cost $3,000 annually, given the current water rate and usage data. Water usage data was obtained from an affected facility and was combined with the water rate from a water utility company to provide estimated water usage costs.

Although it is not known if the facilities will trigger the requirement to submit a compliance plan, it was assumed in the analysis that both facilities would complete a compliance plan. For the two facilities combined, there is a one-time cost of $20,000 for the compliance plan development, and up to $85,000 in combined costs for the AQMD to review compliance plans. Facility compliance plan development costs were obtained from the two facilities and their consultants.

Currently under the NESHAPS, affected facilities are required to conduct source testing annually, or every other year if stack emissions are below 1 mg/DSCM of lead. One facility is currently below the NESHAPS threshold and therefore PR1420.1 will not require the facility to conduct additional source testing. The other facility's stack emissions from three of the nine

stacks are below the NESHAPS standard, so no additional source testing is required for these three stacks. Under PR 1420.1, six of the remaining stacks at that facility will be required to conduct source testing of emissions stacks annually at a cost of $45,000. Costs for source testing were obtained directly from the affected facility.

There is an additional cost for batteries used as backup power for air monitoring equipment that are expected to cost $4,000 per unit for four units. With a three year expected lifespan, at a four percent interest rate, the batteries are estimated to add $5,760 to the annualized cost. The cost and lifespan information was obtained from a vendor.

Based on the assumptions above, the annual total cost to comply with the proposed rule is estimated to be $0.32 million, on average, from 2011 to 2025. The total cost is slightly higher in 2011 ($0.41 million) because of the public notification requirement, hazardous waste disposal from construction of a secondary lead control device, compliance plan development, and the subsequent AQMD compliance plan review.

TOTAL IMPACTS

The REMI model (PI+ v1.1.6) is used to assess the total socioeconomic impacts of a policy change (i.e., the proposed rule). The model links the economic activities in the counties of Los Angeles, Orange, Riverside, and San Bernardino. The REMI model for each county is comprised of a five block structure that includes (1) output and demand, (2) labor and capital, (3) population and labor force, (4) wages, prices and costs, and (5) market shares. These five blocks are interrelated. Within each county, producers are made up of 66 private non-farm industries, three government sectors, and a farm sector. Trade flows are captured between sectors as well as across the four counties and the rest of U.S. Market shares of industries are dependent upon their product prices, access to production inputs, and local infrastructure. The demographic/migration component has 160 ages/gender/race/ethnicity cohorts and captures population changes in births, deaths, and migration.

The assessment herein is performed relative to a baseline where PR 1420.1 would not be implemented. Direct effects of the policy change (proposed rule) have to be estimated and used as inputs to the REMI model in order for the model to assess secondary and induced impacts for all the actors in the four-county economy on an annual basis and across a user-defined horizon (2011 to 2025). Direct effects of the proposed rule include additional costs to the affected entities and additional sales, by local vendors, of equipment, devices, or services that would meet the proposed requirements.

The utility sector (NAICS 22) will benefit from the sales of additional water. Purchases of digital differential pressure monitors, a secondary lead control device, and the mobile sweeper will increase the sales of the wholesale trade sector (NAICS 423). Purchases of batteries will increase sales in the electrical equipment, appliance, and component manufacturing sector (NAICS 335). The administrative support and waste management and remediation services sector (NAICS 56) will benefit from the utilization of roof cleaning contractors and hazardous waste disposal. The public notification requirement (setup of one-time signs) will increase demand for the product of the printing and related support sector (NAICS 323). The additional demand for services of compliance plan development and source testing will result in an increase

in sales of the professional and technical services sector (NAICS 541). Additional AQMD staff time will be needed to review compliance plans, but the proposed rule is expected to reduce compliance issues with the affected facilities. The additional staffing for the housekeeping requirements will slightly lower labor productivity in the sector of primary metal manufacturing (NAICS 331) where the two facilities belong. All the expenditures that are incurred by the two facilities will increase their cost of doing business.

PR 1420.1 is expected to result in an annual average of 11 jobs forgone in the four-county area from 2011 to 2025. This represents less than 0.0002 percent of the total employment in the four-county region and is within the noise of the model. The sector of primary metal manufacturing, where the two affected facilities belong, would have no jobs forgone, on average, between 2011 and 2025. The average annual jobs forgone in each of the other sectors are no more than one job between 2011 and 2025.

Proposed Rule 1420.1 will have few impacts on the relative cost of production and delivered prices.

RULE ADOPTION RELATIVE TO THE COST EFFECTIVENESS SCHEDULE

On October 14, 1994, the Governing Board adopted a resolution that requires staff to address whether rules being proposed for adoption are considered in the order of cost-effectiveness. The 2007 Air Quality Management Plan (AQMP) ranked, in the order of cost-effectiveness, all of the control measures for which costs were quantified. It is generally recommended that the most cost-effective actions be taken first. PR 1420.1 is not a control measure in the 2007 Air Quality Management Plan (AQMP) and thus, was not ranked by cost-effectiveness relative to other AQMP control measures in the 2007 AQMP.

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ATTACHMENT I

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Environmental Assessment for Proposed Rule 1420.1 – Emissions Standard for Lead from Large Lead-Acid Battery Recycling Facilities

October 2010

SCAQMD No. 100331JK
SCH No. 2010041086

Author:	James Koizumi	Air Quality Specialist
Reviewed By:	Steve Smith, Ph.D.	Program Supervisor, CEQA
	Cheryl Marshall	Program Supervisor, Toxics
	Eugene Kang	Air Quality Specialist
	William Wong	Principal Deputy District Counsel
	Barbara Baird	District Counsel

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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Mayor, Santa Ana
Cities of Orange County

EXECUTIVE OFFICER:

BARRY R. WALLERSTEIN, D.Env.

PREFACE

This document constitutes the Final Environmental Assessment (EA) for Proposed Rule (PR) 1420.1 – Emissions Standard for Lead from Large Lead-Acid Battery Recycling Facilities. The Draft EA was released for a 30-day public review and comment period from April 27, 2010 to May 26, 2010. No comment letters were received on the Draft EA during the public comment period. Two comment letters were received after the public comment period and are included with response to comments in Appendix C.

Changes to PR 1420.1

Subsequent to the release of the Draft EA for public review, PR 1420.1 several requirements were added, deleted or modified. The following briefly summarizes proposed modifications to PR 1420.1. A more detailed description of the proposed modifications to PR 1420.1 can be found in Chapter 1 of this Final EA.

- Addition of total facility lead point source emission rate limitation and maximum individual lead point source emission rate (pound per hour)
- Removal of 99 percent control efficiency compliance option for lead control devices
- Addition of a requirement to use of specific filters/bags in lead control devices
- Addition of a requirement to add secondary lead controls on dryers
- Removal of vehicle wet wash area requirement
- Change in schedule of roof cleaning requirement with the new compliance option of vacuuming surfaces or wet washing
- Public notifications for:
    - Unplanned and planned shutdowns/turnarounds of specific equipment
    - Specific types of maintenance activity

The proposed modifications were analyzed and SCAQMD staff concluded that recirculation was not necessary per CEQA Guidelines §15073.5, because the modifications were determined not to be a substantial revision (i.e., a new, avoidable significant effect that requires mitigation measures or project revisions to reduce the effect to insignificance or that project effects cannot be reduced to insignificant and new measures or project revisions are required). Recirculation is not required, because mitigation is not required; the modifications were not a response to written or verbal comments on the proposed effects identified in the Draft EA; modifications were not required by CEQA, and do not create new significant environmental effects, and it is not necessary to mitigate an avoidable significant effect; and new information added to the proposed project makes insignificant modifications to the Draft EA.

To facilitate identification, modifications to the document are included as <u>underlined text</u> and text removed from the document is indicated by ~~strikethrough~~. This document constitutes the Final EA for PR 1420.1 – Emissions Standard for Lead from Large Lead-Acid Battery Recycling Facilities.

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INTRODUCTION

The South Coast Air Quality Management District (AQMD) is responsible for developing and enforcing air pollution control rules and regulations in the South Coast Air Basin (Basin). By state law, the SCAQMD is required to adopt an Air Quality Management Plan (AQMP) demonstrating compliance with all federal regulations and standards such as National Ambient Air Quality Standards (NAAQS) for the Basin [H&S Code Section 40460 (a)]. On October 15, 2008, the U.S. Environmental Protection Agency (EPA) amended both the primary and secondary NAAQS for lead from a level of 1.5 micrograms per cubic meter to 0.15 micrograms per cubic meter averaged over a rolling three-month period, along with changes to monitoring and reporting requirements.

The purpose of Proposed Rule 1420.1 (PR 1420.1) is to propose a new rule for large lead-acid battery recycling facilities which are the highest stationary source emitters of lead in the Basin. In addition, PR 1420.1 is designed to address the amended NAAQS for lead to ensure the Basin can achieve the revised standard. Other lead-emitting sources will be addressed in a future amendment to District Rule 1420 – Emission Standards for Lead.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

PR 1420.1 is a discretionary action, which has the potential for resulting in direct or indirect change to the environment and, therefore, is considered a "project" as defined by the California Environmental Quality Act (CEQA). SCAQMD is the lead agency for the proposed project and has prepared this Final Environmental Assessment (EA) with no significant adverse impacts pursuant to its Certified Regulatory Program. California Public Resources Code §21080.5 allows public agencies with regulatory programs to prepare a plan or other written document in lieu of an environmental impact report or negative declaration once the Secretary of the Resources Agency has certified the regulatory program. SCAQMD's regulatory program was certified by the Secretary of the Resources Agency on March 1, 1989, and is codified as SCAQMD Rule 110. Pursuant to Rule 110, SCAQMD has prepared this Draft EA.

CEQA and Rule 110 require that potential adverse environmental impacts of proposed projects be evaluated and that feasible methods to reduce or avoid significant adverse environmental impacts of these projects be identified. To fulfill the purpose and intent of CEQA, the SCAQMD has prepared this Draft EA to address the potential adverse environmental impacts associated with the proposed project. The Draft EA is a public disclosure document intended to: (a) provide the lead agency, responsible agencies, decision makers and the general public with information on the environmental effects of the proposed project; and, (b) be used as a tool by decision makers to facilitate decision making on the proposed project.

SCAQMD's review of the proposed project shows that the proposed project would not have a significant adverse effect on the environment. The analysis in Chapter 2 supports the conclusion of no significant adverse environmental impacts. Therefore, pursuant to CEQA Guidelines §15252, no alternatives or mitigation measures are required to be included in this Draft EA. ~~Comments received on the Draft EA during the 30-day public review period will be addressed and included in the Final EA.~~ The Draft EA was released for a 30-day public review and comment period from April 27, 2010 to May 26, 2010. No comment letters were received on the Draft EA during the comment period. Two comment letters were received after the public comment period and are included with response to comments in Appendix C.

PROJECT LOCATION

PR 1420.1 would affect two large lead-acid battery recycling facilities located in the SCAQMD's jurisdiction. The SCAQMD has jurisdiction over an area of approximately 10,743 square miles, consisting of the four-county South Coast Air Basin (Basin) (Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties), and the Riverside County portions of the Salton Sea Air Basin (SSAB) and Mojave Desert Air Basin (MDAB). The Basin, which is a subarea of the SCAQMD's jurisdiction, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. It includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. The Riverside County portion of the SSAB is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley. The federal nonattainment area (known as the Coachella Valley Planning Area) is a subregion of the Riverside County and the SSAB that is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley to the east (Figure 1-1).

Figure 1-1
Boundaries of the South Coast Air Quality Management District

PROJECT OBJECTIVE

PR 1420.1 would protect public health by reducing lead emissions produced by large lead-acid battery recycling facilities. Requirements under PR 1420.1 are designed to ensure the Basin can achieve the 2008 NAAQS for lead. PR 1420.1 would accomplish this by requiring total enclosures for any process associated with the preparation, recovery, refining and storage of lead-containing material and requiring pollution control devices on the enclosures and lead emission point sources. PR 1420.1 also includes housekeeping requirements, monitoring, reporting and recordkeeping.

PROJECT BACKGROUND

PR 1420.1 addresses exposure to lead emissions from lead-acid battery recycling facilities. The purpose of the proposed rule is to protect public health and ensure attainment with the amended lead NAAQS. As required by the federal Clean Air Act, the U.S. EPA periodically reviews the standard to determine if changes are warranted. Based on review of health studies, the U.S. EPA has determined that the standard of 1.5 micrograms per cubic meter set in 1978 was not sufficient to protect public health and welfare with an adequate margin of safety. The standard has been lowered to 0.15 micrograms per cubic meter based on studies that demonstrate health effects at much lower levels of lead than previously believed. Selection of the new standard provides increased protection for children and other at-risk populations against an array of health effects, most notably including neurological effects in children, including neurocognitive and neurobehavioral effects.

Large lead-acid battery recycling facilities have been determined by SCAQMD staff to be the highest stationary source emitters of lead in the Basin. Staff's analysis has also shown lead-acid battery recycling facilities to be the only known source category that currently demonstrates ambient air lead concentration measurements that would cause non-attainment with the new lead NAAQS. PR 1420.1 is in addition to Rule 1420 – Emission Standards for Lead which addresses lead emissions from any stationary source that uses or processes lead-containing material. Although Rule 1420 also applies to lead-acid battery recycling facilities, it does not contain specific control measures for this source category to minimize lead emission exposure such that ambient air lead concentrations will comply with the new lead NAAQS. Other lead-emitting sources in the Basin will be further analyzed and addressed in a future amendment to Rule 1420.

Health Effects of Lead

Human exposure to lead occurs in a variety of ways with common routes being that of inhalation and ingestion. Ingestion of lead-containing paint chips and soil with deposited atmospheric lead is a source of concern for exposure for children. The most widely used indicator of lead exposure in many studies is the amount of lead measured in whole blood because of the direct relationship with blood lead (PbB) levels and health effects. Clinical effects resulting from high-level lead exposure include nervous and reproductive system disorders, neurological and physical developmental effects, cognitive and behavioral changes, and hypertension. Young children are especially susceptible to the effects of environmental lead because they appear to be more vulnerable to certain biological effects of lead including learning disabilities, deficits in IQ, and behavioral problems.[1] Health & Safety Code Section 39669.5, "Special Provisions for Infants and Children," required the California Air Resources Board (CARB) to identify up to five TACs that may cause infants and children to be especially susceptible to illness. The "Prioritization of Toxic Air Contaminants under the Children's Environmental Health Protection Act" document released in 2001 by the Office of Environmental Health Hazard Assessment (OEHHA) lists lead as one of the original five toxic air contaminants.

Lead is classified as a probable human carcinogen by both the International Agency for Research on Cancer and the U.S. EPA. OEHHA classified lead as a carcinogenic toxic air contaminant (TAC) and it was added to the SCAQMD Rule 1401 list of TACs in 1992. SCAQMD's "Risk Assessment Procedures for Rules 1401 and 212" Tier 1 screening value for lead indicates that a lifetime exposure (70 years for residential receptors, 40 years for worker receptors) to 0.628

[1] Environmental Protection Agency, "Lead in Air," (*http://www.epa.gov/air/lead/health.html*), June 12, 2009.

pounds of lead a year at 25 meters could potentially cause one additional case of cancer out of a million cases.

Under the federal Clean Air Act, lead is classified as a "criteria pollutant." Lead has observed health effects at ambient concentrations. The EPA has thoroughly reviewed the lead exposure and health effects research, and has prepared substantial documentation in the form of a Criteria Document to support the selection of the 2008 NAAQS for lead. The Criteria Document used for the development of the 2008 NAAQS for lead states that studies and evidence strongly substantiate that PbB concentrations in the range of 5-10 micrograms per deciliter of blood, or possibly lower, could likely result in neurocognitive effects in children. The report further states that "there is no level of lead exposure that can yet be identified with confidence, as clearly not being associated with some risk of deleterious health effects."[2]

Based on studies conducted by the Clean Air Scientific Advisory Committee (CASAC), it was concluded that a "population loss of one to two intelligence quotient (IQ) points" resulting from exposure to ambient air lead concentrations "is highly significant from a public health perspective." EPA has determined that a primary and secondary standard of 0.15 microgram per cubic meter is requisite to provide an adequate margin of safety that would ensure the protection of public health and the environment regarding the aforementioned population IQ loss.[3]

Regulatory History

Lead-acid battery recyclers have been subject to regulation for more than two decades. Below is a chronology of regulatory activity:

- In November 1970, CARB set the state ambient air quality standard for lead at 1.5 microgram per cubic meter averaged over 30 days.
- In October 1978, the U.S. EPA adopted the NAAQS for lead requiring attainment with a lead ambient concentration of 1.5 microgram per cubic meter averaged over a calendar quarter.
- In September 1992, the SCAQMD adopted Rule 1420 – Emissions Standard for Lead. The rule incorporated the state ambient air quality standard and required control devices on lead emission points, control efficiency requirements for lead control devices, housekeeping, and monitoring or modeling of ambient air quality.
- In October 1992, OEHHA classified lead as a carcinogenic toxic air contaminant and assigned to it a cancer potency factor and a cancer unit risk factor.
- In June 1997, the EPA adopted the National Emissions Standards for Hazardous Air Pollutants (NESHAPS) from Secondary Lead Smelting. The federal regulation required lead emission concentration limits for lead control devices, control of process fugitive emissions, monitoring, recordkeeping, and reporting.
- On October 15, 2008, the EPA signed into regulation an amended NAAQS for lead of 0.15 microgram per cubic meter[3].

The new lead NAAQS requires full attainment by each state no later than five years after final designations for attainment status are made. Demonstration of attainment is to be based on measurements using a rolling 3-month averaging form to be evaluated over a three-year period. Measurements are to be determined by EPA-required monitoring networks within each state

[2] Environmental Protection Agency, Office of Research and Development, "Air Quality Criteria Document for Lead, Volumes I-II," October 2006.

[3] Environmental Protection Agency, "National Ambient Air Quality Standards for Lead; Final Rule," 40 CFR Parts 50, 51, 53, and 58, November 2008.

which consist of both source-oriented and non-source-oriented monitors. The SCAQMD has already established the required monitoring network for both source and non-source-oriented lead monitors.

Affected Industries

The SCAQMD staff analyzed multiple data sources, including SCAQMD's Annual Emissions Reporting program for years ~~2004~~ 2005 through 2007, permitting data, and compliance data to initially identify the universe of lead-emitting sources. Approximately 600 lead sources were identified and analyzed. Almost all facilities located within the Basin emit less than 0.15 ton of lead per year, an amount far below the 1.0 ton per year threshold warranting source-oriented monitoring at these facilities. Lead-acid battery recycling facilities have the highest lead emissions of all permitted stationary sources. The two lead acid-battery recycling facilities are Exide, Inc. in Vernon and Quemetco in the City of Industry. Exide has an average of more than 1.5 tons of lead emissions per year, with its highest annual emissions at 1.99 tons. Quemetco has the second highest average lead emissions of 0.28 ton per year with a high of 0.32 ton per year. This data was cross referenced with ambient air lead concentration data obtained from the SCAQMD's ambient air monitoring network. Analysis indicated that lead-acid battery recycling facilities are the only industry category that demonstrated consistent readings exceeding the new lead NAAQS.

The lead attainment assessment conducted by the state of California led to the same determination, and in October 2009, CARB submitted recommendations to the EPA of non-attainment status for the portions of Los Angeles County that are located within the Basin. Final designation of attainment status by the EPA may be made as early as 2010, which would require the Basin to be in attainment with the new NAAQS no later than five years later, or 2015. A State Implementation Plan (SIP), outlining the strategy to demonstrate attainment with the lead NAAQS, must also be submitted by the SCAQMD within 18 months of the final designation date.

Process Description and Lead Emission Points

Lead-acid battery recycling facilities are secondary lead smelting operations where spent lead-acid batteries, mostly automotive, and other lead-bearing materials are received from various sources and processed to recover lead, plastics, and acids. The process mainly involves the sorting, melting, and refining of lead from lead-acid batteries, which ultimately produces lead ingots that are then sold to other entities. Below is a general description of the process including potential lead emission points:

I. **Phase I – Raw Materials Processing**: Lead-bearing materials recovered from lead-acid batteries are prepared and processed prior to being charged (loaded) to a smelting furnace. Lead dust emissions may result during the crushing of lead-acid batteries and from the handling and transporting of lead-bearing materials.

   a. **Receiving and Storage:** Spent lead-acid batteries are usually received on pallets that are either stored or sent directly to conveyors for immediate crushing.

   b. **Battery Breaking/Crushing:** The spent lead-acid batteries are unloaded from conveyors and loaded into a hammer mill system where they are crushed whole. The crushed material is then placed into a series of tanks filled with water in order to clean materials of the acids. Through gravity separation, the crushed material sinks to the

bottom of the tanks and goes through a series of screens to further isolate lead-bearing materials. The materials are then typically stored in open or partially covered piles if not required for immediate charge preparation.

c. **Charge Preparation/Rotary Kiln Drying/Sweating**: Recovered lead-bearing materials are prepared by blending them with stored lead scrap and reagents prior to being charged to a furnace. The metallic scrap materials are placed in rotary kiln dryers to remove moisture prior to charging to a furnace in order to reduce furnace upsets (puffs and explosions). The materials are then sweated (subjected to temperatures above the melting temperature of lead, but below that of the other metals) to separate lead from other metals with higher melting points.

II. **Phase II – Smelting:** Smelting is the production of crude lead by melting and separating the lead from metallic and non-metallic contaminants and by reducing oxides to elemental lead. Smelting is carried out in blast, reverberatory, and furnaces. These furnaces emit high levels of lead fumes during the charging and tapping processes.

a. **Blast furnaces**: Typically, "hard" lead, or antimonial lead (containing approximately ten percent antimony) is produced in blast furnaces. Scrap metal, re-run slag, scrap iron, coke, recycled dross, flue dust, and limestone are used as charge materials to the furnace. Process heat is produced by the reaction of the charged coke with blast air that is blown into the furnace.

b. **Reverberatory furnaces**: Semi-soft lead (containing approximately three to four percent antimony) is produced in reverberatory furnaces. Lead scrap, metallic battery parts, oxides, dross, and other residues are used as charge materials to the furnace. The charge materials are heated directly using natural gas, oil, or coal.

III. **Phase III – Refining and Casting:** Refining and casting the crude lead from the smelting process can consist of softening, alloying, and oxidation, depending on the degree of purity or alloy type desired. Crude lead produced during smelting operations is remelted and refined by the addition of reagents, such as sulfur and caustic soda. The purified lead is then cast into molds or ingots. Refining furnaces and kettles are typically gas or oil-fired and maintained at operating temperatures between 600-1300º Fahrenheit. Lead fumes may be emitted when molten lead is transferred to refining kettles and lead particulates may become airborne off refining kettle surfaces due to updrafts created by thermal rise.

a. **Alloying furnaces:** Alloying furnaces are kettle furnaces used to simply melt and mix ingots of lead and alloy materials, such as antimony, tin, arsenic, copper, and nickel.

b. **Refining furnaces**: Refining furnaces are used to either remove copper and antimony for soft lead production, or to remove arsenic, copper, and nickel for hard lead production. Sulfur may be added to the molten lead to remove copper. The resultant copper sulfide is skimmed off as dross and may be processed in a blast furnace to recover residual lead. Aluminum chloride is used to remove copper, antimony, and nickel.

c. **Oxidizing furnaces:** Either kettle or reverberatory units are used to oxidize lead and to entrain the product lead oxides in the combustion air stream for subsequent recovery in high-efficiency baghouses.

PROJECT DESCRIPTION

The following is a summary of the proposed Rule 1420.1. A copy of PR 1420.1 can be found in Appendix A.

Purpose (Subdivision (a))

The purpose of the proposed rule is to protect public health by reducing exposure and emissions of lead from large lead-acid battery recycling facilities, and to help ensure the attainment of the National Ambient Air Quality Standard for Lead.

Applicability (Subdivision (b))

The proposed rule applies to all persons who own or operate a large lead-acid battery recycling facility that processes more than 50,000 tons of lead a year. Annual process amounts would be based on the greatest amount processed in any one of the five calendar years prior to the date of rule adoption, ~~and~~ or annually thereafter. Applicability would be based on facility lead processing records required under Subdivision (m ~~i~~) Recordkeeping of this proposed rule and Rule 1420 – Emissions Standards for Lead. Compliance with the proposed rule would be required in addition to other applicable rules such as Rule 1420.

Definitions (Subdivision (c))

Definitions for agglomerating furnace, ambient air, battery breaking area, ~~demand response program,~~ dryer, dryer transition piece, duct section, emission collection system, fugitive lead-dust, furnace and refining/casting area, ~~interruptible service contract,~~ ~~large~~ lead-acid battery recycling facility, lead, lead control device, lead point source, leeward wall, maintenance activity, materials storage and handling area, measurable precipitation, partial enclosure, ~~person,~~ process, ~~property line~~ renovation, sensitive receptor, slag, smelting, smelting furnace, total enclosure, and windward wall ~~turnaround/maintenance activity~~ are included in PR 1420.1.

General Requirements (Subdivision (d))

The owner or operator of a large lead-acid battery recycling facility would be subject to the following requirements:

- Prior to January 1, 2012, PR 1420.1 would prohibit the discharge of emissions into the atmosphere, which contribute to ambient air concentrations of lead that exceed 1.5 micrograms per cubic meter ($\mu g/m^3$) pursuant to SCAQMD Rule 1420.
- On and after January 1, 2012, PR 1420.1 would prohibit the discharge of emissions into the atmosphere, which contribute to ambient air concentrations of lead that exceed 0.15 $\mu g/m^3$ averaged over any 30 consecutive days. The ambient air concentrations of lead would be required to be determined by monitors pursuant to the Ambient Air Monitoring and Sampling Requirements Subdivision (j) or at any SCAQMD-installed monitor.

- No later than July 1, 2011, owner/operators would be required to install, maintain, and operate total enclosures pursuant to the Total Enclosures Subdivision (e) and lead point source emission control devices pursuant to the Lead Point Source Emissions Controls Subdivision (f). The owner or operator of a large lead-acid battery recycling facility would be required to comply with the following:
    - Submit complete permit applications for all construction and necessary equipment within 30 days of the date of adoption of the proposed rule.
    - Complete all construction within 180 days of receiving Permit to Construct approvals from the Executive Officer, or by July 1, 2011, whichever is earlier.
    - The Executive Officer may approve a request for an extension of the compliance deadline date if the facility can demonstrate that it timely filed all complete permit applications and is unable to meet the deadline due to reasons beyond the facility's control. The request would be required to be submitted to the Executive Officer no less than 30 days before the compliance deadline date.
- On and after July 1, 2011 submit a Compliance Plan pursuant to the Compliance Plan Subdivision (g) if emissions are discharged into the atmosphere which contribute to ambient air concentrations of lead that exceed 0.12 micrograms per cubic meters averaged over any 30 consecutive days determined by monitors pursuant to the Ambient Air Monitoring and Sampling Requirements Subdivision (j) or at any SCAQMD-installed monitor.

Total Enclosures (Subdivison (e))

Enclosure Areas

~~By January 1, 2011, the~~ The owner or operator of a large lead-acid battery recycling facility would be required to totally enclose the following areas in groups or individually: battery breaking areas~~;~~, material storage and handling areas, excluding areas where unbroken lead-acid batteries and finished lead products are stored~~;~~, dryer and dryer areas including transition pieces, charging hoppers, chutes, and skip hoists conveying any lead-containing material~~;~~, smelting furnaces and smelting furnace areas charging any lead-containing material~~;~~, agglomerating furnaces and agglomerating furnaces areas charging any lead-containing material~~;~~, refining and casting areas.

The owner or operator of a large lead-acid battery recycling facility would be required to vent each ~~Each~~ total enclosure ~~would be required to vent~~ to an emission collection system that ducts the entire gas stream to a lead control device pursuant to Subdivision (f) Lead Point Source Emissions Controls ~~that meets a lead or particulate reduction of 99 percent or more. Control efficiencies would be determined by a source test conducted in accordance with the test methods provided in Subdivision (h) Source Tests. Lead or particulate emission reduction would be calculated as prescribed in the proposed rule~~.

~~Each emission collection system and lead control device would be required, at minimum, to be maintained and operated in accordance with the manufacturer's specifications.~~

Total Enclosure Ventilation

Each total enclosure would be required to be maintained at a negative pressure of at least 0.02 millimeters of mercury (0.011 inches of water) and an in-draft velocity of at least 300 feet per minute at any opening such as vents, windows, passages, doorways, bay doors, and roll-ups.

Digital Differential Pressure Monitoring Systems

~~Depending on the size of the area that is to be enclosed, at least one~~ The owner operator of a large lead-acid battery recycling facility would be required to install, operate, and maintain a differential pressure monitoring system ~~continuously measuring the negative pressure of the~~ for each total enclosure ~~would be required to be installed on the leeward wall~~. Areas with a total surface area of 10,000 square feet or more require a minimum of one building digital differential pressure monitoring system installed and maintained at each of the following walls: ~~at the wall of the total enclosure opposite~~ the leeward wall, the windward wall and at an exterior wall that connects the leeward and windward wall at a location defined by the intersection of a perpendicular line between a point on the connecting ~~this~~ wall and a point on its furthest opposite exterior wall, and intersecting within plus or minus ten meters of the midpoint of a straight line between the other two monitors ~~in order to account for shifts in draft direction throughout the enclosure~~. The midpoint monitor would be prohibited from being on the same wall as either of the other two monitors in the room.

A minimum of one building digital differential pressure monitoring system would be required to be installed and maintained at the leeward wall inside of each total enclosure that has a total ground surface area of less than 10,000 feet.

Requirements for operating and maintaining differential pressure monitor are prescribed in the proposed rule.

In-draft Velocities

The in-draft velocity of the total enclosure would be required to be maintained equal or greater than 300 feet per minute at any opening including, but not limited to, vents, windows, passages, doorways, bay doors and roll-ups. In-draft velocities for each total enclosure would be required to be determined by placing an anemometer, or an equivalent device approved by the Executive Officer, at the center of the plane of any opening of the total enclosure ~~that does not have an associated differential pressure monitor. The owner or operator of the facility shall conduct a minimum of three measurements a day, occurring at least once per operating shift, at an opening of each exterior wall of the total enclosure~~.

Lead Point Source Emissions Controls (Subdivision (f))

~~By January 1, 2011, the~~ The owner or operator of a large lead-acid battery recycling facility ~~shall~~ would be required to vent emissions from each ~~all~~ lead point source ~~emissions~~ to ~~an emission collection system that ducts the entire gas stream to~~ a lead control device ~~that meets a lead or particulate reduction of 99 percent or more. Control efficiencies shall be determined by a source test conducted in accordance with the test methods provided in Subdivision (h) Source Test.~~ The total facility mass lead emissions from all lead point sources would be required not to exceed 0.045 pound of lead per hour. The maximum emissions rate for any single lead point source would be required not to exceed 0.010 pound of lead per hour. The total facility and maximum emission rates would be based on the most recent source tests conducted pursuant to Source Test Subdivison (k).

The owner or operator of a large lead-acid battery recycling facility would be required to install a secondary lead control device that controls lead emissions from the exhaust of the primary lead control device used for a dryer. The secondary lead control device would be required to be fitted with dry filter media, and the secondary lead control device would be required to be used to vent only the primary lead control device used for the dryer. An alternative secondary lead control

method that is equally or more effective for the control of lead emissions may be used if a complete application is submitted as part of the permit application required under total enclosure and lead point source emissions control device requirements of Subdivision (d) General Requirements and approved by the Executive Officer.

For any lead control device that, filter media other than filter bag(s), including, but not limited to, HEPA and cartridge-type filters, the filter(s) used would be required to be rated by the manufacturer to achieve a minimum of 99.97 percent capture efficiency for 0.3 micron particles.

For any lead control device that uses a filter bag(s), the filter bag(s) used would be required to be polytetrafluoroethylene membrane-type, or any other material that is equally or more effective for the control of lead emissions, and approved for use by the Executive Officer.

~~Lead or particulate emissions reduction would be calculated as prescribed in the proposed rule.~~ Each emission collection system and lead control device would be, at minimum, inspected, maintained and operated in accordance with the manufacturer's specifications.

Compliance Plan (Subdivision (g))

~~On or after July 1, 2011, any facility that exceeds an early detection~~ The owner or operator of a large lead-acid battery recycling facility that discharges into the atmosphere emissions which contribute to ambient air lead concentrations that exceed ~~of~~ 0.12 microgram per cubic meter averaged over any 30 consecutive days measured ~~by facility~~ at any monitor~~s set up~~ pursuant to Subdivision (j ~~g~~) Ambient Air Monitoring and Sampling Requirements or at any SCAQMD-installed monitor would be required to: ~~located within 1,000 feet of the facility would be required to submit a Compliance Plan that identifies additional measures to ensure that the ambient air quality concentration of 0.15 microgram per cubic meter is not exceeded.~~

~~Each compliance plan submittal would be required to include:~~

- Notify the Executive Officer in writing within 72 hours of when the facility knew or should have known of exceeding an ambient air lead concentration of 0.12 microgram per cubic meter averaged over any 30 consecutive days. Notification would only be required for the first time the ambient air lead concentration of 0.12 microgram per cubic meter is exceeded;
- Submit, within 30 calendar days of exceeding an ambient air lead concentration of 0.12 microgram per cubic meter averaged over any 30 consecutive days, a complete Compliance Plan to the Executive Officer for review and approval, subject to plan fees as specified in Rule 306. The Compliance Plan, at a minimum, would be required to include the following:
  - ~~All data that led to the finding of the exceedance of the early detection concentration;~~
  - ~~A determination of all probable activities or operations that may have contributed to exceedance of 0.12 microgram per cubic meter;~~
  - A ~~comprehensive list~~ description of additional lead emission reduction measures including but not limited to ~~(~~housekeeping and maintenance activities; additional total enclosures; modifications to lead control devices; installation of multi-stage lead control devices; process changes including reducing throughput limits; and conditional curtailments including, at a minimum, information specifying the curtailed processes, process amounts, and length of curtailment measures~~ that can be implemented immediately if lead emissions discharged from the facility contribute to, process modifications, lead control devices, etc.) to be implemented to ensure ambient concentrations of lead do not exceed 0.15 microgram per cubic meter averaged over any 30 consecutive day;~~

- Locations within the facility and method(s) of implementation for each additional lead reduction measure; and
- An implementation schedule for each lead reduction measure to be implemented if lead emissions discharged from the facility contribute to ~~ensure~~ ambient concentrations of lead ~~do not~~ that exceed 0.15 microgram per cubic meter averaged over any 30 consecutive days at any monitor pursuant to Subdivision (j) Ambient Air Monitoring and Sampling Requirements or at any SCAQMD-installed monitor. The scheduled would be required to include a list of the lead emission reduction measures that can be implemented immediately prior to plan approval.

Requirements for submittal, approval, disapproval and resubmittal of the Compliance Plan are detailed in the proposed rule.

~~All lead reduction measures identified to ensure ambient concentrations of lead do not exceed 0.15 microgram per cubic meter averaged over any 30 consecutive days, shall be implemented based on the schedule of the approved Compliance Plan.~~ The owner or operator would be required to implement measures based on the schedule in the approved Compliance Plan if lead emissions discharged from the facility contribute to ambient concentrations of lead that exceed 0.15 microgram per cubic meter averaged over any 30 consecutive days at any monitor pursuant to Subdivision (j) Ambient Air Monitoring and Sampling Requirements or at any SCAQMD-installed monitor. The owner or operator may make a request to the Executive Officer to modify or update the Compliance Plan.

~~Ambient Air Quality Concentration~~ (moved to Subdivision (d))

~~Beginning January 1, 2012, large lead-acid battery recycling facilities subject to PR 1420.1 would not be allowed to discharge into the atmosphere, at or beyond the property line of the facility, emissions which cause ambient concentrations of lead to exceed 0.15 microgram per cubic meter averaged over any 30 consecutive days. The ambient concentrations of lead shall be measured pursuant to Subdivision (g) Ambient Air Monitoring and Sampling Requirements. Exceedances measured at any rule-required ambient air lead monitor, including those operated by the District located within 1,000 feet of the facility property line, are subject to compliance with the standard.~~

~~Any exceedance of the 0.15 microgram per cubic meter concentration measured at any facility monitor set up pursuant to Subdivision (g) Ambient Air Monitoring and Sampling Requirements, or at any SCAQMD-installed monitor located within 1,000 feet of the facility property line, would be recognized as resulting from emissions discharged into the atmosphere by the facility unless evidence is provided by the facility demonstrating otherwise and as approved by the Executive Officer.~~

~~New Facilities (Subdivision (e))~~ (moved to Subdivision (l))

~~Any new facility that begins construction or operations on or after rule adoption would be required not to be located in an area that is zoned for residential or mixed use. In addition, any new facility shall not be located within 1,000 feet from the boundary of a sensitive receptor, a school under construction, or any area that is zoned for residential or mixed use.~~

Housekeeping Requirements (Subdivision (h~~-f~~))

~~Housekeeping requirements are proposed to minimize fugitive lead dust emissions. All requirements will be effective upon rule adoption.~~ No later than 30 days after the date of

adoption of the proposed rule, the owner or operator of a large lead-acid battery recycling facility would be required to control fugitive lead-dust by conducting all of the following housekeeping practices:

- ~~Wash down, at least once a week, unless located within a total enclosure vented to a lead control device~~ Clean by wet wash or a vacuum equipped with a filter(s) rated by the manufacturer to achieve a 99.97 percent capture efficiency for 0.3 micron particles in a manner that does not generate fugitive lead-dust, the following areas at the specified frequencies, unless located within a total enclosure vented to a lead control device. Days of measurable precipitation in the following areas occurring within the timeframe of a required cleaning frequency may be counted as a cleaning:
  - ~~Roof tops of structures that house areas that are associated with the storage, handling or processing of lead-containing materials~~ Monthly cleanings of roof tops on structures less than 45 feet in height that house areas associated with the storage, handling or processing of lead-containing materials; and
  - Quarterly cleanings, no more than three calendar months apart, of roof tops on structures greater than 45 feet in height that house areas associated with the storage, handling or processing of lead-containing materials; and
  - ~~Any~~ Weekly cleanings of all areas where lead-containing wastes generated from housekeeping activities are stored, disposed of, recovered or recycled, and
  - Initiate immediate cleaning, no later than one hour, after any maintenance activity or event including, but not limited to, accidents, process upsets, or equipment malfunction, that causes deposition of fugitive lead-dust onto areas specified above (roof tops and areas where wastes from housekeeping activities are stored, disposed of, recovered or recycled). Immediate cleanings of roof tops would be required to be completed within 72 hours if the facility can demonstrate that delays were due to safety or timing issues.
- Inspect all total enclosures and facility structures that house, contain or control any lead point source or fugitive lead-dust emissions at least once a month. Any gaps, breaks, separations, leak points or other possible routes for emissions of lead or fugitive lead-dust to ambient air would be required to be permanently repaired within 72 hours of discovery. The Executive Officer may approve a request for an extension beyond the 72-hour limit if the request is submitted before the limit is exceeded.
- Any lead-acid battery that is cracked or leaking upon receipt would be required to be sent to the battery breaking area for processing or stored pursuant to the proposed rule.
- ~~Negative air containment enclosures vented to negative air machine equipped with filters certified for 99.97 percent efficiency on 0.3 micron particles enclosing all affected areas where dust generation potential exists during turnaround/maintenance activities unless located within a total enclosure approved by the Executive Officer.~~
- ~~Replacement of any heavy gauge steel hot acid exhaust duct sections which have developed more than two corrosion leaks or required patch repairs.~~
- ~~Monthly structural integrity inspections of any structures that house, contain, or control lead emission points or fugitive lead-dust emissions. Any gaps, breaks, separations, leak points or other possible routes for emissions of lead or fugitive lead-dust to outside ambient air would be required to be permanently repaired within three calendar days of discovery. The Executive Officer may approve a request for an extension of the three-calendar-day limit if made before the limit is exceeded.~~
- ~~Encapsulation (paving, asphalting, etc.) of all facility grounds as approved by the Executive Officer.~~ Pave, concrete, asphalt, or otherwise encapsulate all facility grounds as approved by the Executive Officer. Facility grounds used for plant life that are less than a total surface

area of 100 square feet would not be subject to encapsulation. Facility grounds requiring removal of existing pavement, concrete, asphalt or other forms of encapsulation, necessary for maintenance purposes would not require encapsulation while undergoing work, and would be required to be re-encapsulated immediately after all required work is completed. All work would be required to be conducted in accordance with maintenance activity requirements in Subdivision (i).

- Prohibition of weather caps on any stack that is a lead emissions source.
- ~~Storage of~~ Store all materials capable of generating any amount of fugitive lead-dust, including, but not limited to, slag and any other lead-containing waste generated from housekeeping requirements of this Subdivison and maintenance activities of Maintenance Activity Subdivision (i), in sealed, leak-proof containers unless located within a total enclosure.
- Transport of all materials capable of generating any amount of fugitive lead-dust emissions including, but not limited to, slag and any other waste generated from housekeeping requirements of this subdivision within closed conveyor systems or in sealed, leak-proof containers, unless located within a total enclosure.
- ~~Remove~~ Initiate removal of any lead-containing material, including sludge, from the entire surface area of any surface impoundment pond or reservoir holding storm water runoff or spent water from housekeeping activities within ~~24~~ one hour~~s~~ after the water level is one inch at any point above the bottom of the pond or reservoir. ~~Surfaces~~ Removal of lead-containing material would be required to be completed as soon as possible, and no later than six calendar days after the time initiation of the removal was required. Thereafter, surfaces are required to be washed down weekly ~~thereafter~~ in a manner that does not generate fugitive lead-dust until the pond or reservoir is used again for holding water.
- ~~Facility owner/operator would be required to sweep paved, concreted or asphalted facility areas subject to vehicle and foot traffic and vehicle wet wash down areas with an onsite mobile sweeper that is in compliance with SCAQMD Rule 1186. Sweeping would be required three times each day, occurring at least once per operating shift with each event not less than four hours apart. Additionally, any accidents, mishaps and/or process upsets occurring in the aforementioned areas that result in the deposition of lead-containing material or dust shall be swept immediately using an onsite mobile sweeper. Sweeping would not be required within ten meters of any ambient air monitor location when conducting sample collection in order to avoid interference. Further, sweeping would not be required during days of measurable precipitation.~~ The owner or operator of a large lead-acid battery recycling facility would be required to maintain an onsite mobile vacuum sweeper that is in compliance with SCAQMD Rule 1186, or a vacuum equipped with a filter(s) rated by the manufacturer to achieve a 99.97 percent capture efficiency for 0.3 micron particles to conduct the following sweeping activities:
  - Vacuum sweep all paved, concreted or asphalted facility areas subject to vehicular or foot traffic three times per day and occurring at least once per operating shift with each event not less than four hours apart, unless located within a total enclosure vented to a lead control device.
  - Immediately vacuum sweep any area specified to be swept above, no later than one hour after any maintenance activity or event including accidents, process upsets, or equipment malfunction that results in the deposition of fugitive lead-dust.
  - Vacuum sweeping activities specified in sweeping requirements above would not be required during days of measurable precipitation.
- ~~A vehicle wet washing area would be required to maintain a vehicle wet washing area using a wet washing method approved by the Executive Officer. The system would be required to be~~

~~capable of removing dust and other accumulated material from the wheels, body, and vehicle underside to prevent the inadvertent transfer of lead contaminated material to public roadways. All vehicles traversing facility areas associated with the lead-acid battery recycling process prior to exiting the facility and onsite mobile sweepers after operation, would need to be sufficiently washed such as visual inspections of all vehicle surfaces, wheel, or tires does not indicate any accumulation of dust, particles or mud contamination. Each vehicle would need to be inspected after washing to verify compliance with washing requirements. Vehicles that do not pass would be prohibited from exiting the facility. Ground surfaces where vehicles are washed would be required to be wet washed prior to the vehicle wet washed areas becoming dry to prevent any fugitive lead-dust or residue from becoming airborne. Practices that minimize the potential for further releases of lead emission when collecting and disposing of lead contaminated water accumulated during washing processes would be required. Practices would include the minimization of the amount of water which is allowed to dry exposed to the atmosphere prior to collection for treatment.~~

Maintenance Activity (Subdivision (i))

- Beginning date of adoption, the owner or operator of a large lead-acid battery recycling facility would be required to conduct any maintenance activity in a negative air containment enclosure, vented to a permitted negative air machine equipped with a filter(s) rated by the manufacturer to achieve a 99.97 percent capture efficiency for 0.3 micron particles, that encloses all affected areas where fugitive lead-dust generation potential exists, unless located within a total enclosure or approved by the Executive Officer. Any maintenance activity that cannot be conducted in a negative air containment enclosure due to physical constraints, limited accessibility, or safety issues when constructing or operating the enclosure would be required to be conducted:
  - In a partial enclosure, barring conditions posing physical constraints, limited accessibility, or safety issues;
  - Using wet suppression or a vacuum equipped with a filter(s) rated by the manufacturer to achieve a 99.97 percent capture efficiency for 0.3 micron particles, at locations where the potential to generate fugitive lead-dust exists prior to conducting, during, and upon completion of the maintenance activity. Wet suppression or vacuuming would be required to be conducted during the maintenance activity barring safety issues;
  - While collecting 24-hour samples at monitors for every day that maintenance activity is occurring and notwithstanding Ambient Air Monitoring and Sampling Requirements Subdivison (j);
  - Would be required to be stopped immediately when instantaneous wind speeds are greater than 25 miles per hour. Maintenance work may be continued if it is necessary to prevent the release of lead emissions.
- Store or clean by wet wash or a vacuum equipped with a filter(s) rated by the manufacturer to achieve a 99.97 percent capture efficiency for 0.3 micron particles, all lead-contaminated equipment and materials used for any maintenance activity immediately after completion of work in a manner that does not generate fugitive lead-dust.

Ambient Air Monitoring and Sampling Requirements (Subdivision (k ~~g~~))

~~Each facility would be required to collect and analyze ambient air lead samples to determine compliance with the ambient air quality lead concentration standard of PR 1420.1.~~ Prior to January 1, 2011, ambient air monitory and sampling would be conducted pursuant to SCAQMD Rule 1420. No later than January 1, 2011, the owner or operator of a large lead-acid battery recycling facility would be required to conduct ambient air monitoring and sampling as follows:

- Collect samples from a minimum of ~~three~~ four sampling sites approved by the Executive Officer~~, located at or beyond the property line of the facility~~;
  - Locations for sampling sites would be required to be based on maximum expected ground level lead concentrations, at or beyond the property line, as determined by Executive Officer-approved air dispersion modeling calculations and emission estimates from all lead point sources and fugitive lead-dust sources, and other factors including, but not limited to, population exposure and seasonal meteorology.
  - The Executive Officer may require one or more of the four sampling sites to be at locations that are not based on maximum ground level lead concentrations, and that are instead at locations at or beyond the property line that are representative of upwind or background concentrations.
  - Sampling sites at the property line may be located just inside the fence line on facility property if logistical constraints preclude placement outside the fence line at the point of maximum expected ground level lead concentrations.
- ~~Collect samples from a minimum of one Executive Officer-approved sampling site to determine background ambient lead concentration;~~
- Collect 24-hour, midnight-to-midnight, samples at all sites for 30 consecutive days from the date of initial sampling, followed by one 24-hour, midnight-to-midnight, sample collected at least once every three calendar days, on a schedule approved by the Executive Officer;
- Submit collected samples to ~~an Executive Officer approved~~ laboratory approved under the SCAQMD Laboratory Approval Program for analysis within three calendar days of collection and calculate ambient lead concentrations for individual 24 hour samples within 15 calendar days of the end of the calendar month in which the samples were collected. ~~provide duplicate~~ Duplicate samples would be required to be made available to the ~~District~~ SCAQMD upon request by the Executive Officer; and
- ~~Calculate ambient lead concentrations for individual 24 hour samples within 15 calendar days of the end of the calendar month.~~
- Sample collection would be required to be conducted using Title 40, CFR 50 Appendix B - *Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*, or U.S. EPA-approved equivalent methods, and sample analysis ~~shall~~ would be required to be conducted using Title 40, CFR 50 Appendix G - *Reference Method for the Determination of Lead in Suspended Particulate Matter Collected from Ambient Air*, or U.S. EPA-approved equivalent methods.
- ~~Facilities would also have to continuously monitor wind speed and direction for the ambient air quality monitoring systems at all times to supplement data analysis of samples collected.~~ Continuously record wind speed and direction data at all times using equipment approved by the Executive Officer at a minimum of one location and placement approved by the Executive Officer.
- ~~Only personnel approved by the Executive Officer would be allowed to conduct ambient air quality monitoring, and sampling equipment shall be operated and maintained in accordance with U.S. EPA-referenced methods.~~ Ambient air quality monitoring would be required to be conducted by persons approved by the Executive Officer and sampling equipment be required to be operated and maintained in accordance with U.S. EPA-referenced methods.
- Cleaning activities, including, but not limited to, wet washing and misting, that result in damage or biases to samples collected would be required not to be conducted within 10 meters of any sampling site required by this subdivision.

- All ambient air quality monitoring systems ~~would be~~ required by this subdivision would be required to be equipped with a backup, uninterruptible power supply ~~if the facility is enrolled into a Demand Response Program~~.
- On and after January 1, 2012, if the owner or operator of a large lead-acid battery recycling facility exceeds an ambient air lead concentration 0.15 microgram per cubic meter measured pursuant to General Requirements Subdivision (d), the owner or operator would be required to:
    - Begin daily ambient air monitoring and sampling no later than three calendar days after the time the facility knew or should have known of the exceedance. Conduct daily ambient air monitoring and sampling for 60 consecutive days at each sampling site that measured an exceedance according to General Requirements Subdivision (d).
    - The 60 consecutive-day period would be restarted for any subsequent exceedance.

Source Tests (Subdivision (k ~~h~~))

- ~~Annual source tests would be required for all lead control devices in order to demonstrate compliance with the 99 percent control efficiency standard.~~ The owner or operator of a large lead-acid battery recycling facility would be required to conduct a source test of all lead control devices at least annually to demonstrate compliance with the control standards specified in the Lead Point Source Emissions Controls Subdivison (f). If the results of the most recent source test for a lead control device demonstrating compliance with the lead emission standards of Lead Point Source Emissions Controls Subdivison (f) demonstrate emissions of 0.0025 pounds of lead per hour or less, the next test for that lead control device would be required to be performed no later than 24 months after the date of the most recent test.
- The owner or operator of a large lead-acid battery recycling facility with an ~~Existing~~ existing lead control devices in operation before the adoption date of the rule would ~~require a~~ would be required to conduct a source test no later than January 1, 2011. Initial source tests for new and modified lead control devices with an initial start-up date on or after the adoption date of the rule would be required within 60 days of initial start-up.
- The Executive Officer would be required to be notified in writing one week prior to conducting any source test required by PR 1420.1.
- Prior to conducting a source test for PR 1420.1 the owner/operator of a large lead-acid battery recycling facility would be required to ~~obtain~~ submit a~~n approved~~ pre-test protocol~~,~~ ~~submitted~~ to the Executive Officer for approval at least 60 calendar days prior to conducting the source test. The pre-test protocol would need to include the source test criteria of the end user and all assumptions, required data, and calculated targets for testing the following: target lead control efficiency; preliminary lead analytical data; planned sampling parameters; and information on equipment, logistics, personnel, and other resources necessary for an efficient and coordinated test.
- The owner or operator of a large lead-acid battery recycling facility would be required to notify the Executive Officer within three business days, including Mondays, of when the facility knew or should have known of any source test result that exceeds any of the emission standards specified in Lead Point Source Emissions Controls Subdivison (f). Notifications would be made to 1-800-CUT-SMOG.
- ~~The proposed rule lists the following applicable test methods~~ Source tests would be required to be conducted while operating at a minimum of 80 percent of equipment maximum capacity and in accordance with any of the following applicable test methods:
    - ~~SCAQMD Methods 5.1, 5.2, and 12.1;~~

~~o CARB Methods 12 and 436; and~~
~~o EPA Methods 9 and 12.~~
- o SCAQMD Method 12.1 - Determination of Inorganic Lead Emissions from Stationary Sources Using a Wet Impingement Train
- o ARB Method 12 – Determination of Inorganic Lead Emissions from Stationary Sources
- o EPA Method 12 – Determination of Inorganic Lead Emissions from Stationary Sources
- o ARB Method 436 – Determination of Multiple Metal Emissions from Stationary Sources

- The average of triplicate samples according to approved test methods would be required to be used to determine compliance.
- ~~Use of~~ The operator may use an alternative or equivalent test method defined in U.S. EPA 40 CFR 60.2,~~would be allowed as long as it is~~ approved in writing by the Executive Officer, CARB, and the U.S. EPA. ~~Source tests would be required to be completed by a test laboratory approved under the SCAQMD Laboratory Approval Program.~~
- The operator would be required to use a test laboratory approved under the SCAQMD Laboratory Approval Program for the source test methods cited in this subdivision. If there is no approved laboratory, then approval of the testing procedures used by the laboratory would be granted by the Executive Officer on a case-by-case basis based on SCAQMD protocols and procedures.
- When more than one source test method or set of source test methods are specified for any testing, the application of these source test methods to a specific set of test conditions is subject to approval by the Executive Officer. In addition, a violation established by any one of the specified source test methods or set of source test methods ~~shall~~ would be constitute a violation of the rule.
- An existing source test, for existing lead control devices, conducted on or after January 1, 2010 may be used as the initial source test specified in this subdivison ~~as long as the test~~ to demonstrate compliance with the control standard of Lead Point Source Emissions Controls Subdivison (f) upon Executive Officer approval. The source test would be required to meet, at a minimum, the following criteria:
  - o The test is the most recent conducted since January 1, 2009;
  - o The test demonstrated compliance with the applicable control standard of Lead Point Source Emissions Controls Subdivison (f) ~~99 percent control efficiency;~~
  - o ~~Is~~ The test is representative of the method to control emissions currently in use; and
  - o ~~Was~~ The test was conducted using applicable and approved test methods in this subdivison.

New Facilities (Subdivision (l))

The owner or operator of a large lead-acid battery recycling facility beginning construction or operations on or after the date of adoption of the rule would be required to:

- Demonstrate to the satisfaction of the Executive Officer that the facility is not located in an area that is zoned for residential or mixed use; and
- Demonstrate to the satisfaction of the Executive Officer that the facility is not located within 1,000 feet from the property line of a sensitive receptor, a school under construction, park or any area that is zoned for residential or mixed use. The distance would be measured from the property line of the new facility to the property line of the sensitive receptor.
- Submit complete permit applications for all equipment required by this rule prior to beginning construction or operations.

Recordkeeping (Subdivision (m ~~i~~))

The owner or operator of a large lead-acid battery recycling facility would be required to keep records of the following:

- ~~Records~~ Daily records indicating ~~quantities and lead content of each~~ amounts of lead-containing material processed, including, but not limited to, purchase records, usage records, results of analysis, or other SCAQMD-approved verification ~~at a facility~~ to indicate processing amounts; ~~lead content and lead would be required to be maintained by the facility.~~
- Results of all ambient air lead monitoring, meteorological monitoring, and other data specified by the Ambient Air Monitoring and Sampling Requirements Subdivision (j)
- Recordkeeping for all housekeeping activities in Subdivision (h), maintenance of Subdivision (i), and lead control device inspection and maintenance requirements of Lead Point Source Emissions Controls Subdivision (f), including the name of the person performing the activity, and the dates and times on which specific activities were completed ~~ambient air lead monitoring, meteorological monitoring, vehicle wet washing and vehicle inspection required by the rule would be required to be maintained~~.
- Records of unplanned shutdowns of any smelting furnace including the date and time of the shutdown, description of the corrective measures taken, and the re-start date and time.
- All records would be required to be maintained for five years and maintained onsite for at least two years.

Reporting (Subdivision (n ~~j~~))

Ambient Air Monitoring Reports

- ~~Facilities would be required to submit reports for monthly ambient air monitoring results for lead and wind data measured at each sampling location on a monthly or more frequent basis if determined by the EO. Results of individual 24-hour samples would be required to be reported and averaged each calendar month.~~ Beginning no later than January 1, 2011, the owner or operator of a large lead-acid battery recycling facility would be required to report by the 15th of each month to the Executive Officer, the results of all ambient air lead and wind monitoring for each preceding month, or more frequently if determined necessary by the Executive Officer. The report would be required to include the results of individual 24-hour samples and 30-day averages for each day within the reporting period.
- Any exceedance of the ambient air quality concentration specified in the General Requirements (d) ~~shall~~ would be required to be reported with a notification made to the 1-800-CUT-SMOG ~~to the Executive Officer~~ within 24 hours of receipt of completed sample analysis required by Ambient Air Monitoring and Sampling Requirements Subdivsion (j), followed by a written report to the Executive Officer no later than three calendar days after the notification. The written report would be required to include the causes of the exceedance and the specific corrective actions implemented.

Shutdown,Turnaround~~/~~, and ~~–~~Maintenance Activity Notification ~~and Unplanned Shutdown Reporting~~

The owner or operator of a large lead-acid battery recycling facility would be required to:

- Notify the Executive Officer within one hour after an unplanned shutdown of any lead control device has occurred. The notification would be required to include the associated processes or equipment vented by the shutdown lead control device. If the unplanned shutdown involves a breakdown pursuant to Rule 430, the breakdown notification report required by Rule 430 would serve in lieu of this notification to the Executive Officer.

- Notify the Executive Officer at least ten calendar days prior to a planned turnaround or shutdown of any smelting furnace, battery breaker, or lead control device that result in lead emissions. The notification would be required to specify the subject equipment and the start and end date of the turnaround or shutdown period.
- Notify the Executive Officer at least ten calendar days prior to the beginning of maintenance activity, as defined in Definitions Subdivision I, that is conducted routinely on a monthly or less frequent basis. The notification and report would be required to include, at a minimum, the following:
  - Dates, times, and locations of activities to be conducted;
  - Description of activities;
  - Name of person(s)/company conducting the activities;
  - Lead abatement procedures, including those specified in Maintenance Activity Subdivision (i), to be used to minimize fugitive lead-dust emissions; and
  - Date of expected re-startup of equipment.
- Notify the public at least ten calendar days prior to the beginning of building construction, renovation, or demolition, and resurfacing, repair, or removal of ground pavement, concrete or asphalt if such activities are conducted outside of a total enclosure and generate fugitive lead-dust. The notification would include, at a minimum, the following:
  - Dates, times, and locations of activities to be conducted;
  - Description of activities;
  - Date of expected re-start of equipment.
- Notification in this subdivision would be required to be made to 1-800-CUT-SMOG followed by a written notification report to the Executive Officer no later than three business days, including Mondays, after the unplanned shutdown occurred.
- Provide notification to the public required under this subdivision through a facility contact or pre-recorded notification center that is accessible 24 hours a day, seven days a week, and through electronic mail using a list of recipients provided by the Executive Officer. Another method of notification to the public may be used provided it is approved by the Executive Officer.
- Install a sign indicating the phone number for the facility contact or pre-recorded notification center that meets the following requirements, unless otherwise approved in writing by the Executive Officer:
  - Installed within 50 feet of the main entrance of the facility and in a location that is visible to the public;
  - Measures at least 48 inches wide by 48 inches tall;
  - Displays lettering at least four inches tall with text contrasting with the sign background; and
  - Located between six and eight feet above grade from the bottom of the sign.

~~A Turnaround/Maintenance Lead Abatement Notification would be required to be submitted at least four weeks prior to the beginning of any turnaround/maintenance activity no later than January 1, 2011. Notification information would need to include a description of the activity including dates, times, persons conducting the activity, and specific locations at the facility where activities will be conducted. Lead abatement procedures that would be used to minimize lead emissions would also be required.~~

~~Unplanned shutdown of any equipment that processes lead-containing material shall be reported to the Executive Officer by calling 1-800-CUT-SMOG within one hour of shutdown. A written notification would also be required to be made to the Executive Officer no later than three calendar days after the unplanned shutdown occurred.~~

Initial Facility Status Report

No later than January 1, 2011, existing large lead-acid battery recycling facility owners/operators would be required to submit an initial facility status report. Large lead-acid battery recycling facilities beginning construction or initial operations after the date of rule adoption would be required to submit the initial compliance report upon start-up. Minimum information required in the report is specified in Appendix 1 of the rule. Below is a summary of required information:

- General facility information (name, SCAQMD Facility ID Number, address, contact number);
- The distance from the property line of the facility to the property line of the nearest commercial/industrial facility and sensitive receptor.
- Sensitive receptor and worker locations with respect to the facility if they are within one-quarter mile from the center of the facility;
- Facility building parameters;
- Description of the types of lead processes at the facility;
- For ~~all three~~ each of the last five calendar years dating back from the adoption of the rule:
  - Annual amounts and lead content of all lead-containing materials processed;
  - Maximum and average daily and monthly operating schedules;
  - Maximum and average daily and monthly lead-processing rates for all equipment and processes;
  - Maximum and average daily and annual lead emissions from all emission points and fugitive lead sources;
- Approximate date of intended source tests for all lead control devices, as required by source test requirements.
- Engineering drawings, calculations, or other methodology to demonstrate compliance with enclosure areas ~~emission standards~~; total enclosures; total enclosure ventilation~~; ambient air lead monitoring and concentrations~~; and source tests;
- Air dispersion modeling calculations using procedures approved by the Executive Officer to determine the location of sampling sites as required by ambient air monitoring and sampling requirements.
- All information necessary to demonstrate means of compliance with ambient air monitoring and sampling requirements.
- ~~Intended source test dates for all lead control devices; and~~
- The name, title, and signature of the responsible official certifying the report.
- Date of the report.

Ongoing Facility Status Report

Facilities would be required to submit a summary report to ~~update~~ the Executive Officer ~~of~~ to document the ongoing facility status ~~and changes through submittal of an Ongoing Facility Status Report~~. Ongoing Facility Status Reports would be due every year on or before February 1st for all sources and would require information covering the preceding calendar year. Minimum information required in the report is specified in Appendix 2 of the rule. Below is a summary of required information:

- General facility information (name, SCAQMD Facility ID Number, address, contact number);
- Beginning and ending dates of the calendar year for the reporting period.

- The following information would be required to be provided for each of the last 12 calendar months of the reporting period:
    - ~~Quantities~~Annual amounts of lead-containing material processed;
    - ~~Lead content of lead-containing materials processed;~~
    - Maximum and average daily and monthly lead-processing rates from all equipment and processes;
    - Maximum and average daily and annual emissions of lead from all emission points and fugitive lead-dust sources;
- ~~Description of changes in sensitive receptor locations and distances since the previous reporting period;~~ Worker and sensitive receptor distances, if they are located within one-quarter mile from the center of the facility and facility maximum operating schedule, if changed since submittal of the initial compliance status report or prior year's ongoing compliance status and emission reports.
- Description of changes in monitoring, processes, or controls since the previous reporting period; and
- The name, title, and signature of the responsible official certifying accuracy of the report.
- Date of the report.

Adjustments to the Timeline for Submittal and Format of Reports

The Executive Officer may adjust the timeline for submittal of periodic reports, allow consolidation of multiple reports into a single report, establish a common schedule for submittal of reports, or accept reports prepared to comply with other state or local requirements. Adjustments ~~shall~~ would be required to provide the same information and ~~shall~~ not to alter the overall frequency of reporting.

CONTROL STRATEGIES

Several types of controls for lead emissions are currently used at the lead-acid battery recycling facilities in the Basin. Lead emissions at lead-acid battery recycling facilities are generally categorized as point and fugitive lead emissions. Point source emissions are those emissions that are vented to a stack where the stack can be from a specific piece of equipment such as a furnace or building. Fugitive emissions are particulate matter that contain lead, is in contact with the ambient air, and can become airborne. Point source emissions that are vented through a control device, but not captured and contained can become fugitive emissions. The following discusses lead point source controls and fugitive source control strategies: ~~from lead processes discussed in the previous section are vented to one or more lead control devices listed below:~~

Lead Point Source Control Strategies

The following describes lead point source control strategies. As with any type of control device, maintenance and proper operation of the control device are important to ensure the control device can achieve its maximum control efficiency. The following provides a description of baghouses and filter controls, wet scrubbers, high efficiency particulate arrestors (HEPA), electrostatic precipitators and wet electrostatic precipitators. Use of multistage point source controls such as use of baghouse filters and HEPA filters can improve the capture efficiency and provide additional protection. Lead emissions from lead processes discussed in the previous section are vented to one or more lead control devices listed below:

Baghouses and Filters

Baghouses operate by collecting particles on a fabric or membrane filter. Typically, they consist of fabric or membrane bags of tubular or envelope shapes. As an air stream flows through the

bags, small particles are initially captured and retained on the fabric or membrane filter by one or a combination of the following collection mechanisms: impaction, direct interception, diffusion, electrostatic attraction, and gravitational settling. Once dust has accumulated on the walls of the bags, the "dust mat" acts as a sleeve to further increase particulate matter capture.

Arrays of filters are also used to collect particulate matter. They can be used after the bags in a baghouse to further reduce emissions or can be used alone as in a spray booth. Filters are often used in combination with a prefilter which is "changed out" on a regular basis allowing the bank of filter cartridges to last longer.

Baghouses are commonly used in metal melting operations. They have one of the highest control efficiencies for particulate emissions, and the captured particulate can be recycled to recover metal. Operating parameters of melting operations, such as exhaust stream temperature, gas stream velocity, and particulate chemical properties must be taken into account when designing the baghouse.

Daily maintenance and monitoring of the baghouse is necessary to ensure that it continuously meets the required standard of efficiency. Gas volume, temperature, pressure drop, and dust load are monitored continuously or intermittently. Baghouse shaking and sending pulses of air backwards through the bags is done at specific intervals, or when the bags are overloaded, to remove the captured particulate matter from the bags and drop it into a hopper below the bags.

Baghouse and filter technology combined can achieve an overall particulate matter capture efficiency certifiable up to 99.97 percent. The well designed baghouse can control 99 percent of particulate emissions. The control efficiency of lead particulates is anticipated to be slightly higher, since analytical test methods for metals are more accurate and precise than test methods for total particulates, regardless of particle size distribution. Historical test data performed for compliance with Rule 1420 has demonstrated this to be true. The lead removal efficiency is at least 98 percent for a baghouse with 99 percent efficiency for particulates.

All facilities subject to this rule would be able to use baghouses or filter systems to control particulate lead emissions from most all operations in the lead-acid battery recycling processes. Examples include lead emissions coming from the battery breaking areas and all smelting, refining, and casting operations.

Baghouses and filters are expected to be used to control lead particulate emissions at both affected facilities.

Wet Scrubbers

Wet scrubbers remove both particulate matter and gases from industrial process gas streams. In lead-acid battery recycling operations, wet scrubbers are typically used to remove residual lead particulates and sulfur oxides from the exhaust of baghouses that control emissions from rotary dryers and smelting furnaces. There are a variety of scrubber designs. However, only a limited number can remove small particulates from an exhaust stream. Wet scrubbers are capable of 98 percent collection efficiencies for particles as small as five microns in size. Two scrubbers designed to remove small particulates are the ionizing wet scrubber and the venturi scrubber.

In an ionizing wet scrubber, the gas stream first enters a chamber where a high voltage is used to ionize the gas stream. The second chamber is a wet scrubbing chamber, where the ionized

particles and gases are attracted to the surface of the chamber and the scrubbing liquid. Larger size particles are removed by water through inertial impaction.

Venturi scrubbers are used by some facilities in the district ~~District~~. In these scrubbers, the exhaust stream is passed through a constriction (the venturi) where the scrubbing liquid is sprayed in. The turbulence at and after the venturi promotes contact of particles with the scrubbing liquid droplets. High particulate matter removal efficiencies for small particles can be achieved with this type of scrubber.

One facility ~~would modify~~ has modified an existing scrubber by increasing the blower size and adding a HEPA filter to comply with PR 1420.1.

High-Efficiency Particulate Arrestors (HEPA)

Used in conjunction with a prefilter, high-efficiency particulate air filters can trap particles as small as 0.3 micrometers at an efficiency of 99.97 percent or greater. Like cartridge filters, HEPA filter elements are of pleated construction. HEPA filters are generally limited to ambient temperature (100° Fahrenheit), though special applications for higher temperatures are available. Unlike bags or cartridge filters, HEPA filters are not automatically cleaned. When a HEPA filter element becomes loaded with particulate matter, the element is changed out and disposed of as hazardous waste. Filters can be applied to controls such as baghouses to reduce lead emissions from lower temperature exhaust streams and fugitive lead-dust emissions collected within total enclosures. They can also be utilized in negative air equipment or vacuums used to conduct housekeeping activities throughout the facility.

HEPA filters ~~mist eliminators~~ are expected to be installed in a modified baghouse ~~scrubber~~ at one of the affected facilities.

Electrostatic Precipitators/Wet Electrostatic Precipitators

Electrostatic precipitators operate by charging the effluent particulate matter with a highly ionized gas stream and then attracting the charged particles to an oppositely charged metal wall. Typically, a cylindrical metal tube is used with an ionized wire running through it. As the ions move outward toward the oppositely charged cylinder, the particles are also ionized, and are deposited on the cylinder. The cylinder wall is periodically vibrated to collect particulate matter into a hopper. This technology can achieve 99 percent efficiency for total particulate matter as small as one µm. Electrostatic precipitators in lead-acid battery recycling operations are typically used downstream other lead controls such as baghouses, and treat exhaust streams with smaller lead particulates.

Based on conversations with facility owners/operators, neither type of electrostatic precipitators are expected to be used to comply with PR1420.1.

Fugitive Lead-Dust Control

Fugitive lead-dust at lead-acid battery recycling facilities can be a major source of lead emissions. Fugitive lead-dust accumulates in and around process areas, from lead point sources, on roof tops, in and around facility, and during maintenance operations to name a few. There are a variety of housekeeping and containment strategies that can be implemented to minimize fugitive lead dust. Housekeeping activities must be implemented frequently and properly to ensure they are effective. The concept behind many of these strategies is to either contain or remove lead dust so it cannot become airborne. Housekeeping practices specifying adequate

frequencies and locations for all cleanings to be performed are also critical in the effectiveness to control fugitive lead-dust emissions. The following summarizes some potential fugitive lead dust control strategies:

- Pave roadways subject to vehicular and foot traffic;
- Clean paved areas through vacuuming, vacuum sweepers, and use of wet suppression;
- Wet wash or vacuum areas where lead particulate and accumulate such as roof tops, areas where lead-containing wastes are stored or disposed of;
- Clean areas where lead dust may accumulate due to accidents, process upsets or equipment malfunctions;
- Clean surface impoundments ponds before lead-containing sludge dries and can become a source of fugitive lead-dust;
- Use of enclosures or containment areas during maintenance activities or storage of lead-containing materials; and
- Use of total enclosures under negative air pressure vented to point lead point source controls to ensure that lead dust that accumulates in and around process areas does not become fugitive.

BASELINE CONSIDERATIONS

The two affected facilities already comply with some of the requirements of PR 1420.1 under orders of abatement, best available control technology (BACT) requirements, or existing housekeeping practices. Tables 1-1 and 1-2 present control and housekeeping requirements at each of the two affected facilities. The tables show whether the facility complies with PR 1420.1 requirements (done), would need to comply with PR 1420.1 requirements (PR 1420.1) or the PR 1420.1 does not apply to the affected facility (N/A). One of the affected facilities has permits to construct enclosures and control equipment that comply with PR 1420.1 requirements. The other facility has applied for permits to construct, but has not received them. Adverse environmental impacts in Chapter 2 were evaluated for requirements that had not been implemented at time of the environmental analysis commenced.

Table 1-1
Control Technology Requirements

Control Technology Requirement	Facility 1	Facility 2	PR 1420.1 Reference
Enclosure Raw Material	PR 1420.1	PR 1420.1	~~(d)(1)(i)~~ (e)(1)(A) and (B)
Enclosure Dryer	PR 1420.1	N/A	~~(d)(1)(iii)~~ (e)(1)(C)
Enclosure Smelting Operations	PR 1420.1	PR 1420.1	~~(iv)~~ (e)(1)(D)
Other Enclosures	Done	Done	~~(d)(1)(ii), (v) to (vii)~~ (e)(1)(B)
Ventilation	PR 1420.1	PR 1420.1	~~(d)(1)(B) to (H) and (d)(2)~~ (e)(3) and (e)(5)
Baghouses	PR 1420.1 for new enclosures	Done	~~(d)(1)(B) to (H) and (d)(2)~~ (f)(1) to (5)
Dryer – Secondary Control	PR 1420.1	N/A	(f)(1)(3)
Modification to Scrubber	PR 1420.1	N/A	~~(d)(1)(B) to (H) and (d)(2)~~ (f)(1) and (2)

Done – Facility operators already comply with proposed rule.
PR 1420.1 – Facility operators would need to comply with requirement under PR 1420.1
N/A – Not applicable to facility – facility does not have dryer, scrubber or pond/reservoir

Table 1-2
Housekeeping Requirements

Housekeeping Requirements	Facility 1	Facility 2	PR 1420.1 Reference
Wash/Vacuum Roof Tops	PR 1420.1 ~~would increase from~~ monthly washing (~~semi-annual~~ quarterly for tall buildings) ~~to weekly washing~~	Done	~~(f)(1)(A)~~ (h)(1)(A) and (B)
Wash/Vacuum of Any Area Where Lead Is Stored, Disposed, Recovered or Recycled	Done	Done	~~(f)(1)(B)~~ (h)(1)(C)
Wash/Vacuum Areas After Maintenance or Event (Accidents, Process Upsets, Equipment Malfunction, etc., that causes deposition of Fugitive Dust)	PR 1420.1	PR 1420.1	(h)(1)(D) and (i)(2)
Turnaround/Maintenance in Enclosure with Negative Air Machine with Filters	PR 1420.1	PR 1420.1	~~(f)(2)~~ (i)(1)
~~Replace any Heavy Gauge Steel Hot Acid Gas Exhaust Duct Sections~~	~~PR 1420.1~~	~~PR 1420.1~~	~~(f)(3)~~
Inspect All Facility Structures That House Point or Fugitive Source of Lead Emissions	PR 1420.1	PR 1420.1	~~(f)(4)~~ (h)(2)
Send cracked or leaking batteries immediately to battery breaking area for processing or storage	PR 1420.1	PR 1420.1	(h)(3)
Pave, Concrete, Asphalt or Otherwise Enclosure All Facility Grounds	Done	Done	~~(f)(5)~~ (h)(4)
Remove All Weather Caps	Done	Done	~~(f)(6)~~ (h)(5)
Store Lead Containing Materials Leak-Proof Containers or Enclosure	PR 1420.1	PR 1420.1	~~(f)(7)~~ (h)(6)
Transport Lead Containing Materials Leak-Proof Containers or Enclosure	PR 1420.1	PR 1420.1	~~(f)(8)~~ (h)(7)
Pond or Reservoir	Seasonal washing done; weekly washings required by PR 1420.1	N/A	~~(f)(9)~~ (h)(8)

Done – Facility operators already comply with proposed rule.
PR 1420.1 – Facility operators would need to comply with requirement under PR 1420.1
N/A – Not applicable to facility – facility does not have dryer, scrubber or pond/reservoir

Table 1-2
Housekeeping Requirements (Concluded)

Housekeeping Requirements	Facility 1	Facility 2	PR 1420.1 Reference
On-site Mobile Sweeper	Done	PR 1420.1 would require sweeping twice more per day	~~(f)(10)~~ (h)(9)
~~Vehicle Wet Washing~~	~~PR 1420.1~~	~~PR 1420.1~~	~~(f)(11)~~

Done – Facility operators already comply with proposed rule.
PR 1420.1 – Facility operators would need to comply with requirement under PR 1420.1
N/A – Not applicable to facility – facility does not have dryer, scrubber or pond/reservoir

CHAPTER 2 - ENVIRONMENTAL CHECKLIST

Introduction

General Information

Environmental Factors Potentially Affected

Determination

Environmental Checklist and Discussion

INTRODUCTION

The environmental checklist provides a standard evaluation tool to identify a project's adverse environmental impacts. This checklist identifies and evaluates potential adverse environmental impacts that may be created by the proposed project.

GENERAL INFORMATION

Project Title:	Proposed Rule 1420.1 ─ Emissions Standard For Lead From Large Lead-Acid Battery Recycling Facilities
Lead Agency Name:	South Coast Air Quality Management District
Lead Agency Address:	21865 Copley Drive, Diamond Bar, CA 91765
CEQA Contact Person:	James Koizumi, (909) 396-3234
PR 1420.1 Contact Person:	Eugene Kang, (909) 396-3524
Project Sponsor's Name:	South Coast Air Quality Management District
Project Sponsor's Address:	21865 Copley Drive, Diamond Bar, CA 91765
General Plan Designation:	Not applicable
Zoning:	Not applicable
Description of Project:	PR 1420.1 would protect public health by reducing lead emissions produced by large lead-acid battery recycling facilities. PR 1420.1 would accomplish this by requiring enclosures for lead processes, pollution control equipment for lead point sources and additional housekeeping. Owner/operators of affected facilities would be required to meet a standard for lead of 0.15 micrograms per cubic meter averaged over any 30 consecutive days. Additionally, the proposed rule includes source testing, air monitoring, and recordkeeping requirements.
Surrounding Land Uses and Setting:	Primarily industrial and commercial facilities
Other Public Agencies Whose Approval is Required	Not applicable

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The following environmental impact issues have been assessed to determine their potential to be affected by the proposed project. As indicated by the checklist on the following pages, environmental topics marked with an "✓" may be adversely affected by the proposed project. An explanation relative to the determination of impacts can be found following the checklist for each area.

☐	Aesthetics	☐	Geology and Soils	☐	Population and Housing
☐	Agricultural Resources	☑	Hazards and Hazardous Materials	☐	Public Services
☑	Air Quality	☑	Hydrology and Water Quality	☐	Recreation
☐	Biological Resources	☑	Land Use and Planning	☑	Solid/Hazardous Waste
☐	Cultural Resources	☐	Mineral Resources	☐	Transportation./Traffic
☑	Energy	☐	Noise	☑	Mandatory Findings

DETERMINATION

On the basis of this initial evaluation:

☑ I find the proposed project, in accordance with those findings made pursuant to CEQA Guideline §15252, COULD NOT have a significant effect on the environment, and that an ENVIRONMENTAL ASSESSMENT with no significant impacts has been prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will NOT be significant effects in this case because revisions in the project have been made by or agreed to by the project proponent. An ENVIRONMENTAL ASSESSMENT with no significant impacts will be prepared.

☐ I find that the proposed project MAY have a significant effect(s) on the environment, and an ENVIRONMENTAL ASSESSMENT will be prepared.

☐ I find that the proposed project MAY have a "potentially significant impact" on the environment, but at least one effect 1)has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL ASSESSMENT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL ASSESSMENT pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL ASSESSMENT, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Date: April 23, 2010 Signature: Susan Nakamura

Susan Nakamura
Planning and Rules Manager

CHANGES TO PR 1420.1 SINCE THE DRAFT EA

Subsequent to the release of the Draft EA for public review, PR 1420.1 several requirements were added, deleted or modified. The following briefly summarizes proposed modifications to PR 1420.1. A more detailed description of the proposed modifications to PR 1420.1 can be found in Chapter 1 of this Final EA.

- Addition of total facility lead point source emission rate limitation and maximum individual lead point source emission rate (pound per hour)
- Removal of 99 percent control efficiency compliance option for lead control devices
- Addition to require use of specific filters/bags in lead control devices
- Addition of requirement to added secondary lead controls on dryers
- Removal of vehicle wet wash area requirement
- Change in schedule of roof cleaning requirement with the new compliance option of vacuuming surfaces or wet washing
- Public notifications for:
    - Unplanned and planned shutdowns/turnarounds of specific equipment
    - Specific types of maintenance activity

Secondary Lead Controls on Dryers

The addition of secondary lead controls on dryers would require one of the two affected facilities to install a new baghouse. The new baghouse would require demolition of a 52 foot by 52 foot concrete area and removal of any contaminated soil, which is expected to be contaminated with lead. Since lead does not typically migrate any appreciable distance, SCAQMD staff estimates that soil would need to be removed to a depth of two feet at most. Based on discussion with facility operators, the lead contaminated concrete and soil would be hauled to the US Ecology Beatty Facility, Beatty Nevada.

After demolition, a new concrete pad would be poured to support the new control equipment. A new baghouse would then be installed and the dryer would be ducted to the new baghouse. Analysis of demolition and paving were added to the aesthetic, agriculture and forest resources, air quality, biological resources, cultural resources, energy, geology and soils, noise and solid/hazardous waste environmental topics.

Control Efficiency, Emission Rates and Specification of Filters and Bags

The lead control device efficiency in the version of PR 1420.1 that was circulated with the Draft EA has been replaced with emission rate limits for both the control devices and total facility. Specifications have been added for filters and bags. These changes were made to provide easier verification of compliance and to clarify the characteristics of the control devices expected to be used to comply with PR 1420.1. The purpose of the control efficiency or emission rate limits and filter and bag specifications would be to reduce emissions into the atmosphere, which contribute to ambient air concentrations of lead that exceed 0.15 micrograms per cubic meter averaged over any 30 consecutive days. No change in construction or operation that was analyzed in the Draft EA would be expected by the changes.

Removal of Vehicle Wet Wash Area Requirement

SCAQMD staff determined that the vehicle wet washing area requirement would be required as an additional lead reduction measure of the Compliance Plan if deemed necessary. Therefore, this proposed requirement was removed from PR 1420.1. Construction and water use from the

vehicle wet wash area were analyzed in the Draft EA circulated for public comment. Impacts from wet washing were removed from the analysis in the Final EA.

Change to Schedule in Roof Washing Requirements

The roof washing requirement in the version of PR 1420.1 circulated with the Draft EA for public comment required weekly washing of roof top structures.

The current proposal allows either wet washing or cleaning with a vacuum equipped with a filter rated by the manufacture to achieve a 99.97 percent capture efficiency for 0.3 micro particles. The current proposal requires immediate cleaning (no later than one hour) after any maintenance activity or event including, but not limited to accidents, process upsets or equipment malfunction that causes the deposition of fugitive lead dust onto roof tops or areas where lead-containing waste are generated from housekeeping areas are stored, disposed of, recovered or recycled. The weekly routine cleaning of areas where lead-containing waste are generated from housekeeping areas are stored, disposed of, recovered or recycled is the same as the version of PR 1420.1 circulated with the Draft EA for public comment. Immediate cleanings of roof tops would be required to be completed within 72 hours if the facility owners/operators can demonstrate that delays were due to safety or timing issues. Monthly cleaning of roof tops of structures equal or less than 45 feet in high that house areas associated with the storage, handling or processing of lead-containing materials would be required. Quarterly cleaning, no more than three calendar months apart, of roof tops of structures greater 45 feet in high that house areas associated with the storage, handling or processing of lead-containing materials would be required.

SCAQMD staff expects that wet washing and vacuuming as specified would result in similar fugitive lead-dust emission reductions. SCAQMD staff also expects that the requirement to immediately clean roofs and areas where lead-containing waste are generated from housekeeping areas are stored, disposed of, recovered or recycled after any maintenance activity or event with the monthly and quarterly routine roof top cleanings would result in less lead-dust emissions than the weekly routine cleaning presented in the version of PR 1420.1 circulated with the Draft EA for public comment since both routine and unscheduled events would be addressed.

The modifications to the requirements would reduce the amount of water used and disposed, since less roof top washings are likely to be required and vacuuming could be substituted for washing. Since both facilities currently wash roofs it is unlikely that vacuuming would replace roof top washing. However, vacuuming may replace wet washing of areas where lead-containing wastes are generated from housekeeping areas are stored, disposed of, recovered or recycled. Pressure washers and vacuums are expected to use similar amount of electricity so no change to energy is expected. Analysis of vacuuming has been added to the solid/hazardous waste environmental topics.

Notification and Recordkeeping

Reporting and recordkeeping changes are not expected to impact any environmental topic.

Weekly Washings of Ponds or Reservoir

Only one of the affected facilities has a surface impoundment pond. The analysis in the Draft EA assumed that the facility operators at the affected facility already comply with the pond/reservoir housekeeping requirements in PR 1420.1. While facility operators does comply with the requirements to remove lead-containing material and sludge within 24 hours after the

water level is less than one inch at any point above the bottom of the surface impoundment pond. Under PR 1420.1, facility operators would need to wash down the empty surface impoundment pond weekly until the pond/reservoir is used to store water again. Water use from weekly washings has been added to the hydrology/water quality section of PR 1420.1.

Changes to the Environmental Checklist

At the time the Draft EA was circulated, the environmental checklist did not include impacts to forest lands as a topic to be evaluated as part of a CEQA document. SCAQMD staff revised the Environmental Checklist to reflect amendments to the CEQA Guidelines adopted by the Natural Resources Agency which became effective on March 18, 2010. These amendments contained revisions, which included the consideration of impacts to forestry lands and greenhouse gases (GHGs) in the environmental analysis. The topic of "Agriculture Resources" in the checklist was revised and renamed as "Agriculture and Forest Resources" and questions were added to address the consideration of impacts to forest resources. The topic of "Air Quality" in the checklist was revised and renamed as "Air Quality and Greenhouse Gases, and questions were added to address the consideration of impacts to GHG resources.

Although the Draft EA did not include a preliminary analysis of forest resources, to make the analysis of environmental impacts consistent with the recent changes to the environmental checklist, a discussion of indirect impacts from the proposed project that could conflict with, or cause rezoning of forest land has been included in this section of the Final EA. No significant impacts on forest resources were identified.

The Draft EA already evaluated impacts from GHGs on the environment. No significant impacts from GHGs were identified in the Draft EA. The existing analysis was renumbered to correspond to the GHG questions in the checklist.

Conclusion

The modifications were analyzed and SCAQMD staff concluded that recirculation was not necessary per CEQA Guidelines §15073.5, because the modifications were determined not to be a substantial revision (i.e., a new, avoidable significant effect that requires mitigation measure or project revisions to reduce the effect to insignificance or that project effects cannot be reduced to insignificant and new measures or project revisions are required). Recirculation is not required, because mitigation is not required (because PR 1420.1 would have less than significant impacts for all environmental topics); the modifications were not a response to written or verbal comments on the proposed effects identified in the Draft EA (since no comments were received on the Draft EA); modifications were not required by CEQA (no modifications were made because of CEQA requirements), and do not create new significant environmental effects (because PR 1420.1 would have less than significant impacts for all environmental topics), and it is not necessary to mitigate an avoidable significant effect (because PR 1420.1 would have less than significant impacts for all environmental topics); and new information added to the proposed project makes insignificant modifications to the Draft EA (because PR 1420.1 would have less than significant impacts for all environmental topics).

ENVIRONMENTAL CHECKLIST AND DISCUSSION

		Potentially Significant Impact	Less Than Significant Impact	No Impact
I.	**AESTHETICS.** Would the project:			
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☑
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☑
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☑
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☑

Significance Criteria

The proposed project impacts on aesthetics will be considered significant if:

- The project will block views from a scenic highway or corridor.
- The project will adversely affect the visual continuity of the surrounding area.
- The impacts on light and glare will be considered significant if the project adds lighting which would add glare to residential areas or sensitive receptors.

Discussion

I. a), b), c), & d) PR 1420.1 would require the construction of enclosures, control technology, ~~vehicle washing stations~~ and paving of dirt areas at two existing large lead-acid battery recycling facilities in the district. All construction activities would occur on-site at these existing facilities and are not expected to require substantial earthmoving. Changes to operations would include additional housekeeping activities to reduce lead emissions. All changes to operation would also occur on-site, with the exception of off-site monitors. Most of the processes at the two affected facilities are enclosed. Construction would consist of enclosing existing raw material processing operations, dryers and smelting operations and venting the enclosures to air pollution control devices; installing, ~~and vehicle washing stations~~ and paving any remaining dirt areas.

The enclosure of the remaining open processing operations and paving of any remaining dirt areas on-site would be consistent with the industrial area where these facilities are located. The other processes (refining and casting) are already vented to air pollution control systems. The air pollution control systems used for the enclosures and secondary lead controls on dryers are expected to be similar to existing systems, and therefore, similar to the existing aesthetics of the facility. ~~Vehicle washing stations are not expected to be visible from outside of the affected facilities.~~ Any portions that are visible are expected to appear as partial enclosures or piping that is similar to other structures and equipment on site.

Both affected facilities are twenty-four hour operations. Therefore, additional lighting may be required on the outside of new structures. However, any new lighting is expected to be similar to

existing lighting; therefore, similar in character to existing lighting. The facilities are also located in industrial areas that are zoned for continuous operation.

Off-site monitors may be place around the affected facilities. Off-site monitors would be placed manually without heavy construction. The off-site monitors typically consist of a two foot by eight foot platform, two meters above the ground. The monitors are place one meter above the platform. The monitors are expected appear similar to the industrial area surrounding the existing affected facilities.

Because PR 1420.1 affects operations on-site at existing facilities in industrial areas, any new construction at these affected facilities is expected to be similar to existing buildings or other structures, and off-site air monitors are expected to appear similar to the surrounding industrial area, PR 1420.1 is not expected to obstruct scenic resources or degrade the existing visual character of a site, including but not limited to, trees, rock outcroppings, or historic buildings. Further, additional light or glare is expected to be similar to existing lighting. Therefore, PR 1420.1 is not expected to adversely affect day or nighttime views in the area.

Based upon these considerations, significant adverse aesthetics impacts are not anticipated and will not be further analyzed in this ~~Draft~~ Final EA. Since no significant aesthetics impacts were identified, no mitigation measures are necessary or required. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that aesthetic impacts from the overall project are less than significant.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
II.	**AGRICULTURE ~~RESOURCES~~ AND FOREST RESOURCES.** Would the project:			
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☑
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☑

		Potentially Significant Impact	Less Than Significant Impact	No Impact
c)	~~Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?~~ Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104 (g))?	☐	☐	☑
d)	Result in the loss of forest land or conversion of forest land to non-forest land	☐	☐	☑

Significance Criteria

Project-related impacts on agricultural resources will be considered significant if any of the following conditions are met:

- The proposed project conflicts with existing zoning or agricultural use or Williamson Act contracts.
- The proposed project will convert prime farmland, unique farmland or farmland of statewide importance as shown on the maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency, to non-agricultural use.
- The proposed project conflicts with existing zoning for, or causes rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined in Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code § 51104 (g)).
- The proposed project would involve changes in the existing environment, which due to their location or nature, could result in conversion of farmland to non-agricultural uses or forest to non-forest use.

Discussion

II. a), b), c) & ~~e~~d) PR 1420.1 would require the construction of enclosures, control technology~~,~~ ~~vehicle washing stations~~ and air monitors at two existing large lead-acid battery recycling facilities in the district. All construction activities would occur on-site at these existing facilities and are not expected to require substantial earthmoving. A 52 foot by 52 foot section of concrete would be removed along with soil to a depth of two feet so a concrete pad could be poured to support the secondary control of a dryer. Since the affected facilities are located in industrial areas that have been previously disturbed the removal of the concrete and soil is not expected to adversely impact agricultural or forest resources. Changes to operations would include additional housekeeping activities to reduce lead emissions. All changes to operation would also occur on-site.

Air monitors may be place off-site of the facility in the surrounding industrial area. Air monitors are expected to be placed at industrial sites on paved surfaces that have also already been greatly disturbed.

Therefore, the proposed project would not result in any construction of new buildings or other structures that would require converting farmland to non-agricultural use, or conflict with zoning for agricultural use or a Williamson Act contract, conflict with zoning for or cause reszoning of forest land, timber land or loss of forest land, or conversion of forest land to non-forest ues. Since the proposed project would not substantially change the facility or process at the facility, there are no provisions in PR 1420.1 that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments and no land use or planning requirements relative to agricultural or forest resources would be altered by the proposed project.

Based upon these considerations, significant agricultural or forest resource impacts are not anticipated and will not be further analyzed in this ~~Draft~~ Final EA. Since no significant agriculture or forest resources impacts were identified, no mitigation measures are necessary or required. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that agricultural and forest resource impacts from the overall project are less than significant.

	Potentially Significant Impact	**Less Than Significant Impact**	**No Impact**
III. AIR QUALITY AND GREENHOUSE GAS EMISSIONS. Would the project:			
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☑
b) Violate any air quality standard or contribute to an existing or projected air quality violation?	☐	☑	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☑	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☑	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☑
f) Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?	☐	☐	☑

	Potentially Significant Impact	Less Than Significant Impact	No Impact
g) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☑
h) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☑

Significance Criteria
Potential significant adverse air quality impacts will be evaluated and compared to the significance criteria in Tables 2-1a and 2-1b. If impacts equal or exceed any of the following criteria, they will be considered significant.

Discussion
PR 1420.1 would require the construction of enclosures, control technology~~, vehicle washing stations~~ and paving of dirt areas at two existing large lead-acid battery recycling facilities in the district. All construction activities would occur on-site at these existing facilities. Air monitors would not require construction and would be placed at industrial sites around the affected facility. ~~Based on discussions with the facility operators construction would occur on existing paved surfaces and are not expected to require earthmoving.~~ A 52 foot by 52 foot section of concrete would be removed along with soil to a depth of two feet so a concrete pad could be poured to support the secondary control of a dryer.

Changes to operations would include additional housekeeping activities to reduce lead emissions. All changes to operation would also occur on-site. Most of the processes at the two affected facilities are enclosed. Construction would consist of enclosing existing raw material processing operations at both affected facilities, and smelting and drying operations at one of the facilities; venting the enclosure to air pollution control devices at both facilities; installing additional baghouses at one facility~~; installing vehicle washing stations at both facilities~~; and paving any remaining dirt areas at both facilities.

III. a) The SCAQMD is required by law to prepare a comprehensive districtwide AQMP which includes strategies (e.g., control measures) to reduce emission levels to achieve and maintain state and federal ambient air quality standards, and to ensure that new sources of emissions are planned and operated to be consistent with the SCAQMD's air quality goals. The AQMP's air pollution reduction strategies include control measures which target stationary, mobile and indirect sources. These control measures are based on feasible methods of attaining ambient air quality standards. Pursuant to the provisions of both the state and federal CAAs, the SCAQMD is required to attain the state and federal ambient air quality standards for all criteria pollutants, including lead. PR 1420.1 will not obstruct or conflict with the implementation of the AQMP because, overall, PR 1420.1 achieves net lead emission reductions. Further, the SCAQMD approved an air toxics planning document in March 2000 called "Final Draft Air Toxics Control

Plan (ATCP) for the Next Ten Years." PR 1420.1 would reduce lead emissions and therefore, be consistent with the goals of both the AQMP and ATCP. Therefore, implementing PR 1420.1 would not conflict or obstruct implementation of the AQMP or ATCP.

Table 2-1a
SCAQMD Air Quality Significance Thresholds

Mass Daily Thresholds [a]		
Pollutant	**Construction [b]**	**Operation [c]**
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
SOx	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TACs), Odor and GHG Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 metric tons per year	
Ambient Air Quality for Criteria Pollutants [d]		
NO2 1-hour average annual average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.25 ppm (state) 0.053 ppm (federal)	
PM10 24-hour average annual geometric average annual arithmetic mean	 10.4 μg/m^3 (construction)[e] & 2.5 μg/m^3 (operation) 1.0 μg/m^3 20 μg/m^3	
PM2.5 24-hour average	 10.4 μg/m^3 (construction)[e] & 2.5 μg/m^3 (operation)	
Sulfate 24-hour average	 25 μg/m^3	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) 9.0 ppm (state/federal)	

[a] Source: SCAQMD CEQA Handbook (SCAQMD, 1993)
[b] Construction thresholds apply to both the South Coast Air Basin and Coachella Valley (Salton Sea and Mojave Desert Air Basins).
[c] For Coachella Valley, the mass daily thresholds for operation are the same as the construction thresholds.
[d] Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.
[e] Ambient air quality threshold based on SCAQMD Rule 403.

KEY: lbs/day = pounds per day ppm = parts per million μg/m^3 = microgram per cubic meter ≥ greater than or equal to

Table 2-1b
MDAQMD Air Quality Significance Thresholds

Mass Thresholds		
Pollutant	**Daily Threshold lb/day**	**Annual Threshold ton/year**
NOx	137	25
VOC	137	25
PM10	82	15
PM2.5	82	15
SOx	137	25
CO	548	100
H2S	54	10
Lead	0.6	3
Toxic Air Contaminants (TACs) Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Hazard Index ≥ 1.0 (project increment)	
Ambient Air Quality for Criteria Pollutants [a]		
NO2 1-hour average annual average	MDAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.25 ppm (state) 0.053 ppm (federal)	
Sulfate 24-hour average	1 ug/m^3	
CO 1-hour average 8-hour average	MDAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) 9.0 ppm (state/federal)	

KEY: lb/day = pounds per day ton/year = tons per day ppm = parts per million ug/m^3 = microgram per cubic meter ≥ greater than or equal to

III. b), c) d) & f) For a discussion of these items, refer to the following analysis:

Construction Air Quality Impacts

New Affected Facilities

SCAQMD staff is not aware of any new large lead recycling facilities planned to be constructed in the future. Construction related to PR 1420.1 at new facilities would be similar to construction of structures to support the new large lead recycling processes. The same construction equipment used to build the facility is expected to build enclosures and control equipment at new facilities. However, construction of new large lead recycling facilities is considered speculative according to CEQA Guidelines §15145 at this time and will not be evaluated further in this analysis.

Existing Affected Facilities

One of the two existing facilities affected by PR 1420.1 has been issued air quality permits to construct enclosures and to install an air pollution control system (exhaust system with two baghouses) from the battery breaking area. These permit applications were submitted to comply with existing agreements with SCAQMD and other agencies. ~~Although no permit applications have been submitted for the vehicle washing system at this facility, it was assumed to be included in the construction for this analysis. A permit application for a vehicle washing system would be expected to be filed, if PR 1420.1 is adopted.~~

The other existing facility affected by PR 1420.1 has submitted air quality permit applications for enclosures and air pollution control systems for the raw material preparation system, smelting and refining building system and rotary dryers. The air pollution control systems would consist of exhaust systems, a spark arrestor, high efficiency particulate absorbing (HEPA) filter mist eliminator for an existing scrubber~~, vehicle wash system~~ and sweeper. These permit applications were submitted to comply with existing agreements with SCAQMD and other agencies. A permit application for a secondary lead-control device for the rotary dryers would be expected to be filed, if PAR 1420.1 is adopted.

PR 1420.1 was modified subsequent to the circulation of the Draft EA for public comment. The modifications include a requirement to add secondary lead control device to the exhaust of primary lead controlled devices used for dryers. The addition of a secondary control device at one of the affected large lead-acid battery recycling facilities would require demolition of a 52 foot by 52 foot area of concrete. The soil under the concrete area may be contaminated with lead. Since lead dose not typically migrate over any appreciable distance through soil, SCAQMD staff assumed that two feet of soil at most would be required to be removed. Based on the dimensions of the area demolished and a depth of two feet, approximately 200 cubic yards of lead-contaminated debris would need to be removed. The concrete and soil would be considered hazardous waste and the facility owner/operators have stated that the debris would be sent to US Ecology Beatty Facility, Beatty Nevada. Based on a capacity of 30 cubic yards per haul truck, seven haul truck trips would be required to haul the concrete and soil debris. The distance traveled by haul trucks within SCAQMD jurisdiction (distance from the affected facility to Castaic) is approximately 68 miles one-way. The distance traveled by haul trucks within MDAQMD jurisdiction (distance from the Castaic to Nevada) is approximately 191 miles one-way. Emissions calculations for vehicle trips were based on two-way trips.

Even though enclosures~~,~~ and air pollution control systems ~~and vehicle wash system~~ at the affected facilities construction would be done to fulfill obligations other than PR 1420.1, construction emissions were estimated since these structures, control technology and housekeeping activities would be required by PR 1420.1. Based on discussions with owner/operators at the affected large lead-acid battery recycling facilities, construction at the two facilities is not expected to overlap. In addition, demolition, concrete paving and structure construction phase are not expected to overlap.

PR 1420.1 includes requirements for air monitors. Air monitors are placed on two meter height platforms that are two feet wide by eight feet long. Other than placing the monitors on the platforms, air monitors do not require construction. Therefore, no construction emissions are associated with the air monitors. The delivery of the air monitors would be less than the peak day emissions associated with construction of the enclosures, ducting and control systems.

PR 1420.1 includes a requirement to enclose turnaround and maintenance activities in negative air containment enclosures vented to a permitted negative air machine. These enclosures are expected to be tarps or plastic sheeting supported by frames. No construction emissions are expected to be generated by the assembly of the tarps or plastic sheeting for turnaround and maintenance activities.

Construction emissions related to PR 1420.1 are presented in Appendix B and summarized in Tables 2-2a and 2-2b. Construction emissions were estimated from construction equipment, delivery vehicles and worker vehicles. Construction equipment, delivery vehicles and worker vehicle types and numbers were estimated based on the enclosure sizes (3.1 acres for both sites) and information from sample construction scenarios posted on the SCAQMD webpage (http://www.aqmd.gov/ceqa/handbook/LST/LST.html). Demolition, concrete paving and structure construction would occur within SCAQMD's jurisdiction, these activities (including vehicle travel within SCAQMD's jurisdiction) are compared to SCAQMD significance thresholds. Since haul trucks containing demolition debris would travel through MDAQMD's jurisdiction, emissions from haul truck travel through MDAQMD's jurisdiction are compared to MDAQMD significance thresholds. All construction criteria emissions are below the significance thresholds presented in Tables 2-1a and 2-1b; therefore, PR 1420.1 is not expected to be significant for construction emissions.

Table 2-2a
Criteria Emissions from Construction in SCAQMD

Description	CO, lb/day	NOx lb/day	VOC lb/day	SOx lb/day	PM10 lb/day	PM2.5 lb/day
Demolition Phase	26	59	6.4	0.06	3.3	2.9
Concrete Paving Phase	21	37	5.3	0.041	2.4	2.2
Structure Construction Phase ~~Emissions~~	34	80	9.0	0.08	4.2	3.8
SCAQMD Significance Threshold	*550*	*100*	*75*	*150*	*150*	*55*
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Operational Air Quality Impacts

PR 1420.1 requires enclosing and controlling emissions from lead recycling operations and additional housekeeping operations (encapsulation of all facility grounds, washing roof tops, paved surfaces and vehicles; replacing steel hot acid gas exhaust duct sections, pond or reservoir lead material management, and sweeping). PR 1420.1 also includes provisions for ambient air monitoring, sampling and source testing. Compliance plans would be required if any facility is found to exceed an early detection ambient air lead concentration of 0.12 microgram per cubic meter averaged over any 30 consecutive days measured by facility monitors set up pursuant to PR 1420.1.

Table 2-2b
Criteria Emissions from Construction in MDAQMD

Description	CO, lb/day	NOx lb/day	VOC lb/day	SOx lb/day	PM10 lb/day	PM2.5 lb/day
Demolition Phase	30.5	97.5	7.8	0.1	4.7	4.1
MDAQMD Significance Threshold	*548*	*137*	*137*	*137*	*82*	*82*
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Enclosing and Controlling Emissions
Most operating processes at the two affected facilities are enclosed and already controlled. One facility would add one new enclosure and two new baghouses. The other facility would add new enclosures that would vent to existing control systems. The additional enclosures and lead emission control equipment would reduce lead emissions and is not expected to directly increase any other emissions (i.e., criteria, toxic or GHG emissions).

Secondary emissions ~~form~~ from vehicles may be generated by the transport of new and spent filters; however, filters are expected to be purchased and disposed with existing filters used at the facility and other hazardous wastes generated at the facility. Therefore, no new trips are expected.

Therefore, no new emissions are expected from operation of enclosures and lead control technology requirements.

Housekeeping Operations
The affected facilities already perform many of the housekeeping requirements of the proposed rule. Almost all unpaved areas are encapsulated, operators already wash down paved operating areas, lead material is managed in pond and reservoir areas, and operators already sweep affected facilities. PR 1420.1 would increase the frequency of housekeeping operations, increase roof top washing, and process area sweeping ~~and add vehicle wet washing~~. None of the housekeeping operations are expected to directly increase criteria, toxic or greenhouse gas emissions. Secondary criteria emissions may increase from the additional sweeping and aerial lifts used for roof washing. One affected facility operator sweeps three times a day with LNG sweepers, which complies with PR 1420.1, but washes low roofs monthly and high roofs semi-annually. The other affected facility operator sweeps once a day with a diesel sweeper, so sweeping would have to increase to three times a day to be compliant with PR 1420.1. This facility uses sprinklers to wash roofs every day so no new secondary emissions would be generated. Emissions were estimated for the two extra sweeping events required at the affected facility that currently only sweeps once per day and from increasing the use of aerial lifts to weekly at the other affected facility. Emissions from sweepers were estimated by assuming that sweepers would be nine feet wide, sweep over the entire outside area around the production site (i.e., not around administrative buildings) two additional times a day with two feet of overlap on the return path as the sweepers travel back and forth. Emissions from aerial lifts assumed that lifts were operated six hours per day for two days, fifty times more a year (52 weeks minus the existing two weeks, since roofs are washed semi annually).

Based on a 10 mile per gallon fuel consumption, 65 additional gallons of diesel would be required annually for the two additional sweepings at the facility that is swept only once per day. The additional consumption of 65 gallons of diesel per year is not expected to require an additional fueling trip, so no increase in emissions are expected from diesel delivery trips. No additional LNG fueling trips are expected because the facility operators currently comply with the PR 1420.1 requirement to sweep three times per day.

Roof washing is contracted out so aerial lifts are delivered to the affected facility. A single heavy-duty diesel truck round trip of 40 miles per day is expected to be required on a peak day.

Minor emissions from welding may be generated by increased replacement of steel hot acid gas exhaust duct sections; and the replacement of sections is expected to be infrequent. Welding equipment is expected to be electric, so emissions would be generated only from the welding process itself. Emissions from welding by increased replacement of steel hot acid gas exhaust duct sections are expected to be infrequent and less than significant.

Air monitors would be visited every other day. One affected facility is located 30 miles from the district; the other is located 10 miles from the district. Therefore, a total of 80 miles may be traveled round trip to visit the air monitors.

Criteria emissions are presented in Table 2-3 and detailed in Appendix B. These emissions are less than the significance thresholds in Table 2-1; therefore, are expected to be less than significant.

Compliance Plans

SCAQMD staff expects that the enclosure, control technology and housekeeping requirements detailed in proposed project would reduce lead emission concentrations at the affected facilities to below 0.15 microgram per cubic meter concentration averaged over any 30 consecutive days measured by facility monitors compliant with PR 1420.1. Under PR 1420.1 compliance plans are required if the facility exceeds 0.12 microgram per cubic meter concentration averaged over any 30 days. Implementation of the approved compliance plans would occur if the facility exceeds the 0.15 microgram per cubic meter concentration averaged over any 30 consecutive days. It is unknown what types of measures the facility operators would include in the compliance plans, if this requirement is triggered. It is possible that compliance plans would consist of more frequent housekeeping activities, which as can be seen from the above analysis, are not expected to generate direct criteria emissions and generate secondary criteria emissions far below the significance thresholds.

Any compliance options that would require additional control equipment would need air quality permits. All permitted equipment is evaluated under CEQA.

Since enclosure, control and housekeeping requirements are expected to reduce lead emission concentrations at facilities to below 0.15 microgram per cubic meter averaged over any 30 consecutive days measured by facility monitors and compliance plans would address specific emission sources that are not known at this time; adverse impacts from compliance plans are considered speculative according to CEQA Guidelines §15145 and will not be evaluated further in this analysis.

Table 2-3
Secondary Criteria Emissions from Housekeeping Operation

Description	CO, lb/day	NOx, lb/day	VOC, lb/day	SOX, lb/day	PM10, lb/day	PM2.5, lb/day
Heavy-Duty Sweeper	0.39	0.43	0.05	0.001	0.02	0.01
Aerial Lift	1.26	2.2	0.40	0.002	0.15	0.14
Aerial Lift Delivery	0.96	3.06	0.24	0.003	0.15	0.13
Air Monitor Visit	0.66	0.07	0.07	0.0009	0.007	0.004
Total	3.3	5.7	0.77	0.007	0.32	0.28
Significant Thresholds	550	55	55	150	150	55
Significant?	No	No	No	No	No	No

Toxic Air Contaminants (TACs)
PR 1420.1 is designed to reduce lead emissions from lead-acid battery recycling facilities. PR 1420.1 is expected to reduce lead emission concentrations to below 0.15 microgram per cubic meter averaged over any 30 consecutive days.

Construction TACs
Since facilities currently sweep and would be required to sweep three times per day, and construction is expected to occur on existing paved surfaces; construction is not expected to generate lead dust emission from lead entrained in soils and on paved surfaces.

Secondary diesel exhaust particulate emissions are expected from construction equipment to build enclosures, ventilation for the enclosures and control equipment. Based on existing permit applications for the enclosures, ventilation for the enclosures and control equipment, construction should be completed within nine months at one affected facility and two months at the other affected facility. Since diesel exhaust particulates are carcinogenic TACs that are evaluated over 40 year exposure durations for off-site workers and 70-year exposure durations for sensitive receptors, construction projects lasting less than a year are not expected to be significant for toxic air contaminant emissions.

Operation TACs
PR 1420.1 is not expected to generate direct emissions from operations. The enclosures and control equipment are not expected to generate TAC emissions. Housekeeping is not expected to generate direct TAC emissions, and compliance plan requirements are considered to be speculative.

No additional quantifiable health risk is expected by one additional gasoline vehicle trip to each facility to visit air monitors every other day.

Secondary diesel exhaust particulate emissions are expected to be generated by sweeping requirements. One facility is currently swept three times a day with LNG sweepers, which complies with PR 1420.1. The other facility is swept once a day with diesel sweepers. Emissions were estimated for the two extra times sweeping would be required at the affected facility that currently only sweeps once per day.

Since the additional sweeping is only expected to require 65 gallons more fuel per year, no additional diesel fuel delivery is expected, so there would be no new health risk from diesel fuel delivery.

Secondary diesel exhaust particulate emissions are also expected to be generated by aerial lifts used to wash roofs. One facility uses sprinklers to wash roofs, so no additional health risk would be generated from this facility. The other facility uses aerial lifts to wash the tallest buildings twice a year. It takes two days to wash the tallest buildings with six hours of aerial lift use. PR 1420.1 would increase washing to every week. So, PR 1420.1 would increase building washing by 100 days per year (two days per washing, 50 weeks per year (52 weeks minus the two weeks when washing is currently done)).

Since health risk is localized, it must be evaluated at each of the affected facilities:

Health Risk from Facility A

Health risk was estimated based on diesel exhaust particulate emissions from increased roof washing at the other affected facility. Facility operators at this facility already sweep three times per day required by PR 1420.1, so no increased health risk would be caused by sweeping at this facility. Using SCAQMD Tier II health risk methodology, sensitive/residential receptor carcinogenic health risk would increase by 0.2 in one million. Off-site worker carcinogenic health risk would increase by 2.2 in one million according to air dispersion modeling using ISCST3. Both off-site worker and sensitive/residential receptor carcinogenic health risk are less than the significance threshold of 10 in one million; therefore, PR 1420.1 is not expected to cause a significant adverse health risk impact to receptors near this facility.

Health Risk from Facility B

Health risk was estimated based on diesel exhaust particulate emissions from sweeping two more times at the facility that currently only sweeps once a day. This facility uses sprinklers to wash roof tops, so no increased health risk would be caused by roof washing. Using SCAQMD Tier II health risk methodology, off-site worker receptor carcinogenic health risk would increase by 0.5 in one million and sensitive/residential receptor carcinogenic health risk would increase by 0.1 in one million. Both off-site worker and sensitive/residential receptor carcinogenic health risk are less than the significance threshold of 10 in one million; therefore, PR 1420.1 is not expected to cause a significant adverse health risk impact to receptors near this facility.

III. g) & h) Global Warming and Greenhouse Gases

In addition to criteria pollutant emissions, combustion processes generate GHG emissions that have the potential to affect global climate. Reducing the lead emission from lead-acid battery recycling facilities does not directly produce GHGs. However, sweepers used for housekeeping during the operational phase are expected to generate GHG emissions in combustion exhaust. The following GHG analysis focuses primarily on CO2 emissions because CO2 is the primary GHG pollutant emitted during the combustion process and is the GHG pollutant for which emission factors are most readily available. ARB EMFAC2007 emission factors for on-road mobile sources were used to determine carbon dioxide (CO2) and methane (CH4) emission factors. ARB OFFROAD2007 emission factors for off-road mobile sources were used to determine carbon dioxide (CO2) and methane (CH4) emission factors. EMFAC2007 and OFFROAD2007 does not include nitrous oxide (N2O) emission factors for the vehicles and

equipment assumed for this project, so NO2 emission factors were developed from the ratio of CH4 and NO2 emissions factors presented in ARB's Regulation for the Mandatory Reporting of Greenhouse Gas Emissions for on-road mobile sources.

The analysis of GHGs is a much different analysis than the analysis of criteria pollutants for the following reasons. For criteria pollutants, significance thresholds are based on daily emissions because attainment or non-attainment is based on daily exceedances of applicable ambient air quality standards. Further, several ambient air quality standards are based on relatively short-term exposure effects on human health, e.g., one-hour and eight-hour. Since the half-life of CO2 is approximately 100 years, the effects of GHGs are longer-term, affecting global climate over a relatively long time frame. As a result, GHG emission impacts are considered to be cumulative impacts rather than project-specific impacts.

Detailed calculations are presented in Appendix B. PR 1420.1 is expected to result in an incremental increase of 30 metric tons of CO2eq emissions per year from construction, which is 927 metric tons from construction amortized over a 30 year period as proscribed in the Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans[4] adopted by the SCAQMD Governing Board in December 2008. Operational CO2eq emissions are expected to be 54 metric tons per year (20 metric tons from sweeping, 11 metric tons from aerial lifts for roof washing, 15 tons from delivery of aerial lifts and 7.3 metric tons from ~~district~~ SCAQMD staff visiting air monitors). An incremental increase of 84 tons (30 metric tons from construction and 54 metric tons from operations) per year of CO2 emissions is less than the significance threshold of 10,000 metric tons of CO2 per year. PR 1420.1 would reduce lead emissions, which along with other control measures in the 2007 AQMP, are a comprehensive ongoing regulatory program that would reduce overall GHGs emissions. GHG emissions are summarized in Table 2-4. Based on the above analysis, PR 1420.1 would not generate GHG emissions either directly or indirectly, that may have a significant impact on the environment or conflict with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions. Therefore, PR 1420.1 is not considered significant for adverse GHG impacts.

III. e) As previously noted, implementing PR 1420.1 is not expected to directly require construction to install control equipment or construction of new structures other than a secondary lead control device for a dryer ~~an additional vehicle washer~~, since permit applications for required structures and control equipment have been submitted to address other existing obligations. However, since PR 1420.1 also includes requirements for these structures and control equipment, odors related to construction and operation of these structures and control equipment are addressed here. Construction is expected to occur on-site ~~and is not expected to require the use of large earthmoving equipment~~. Also, the affected facilities are located in industrial facilities where heavy duty diesel trucks already operate. Therefore, the addition of several pieces of construction equipment is not expected to generate diesel exhaust odor greater than what is already present.

[4] Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans, http://www.aqmd.gov/hb/2008/December/081231a.htm.

Table 2-4
Secondary GHG Emissions from the Proposed Project ~~Housekeeping~~ Operation

Description	CO2, Mton/year	CH4, Mton/year	N2O, Mton/year	CO2eq, Mton/year
Demolition	0.26	0.000012	0.000005	0.26
Concrete Paving	0.056	0.000007	0.000006	0.056
Structure Construction	30	0.0025	0.0021	30
Total Construction*	30	0.0025	0.0021	30
Sweepers	20	0.0009	0.00008	20
Aerial Lifts	11	0.0004	0.001	11
Aerial Lift Delivery	15	0.0005	0.00004	15
Air Monitor	7.3	0.0005	0.0007	7.3
Total Operation	54	0.0024	0.0015	54
Project Total	**84**	**0.005**	**0.004**	**84**

Construction emissions were estimated for construction equipment at both affected facilities. Construction emissions are spread evenly over 30 years per Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans, http://www.aqmd.gov/hb/2008/December/081231a.htm .
Operational emissions were estimated for sweepers and air monitoring station visits.

PR 1420.1 would require additional sweeping and roof washing at the facilities. Heavy-duty diesel trucks are used to deliver used batteries and to ship recycled lead product. Additional exhaust from more frequent sweeping and roof washing activities is not expected to generate diesel exhaust odor greater than what is already present.

Therefore, no significant adverse odor impacts are expected from implementing PR 1420.1.

Based upon these considerations, the air quality impacts associated with increased emissions of criteria pollutants, toxic air contaminants and GHG emissions are not expected to be significant. Therefore, based on the analysis above, PR 1420.1 is not expected to generate significant air quality impacts and will not be evaluated further in this ~~Draft~~ Final EA. Since no significant adverse air resources impacts were identified, no mitigation measures are necessary or required. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that air quality and greenhouse gas emissions impacts from the overall project are less than significant.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES. Would the project:			
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☑
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☑
c) Have a substantial adverse effect on federally protected wetlands as defined by §404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☑
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☑
e) Conflicting with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☑
f) Conflict with the provisions of an adopted Habitat Conservation plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☑

Significance Criteria

Impacts on biological resources will be considered significant if any of the following criteria apply:

- The project results in a loss of plant communities or animal habitat considered to be rare, threatened or endangered by federal, state or local agencies.
- The project interferes substantially with the movement of any resident or migratory wildlife species.
- The project adversely affects aquatic communities through construction or operation of the project.

Discussion

IV. a), b), c), & d) PR 1420.1 would require the construction of enclosures, control technology~~,~~ ~~vehicle washing stations~~ and monitors at two existing large lead-acid battery recycling facilities in the district. All construction activities would occur on-site at these existing facilities and are not expected to require substantial earthmoving. A 52 foot by 52 foot section of concrete would be removed along with soil to a depth of two feet so a concrete pad could be poured to support the secondary control of a dryer. Since the affected facilities are located in industrial areas that have been previously disturbed the removal of the concrete and soil is not expected to adversely impact biological resources. Changes to operations would include additional housekeeping activities to reduce lead emissions. All changes to operation would also occur on-site. The existing large lead-acid battery recycling facilities are located in areas zoned as industrial, which have already been greatly disturbed.

Air monitors may be place off-site of the facility in the surrounding industrial area. Air monitors are expected to be place at industrial sites on paved surfaces that have also already been greatly disturbed.

In general, the affected facilities and surrounding industrial areas currently do not support riparian habitat, federally protected wetlands, or migratory corridors. Additionally, special status plants, animals, or natural communities identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service are not expected to be found in close proximity to the affected facilities. Therefore, the proposed project would have no direct or indirect impacts that could adversely affect plant or animal species or the habitats on which they rely in the SCAQMD's jurisdiction.

Compliance with PR 1420.1 is expected to reduce lead emissions from operations at the affected facilities, which would improve not worsen present conditions of plant and animal life. PR 1420.1 does not require acquisition of additional land or further conversions of riparian habitats or sensitive natural communities where endangered or sensitive species may be found.

IV. e) & f) The proposed project is not envisioned to conflict with local policies or ordinances protecting biological resources or local, regional, or state conservation plans because it will only affect two existing large lead-acid battery recycling located in industrial areas. PR 1420.1 is designed to reduce lead adverse impacts outside the boundaries of affected facilities. Land use and other planning considerations are determined by local governments and no land use or planning requirements would be altered by the proposed project. Additionally, the proposed project would not conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or any other relevant habitat conservation plan, and would not create divisions in any existing communities because all activities associated with complying with PR 1420.1 would occur at existing industrial facilities.

The SCAQMD, as the Lead Agency for the proposed project, has found that, when considering the record as a whole, there is no evidence that the proposed project will have potential for any new adverse effects on wildlife resources or the habitat upon which wildlife depends. Accordingly, based upon the preceding information, the SCAQMD has, on the basis of substantial evidence, rebutted the presumption of adverse effect contained in §753.5 (d), Title 14 of the California Code of Regulations. Further, in accordance with this conclusion, the

SCAQMD believes that this proposed project qualifies for the no effect determination pursuant to Fish and Game Code §711.4 (c).

Based upon these considerations, significant adverse biological resources impacts are not anticipated and will not be further analyzed in this ~~Draft~~ Final EA. Since no significant adverse biological resources impacts were identified, no mitigation measures are necessary or required. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that biological resource impacts from the overall project are less than significant.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
V.	**CULTURAL RESOURCES.** Would the project:			
a)	Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☑
b)	Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?	☐	☐	☑
c)	Directly or indirectly destroy a unique paleontological resource, site, or feature?	☐	☐	☑
d)	Disturb any human remains, including those interred outside a formal cemeteries?	☐	☐	☑

Significance Criteria

Impacts to cultural resources will be considered significant if:

- The project results in the disturbance of a significant prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group.
- Unique paleontological resources are present that could be disturbed by construction of the proposed project.
- The project would disturb human remains.

Discussion

V. a), b), c), & d) PR 1420.1 would require the construction of enclosures, control technology~~, vehicle washing stations~~ and paving of dirt areas at two existing large lead-acid battery recycling facilities in the district. All construction activities would occur on-site at these existing facilities and are not expected to require substantial earthmoving. A 52 foot by 52 foot section of concrete would be removed along with soil to a depth of two feet so a concrete pad could be poured to support the secondary control of a dryer. Since the affected facilities are located in industrial areas that have been previously disturbed the removal of the concrete and soil is not expected to adversely impact cultural resources. Changes to operations would include additional

housekeeping activities to reduce lead emissions. All changes to operation would also occur on-site.

Air monitors may be place off-site of the facility in the surrounding industrial area. Air monitors are expected to be place at industrial sites on paved surfaces.

The existing large lead-acid battery recycling facilities are located in areas zoned as industrial, which have already been greatly disturbed. Areas used for air monitors are also expected to be zoned industrial and previously disturbed. Therefore, PR 1420.1 is not expected to require physical changes to the environment that could disturb paleontological or archaeological resources. Therefore, the proposed project has no potential to cause a substantial adverse change to a historical or archaeological resource, directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, or disturb any human remains, including those interred outside a formal cemeteries. Finally, because the proposed project would involve construction activities in previously disturbed areas on-site at industrial facilities and are not expected to require substantial earthmoving, it is unlikely that the county coroner or that the Native American Heritage Commission would need to be contacted. The proposed project is, therefore, not anticipated to result in any activities or promote any programs that could have a significant adverse impact on cultural resources in the district.

Based upon these considerations, significant adverse cultural resources impacts are not expected from implementing PR 1420.1 and will not be further assessed in this ~~Draft~~ Final EA. Since no significant cultural resources impacts were identified, no mitigation measures are necessary or required. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that cultural resources impacts from the overall project are less than significant.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
VI.	**ENERGY.** Would the project:			
a)	Conflict with adopted energy conservation plans?	☐	☐	☑
b)	Result in the need for new or substantially altered power or natural gas utility systems?	☐	☑	☐
c)	Create any significant effects on local or regional energy supplies and on requirements for additional energy?	☐	☑	☐
d)	Create any significant effects on peak and base period demands for electricity and other forms of energy?	☐	☑	☐
e)	Comply with existing energy standards?	☐	☐	☑

Significance Criteria
Impacts to energy and mineral resources will be considered significant if any of the following criteria are met:
- The project conflicts with adopted energy conservation plans or standards.
- The project results in substantial depletion of existing energy resource supplies.
- An increase in demand for utilities impacts the current capacities of the electric and natural gas utilities.
- The project uses non-renewable resources in a wasteful and/or inefficient manner.

Discussion
VI. a) & e) PR 1420.1 does not require any action which would result in any conflict with an adopted energy conservation plan or violation of any energy conservation standard. PR 1420.1 is not expected to conflict with adopted energy conservation plans because existing facilities would be expected to continue implementing any existing energy conservation plans.

PR 1420.1 is not expected to cause new development. The local jurisdiction or energy utility sets standards (including energy conservation) and zoning guidelines regarding new development and will approve or deny applications for building new facilities. During the local land use permit process, the project proponent may be required by the local jurisdiction or energy utility to undertake a site-specific CEQA analysis to determine the impacts, if any, associated with the siting and construction of new development.

As a result, PR 1420.1 would not conflict with energy conservation plans, use non-renewable resources in a wasteful manner, or result in the need for new or substantially altered power or natural gas systems. Accordingly these impact issues will not be further analyzed in the ~~Draft~~ Final EA.

VI. b), c) & d. PR 1420.1 would increase electric use from additional blowers associated with controlling new enclosures. Diesel fuel would be consumed from construction and additional sweeping.

Electricity Impacts
The owner/operators at the two affected facilities are currently enclosing their raw material/battery breaking, smelting and rotary dryer areas. Based on permit applications the enclosures are expected to require two 100-horsepower blowers at one facility serviced by Southern California Edison (Edison), and two 100-horsepower blowers and two 150-horsepower blowers at the other facility serviced by the Los Angeles Department of Water and Power (LADWP).

Air monitors are expected to be powered by electricity service near where the air monitors are placed (i.e., may not be powered from the affected lead-acid battery recycling facilities). The air monitors typically require 16 amps of service (six amps for the monitor and 10 amps for vacuum pumps), which would be approximately two kilowatts (16 amps x 110 voltage). The addition of two kilowatts is not expected to be significant.

California Energy Commission staff reports that the southern California area (Edison Planning Area) consumed 105,054 gigawatts ~~megawatts~~ in 2008 with a peak consumption of 23,272

~~gigawatts~~ megawatts per hour that year.[5] The 142 kilowatts per hour required to run blowers at the affected facilities would be 1.3E-7 percent of the 2008 consumption and 0.001 percent of the peak area consumption that was available in 2008 (Table 2-5). The CEC staff reports that LADWP consumed 25,921 gigawatts in 2008 with a peak consumption of 5,717 megawatts per hour in 2008. The 319 kilowatts per hour required to run the blowers at the affect facility would be 319 kilowatts-hour, which is 1.2E-6 percent of the 2008 consumption and 0.006 percent of the peak consumption. Therefore, SCAQMD staff concludes that the amount of electricity required to meet the incremental energy demand associated with PR 1420.1 would be sufficient and would not result in a significant adverse electricity energy impact.

Table 2-5
Electricity Use

Area	Combined Blower Rating, HP	Electricity Use, kW/hr	Area Consumption, GW	Percent of Area Consumption	Area Peak Consumption MW/hr	Percent of Area Peak Consumption
Edison	200	142	105,054	1.3E-07	23,727	0.001
LADWP	450	319	25,921	1.2E-06	5,717	0.006

Diesel Impacts

Construction Diesel Use

Approximately 317 gallons of diesel fuel per day would be expected to be consumed by construction equipment and delivery trucks on a peak day. Since construction is phased, the additional diesel consumption from the demolition and construction of new baghouse for secondary control of a dryer is within the 317 gallons of diesel expected on a peak construction day, which would occur during the construction of enclosures. According to the 2007 AQMP, 10 million gallons of diesel is consumed every day. Since 317 gallons of diesel per day is far less than one percent (0.003 percent) of the diesel available, the proposed project is not considered to have a significant adverse diesel fuel use impact from construction.

Operational Diesel Use

Sweeper Diesel Use

One facility is currently swept three times a day with LNG sweepers, which complies with PR 1420.1. The other facility is swept once a day with diesel sweepers. Diesel use was estimated for the two extra sweeping events that would be required at the affected facility that currently only swept once per day. Diesel use was estimated assuming that sweepers would be nine feet wide, sweep over the entire outside area around the production site (i.e., not around administrative buildings) two times a day with two feet of overlap on the return path as the sweepers travel back and forth. Assuming a ten mile per gallon of diesel fuel efficiency approximately 2.1 gallons of diesel would be consumed on a peak day.

[5] Supply from California Energy Commission's Energy Almanac at http://energyalmanac.ca.gov/naturalgas/natural_gas_receipts.html.

Since the additional sweeping is only expected to require 65 gallons more fuel per year, no additional diesel fuel delivery is expected, so there would be no additional diesel fuel use from diesel fuel delivery.

Aerial Lift Diesel Use
One facility uses sprinklers to wash roofs, so no fuel is required. The other facility uses aerial lifts to wash tall roof tops. The aerial lifts are used six hours per day. Diesel fuel use was estimated using a 1.4 gallon per hour fuel consumption from OFFROAD2007. The diesel fuel use from aerial lifts would be 8.4 gallons per day.

Roof washing is contracted out so aerial lifts are delivered. A single heavy-duty diesel truck round trip of 40 miles per day is expected to be required on a peak day. Assuming a ten mile per gallon of diesel fuel efficiency approximately eight gallons of diesel would be consumed on a peak day.

According to the 2007 AQMP, 10 million gallons of diesel is consumed every day in California. Since 18.5 gallons of diesel fuel per day (2.1 gallons from sweepers, 8.4 from aerial lifts and eight gallons from aerial lift delivery) is less than one percent (0.0002 percent) of the diesel available, the proposed project is not considered to have a significant adverse operational impact for diesel fuel use.

Gasoline Usage

Construction Gasoline Use
Nine construction worker trips are expected on a peak day. Based on a 20 mile round trip, and a 16 mile per gallon fuel efficiency, approximately 10 gallons of gasoline would be used on a peak day. The 2007 AQMP states that 44 million gallons of gasoline are consumed per day in California. An additional 10 gallons of gasoline consumed on a peak day (0.00002 percent of the daily consumption) is not expected to have an adverse impact on gasoline supplies.

Operational Gasoline Use
One trip to each facility to visit air monitors, based on 80 miles round trip (30 miles to one facility and 10 miles to the other from the district), and a 16 mile per gallon fuel efficiency, would consume approximately five gallons of gasoline on a peak day. An additional five gallons of gasoline consumed on a peak day (0.00001 percent of the daily consumption) is not expected to have an adverse impact on gasoline supplies.

Based upon the above considerations, the proposed project is not expected to use energy in a wasteful manner, would not substantially deplete energy resources.

Based upon the preceding analysis, it is not expected that PR 1420.1 would create any significant effects on peak and base period demands for electricity and other forms of energy, create any significant effects on local or regional energy supplies or requirements for additional energy, or result in the need for new or substantially altered power or natural gas utility systems since only insignificant use of electricity and diesel fuel are expected.

Based upon these considerations, significant adverse impacts to energy are not expected from implementation of PR 1420.1 and will not be evaluated further in this ~~Draft~~ Final EA. Since no

significant energy impacts were identified, no mitigation measures are necessary or required. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that energy impacts from the overall project are less than significant.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS. Would the project:			
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:			
• Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	☑
• Strong seismic ground shaking?	☐	☐	☑
• Seismic–related ground failure, including liquefaction?	☐	☐	☑
• Landslides?	☐	☐	☑
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☑
c) Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☑
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☑
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☑

Significance Criteria

Impacts on the geological environment will be considered significant if any of the following criteria apply:

- Topographic alterations would result in significant changes, disruptions, displacement, excavation, compaction or over covering of large amounts of soil.

- Unique geological resources (paleontological resources or unique outcrops) are present that could be disturbed by the construction of the proposed project.
- Exposure of people or structures to major geologic hazards such as earthquake surface rupture, ground shaking, liquefaction or landslides.
- Secondary seismic effects could occur which could damage facility structures, e.g., liquefaction.
- Other geological hazards exist which could adversely affect the facility, e.g., landslides, mudslides.

Discussion

VII. a) PR 1420.1 would require the construction of enclosures, control technology~~, vehicle washing stations~~ and encapsulation of facility grounds at two existing large lead-acid battery recycling facilities in the district. All construction activities would occur on-site at these existing facilities and are not expected to require substantial earthmoving. A 52 foot by 52 foot section of concrete would be removed along with soil to a depth of two feet so a concrete pad could be poured to support the secondary control of a dryer. Since the affected facilities are located in industrial areas that have been previously disturbed and must be construction according to Uniform Building Code, the removal of the concrete and soil is not expected to cause risk of loss, injury or death involving rupture of an earthquake fault, seismic ground shaking or landslides.

Changes to operations would include additional housekeeping activities to reduce lead emissions. All changes to operation would also occur on-site.

Air monitors may be placed off-site. Air monitors are expected to be placed on existing paved surfaces; and therefore are not expect to affect soil or geology.

Because Southern California is an area of known seismic activity, existing facilities are expected to conform with the Uniform Building Code and all other applicable state and local building codes. As part of the issuance of building permits, local jurisdictions are responsible for assuring that the Uniform Building Code is adhered to and can conduct inspections to ensure compliance. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represents the foundation condition at the site. The Uniform Building Code requirements also consider liquefaction potential and establish stringent requirements for building foundations in areas potentially subject to liquefaction.

Since all structures and control technology would be built according to the Uniform Building Code, the proposed project would not expose people or structures to risks of loss, injury, or death involving: rupture of an earthquake fault, seismic ground shaking, ground failure or landslides. Since the affect facilities already exist, PR 1420.1 is not expected to increase exposure to existing earthquake risk.

VII. b) Based on discussion with affected facility operators, construction related to PR 1420.1 is expected to occur on existing paved surfaces and is not expected to require ~~any~~ substantial earthmoving. A 52 foot by 52 foot section of concrete would be removed along with soil to a depth of two feet so a concrete pad could be poured to support the secondary control of a dryer.

A new concrete pad would be constructed in accordance with the Uniform Building Code, which would prevent soil erosion. PR 1420.1 also requires the encapsulation of all facility grounds to prevent lead contamination. Therefore, no soil erosion or loss of topsoil, unstable earth conditions or changes in geologic substructures are expected to occur at the affected facilities as a result of implementing the proposed project.

VII. c) Since the proposed project would affect existing facilities and all demolition and construction is expected to follow the Universal Building Code, it is expected that the soil types present at the affected facilities would not be further susceptible to expansion or liquefaction. Furthermore, subsidence is not anticipated to be a problem since no substantial excavation, grading, or filling activities are expected occur at affected facilities. Additionally, the affected areas are not envisioned to be prone to landslides or have unique geologic features since the affected facilities are existing facilities that are located in industrial areas.

VII. d) & e) Since PR 1420.1 would affect existing facilities located in industrial zones and all demolition and construction is expected to follow the Universal Building Code, it is expected that people or property would not be exposed to expansive soils or soils incapable of supporting water disposal. Though each affected facility has an existing wastewater treatment systems that would continue to be used, these systems have the capacity to support this proposed project. Sewer systems are available to handle wastewater produced and treated by each affected facility. PR 1420.1 would not require the installation of septic tanks or alternative wastewater disposal systems at each existing facility affected by the proposed project. As a result, PR 1420.1 would not require operators to utilize septic systems or alternative wastewater disposal systems. Thus, the proposed project would not adversely affect soils associated with a septic system or alternative wastewater disposal system.

Based upon these considerations, significant geology and soils impacts are not expected from the implementation of PR 1420.1 and would not be further analyzed in this ~~Draft~~ Final EA. Since no significant geology and soils impacts were identified, no mitigation measures are necessary or required. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that geology and soils impacts from the overall project are less than significant.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
VIII.	**HAZARDS AND HAZARDOUS MATERIALS.** Would the project:			
a)	Create a significant hazard to the public or the environment through the routine transport, use, and disposal of hazardous materials?	☐	☑	☐
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset conditions involving the release of hazardous materials into the environment?	☐	☐	☑
c)	Emit hazardous emissions, or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☑
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would create a significant hazard to the public or the environment?	☐	☐	☑
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?			
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☑
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☑
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☑
i)	Significantly increased fire hazard in areas with flammable materials?	☐	☐	☑

Significance Criteria

Impacts associated with hazards will be considered significant if any of the following occur:

- Non-compliance with any applicable design code or regulation.
- Non-conformance to National Fire Protection Association standards.

- Non-conformance to regulations or generally accepted industry practices related to operating policy and procedures concerning the design, construction, security, leak detection, spill containment or fire protection.
- Exposure to hazardous chemicals in concentrations equal to or greater than the Emergency Response Planning Guideline (ERPG) 2 levels.

Discussion

VIII. a) PR 1420.1 would require the construction of enclosures, control technology~~, vehicle washing stations~~ and paving of dirt areas at two existing large lead-acid battery recycling facilities in the district. Changes to operations would include additional housekeeping activities to reduce lead emissions. All changes to operation would also occur on-site. Since the goal of PR 1420.1 would be to reduce direct and indirect sources of lead, the proposed project would reduce the emissions of hazardous emissions

PR 1420.1 would not affect the amount of lead recycled, so it is not expected to directly affect operations. Indirectly, PR 1420.1 would reduce the amount of fugitive lead that is emitted by enclosing all lead recycling operations, additional air pollution control systems and through additional housekeeping requirements.

PR 1420.1 may increase the amount of lead disposed of by capturing additional fugitive emissions through enclosures, control technology, and housekeeping activities (see Section XVI. Solid/Hazardous Waste), but the increase amount of lead captured would be the lead that currently is emitted as fugitive emission. The capture of these fugitive emissions would reduce lead exposure to the public and environment.

Therefore, PR 1420.1 is not expected to create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous material.

VIII. b) PR 1420.1 requirements (enclosure, control, housekeeping and monitoring) would not increase the frequency or magnitude of lead emissions through reasonably foreseeable upset and accident conditions. The enclosure, control, housekeeping and monitoring would reduce existing potential adverse impacts from upset and accident conditions, since additional monitoring would alert owner/operators earlier to upsets and accidents, additional operations would be enclosed and controlled, and additional housekeeping requirements would assist in capturing fugitive lead emissions.

VIII. c) No schools are located within a quarter mile of either affected facility. Therefore, PR 1420.1 would not result in hazardous emissions, handling of hazardous or acutely hazardous materials, substances or wastes within one-quarter mile of an existing or proposed school.

VIII. d) Government Code §65962.5 refers to hazardous waste handling practices at facilities subject to the Resources Conservation and Recovery Act (RCRA). Though some of the affected facilities subject to PR 1420.1 may be included on the list of the hazardous materials sites compiled pursuant to Government Code §65962.5, compliance with the proposed project is expected to enhance current hazardous waste handling practices by requiring enclosures or use of closed containers to store or transport lead containing material. Hazardous wastes from the existing facilities are required to be managed in accordance with applicable federal, state, and local rules and regulations.

PR 1420.1 would further reduce fugitive emissions from lead-acid battery existing recycling facilities. Lead emissions from point sources are already controlled at these facilities. Lead emissions collected from air pollution control systems connected to enclosures and housekeeping activities required by PR 1420.1 would be placed in the lead recycling process to be formed into lead product (see Tables 1-2 and 1-2 for list of existing and PR 1420.1 fugitive emission control and housekeeping activities). Accordingly, significant hazards impacts from the disposal/recycling of hazardous materials are not expected from the implementation of PR 1420.1.

VIII. e) & f) One affected facility is not near any airports or private airstrips. The other facility is within six miles of the El Monte Airport. PR1420.1 is not expected to affect any airport or private airstrip since the proposed project is not expected to cause the construction of any object that would exceed the height of existing buildings or equipment. PR 1420.1 would result in the reduction of lead emissions. Secondary TAC emissions from sweeping were addressed in the Air Quality section of this EA and found to be less than significant. Therefore, no new hazards are expected to be introduced at affected facilities that could create safety hazards at local airports or private airstrips. Therefore, PR 1420.1 is not expected to result in a safety hazard for people residing or working in the project area even within the vicinity of an airport.

VIII. g) Emergency response plans are typically prepared in coordination with the local city or county emergency plans to ensure the safety of not only the public (surrounding local communities), but the facility employees as well. The proposed project would not impair implementation of, or physically interfere with any adopted emergency response plan or emergency evacuation plan. The two existing affected facilities already have emergency response plans in place. Thus, PR 1420.1 is not expected to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

VIII. h) & i) The Uniform Fire Code and Uniform Building Code set standards intended to minimize risks from flammable or otherwise hazardous materials. Local jurisdictions are required to adopt the uniform codes or comparable regulations. Local fire agencies require permits for the use or storage of hazardous materials and permit modifications for proposed increases in their use. Permit conditions depend on the type and quantity of the hazardous materials at the facility. Permit conditions may include, but are not limited to, specifications for sprinkler systems, electrical systems, ventilation, and containment. The fire departments make annual business inspections to ensure compliance with permit conditions and other appropriate regulations. Further, businesses are required to report increases in the storage or use of flammable and otherwise hazardous materials to local fire departments. Local fire departments ensure that adequate permit conditions are in place to protect against potential risk of upset.

The air pollution control systems for the new enclosures would not involve increase fire risk because it would not involve flammable materials. The enclosure for the smelter area would be vented to a scrubber. The water in the existing wet scrubber reduces the risk of fire from smelting emissions. The air pollution control system for the rotary driers includes a spark arrestor which would reduce the risk of fire on-site.

The proposed project would not increase the existing risk of fire hazards in areas with flammable brush, grass, or trees. No substantial or native vegetation typically exists on or near the affected

facilities (specifically because such areas could allow the accumulation of fugitive lead dust), the proposed project requires the encapsulating (paving or asphalting) of all facility grounds. So the proposed project is not expected to expose people or structures to wild fires. Therefore, no significant increase in fire hazards is expected at any of the affected facilities associated with the proposed project.

Based upon these considerations, significant hazards and hazardous materials impacts are not expected from the implementation of PR 1420.1 and will not be further analyzed in this ~~Draft~~ Final EA. Since no significant hazards and hazardous materials impacts were identified, no mitigation measures are necessary or required. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that hazards and hazardous materials impacts from the overall project are less than significant.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
IX.	**HYDROLOGY AND WATER QUALITY.** Would the project:			
a)	Violate any water quality standards or waste discharge requirements?	☐	☑	☐
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☑
c)	Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☐	☑
d)	Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☑

		Potentially Significant Impact	Less Than Significant Impact	No Impact
e)	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☑	☐
f)	Otherwise substantially degrade water quality?	☐	☑	☐
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☑
h)	Place within a 100-year flood hazard area structures which would impede or redirect flood flaws?	☐	☐	☑
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☑
j)	Inundation by seiche, tsunami, or mudflow?	☐	☐	☑
k)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☑	☐
l)	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☑
m)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☑	☐
n)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☑
o)	Require in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☑

Significance Criteria
Potential impacts on water resources will be considered significant if any of the following criteria apply:

Water Quality:
- The project will cause degradation or depletion of ground water resources substantially affecting current or future uses.
- The project will cause the degradation of surface water substantially affecting current or future uses.
- The project will result in a violation of National Pollutant Discharge Elimination System (NPDES) permit requirements.
- The capacities of existing or proposed wastewater treatment facilities and the sanitary sewer system are not sufficient to meet the needs of the project.
- The project results in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.
- The project results in alterations to the course or flow of floodwaters.

Water Demand:
- The existing water supply does not have the capacity to meet the increased demands of the project, or the project would use a substantial amount of potable water.
- The project increases demand for water by more than five million gallons per day.

Discussion
The following discussion addresses weekly roof washing and wheel washing. PR 1420.1 was modified after the Draft EA was circulated for public review to remove the wheel washing requirement and the roof top washing requirement was modified. Roof washing was reduced to monthly cleanings of roof tops on structures less than 45 feet in height that house areas associated with the storage, handling or processing of lead-containing materials; and quarterly cleanings, no more than three calendar months apart, of roof tops on structures greater than 45 feet in height that house areas associated with the storage, handling or processing of lead-containing materials. Owner/operators would be required to initiate immediate cleaning, no later than one hour, after any maintenance activity or event including, but not limited to, accidents, process upsets, or equipment malfunction, that causes deposition of fugitive lead-dust onto areas specified above (roof tops and areas where wastes from housekeeping activities are stored, disposed of, recovered or recycled). Immediate cleanings of roof tops would be completed within 72 hours if the facility can demonstrate that delays were due to safety or timing issues. The hydrology and water quality analysis has been revised to reflect these changes.

IX. a), f), & k) The two existing affected facilities already have wastewater treatment operations on-site. The wastewater treatment systems are comprised of settling and equalization tanks. Lead collected in the wastewater treatment systems is placed into the lead recycling operation to be recycled. Water from the wastewater treatment systems is discharged to publicly owned treatment works (POTWs). The water discharge complies with existing lead water quality standards. Based on conversations with facility operators, the existing wastewater systems would be able to treat additional wastewater generated by the proposed project from the ~~vehicle washers and~~ housekeeping requirements. Therefore, PR 1420.1 is not expected to have significant adverse affects on water quality standards or waste discharge requirements, otherwise

degrade water quality or exceed wastewater treatment requirements of the Regional Water Quality Control Board.

IX. b), l), n) &o)

Surface Impoundment Pond

Only one of the affected facilities has a surface impoundment pond. PR 1420.1 includes a requirement that would prevent the surface impoundment pond from drying while holding lead-containing materials. PR 1420.1 would also require that the pond be washed until used again for holding water. ~~Facility operators comply with surface impoundment pond requirements in PR 1420.1. Therefore, water use associated with the surface impoundment pond is considered part of the existing setting and would not increase the amount of water used.~~ The analysis in the Draft EA assumed that the facility operators at the affected facility already comply with the pond/reservoir housekeeping requirements in PR 1420.1. While facility operators does comply with the requirements to remove lead-containing material and sludge within 24 hours after the water level is less than one inch at any point above the bottom of the surface impoundment pond. Under PR 1420.1, facility operators would need to wash down the empty surface impoundment pond weekly until the pond/reservoir is used to store water again. It was assumed that the affected facility operator would wash the entire surface area of the surface impoundment pond in a day with $1/16^{th}$ inch of water. Based on the surface impoundment pond area of one acre that would be washed, approximately 1,697gallons of water would be used to wash the impoundment pond area.

Facility Process Area Washing

Based on discussions with existing affected facility operators PR 1420.1 ~~1120.1~~ would not increase water used in existing wet scrubber and wet ESP. It was assumed that the facilities wash the entire surface area of each affected site minus non-process buildings and areas on the same day with $1/16^{th}$ inch of water. Based on a combined area of 170,000 square feet that would be washed, approximately 6,623 gallons of water would be used to wash facility surfaces on a worst-case day.

The facility process area washing analysis in the Draft EA included roof washing. One affected facility operator currently washes roofs daily; therefore, already meets the roof washing requirement of PR 1420.1 The other facility operator washes roofs of structures less than 45 feet in height monthly, which meets the requirements of PR 1420.1. Roofs that are greater than 45 feet are washed semi-annually, so two more washings of these roofs per year would be required to comply with quarterly roof washing requirement in PR 1420.1. Therefore, the modified amendments to Rule 1420.1 would result in greater roof washings for roofs greater than 45 feet than are currently done at one of the affected facilities, but fewer roof top washings than the weekly washings previously proposed in the Draft EA that was circulated for public comment.

In addition owner operators are offered the choice whether to wet wash roofs and storage areas or to use a vacuum equipped with a filter(s) rated by the manufacturer to achieve a 99.97 percent capture efficiency for 0.3 micron particles. If facilities use vacuums to clean roofs, then cleaning the roofs would not involve water use.

The "worst-case" under the modification would the same as that analyzed in the Draft EA, i.e., when all surfaces (roofs, ground, etc.) are washed in a single day. Therefore, the "worst-case"

water usage would remain approximately 6,623 gallons of water would be used to wash facility surfaces on a worst-case day.

Wheel Washing

The wheel washing requirement was removed from PR 1420.1; therefore, adverse impacts from the requirement were removed from this analysis. ~~Approximately 100 trucks per day may be washed between both facilities. Based on the assumption that a truck is 15 feet tall by 75 feet long by nine feet wide and washed with 1/16th inch of water, approximately 15,078 gallons of water per day would be used.~~

The total water use of ~~21,701~~ 8,320 gallons per day is less than the significance threshold of five million gallons per day. Even though the total potential increase in water use of the proposed project is below the SCAQMD's five million gallons per day significance threshold, it may be helpful to consider other criteria for evaluating what would be considered a substantial use of potable water, especially since California is in a State of Emergency for Drought. For example, CEQA Guidelines §15155 – City or County Consultation with Water Agencies, defines a "water-demand" project in several ways. While the criteria for defining water demand are not significance thresholds per se, the criteria can provide some insight as to how city or county lead agencies evaluate water-demand impacts. Most of the criteria in this part of the CEQA Guidelines do not have a bright line or direct way to correlate the criteria in terms of gallons per day for a direct comparison to SCAQMD's significance criteria for potable water use. However, CEQA Guidelines §15155 (a)(1)(C) defines a water-demand project as: "A commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space." To estimate what this means in terms of water demand per person relative to the square footage (sf) of the floor area of the plant, commercial water usage rates[6] and average employment levels[7] (i.e. the number of employees per square foot) can be applied as follows:

$$\frac{\text{(123 GAL WATER)}}{\text{(YEAR) (SF OF BUILDING)}} \times \frac{\text{(1,000 SF OF BUILDING)}}{\text{(1.8 EMPLOYEES)}} \times \frac{\text{(1 YEAR)}}{\text{(260 DAYS)}} \times \text{(1,000 EMPLOYEES)} = \text{262,820 GAL/DAY}$$

This water demand estimate can then be applied to industrial sources because CEQA Guidelines §15155 (a)(1)(E) uses the same 1,000 employee level to defines a water-demand project as: "An industrial, manufacturing, or processing plant or industrial park planned to house more than 1,000 persons, occupying more than 40 acre of land, or having more than 650,000 square feet of floor area."

The total water use of ~~21,701~~ 8,320 gallons per day is also below 262,820 gallons of potable per day. Therefore, PR 1420.1 would not significantly deplete groundwater supplies or interfere substantially with groundwater recharge, and sufficient water supplies are available to serve existing entitlements and resources. With water use less than significance threshold of five million gallons per day and 262,820 gallons of potable water per day, PR 1420.1 would not

[6] California Commercial End-Use Survey, Consultant Report, Table 8-1, p 150. Prepared For: California Energy Commission, Prepared by: Itron, Inc. March 2006. http://www.energy.ca.gov/2006publications/CEC-400-2006-005/CEC-400-2006-005.pdf

[7] Urban Land Use Institute Data, Wausau West Industrial Park Expansion, Development Impact Analysis, Average Employment Levels, p.4, Prepared by Vierbicher Associates, January 5, 2001.

require or result in construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. Further, because water use is less than the significance threshold of five million gallons per day and 262,820 gallons of potable water per day the proposed project is not expected to require a determination by the wastewater treatment provider which serves or may serve the project's projected demand in addition to the provider's existing commitments.

IX. c), d), g), h), i), and j) PR 1420.1 would affect operations at two existing lead-acid battery recycling facilities. These facilities are mostly paved. PR 1420.1 would enclose all operations related to lead-acid battery recycling and require the encapsulation of all facility grounds by paving or asphalting. Since the affected facilities already exist and are essentially fully paved, and the areas the facilities are located in are zoned industrial, PR 1420.1 is not expected to alter the existing draining pattern of the site or area, including through alteration of the course of a stream or river that would result substantial erosion or siltation on- or off-site; place housing within a 100-year flood hazard area; place structures within a 100-year flood hazard area which would impede or redirect flood flaws; exposure people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or a dam; or inundation by seiche, tsunami or mudflow.

IX. e) & m) ~~PR 1420.1 includes a requirement for vehicle wet washing areas.~~ PR 1420.1 requires that all water used for the washing process be collected, handled and treated such that further releases of lead emissions are avoided. Other housekeeping requirements involving washing roofs and areas where lead-containing wastes associated with storage, handling or processing of lead materials, and lead material management at ponds and reservoirs are already occurring to comply with orders for abatement. Since new washing requirements under PR 1420.1 require that all water used for the washing process be collected, handled and treated, the proposed project is not expected to create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems; provide substantial additional sources of polluted runoff; or require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which would cause significant effects.

Based upon these considerations, significant hydrology and water quality impacts are not expected from the implementation of PR 1420.1 and would not be further analyzed in this ~~Draft~~ Final EA. Since no significant hydrology and water quality impacts were identified, no mitigation measures are necessary or required. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that hazards and hydrology and water quality impacts from the overall project are less than significant.

X. LAND USE AND PLANNING. Would the project:	Potentially Significant Impact	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☑
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☑	☐
c) Conflict with any applicable habitat conservation or natural community conservation plan?	☐	☐	☑

Significance Criteria

Land use and planning impacts will be considered significant if the project conflicts with the land use and zoning designations established by local jurisdictions.

Discussion

X. a) PR 1420.1 would require the construction of enclosures, and control technology~~, and vehicle washing stations~~ at two existing large lead-acid battery recycling facilities in the district. All construction activities would occur on-site at these existing facilities and are not expected to require substantial earthmoving. Changes to operations would include additional housekeeping activities to reduce lead emissions. All changes to operations would also occur on-site. Therefore, the proposed project would not create divisions in any existing communities.

X. b) Land use and other planning considerations are determined by local governments. PR 1420.1 would restrict the construction or operation of large lead recycling facilities in areas that are zoned for residential or mix use. In addition, any new facility would be required to be located further than 1,000 feet from the boundary of a sensitive receptor, school under construction or any area that is zoned for residential or mixed use. The new facility requirements are not designed to impede or conflict with existing land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, but to assist in avoiding or mitigating lead impacts from large lead recycling facilities. Operations at affected facilities would still be expected to comply, and not interfere, with any applicable land use plans, zoning ordinances.

X. c) Large lead recycling facilities are expected to be restricted to industrial zoned areas. Since zoning is established in general plans, which undergo CEQA analysis, no industrial zoned areas are expected to conflict with an applicable habitat conservation or natural community conservation plan. Therefore, PR 1420.1 affects existing and new large lead recycling facilities which exist or would be build in industrial areas no significant adverse impacts to applicable habitat conservation or natural community conservation plan are expected.

Based upon these considerations, significant land use and planning impacts are not expected from the implementation of PR 1420.1 and would not be further analyzed in this ~~Draft~~ Final EA. Since no significant land use and planning impacts were identified, no mitigation measures are necessary or required. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that land use and planning impacts from the overall project are less than significant.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
XI.	**MINERAL RESOURCES.** Would the project:			
a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☑
b)	Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☑

Significance Criteria

Project-related impacts on mineral resources will be considered significant if any of the following conditions are met:

- The project would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.
- The proposed project results in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Discussion

XI. a) & b) There are no provisions in PR 1420.1 that would result in the loss of availability of a known mineral resource of value to the region and the residents of the state such as aggregate, coal, clay, shale, et cetera, or of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Based upon these considerations, significant mineral resources impacts are not expected from the implementation of PR 1420.1 and will not be further analyzed in this ~~Draft~~ Final EA. Since no significant mineral resources impacts were identified, no mitigation measures are necessary or required. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that mineral resources impacts from the overall project are less than significant.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
XII.	**NOISE.** Would the project result in:			
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☑
b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☑
c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☑	☐
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☑	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☑	☐
f)	For a project within the vicinity of a private airship, would the project expose people residing or working in the project area to excessive noise levels?	☐	☑	☐

Significance Criteria

Impacts on noise will be considered significant if:

- Construction noise levels exceed the local noise ordinances or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three decibels (dBA) at the site boundary. Construction noise levels will be considered significant if they exceed federal Occupational Safety and Health Administration (OSHA) noise standards for workers.
- The proposed project operational noise levels exceed any of the local noise ordinances at the site boundary or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three dBA at the site boundary.

Discussion

XI. a) & f) Noise is usually defined as sound that is undesirable because it interferes with speech communication and hearing, is intense enough to damage hearing, or is otherwise annoying (unwanted noise). Sound levels are measured on a logarithmic scale in decibels (dB). The universal measure for environmental sound is the "A" weighted sound level, dBA, which is the sound pressure level in decibels as measured on a sound level meter using the A-weighted

filter network. "A" scale weighting is a set of mathematical factors applied by the measuring instrument to shape the frequency content of the sound in a manner similar to the way the human ear responds to sounds.

Federal, state and local agencies regulate environmental and occupational, as well as, other aspects of noise. Federal and state agencies generally set noise standards for mobile sources, while regulation of stationary sources is left to local agencies. Local regulation of noise involves implementation of General Plan policies and Noise Ordinance standards, which are general principles, intended to guide and influence development plans. Noise Ordinances set forth specific standards and procedures for addressing particular noise sources and activities. The Occupational Safety and Health Administration (OSHA) sets and enforces noise standards for worker safety.

One example of local jurisdiction requirements might be the City of Los Angeles. Existing operational noise generated from lead acid battery recycling in Los Angeles would be subject to the City of Los Angeles Noise Element of the General Plan and/or the City of Los Angeles Municipal Code. Table 2-6 summarizes these requirements. Other local jurisdictions typically have similar requirements.

Table 2-6
City of Los Angeles Noise Requirements

Requirement	Construction Limit (dBA)	Operational Limit (exterior dBA except where noted)
Noise Element of the General Plan of the City of Los Angeles	65 dBA CNEL or less - considered "conditionally acceptable" for residential use. 70-75 dBA CNEL - considered "conditionally acceptable for industrial use".	65 dBA CNEL or less - considered "conditionally acceptable" for residential use. 70-75 dBA CNEL - considered "conditionally acceptable" for industrial use.
City of Los Angeles Municipal Code Chapter XI, Article 2, §112.05	Requires that noise levels generated by construction equipment within a residential zone not exceed 75 dBA.	Not applicable.
City of Los Angeles Municipal Code Chapter IV, Article 1, §41.40	Construction activities prohibited without a special permit between the hours of 10:00 p.m. and 7:00 a.m.	Not applicable.

The proposed project affects existing facilities and would not generate excessive noise levels outside the boundaries of the affected facilities, or expose people residing or working in the project area to excessive noise levels. The proposed project requires no additional equipment to the existing facilities which would cause noise level to exceed ambient levels.

Construction-Related Noise

One of the two existing facilities affected by PR 1420.1 has been issued air quality permits to construct for enclosing and air pollution control system (exhaust system with two baghouses) from the battery breaking area. These permit applications were submitted to comply with existing agreements with SCAQMD and other agencies. ~~No permit applications have been submitted for the vehicle washing system at this time.~~

The other existing facility affected by PR 1420.1 has submitted air quality permit applications for enclosures and air pollution control systems for the raw material preparation system, smelting and refining building system and rotary dryers. The air pollution control systems would consist of exhaust systems, a spark arrestor, high efficiency particulate absorbing (HEPA) filter mist eliminator for an existing scrubber~~, vehicle wash system~~ and sweeper. These permit applications were submitted to comply with existing agreements with SCAQMD and other agencies. A permit for a secondary lead control device for the dryers is expected to be filed, if PR 1420.1 is adopted.

Existing sites are paved and most of the construction is expected to occur on these existing paved surfaces~~; therefore, large potentially noise intensive construction equipment would not be needed to prepare the site, build enclosures and install control equipment.~~ A 52 foot by 52 foot section of concrete would be removed along with soil to a depth of two feet at most and a new concrete pad could be poured to support the secondary control of a dryer. Table 2-6 presents construction noise levels from typical construction equipment. The affected facility operations currently include diesel truck traffic to deliver recycled batteries and ship recycled lead product. Based on Table 2-6, truck noise levels are around 82 dBA at 50 feet. Construction would increase the noise levels to around 85 dBA at 50 feet from the center of construction activity. The closest resident to either facility is about 850 feet. Using an estimated six dBA reduction for every doubling in distance, the noise levels at the closest resident would be indistinguishable from background. In general, given ambient noise levels near affected facilities, noise attenuation (the lowering of noise levels over distances), and compliance with local noise ordinances, potential construction noise impacts are not expected to be significant.

Table 2-7~~-6~~
Construction Noise Sources

Equipment	Typical Range (decibel)	Analysis Value (decibel)
Cranes	75-89	85
Tractors/Loaders/Backhoes	73-98	85
Pavers	85-88	75
Generator Sets	71-83	85
Truck	82-92	82

Typical ranges are from the City of Los Angeles, 1998. Levels are in dBA at 50-foot reference distance.
Analysis values are intended to reflect noise levels from equipment in good condition, which appropriate mufflers, air intake silencers, etc. In addition, these values assume averaging of sound level over all directions from the listed piece of equipment.

Operational Noise

Noise is a by-product of lead-acid battery recycling operations. Employees and equipment at existing affected facilities currently perform activities which create noise, such as, raw material processing (battery breaking/crushing, charger preparation, rotary drying, sweating), smelting (furnaces), refining and casting, and truck loading/unloading. Noise ordinances and noise general plan requirements typically govern activities at existing facilities. Contributors to ambient noise levels at typical facilities include onsite equipment and mobile sources. PR 1420.1 does not require the installation of any equipment which could be defined as a major contributor to ambient noise levels. Enclosing existing open processes, such as, raw material handling and rotary dryers would reduce noise produced during these processes. The affected facilities already comply with the types of housekeeping requirements in PR 1420.1 due to other requirements and obligations; therefore, the types of housekeeping activities that are done are expected to remain unchanged, the frequency of housekeeping activities is expected to increase ~~and vehicle wet washers would be added~~. Since housekeeping activities are already done~~, with the exception of vehicle wet washing,~~ only the duration of the noise from these activities is expected to increase, since PR 1420.1 would increase the frequency which housekeeping activities are done. ~~Wet washing of vehicles is not expected to generate substantial noise.~~ Therefore, PR 1420.1 is not expected to cause an increase in noise above current existing ambient noise levels.

Also, local noise levels are usually governed by noise elements within a local jurisdiction's General Plan, and/or local noise ordinances. Because of the attenuation rate of noise based on distance from the source, it is unlikely that noise levels exceeding local noise ordinances would occur beyond a facility's boundaries.

Based upon these considerations, significant noise impacts are not expected from the implementation of PR 1420.1 and will not be further evaluated in this ~~Draft~~ Final EA. Since no significant noise impacts were identified, no mitigation measures are necessary or required. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that noise impacts from the overall project are less than significant.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XIII. POPULATION AND HOUSING. Would the project:			
a) Induce substantial growth in an area either directly (for example, by proposing new homes and businesses) or indirectly (e.g. through extension of roads or other infrastructure)?	☐	☐	☑
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☑

		Potentially Significant Impact	Less Than Significant Impact	No Impact
c)	Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☑

Significance Criteria

Impacts of the proposed project on population and housing will be considered significant if the following criteria are exceeded:

- The demand for temporary or permanent housing exceeds the existing supply.
- The proposed project produces additional population, housing or employment inconsistent with adopted plans either in terms of overall amount or location.

Discussion

XIII. a) PR 1420.1 would require the construction of enclosures, control technology~~, vehicle washing stations~~ and paving of dirt areas at two existing large lead-acid battery recycling facilities in the district. Changes to operations would include additional housekeeping activities to reduce lead emissions. All changes to operation would also occur on-site. The proposed project is not anticipated to generate any significant effects, either direct or indirect, on the district's population or population distribution as no additional workers are anticipated to be required to comply with the proposed amendments. Human population within the jurisdiction of the SCAQMD is anticipated to grow regardless of implementing PR 1420.1. It is expected that any construction activities at affected facilities would use construction workers from the local labor pool in southern California. As such, PR 1420.1 would not result in changes in population densities or induce significant growth in population.

XIII. b) & c) Because the proposed project affects operations at two existing lead-acid battery recycling facilities, PR 1420.1 is not expected to result in the creation of any industry that would affect population growth, directly or indirectly, induce the construction of single- or multiple-family units, or require the displacement of people elsewhere.

Based upon these considerations, significant population and housing impacts are not expected from the implementation of PR 1420.1 and are not further evaluated in this ~~Draft~~ Final EA. Since no significant population and housing impacts were identified, no mitigation measures are necessary or required. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that population or housing impacts from the overall project are less than significant.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES. Would the proposal result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:			
a) Fire protection?	☐	☐	☑
b) Police protection?	☐	☐	☑
c) Schools?	☐	☐	☑
d) Parks?	☐	☐	☑
e) Other public facilities?	☐	☐	☑

Significance Criteria

Impacts on public services will be considered significant if the project results in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response time or other performance objectives.

Discussion

XIV. a) & b) PR 1420.1 would not involve the use of flammable or combustible materials. As a result, no new fire hazards or increased use of hazardous materials would be introduced at existing affected facilities that would require emergency responders such as police or fire departments. Thus, no new demands for fire or police protection are expected from PR 1420.1 since the proposed rule amendments will not require construction activities associated with the installation of emission control devices.

XIV. c) & d) As noted in the "Population and Housing" discussion, implementation of the proposed project would not require new employees for construction because construction workers from the local labor pool in southern California would be used. Similarly, no new employees would be required to comply with PR 1420.1 because the control equipment and housekeeping operations required by the proposed project are similar to existing equipment and housekeeping requirements which are done by existing employees. As a result, PR 1420.1 would have no direct or indirect effects on population growth in the district. Therefore, there would be no increase in local population and thus no impacts are expected to local schools or parks.

XIV. e) Because the proposed project involves requirements that are similar to existing operations and the facilities are already heavily regulated, PR 1420.1 is not expected to require the need for additional government services. Permits for the enclosures and air pollution control

equipment required to comply with PR 1420.1 have already been issued or are in the process of being issued to comply with other requirements or obligations; therefore, additional permit staff would not be needed. Enforcement of PR 1420.1 is expected to be performed by the existing SCAQMD inspector. Further, the proposed project would not result in the need for new or physically altered government facilities in order to maintain acceptable service ratios, response times, or other performance objectives. There will be no increase in population and, therefore, no need for physically altered government facilities.

Based upon these considerations, significant public services impacts are not expected from the implementation of PR 1420.1 and are not further evaluated in this ~~Draft~~ Final EA. Since no significant public services impacts were identified, no mitigation measures are necessary or required. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that public resources impacts from the overall project are less than significant.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
XV. RECREATION.				
a)	Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☑
b)	Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☑

Significance Criteria

Impacts to recreation will be considered significant if:

- The project results in an increased demand for neighborhood or regional parks or other recreational facilities.
- The project adversely effects existing recreational opportunities.

Discussion

XV. a) & b) As previously discussed under "Land Use," there are no provisions in PR 1420.1 that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments; no land use or planning requirements will be altered by the proposed project. Further, implementation of PR 1420.1 would not increase the use of existing neighborhood and regional parks or other recreational facilities or include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment because the proposed project is not expected to induce population growth.

Based upon these considerations, significant recreation impacts are not expected from the implementation of PR 1420.1 and are not further evaluated in this ~~Draft~~ Final EA. Since no significant recreation impacts were identified, no mitigation measures are necessary or required. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that recreation impacts from the overall project are less than significant.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XVI. SOLID/HAZARDOUS WASTE. Would the project:			
a) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☑	☐
b) Comply with federal, state, and local statutes and regulations related to solid and hazardous waste?	☐	☐	☑

Significance Criteria

The proposed project impacts on solid/hazardous waste will be considered significant if the following occurs:

- The generation and disposal of hazardous and non-hazardous waste exceeds the capacity of designated landfills.

Discussion

XVI.a) Landfills are permitted by the local enforcement agencies with concurrence from the California Integrated Waste Management Board (CIWMB). Local agencies establish the maximum amount of solid waste which can be received by a landfill each day and the operational life of a landfill. PR 1420.1 would generate additional waste from the disposal of lead contaminated baghouse filters, HEPA filters for an existing wet scrubber.

Construction

~~No demolition is expected to comply with PR 1420.1; therefore, no construction solid waste is expected from the proposed project.~~ PR 1420.1 was modified subsequent to the circulation of the Draft EA for public comment. The modifications include a requirement to add secondary lead control device to the exhaust of primary lead controlled devices used for dryers. The addition of a secondary control device at one of the affected large lead-acid battery recycling facilities would require demolition of a 52 foot by 52 foot area of concrete. The soil under the concrete area may be contaminated with lead. However, since lead is not likely to migrate through soil, SCAQMD staff estimated that two feet of soil would be required to be removed. Based on the dimensions of the area demolished and a depth of two feet, approximately 200 cubic yards of lead-contaminated debris would need to be removed. The concrete and soil would be considered hazardous waste and the facility owners/operators have stated that the debris would be sent to US Ecology Beatty Facility, Beatty Nevada.

US Ecology Beatty facility has approximately 1,300,000 cubic yards available capacity for the remaining 10 to 12 year life expectancy (108,000 to 110,000 cubic yards per year). A single disposal of 200 cubic yards of debris would be less than 0.2 percent of the annual capacity. Based on the above analysis, the additional construction waste would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs. Therefore, PR 1420.1 is not expected to be significant for solid/hazardous waste construction waste.

Control Technology Requirements

One of the two affected facilities has been granted permits and is construction of enclosures and air pollution control systems (exhaust systems and two baghouses). Additional hazardous waste would be generated from disposing filters from the two new baghouses. The filter bags and HEPA filters are approximately 1,280 cubic yards in size are assumed to be replaced every two years. Secondary filters for the dryer are about one cubic yard in size and would be replaced annually.

The other affected facility has submitted permit applications to construct enclosures which would be controlled by existing air pollution control systems (exhaust systems, spark arrestor, and HEPA filter mist eliminator for existing scrubber). The owner/operators of this facility have stated filters would not need to be replaced more frequently because of the new enclosures, because the existing systems are currently designed to handle the additional load. Therefore, the addition of the enclosures would not alter existing hazardous waste from the baghouses. The HEPA filter for the mist eliminator is already in place, so hazardous waste from the HEPA filters for the mist eliminator is considered existing hazardous waste and not part of PR 1420.1.

Lead contaminated filters from the new baghouses would be disposed as hazardous waste, in a fashion similar to the disposal of existing filter waste, but in larger volumes.

Housekeeping Requirements

~~With the exception of vehicle washing requirements, the~~ The two existing lead-acid battery recycling facilities currently comply with the types of housekeeping requirements in PR 1420.1; however, the proposed project is expected to increase the frequency of housekeeping activities. Lead would be removed from new housekeeping operation ~~vehicle wet washing~~ wastewater by existing wastewater systems used for existing housekeeping operations at the affected facilities. The lead recovered from the wastewater treatment system is placed into the lead-acid battery recovery process to be recycled; therefore, lead from the wastewater treatment system would not be disposed at solid waste landfills. So, no new hazard waste is expected to be generated from housekeeping requirements of PR 1420.1. Therefore, it is not expected that PR 1420.1 would substantially change hazardous waste handling and disposal volumes from housekeeping requirements.

Dust from the sweepers is placed into the lead recycling process, so additional sweeping is not expected to increase hazardous solid waste.

PR 1420.1 would not alter lead management activities associated with surface impoundment ponds or reservoirs holding stormwater. PR 1420.1 includes a requirement to prevent the impoundment ponds or reservoirs holding stormwater from drying while holding lead-containing

materials. One only one existing affected facility has a surface impoundment pond. Facility operators are already required to prevent the surface impoundment pond from drying out and to wash it down until used again to hold water. Therefore, lead-containing solid waste from the surface impoundment pond is considered part of the existing setting; and no increase in hazardous waste from the management of lead-containing material at surface impoundment pond is expected from PR 1420.1

Hazardous solid waste from the affected facilities are currently sent to three Class I landfills ~~in California~~: Chemical Waste Management Kettleman Hills in Kettleman City, California, Allied Waste La Paz County Landfill in Parker, Arizona and US Ecology Beatty Facility, Beatty Nevada.

Analysis of Operational Solid/Hazardous Waste Impact ~~Noise~~ Impacts

Chemical Waste Management Kettleman Hills has a remaining capacity of 7,360,000 cubic yards with an estimated closure date of 2037. The Allied Waste La Paz County Landfill has approximately 20,000,000 cubic yards of capacity remaining for the 50 year life expectancy. US Ecology Beatty facility has approximately 1,300,000 cubic yards available capacity for the remaining 10 to 12 year life expectancy. Dividing the remaining fill capacities by life expectancies yields approximately 802,593 cubic yards available annually.

The addition of 1,280 cubic yards of lead contaminated filters every two years ~~(643~~ and one cubic yard annually~~)~~ would be 0.08 percent of the annual hazardous solid waste capacity at the three Class I landfills currently used by the affected facilities. Therefore, it is assumed that the additional hazardous solid waste from PR 1420.1 would have less than significant adverse impacts to the capacity at the three Class I landfills.

XVI.b) Existing affected facility operators currently dispose of lead contaminated baghouse filters. It is assumed that facility operators at these affected facilities comply with all applicable local, state, or federal waste disposal regulations.

Implementing PR 1420.1 is not expected to interfere with any affected facility's ability to comply with applicable local, state, or federal waste disposal regulations. Since no solid/hazardous waste impacts were identified, no mitigation measures are necessary or required.

Based on these considerations, PR 1420.1 is not expected to increase the volume of solid or hazardous wastes that cannot be handled by existing municipal or hazardous waste disposal facilities, or require additional waste disposal capacity. Further, implementing PR 1420.1 is not expected to interfere with any affected facility's ability to comply with applicable local, state, or federal waste disposal regulations. Since no solid/hazardous waste impacts were identified, no mitigation measures are necessary or required. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that solid/hazardous waste impacts from the overall project are less than significant.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
XVII.	**TRANSPORTATION/TRAFFIC.** Would the project:			
a)	Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☑
b)	Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☑
c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☑
d)	Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☑
e)	Result in inadequate emergency access?	☐	☐	☑
f)	Result in inadequate parking capacity?	☐	☐	☑
g)	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks)?	☐	☐	☑

Significance Criteria

Impacts on transportation/traffic will be considered significant if any of the following criteria apply:

- Peak period levels on major arterials are disrupted to a point where level of service (LOS) is reduced to D, E or F for more than one month.
- An intersection's volume to capacity ratio increase by 0.02 (two percent) or more when the LOS is already D, E or F.
- A major roadway is closed to all through traffic, and no alternate route is available.
- There is an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system.
- The demand for parking facilities is substantially increased.
- Water borne, rail car or air traffic is substantially altered.
- Traffic hazards to motor vehicles, bicyclists or pedestrians are substantially increased.
- The need for more than 350 employees
- An increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round trips per day
- Increase customer traffic by more than 700 visits per day.

Discussion

XVII. a), b) & f) As noted in the "Discussion" sections of other environmental topics, compliance with PR 1420.1 is expected to require minor construction activities (i.e., without ~~heavy~~ substantial earthmoving activities) with the installation of enclosures, ventilation and control equipment. PR 1420.1 was estimated to need 10 deliveries of equipment or other construction materials and to need nine construction worker trips on a peak construction day. Construction onsite is not expected to affect on-site traffic or parking. The additional nineteen construction trips are less than the significance threshold of 350 round trips, therefore construction activities are not expected to cause a significance adverse impact to traffic or transportation.

All operational requirements are expected to occur on-site so no additional off-site impacts from PR 1420.1. PR 1420.1 is expected to require additional sweeping; however, sweeping three times a day is not expected to affect traffic or parking on-site.

XVII. c) One affected facility is not near any airports or private airstrips. The other facility is within six miles of the El Monte Airport. Any actions that would be taken to comply with the proposed project are not expected to influence or affect air traffic patterns or navigable air space. Thus, PR 1420.1 would not result in a change in air traffic patterns including an increase in traffic levels or a change in location that results in substantial safety risks.

XVII. d) & e) The proposed project does not involve construction of any roadways or other transportation design features, so there would be no change to current roadway designs that could increase traffic hazards. The siting of each affected facility is consistent with surrounding land uses and traffic/circulation in the surrounding areas of the affected facilities. Thus, the proposed project is not expected to substantially increase traffic hazards or create incompatible uses at or adjacent to the affected facilities. Emergency access at each affected facility is not expected to be impacted by the proposed project. Further, each affected facility is expected to continue to maintain their existing emergency access. Since PR 1420.1 involves only minor construction activities and sweeping three times a day would be the only operational impact, the proposed project is not expected to alter the existing long-term circulation patterns. The proposed project is not expected to require a modification to circulation, thus, no long-term impacts on the traffic circulation system are expected to occur.

XVII. g) Affected facilities would still be expected to comply with, and not interfere with adopted policies, plans, or programs supporting alternative transportation (e.g. bicycles or buses). Since all PR 1420.1 compliance activities would occur on-site, PR 1420.1 would not hinder compliance with any applicable alternative transportation plans or policies.

Based upon these considerations, PR 1420.1 is not expected to generate significant adverse transportation/traffic impacts and, therefore, this topic will not be considered further. Since no significant transportation/traffic impacts were identified, no mitigation measures are necessary or required. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that transportation/traffic impacts from the overall project are less than significant.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE.			
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☑
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	☐	☑	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☑	☐

Discussion

XVIII. a) As discussed in the "Biological Resources" section, PR 1420.1 is not expected to significantly adversely affect plant or animal species or the habitat on which they rely because construction and operations related to the proposed project would be located entirely within the boundaries of existing facilities in industrial areas which have already been greatly disturbed and that currently do not support any species of concern or the habitat on which they rely. PR 1420.1 is not expected to reduce or eliminate any plant or animal species or destroy prehistoric records of the past. Each site affected by the proposed project is part of an existing facility, which has been previously graded, such that PR 1420.1 is not expected to extend into environmentally sensitive areas.

XVIII. b) Based on the foregoing analyses, since PR 1420.1 will not result in significant adverse project-specific environmental impacts, it is not expected to cause cumulative impacts in conjunction with other projects that may occur concurrently with or subsequent to the proposed project. Furthermore, potential adverse impacts from implementing PR 1420.1 will not be "cumulatively considerable" because there are no, or only minor incremental impacts and there will be no contribution to a significant cumulative impact caused by other projects that would exist in absence of the proposed project. Therefore, there is no potential for significant adverse cumulative or cumulatively considerable impacts to be generated by the proposed project.

XVIII. c) Based on the foregoing analyses, PR 1420.1 is not expected to cause adverse effects on human beings. Significant adverse impacts to air quality, energy, hazards and hazardous materials, hydrology and water quality, land use/planning, solid/hazardous waste are not expected from the implementation of PR 1420.1. No impacts to aesthetics, agricultural resources, biological resources, cultural resources, geology and soils, mineral resources, noise, population and housing, public services, recreation, and transportation/traffic are expected as a result of the implementation of PR 1420.1.

As previously discussed in items I through XVIII, the proposed project has no potential to cause significant adverse environmental effects. Based on SCAQMD staffs' review of the proposed modifications to PR 1420.1, it is concluded the modifications do not alter the determination that impacts from the overall project to any of the environmental topics presented in the environmental checklist are less than significant.

APPENDIX A

PROPOSED RULE 1420.1

In order to save space and avoid repetition, please refer to the latest version of the PR 1420.1 located elsewhere in the final rule package. The PR 1420.1 version dated March 18, 2010 of the proposed rule was circulated with the Draft EA released on April 27, 2010 for a 30-day public review and comment period ending May 26, 2010.

Original hard copies of the Draft EA, which include version PR 1420.1 (dated March 18, 2010) of the proposed rule circulated with the Draft EA, can be obtained through the SCAQMD Public Information Center at the Diamond Bar headquarters or by calling (909) 396-2039.

APPENDIX B

ASSUMPTIONS AND CALCULATIONS

Table B-1
Enclosure Sizes from Permit Applications

Building	Width, m	Length, m	Height, m	Area, ft2	Area, acre	Construction Days	Construction Months
Total Enclosure 1	125	329	75	41,125	0.94	71.4	3.2
Total Enclosure 2	140	500	25	70,000	1.61	121.5	5.5
Total Enclosure 3	45	140	25	6,300	0.14	10.9	0.5
Total Enclosure 4	15	45	17	675	0.02	1.2	0.1
Total Enclosure 5	90	180	54	16,200	0.37	28.1	1.3
Totals				134,300	3.1	233	

Source: Permit applications

Table B-2a
Concrete Demolition for Lead Control Device Foundation Construction Emissions

Construction Activity			
Demolition of concrete	2,704	Square Foot Area[a]	
Demolition Schedule	**1**	**days[a]**	

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Concrete/Industrial Saws	1	8.0	6
Tractors/Loaders/Backhoes	2	8.0	
Rubber Tired Dozers	1	2.0	

Construction Equipment Emission Factors									
	CO	NOx	VOC	SOX	PM10	PM2.5	CO2	CH4	N2O
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Concrete/Industrial Saws	0.427	0.657	0.127	0.001	0.055	0.051	58.5	0.011	0.011
Tractors/Loaders/Backhoes	0.393	0.675	0.102	0.001	0.052	0.048	66.8	0.009	0.009
Rubber Tired Dozers	1.413	2.989	0.338	0.002	0.129	0.118	239	0.030	0.029

Table B-2a (Continued)
Concrete Demolition for Lead Control Device Foundation Construction Emissions

Demolition Dimensions

Description[a]	Width of Area	Length of Area	Depth of Area
	ft	ft	ft
Total Project	52	52	2

Fugitive Dust Material Handling

Aerodynamic Particle Size Multiplier[d]	Mean Wind Speed[e]	Moisture Content[f]	Debris Handled[g]
	mph		ton/day
0.35	10	2.0	249

Construction Vehicle (Mobile Source) Emission Factors

	CO	NOx	VOC	SOX	PM10	PM2.5	CO2	CH4	N2O
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[h]	0.01195456	0.03822102	0.00304157	0.00004131	0.00183062	0.00160083	4.21120578	0.00014201	0.0000106
Worker Vehicles	0.00826276	0.00091814	0.00091399	0.00001077	0.00008698	0.00005478	1.09568235	0.00008146	0.0001076

On-Site Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day[i]	One-Way Trip Length[j] (miles)
Haul Truck	7	68
Construction Workers	6	20

Table B-2a (Continued)
Concrete Demolition for Lead Control Device Foundation Construction Emissions

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lb/day)

Equipment Type	CO lb/day	NOx lb/day	VOC lb/day	SOX lb/day	PM10 lb/day	PM2.5 lb/day	CO2 lb/day	CH4 lb/day	N2O lb/day
Concrete/Industrial Saws	3.4	5.3	1.0	0.01	0.44	0.41	468	0.09	0.09
Tractors/Loaders/Backhoes	6.3	10.8	1.6	0.01	0.83	0.77	1,069	0.15	0.14
Rubber Tired Dozers	2.83	6.0	0.68	0.00	0.26	0.24	478	0.06	0.06
Total	**12.5**	**22.0**	**3.3**	**0.02**	**1.5**	**1.41**	**2,015**	**0.30**	**0.28**

Incremental Increase in Onsite Fugitive Dust Emissions from Construction Equipment

Material Handling[k]: (0.0032 x Aerodynamic Particle Size Multiplier x (wind speed (mph)/5)$^{1.3}$/(moisture content/2)$^{1.4}$ x debris handled (ton/day)) x (1 - control efficiency) = PM10 Emissions (lb/day)

Description	Control Efficiency %	PM10[m] lb/day
Material Handling (Demolition)[l]	61	0.27
Material Handling (Debris)	61	0.27
Total		**0.54**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Vehicle	CO lb/day	NOx lb/day	VOC lb/day	SOX lb/day	PM10 lb/day	PM2.5 lb/day	CO2 lb/day	CH4 lb/day	N2O lb/day
Haul Truck	11.4	36.4	2.9	0.039	1.7	1.5	4,009	0.14	0.010
Worker Vehicles	2.0	0.2	0.2	0.003	0.0	0.0	263	0.02	0.026
Total	**13.4**	**36.6**	**3.1**	**0.042**	**1.8**	**1.5**	**4,272**	**0.15**	**0.036**

Table B-2a (Concluded)
Concrete Demolition for Lead Control Device Foundation Construction Emissions

Total Incremental Localized Emissions from Construction Activities

Sources	CO lb/day	NOx lb/day	VOC lb/day	SOX lb/day	PM10 lb/day	PM2.5 lb/day	CO2 Mton/project/ 30 yrs	CH4 Mton/project/ 30 yrs	N2O Mton/project/ 30 yrs
On-site Emissions	**25.9**	**58.6**	**6.4**	**0.1**	**3.3**	**2.9**	**0.10**	**0.0000069**	**0.0000048**
Significance Threshold[n]	***550***	***100***	***75***	***150***	***150***	***55***			
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**			

Notes:

a) SCAQMD, estimated from survey data, Sept 2004

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, Oct 2006. Assumed equipment is diesel fueled. N2O values estimated from ratio of N2O and CH4 EF presented for on-road vehicles in the ARB Regulation for Mandatory Reporting of GHG Emissions.

d) USEPA, AP-42, Jan 1995, Section 13.2.4 Aggregate Handling and Storage Piles, p 13.2.4-3 Aerodynamic particle size multiplier for < 10 µm

e) Mean wind speed - maximum of daily average wind speeds reported in 1981 meteorological data.

f) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, equation 2-13, p 2-28

g) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, p 2-28. Debris weight to area ratio = 0.046 ton/sq ft (2,704 sq ft x 0.046 ton/sq ft)/1 days = 249 ton/day

h) 2010 fleet year. http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html. N2O-values from ARB Regulation for Mandatory Reporting of GHG Emissions.

i) Assumed 30 cubic yd truck capacity [(249 ton/day x 2,000 lb/ton x cyd/1,620 lb = 307 cyd)/30 cyd/truck = 11 one-way truck trips/day, building debris density is assumed to be 1,620 lb/cyd] Multiple trucks can be used.

j) Assumed trucks travel to the US Ecology, Beatty, NV facility per conversations with the affected facility. It is 68 miles from facility to Cajon pass.

k) USEPA, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, equation 2-13, p 2-28.

l) EPA suggests using the material handling equation for demolition emission estimates.

m) Includes watering at least three times a day per Rule 403 (61% control efficiency)

n) SCAQMD Regional Significant Thresholds

o) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Table B-2b
Haul Truck Travel Through Mojave Desert Air Quality Management District

EMFAC2007 Emission Factors

CO, lb/mile	NOx, lb/mile	VOC, lb/mile	SOx, lb/mile	PM10, lb/mile	PM2.5, lb/mile	CO2, lb/mile	CH4, lb/mile	N2O, lb/mile
0.01195456	0.03822102	0.00304157	0.00004131	0.00183062	0.00160083	4.21120578	0.00014201	0.00001058

2010 fleet year. http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html. N2O-values from ARB Regulation for Mandatory Reporting of GHG Emissions.

Haul Truck Emissions

Debris Hauled, yard3/ day	Truck Haul Capacity, yard3/ day	Daily Number of Trucks	One-way VMT, mile	CO, lb/day	NOx, lb/day	VOC, lb/day	SOx, lb/day	PM10, lb/day	PM2.5, lb/day	CO2, lb/day	CH4, lb/day	N2O, lb/day	CO2eq, lb/day
200	30	7	191	30.5	97.5	7.8	0.1	4.7	4.1	10,740	0.36	0.027	10,804
MDAQMD Significance Thresholds, lb/day				548	137	137	137	82	82				
Significant?				No	No	No	No	No	No				

Table B-2c
Concrete Paving for Lead Control Device Foundation Construction Emissions

Construction Activity	
Concrete Paving	
Construction Schedule	**1 days[a]**

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Pavers	1	5.0	8
Cement and Mortar Mixers	4	6.0	
Rollers	1	5.0	
Tractors/Loaders/Backhoes	1	5.0	

Table B-2c (Continued)
Concrete Paving for Lead Control Device Foundation Construction Emissions

Construction Equipment Combustion Emission Factors									
	CO	**NOx**	**VOC**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**	**N2O**
Equipment Type[c]	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Pavers	0.564	0.987	0.177	0.001	0.071	0.065	77.9	0.016	0.015
Cement and Mortar Mixers	0.043	0.060	0.010	0.000	0.004	0.003	7.2	0.001	0.001
Rollers	0.421	0.775	0.118	0.001	0.055	0.050	67.1	0.011	0.010
Tractors/Loaders/Backhoes	0.393	0.675	0.102	0.001	0.052	0.048	66.8	0.009	0.009

Construction Vehicle (Mobile Source) Emission Factors									
	CO	**NOx**	**VOC**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**	**N2O**
	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Heavy-Duty Truck[d]	0.01195456	0.03822102	0.00304157	0.00004131	0.00183062	0.00160083	4.21120578	0.0001420	0.00001058
Worker Vehicles	0.00826276	0.00091814	0.00091399	0.00001077	0.00008698	0.00005478	1.09568235	0.0000814	0.00010753

On-Site Number of Trips and Trip Length		
Vehicle	**No. of One-Way Trips/Day**	**One-Way Trip Length (miles)**
Delivery Truck[e]	3	40
Worker Vehcile	8	20

Table B-2c (Continued)
Concrete Paving for Lead Control Device Foundation Construction Emissions

Incremental Increase in Onsite Idling Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lb/day)

Equipment Type	**CO** lb/day	**NOx** lb/day	**VOC** lb/day	**SOX** lb/day	**PM10** lb/day	**PM2.5** lb/day	**CO2** lb/day	**CH4** lb/day	**N2O** lb/day
Pavers	2.8	4.9	0.9	0.00	0.35	0.33	390	0.08	0.08
Cement and Mortar Mixers	10.1	18.6	2.8	0.0	1.3	1.2	1,609	0.25	0.24
Rollers	0.22	0.30	0.05	0.00	0.0	0.0	36	0.00	0.00
Tractors/Loaders/Backhoes	1.96	3.37	0.51	0.00	0.26	0.24	334	0.05	0.04
Total	**15.1**	**27.2**	**4.3**	**0.0**	**1.9**	**1.8**	**2,369**	**0.39**	**0.36**

Incremental Increase in Offsite Combustion Emissions from Construction Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

Vehicle	**CO** lb/day	**NOx** lb/day	**VOC** lb/day	**SOX** lb/day	**PM10** lb/day	**PM2.5** lb/day	**CO2** lb/day	**CH4** lb/day	**N2O** lb/day
Flatbed Truck	2.9	9.2	0.73	0.010	0.44	0.38	1,011	0.034	0.0025
Worker Vehicle	2.6	0.29	0.29	0.003	0.028	0.018	351	0.026	0.0344
Total	**5.5**	**9.5**	**1.02**	**0.013**	**0.47**	**0.40**	**1,361**	**0.060**	**0.0369**

Total Incremental Combustion Emissions from Construction Activities

Sources	**CO** lb/day	**NOx** lb/day	**VOC** lb/day	**SOX** lb/day	**PM10** lb/day	**PM2.5** lb/day	**CO2** Mton/project/ 30 yrs	**CH4** Mton/project/ 30 yrs	**N2O** Mton/project/ 30 yrs
On-Site Emissions	**20.6**	**36.7**	**5.3**	**0.041**	**2.4**	**2.2**	**0.056**	**0.0000067**	**0.0000060**
Significance Threshold[f]	***550***	***100***	***75***	***150***	***150***	***55***			
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Table B-2c (Concluded)
Concrete Paving for Lead Control Device Foundation Construction Emissions

Notes:

a) SCAQMD, estimated from survey data, Sept 2004.

b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.

c) SCAB values provided by the ARB, Oct 2006. Assumed equipment is diesel fueled. N2O values estimated from ratio of N2O and CH4 EF presented for on-road vehicles in the ARB Regulation for Mandatory Reporting of GHG Emissions.

d) 2009 fleet year. http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html. N2O-values from ARB Regulation for Mandatory Reporting of GHG Emissions.

e) Assumed haul truck travels 40 miles.

f) SCAQMD Regional Significant Thresholds

g) ARB's CEIDARS database PM2.5 fractions - construction dust category for fugitive and diesel vehicle exhaust category for combustion.

Table B-2d
Structure Construction Emissions

Example	Construction Activity					
Three Acre Site	Building	134,300	Square Foot Structure[a]	Duration	234	days

Construction Schedule Unknown

Equipment Type[a,b]	No. of Equipment	hr/day	Crew Size
Forklifts	2	7.0	9
Cranes	2	8.0	
Tractors/Loaders/Backhoes	2	6.0	
Generator Sets	2	8.0	
Electric Welders	4	8.0	

Table B-2d (Continued)
Structure Construction Emissions

Construction Equipment Combustion Emission Factors

Equipment Type[c]	CO lb/hr	NOx lb/hr	VOC lb/hr	SOX lb/hr	PM10 lb/hr	PM2.5 lb/hr	CO2 lb/hr	CH4 lb/hr	N2O lb/hr
Forklifts	0.232	0.516	0.069	0.001	0.028	0.026	54.4	0.006	0.006
Cranes	0.543	1.451	0.159	0.001	0.064	0.059	128.7	0.014	0.014
Tractors/Loaders/Backhoes	0.393	0.675	0.102	0.001	0.052	0.048	66.8	0.009	0.009
Generator Sets	0.329	0.644	0.096	0.001	0.040	0.036	61.0	0.009	0.008
Electric Welders	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Construction Vehicle (Mobile Source) Emission Factors

	CO lb/mile	NOx lb/mile	VOC lb/mile	SOX lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO2 lb/mile	CH4 lb/mile	N2O lb/mile
Heavy-Duty Truck[d]	0.01195456	0.03822102	0.00304157	0.00004131	0.00183062	0.00160083	4.21120578	0.00014201	0.00001058
Worker Vehicles	0.00826276	0.00091814	0.00091399	0.00001077	0.00008698	0.00005478	1.09568235	0.00008146	0.00010753

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	Trip Length (miles)
Flatbed Truck[e]	10	40
Construction Workers	9	20

Table B-2d (Continued)
Structure Construction Emissions

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lb/day)

	CO	NOx	VOC	SOX	PM10	PM2.5	CO2	CH4	NO2
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
Fork Lifts	3.25	7.23	0.96	0.01	0.39	0.36	762	0.09	0.08
Cranes	8.69	23.22	2.55	0.02	1.03	0.95	2,058	0.23	0.22
Tractors/Loaders/Backhoes	4.72	8.10	1.22	0.009	0.62	0.57	802	0.11	0.10
Generator Sets	5.27	10.30	1.54	0.01	0.63	0.58	976	0.14	0.13
Electric Welders	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	**21.9**	**48.9**	**6.3**	**0.05**	**2.7**	**2.5**	**4,598**	**0.57**	**0.53**

Incremental Increase in Onsite Combustion Emissions from Onroad Mobile Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Mobile Emissions (lb/day)

	CO	NOx	VOC	SOX	PM10	PM2.5	CO2	CH4	N2O
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
Flatbed Truck	9.56	30.6	2.43	0.0330	1.46	1.28	3,369	0.11	0.01
Worker Vehicles	2.97	0.33	0.33	0	0.03	0.02	394	0.03	0.04
Total	**12.5**	**30.9**	**2.76**	**0.03**	**1.49**	**1.30**	**3,763**	**0.14**	**0.05**

Total Incremental Combustion Emissions from Construction Activities

	CO	NOx	VOC	SOX	PM10	PM2.5	CO2[g]	CH4[g]	N2O[g]
Sources	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	Mton/project/ 30 yrs	Mton/project/ 30 yrs	Mton/project/ 30 yrs
On-Site Emissions	**34**	**80**	**9.0**	**0.08**	**4.2**	**3.8**	**30**	**0.003**	**0.002**
Significance Threshold[f]	***550***	***100***	***75***	***150***	***150***	***55***	10,000 Mton/year	10,000 Mton/year	10,000 Mton/year
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**			

Table B-2d (Concluded)
Structure Construction Emissions

Notes:
a) Based on permit applications
b) Equipment name must match CARB Off-Road Model (see Off-Road Model EF worksheet) equipment name for sheet to look up EFs automatically.
c) SCAB values provided by the ARB, Oct 2006. Assumed equipment is diesel fueled except the welders which are powered by the generator. N2O values estimated from ratio of N2O and CH4 EF presented for on-road vehicles in the ARB Regulation for Mandatory Reporting of GHG Emissions.
d) 2010 fleet year. http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html. N2O values from ARB Regulation for Mandatory Reporting of GHG Emissions.
e) Assumed haul truck travels 40 miles round trip
f) SCAQMD Regional Significance Thresholds
g) GHGs are reported in metric tons (Mton) over 30 years.

Table B-3
Estimation of Area Swept

Area, m2	Area, ft2	Area, acres	Width of Sweeper Path, ft	Linear Feet Traveled, ft	Linear Feet Traveled, miles
36,000	387,501	8.9	7	55,357	10.48

Table B-4
EMFAC2007 On-Road Emission Factors

Description	CO, lb/mile	NOx, lb/mile	VOC, lb/mile	SOX, lb/mile	PM10, lb/mile	PM2.5, lb/mile	CO2, lb/mile	CH4, lb/mile	N2O, lb/mile
Heavy-Duty Truck	0.01195456	0.03822102	0.00304157	0.00004131	0.00183062	0.00160083	4.21120578	0.00014201	0.00001058
Medium-Duty Truck	0.018438	0.020625	0.002590	0.000027	0.000751	0.000642	2.732222	0.000126	0.000011
Gasoline Vehicles	0.00826276	0.00091814	0.00091399	0.00001077	0.00008698	0.00005478	1.09568235	0.00008146	0.00010753

Table B-5
Additional Emissions from Visiting Air Monitors

Description	VMT, mile/day	CO, lb/day	NOx, lb/day	VOC, lb/day	SOX, lb/day	PM10, lb/day	PM2.5, lb/day	CO2, Mton/year	CH4, Mton/year	N2O, Mton/year
Gasoline vehicle	80	0.66	0.07	0.07	0.0009	0.007	0.0044	7.3	0.0005	0.000712

Assumes sweeping twice more per day
EMFAC2007 emission factors, except for NO2, which is from ARB's Regulation for the Mandatory Reporting of Greenhouse Gases

Table B-6
Additional Emissions from Sweeping

Description	VMT, mile/day	CO, lb/day	NOx, lb/day	VOC, lb/day	SOX, lb/day	PM10, lb/day	PM2.5, lb/day	CO2, Mton/year	CH4, Mton/year	N2O, Mton/year
Medium-Duty Truck	21.0	0.39	0.43	0.05	0.0006	0.016	0.013	9.5	0.00044	0.000037

Assumes sweeping twice more per day
EMFAC2007 emission factors, except for NO2, which is from ARB's Regulation for the Mandatory Reporting of Greenhouse Gases

Table B-7
Additional Emissions from Aerial Lifts

Description	Usage, hr/day	CO, lb/day	NOx, lb/day	VOC, lb/day	SOX, lb/day	PM10, lb/day	PM2.5, lb/day	CO2, Mton/year	CH4, Mton/year	N2O, Mton/year
Aerial Lift	6	1.26	2.16	0.40	0.002	0.15	0.14	11.3	0.0004	0.0007

Assumes weekly roof washing over 50 days per year (52 weeks minus existing semi-annual washing).
Offroad2007 emission factors, except for NO2, which is from ARB's Regulation for the Mandatory Reporting of Greenhouse Gases

Table B-8
Additional Emissions from Delivery of Aerial Lifts

Description	VMT, mile/day	CO, lb/day	NOx, lb/day	VOC, lb/day	SOX, lb/day	PM10, lb/day	PM2.5, lb/day	CO2, Mton/year	CH4, Mton/year	N2O, Mton/year
Heavy-Duty Truck	80.0	0.96	3.06	0.24	0.00	0.15	0.13	15.3	0.0005	0.000038

Assumes weekly roof washing over 50 days per year (52 weeks minus existing semi-annual washing).
EMFAC2007 emission factors, except for NO2, which is from ARB's Regulation for the Mandatory Reporting of Greenhouse Gases

Table B-9
Additional Health Risk from Sweeping

Receptor Type	PM10, ton/yr	CP (mg/kg-day)-1	X/Q, (ug/m3)/(ton/yr)	Afann	MET	DBR, L/kg-day	EVF	MP	Health Risk in a Million
Worker	0.0029	1.1	60.5	1	0.53	149	0.38	1	5.7
Sensitive/Residential	0.0029	1.1	1.57	1	0.53	302	0.96	1	0.8

SCAQD Teir II analysis used to evaluate health risk.
Off-site worker assumed to be within shortest downwind distance of 25 meters.
Nearest sensitive/residential receptor 260 meters downwind from source.

Table B-10
Additional Sensitive/Residential Health Risk from Aerial Lifts

Aerial Lift PM10, ton/yr	CP (mg/kg-day)-1	X/Q, (ug/m3)/(ton/yr)	Afann	MET	DBR, L/kg-day	EVF	MP	Health Risk in a Million
0.0074	1.1	41.5	1	0.55	149	0.38	1	10.6

SCAQD Teir II analysis used to evaluate health risk.
Nearest sensitive/residential receptor 670 meters downwind from source.

Table B-11
ISCST Input File for Off-Site Worker Health Risk from Aerial Lifts

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** AERMOD View Ver. 6.4.0
** Lakes Environmental Software Inc.
** Date: 4/23/2010
** File: C:\Users\jkoizumi\Documents\Lakes\ISCARMOD\2010\Exide\Exide\Exide.INP
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**
**
**************************************
** ISCST3 Control Pathway
**************************************
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   MODELOPT CONC  URBAN NOCALM
   AVERTIME PERIOD
   POLLUTID OTHER
   TERRHGTS ELEV
   RUNORNOT RUN
CO FINISHED
**
**************************************
** ISCST3 Source Pathway
**************************************
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SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION 1 AREA 389700.000 3763500.000 0.000
** Source Parameters **
   SRCPARAM 1 9.047E-09 0.000 139.000 167.000 5.870
   SRCGROUP ALL
SO FINISHED
**
**************************************
** ISCST3 Receptor Pathway
**************************************
**
**
RE STARTING
** DESCRREC "UCART1" "Receptors generated from Uniform Cartesian Grid"
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   DISCCART    389912.72   3763959.78    0.00
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   DISCCART    389662.72   3764009.78    0.00
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   DISCCART    389762.72   3764009.78    0.00
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   DISCCART    390062.72   3764009.78    0.00
   DISCCART    390112.72   3764009.78    0.00
   DISCCART    390162.72   3764009.78    0.00
   DISCCART    390212.72   3764009.78    0.00
   DISCCART    390262.72   3764009.78    0.00
** Discrete Cartesian Plant Boundary - Primary Receptors
** Plant Boundary Name PLBN1
** DESCRREC "FENCEPRI" "Cartesian plant boundary Primary Receptors"
   DISCCART    389698.41   3763685.68    0.00
   DISCCART    389881.14   3763669.63    0.00
   DISCCART    389856.29   3763373.55    0.00
   DISCCART    389671.49   3763390.12    0.00
** Discrete Cartesian Plant Boundary - Intermediate Receptors
** Plant Boundary Name PLBN1
** DESCRREC "FENCEINT" "Cartesian plant boundary Intermediate Receptors"
   DISCCART    389721.25   3763683.67    0.00
   DISCCART    389744.09   3763681.67    0.00
   DISCCART    389766.93   3763679.66    0.00
   DISCCART    389789.78   3763677.66    0.00
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   DISCCART    389693.92   3763636.42    0.00
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RE FINISHED
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   SURFDATA 52132 1981
   UAIRDATA 91919 1981
ME FINISHED
**
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** ISCST3 Output Pathway
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**
**
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** Auto-Generated Plotfiles
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OU FINISHED
**
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** Project Parameters
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Table B-12
Additional Off-Site Worker Health Risk from Aerial Lifts

Conc., ug/m3	CP (mg/kg-day)-1	DBR, L/kg-day	EF, day/yr	ED, yr	AT, day	Health Risk in a Million
0.0344	1.1	149	245	40	25,550	2.16

Table B-13
GHG Emission Summary

Description	**CO2, Mton/year**	**CH4, Mton/year**	**N2O, Mton/year**	**CO2eq, Mton/year**
Demolition	0.26	0.000012	0.000005	0.26
Concrete Paving	0.056	0.0000067	0.0000060	0.056
Structure Construction	30	0.0025	0.0021	30
Total Construction*	30	0.0025	0.0021	30
Sweeping	20	0.0009	0.00008	20
Aerial Lift	11	0.0004	0.001	11
Aerial Lift Delivery	15	0.0005	0.00004	15
Air Monitor Visit	7.3	0.0005	0.0007	7.3
Total Operation	54	0.0024	0.0015	54
Total	84	0.005	0.004	84

CO2 GHG potential – 1; CH4 GHG potential – 21; N2O GHG potential 310

Table B-14
Electricity Use from New Blowers

Area	Combined Blower Rating, HP	Electricity Use, kW/hr	Electricity Use, MW/year	Area Consumption, GWH	Percent of Area Consumption	Area Peak Consumption MW	Percent of Area Peak Consumption
Edison	200	142	1,241	105,054	1.3E-07	23,727	0.6
LADWP	450	319	2,793	25,921	1.2E-06	5,717	5.6

Table B-15b
Diesel Fuel Use from Demolition Equipment

Equipment	No. of Equipment	Usage hr/day	Consumption (gal/hr)	Fuel Use (gal/day)
Concrete/Industrial Saws	1	8.0	2.68	21
Tractors/Loaders/Backhoes	2	8.0	2.68	43
Rubber Tired Dozers	1	2.0	11.8	24
				88

Table B-15b
Diesel Fuel Use from Construction Equipment

Equipment	No. of Equipment	Usage hr/day	Consumption (gal/hr)	Fuel Use (gal/day)
Forklifts	2	7.0	2.5	35
Cranes	2	8.0	9.8	157
Tractors/Loaders/Backhoes	2	6.0	3.4	41
Generator Sets	2	8.0	2.8	45
Electric Welders	4	8.0	0	0
				277

Table B-16
Fuel Use from Construction Vehicles

Vehicle	Phase	Fuel	No. of One-Way Trips/Day	Trip Length (miles)	Distance Traveled (miles)	Consumption (mpg)	Fuel Use (gal/day)
Heavy-Duty Truck	Demolition	Diesel	7	259	1,813	10	181
Worker Vehicles	Demolition	Gasoline	6	20	120	16	8
Heavy-Duty Truck	Structure	Diesel	10	40	400	10	40
Worker Vehicles	Structure	Gasoline	8	20	160	10	16

Table B-17
Additional Diesel Fuel Use from Sweepers

VMT, mile/day	Fuel Efficiency miles/gal	Usage, gal/day
21.0	10	2.1

Table B-18
Additional Gasoline Fuel Use from Visiting Monitors

VMT, mile/day	Fuel Efficiency miles/gal	Usage, gal/day
80	16	5.0

Table B-19
Additional Gasoline Fuel Use from Aerial Lifts

Consumption, (gal/hr)	Usage, hr/day	Usage, gal/day
1.4	6	8.4

Table B-20
Additional Gasoline Fuel Use from Aerial Lifts Delivery

Distance Traveled miles	Consumption mpg	Usage, gal/day
80	10	8.0

Table B-21
Water Use for Buildings

Surface Area, ft2	Area, acres	Depth of Water Applied, ft	Volume of Water, ft3/area	Volume of Water, gal/area	Daily Number of Washings	Volume of Water, gal/day
753,424	17.3	0.005	3,924	29,354	1	29,354

Surface area of both affected facilities added together
Assumed 1/16 inch depth of water applied per washing
PR 1420.1 requires washing areas weekly. Assumed all washing occurs on single day

~~**Table B-22**~~
~~**Water Use for Trucks**~~

~~Truck Height, ft~~	~~Truck Length ft~~	~~Truck Width ft~~	~~Surface Area of Rectangular Box, ft2~~	~~Depth of Water Applied, ft~~	~~Volume of Water, ft3/truck~~	~~Volume of Water, gal/truck~~	~~Daily Number of Trucks~~	~~Volume of Water, gal/day~~
~~15~~	~~75~~	~~9~~	~~3,870~~	~~0.005~~	~~20~~	~~151~~	~~100~~	~~15,078~~

~~Assumed 1/16 inch depth of water applied per washing~~
~~Daily Number of Trucks from both affected facilities added together~~

Table B-22
Water Use for Washing Pond Area

Area of Pond, acre	Area of Pond, ft2	Depth of Water Applied, feet	Volume, ft3/ washing	Volume, gal/day
1	43,560	0.005	227	1,697

Assumed 1/16 inch depth of water applied per washing

Table B-23
Water Use from Washing Process Areas

Facility	Area, ft2	Area, acres	Depth of Water Applied, ft	Volume of Water, ft3/area	Volume of Water, gal/area	Daily Number of Washings	Volume of Water, gal/day
Facility A	50,000	1.1	0.005	260	1,948	1	1,948
Facility B	120,000	2.8	0.005	625	4,675	1	4,675
Total	**170,000**	**3.9**	**0.005**	**885**	**6,623**	**1**	**6,623**

Table B-24
Volume of Spend Filters from New Baghouses

Control	No of Control Units	Diameter, ft	Width, ft	Length, ft	Height, ft	Area, ft2	Volume, ft3
Filter bags	196	0.52		13			543
HEPA filters	25		2	1	2		100
Filter bags	196	0.52		13			543
HEPA filters	25		2	1	2		100
Total							**1,286**

Baghouse filters and filter bags are disposed every two years.

Table B-25
Volume of Spend Secondary Filters for Dryer

No of Filters	Filter Length, ft	Filter Height, ft	Filters Width, ft	Waste Volume, ft3	Waste Volume, yd3
18	2	2	0.33	24	0.89

Dryer secondary filters are disposed annually.

APPENDIX C

COMMENT LETTERS AND RESPONSE TO COMMENTS

SHEPPARD MULLIN
SHEPPARD MULLIN RICHTER & HAMPTON LLP
ATTORNEYS AT LAW

333 South Hope Street | 48th Floor | Los Angeles, CA 90071-1448
213-620-1780 office | 213-620-1398 fax | www.sheppardmullin.com

Randolph C. Visser
Writer's Direct Line: 213-617-4144
rvisser@sheppardmullin.com

October 12, 2010

Our File Number: 18NJ-137726

VIA EMAIL AND OVERNIGHT DELIVERY

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Attention: Elaine Chang, DrPH
Deputy Executive Officer

Ms. Susan Nakamura
Planning & Rules Manager

Re: Exide's Supplemental Response and Comments to 1420.1 Rulemaking

Dear Mses. Chang and Nakamura:

A. Introduction.

On behalf of Exide Technologies, Inc., we are submitting these comments in order to address both the District's inclusion of a mass emissions rate limit in Rule 1420.1 and the impact of the recent proposal by Quemetco to lower the mass emissions rate limit from 0.045 pounds of lead per hour to 0.003 pounds per hour. As explained in Exide's September 21 and September 30, 2010 letters, the inclusion of the mass emissions rate limit in section 1420.1(f)(2) is legally and scientifically inappropriate. By establishing a mass emissions limit focusing entirely on stack emissions, the District improperly forecloses a facility from proposing cost-effective alternatives to satisfy the NAAQS ambient air standard. In addition, to lower the mass emissions rate limit from 0.045 lbs/hr to 0.003 lbs/hr as recently proposed is a substantial change which will threaten the economic viability of Exide's Vernon Facility to remain operating in Southern California. This would result in significant adverse economic and environmental impacts not presently evaluated in the proposed rule's existing impact assessments, necessitating subsequent or supplemental socio-economic and environmental impact assessments.

1-1

Please include these comments and the District's response to these comments in the administrative rulemaking record. We appreciate your consideration.

B. <u>If the District Imposes A Facility Mass Emissions Rate Limit, the District Must Provide For, And Allow Exide To Propose, Alternative Methods To Comply With The Lead NAAQS.</u>

The District includes a mass facility emissions rate limit of 0.045 pounds per hour as a core requirement in section 1420(f)(2), citing a need to "ensure [that] point sources are controlled to allow a 30 percent margin for fugitive emissions." [October 2010 Staff Report, 2-6]. Exide contends that Health & Safety Code Sections 40001(d), 39666(f), 40406 and 40440.8 – all statutes cited by the District for legal support – require the District to consider facility-specific alternatives to the stack mass emissions rate limit that are designed to achieve compliance with the 0.15 ug/m^3 lead NAAQS. Recognizing these legal requirements to provide for compliance flexibility, the District recently amended section 1420(f)(3) to allow a facility to apply for "an alternative [dryer] secondary lead control method that is equally or more effective for the control of lead emissions." Though Exide opposes the inclusion of any facility stack mass emissions rate limit as a core rule requirement, at a minimum, Exide requests that language similar to that added in subsection (f)(3) be included in subsection (f)(2) as follows:

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> *The total facility mass lead emissions from all lead point sources shall not exceed 0.045 pounds of lead per hour. The maximum emission rate for any single lead point source shall not exceed 0.010 pounds of lead per hour. The total facility and maximum emission rates shall be based on the most recent source tests conducted pursuant to subdivision (k).* ***An alternative method that is equally or more effective to satisfy the ambient air concentration requirement in paragraph (d)(2) may be used if a complete application is submitted as part of the permit application required under paragraph (d)(3) and approved by the Executive Officer.***

This language would preserve the purpose of Rule 1420.1 while allowing the facility to design alternative cost-effective solutions to comply with the NAAQS. The District is not legally or equitably justified in mandating one method of compliance, especially since, as stated by the District in its recent response to comments, "the ambient monitors will be the ultimate test of [NAAQS] compliance." What may be appropriate or feasible for one facility may not be appropriate or feasible for another. In the end, the facility is responsible for the outcome and, thus, must have the flexibility to determine – with District approval and enforcement authority – the method by which it satisfies the NAAQS standard.

1. The District is Required to Consider Alternatives Under Health & Safety Code Section 40001.

H&S Code Section 40001(d)(1)-(3), which governs all district rulemaking to achieve the federal NAAQS, sets forth the appropriate balance between NAAQS compliance and allowing a facility to design the method by which it will comply. As stated in the statute: "A district shall allow the implementation of alternative methods of emission reduction, emissions monitoring, or recordkeeping if a facility demonstrates to the satisfaction of the district that those alternative methods will provide equivalent performance." [H&S Code § 40001(d)(1)]. If the District specifies an "emissions limit," the District shall allow the facility to include operational and effectiveness measurement elements "that can be included as permit conditions by the District to ensure compliance with, and enforcement of, the equivalent performance requirements . . . ." [H&S Code § 40001(d)(3)]. The District's mandated facility mass emissions rate limit here functions both as an emissions limit and control method. Though Exide opposes any mass emissions rate limit, at the very least Rule 1420.1 must provide for, and allow, Exide an alternative compliance method in accordance with H&S Code § 40001(d).

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2. The District is Required to Consider Alternatives Under Health & Safety Code Section 39666

Attempting to impose an ATCM emissions limit on stack emissions to achieve the NAAQS lead standard, the District cites H&S Code Section 39666 as legal authority for proposed Rule 1420.1. [*See, e.g.*, Resolution]. If the District relies on section 39666, then it must satisfy its requirements. The statute provides that, where an ATCM measure "requires the use of a specified method or methods to reduce, avoid, or eliminate the emissions of a toxic air contaminant, a source may submit to the District an alternative method or methods that will achieve an equal or greater amount of reduction in emissions of, and risk associated with, that toxic air contaminant." [H&S Code § 39666(f)]. The District "shall approve" the alternative method if it is demonstrated to be enforceable and effective. [*Id.*]

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As currently written, Rule 1420.1 forecloses any alternative methods of compliance, regardless of whether other methods may be equally effective. The District may not mandate a facility mass emissions rate limit without allowing the facility to propose alternatives. Again, Exide requests inclusion of the above language to rule Section(f)(2) to correct this flaw in the existing proposed rule.

3. The District Must Provide a BARCT Analysis, Considering Facility-Specific Economic and Environmental Impacts.

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In its recent staff response, the District stated that Rule 1420.1 "is a Best Available Retrofit Technology (BARCT) Rule for Lead." [Staff Response to Comment 45]. BARCT is defined as "an emissions limitation that is based on the maximum degree of reduction achievable,

taking into account environmental, energy, and economic impacts by each class or category of source." [H&S Code § 40406] Exide agrees with the District that Quemetco's recent proposal to limit the mass emissions rate to 0.003 lbs/hr is unnecessary to achieve the NAAQS lead standard and cost prohibitive and, thus, does not satisfy BARCT, for the Exide facility. However, Exide contends that the District's rulemaking record is presently inadequate to even allow for Governing Board consideration as to whether the 0.045 lbs/hr facility mass emissions rate limit is BARCT under H&S Code Section 40920.6.

1-5 Cont.

Because the District states that Rule 1420.1 is a BARCT rule, Exide contends that the District must fully evaluate the rule's technical and economic feasibility, identify different control options that can achieve the emissions reduction objectives of the regulation, review the cost-effectiveness of each potential control option, make findings as to the cost-effectiveness of each option, and allow alternative means of producing equivalent reductions at any equal or lesser dollar amount per ton reduced. [H&S Code § 40920.6]. Even if Section 40920.6 does not apply directly, the District has determined that BARCT requires a 0.045 lbs/hr facility limit without properly considering the technical, economic and environmental impacts of that limit as required by Sections 40406, 40440.8 and 40922.

4. <u>The District's Socioeconomic Analysis is Insufficient Because It Does Not Adequately Consider Relative Cost-Effectiveness.</u>

The District's Socioeconomic Assessment estimates the annual total cost to comply with Rule 1420.1 will be $0.41 million for the first year and $0.32 million annually thereafter. Though the District purports to consider economics, the District does not properly consider the "availability and cost-effectiveness of alternatives" to the mass emissions rate limit as required by H&S Code Sections 40440.8 and 40922. Section 40922 (made applicable here by Section 40440.8) requires the District to consider "an assessment of the cost-effectiveness of available and proposed control measures" and states that the District's analysis "shall contain a list of the control measures from the least cost-effective to the most cost-effective." The District must also consider relative cost-effectiveness, in addition to technological feasibility and other factors. [H&S Code § 40922].

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The District avoids a relative cost-effectiveness analysis and does not cite to section 40922, presumably because the District takes the position that section 40922 only applies to rules meant to control ozone, CO, NOx and SOx. The District's interpretation ignores that section 40440.8 requires a socioeconomic assessment without limit to designated criteria pollutants, and section 40440.8 (requiring a socio-economic analysis) cites to and requires analysis under section 40922. Indeed, when implementing rules designed to limit emissions of PM and ammonia from refineries (constituents other than ozone, CO, NOx and SOx), the District engaged in the 40922 incremental cost analysis that it fails to conduct here. [*Western States Petroleum Association v. SCAQMD*, 136 Cal. App. 4th 1012].

Furthermore, Section 40703 states that "in adopting any regulation, the district shall consider, pursuant to Section 40922, and make available to the public, its findings related to the cost-effectiveness of the control measure, as well as the basis for the findings and the considerations involved." The law also requires that the District "shall make reasonable efforts, to the extent feasible within existing budget constraints, to make specific reference to the direct costs expected to be incurred by regulated parties, including businesses and individuals." [H&S Code § 40703]. Here, while the District generally considered certain compliance costs to reach its $0.41/$0.32 million per year estimate, it did not adequately consider the economic impact to Exide, particularly as to the newly-proposed alternative of a 0.003 lbs/hr facility mass emissions rate limit, and the District did not properly consider cost-effective alternatives that would still result in NAAQS compliance.

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5. <u>The Clean Air Act Does Not Prohibit Increased Stack Height as a Control Option</u>.

The District rejected Exide's proposal to increase stack heights, stating that "the Clean Air Act, Section 123, prohibits using stack heights in lieu of emissions controls." [October 2010. Staff Response to Comment 8]. The District is incorrect. Under the CAA, a facility can take full credit for improved dispersion provided by any stack height up to 65 meters (200+ ft.) without any justification required as dictated by good engineering practice. Good engineering practice means "the height necessary to insure that emissions from the stack do not result in excessive concentrations of any pollutant in the immediate vicinity of the source as a result of atmospheric downwash." "In no event may the Administrator prohibit any increase in any stack height or restrict in any manner the stack height of any source." [CAA, Section 123(c); 40 CFR Part 51; *see, also*, District Rule 1401(a)(1) defining "Acceptable Stack Height" in conformance with CAA Section 123.] For the reasons summarized in its September 21, 2010 letter, Exide is significantly impacted by downwash at its stacks, which are barely taller than the facility buildings. Increasing the stack height is a legally viable alternative to satisfy the NAAQS.

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C. <u>The Proposed 0.003 lbs/hr Facility Mass Emissions Rate Limit Alternative Threatens The Economic Viability Of Exide's Facility To Remain Operating In Southern California, Resulting In Significant Adverse Economic and Environmental Impacts Not Previously Considered That Require Subsequent Or Supplemental Socio-Economic and Environmental Impact Assessments</u>.

Quemetco recently proposed that the District reduce the rule's facility mass emissions rate limit from 0.045 lbs/hr to 0.003 lbs/hr, a substantial change to the existing proposed rule. For the District to consider this proposal for adoption, it must fully evaluate the proposal's significant adverse economic and environmental impacts. The District estimates a $15-20 million cost for Exide (based solely on Quemetco costs) to reduce mass emissions to this level. Exide believes this cost to be prohibitive and that it will threaten its economic viability to continue operating in Southern California, with Exide considering the option of expanding operations in facilities out

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1-8 Cont.

of State [*See* concurrently submitted October 11, 2010 Exide letter]. Exide's closure as a result of "substantial changes" to the Rule (*i.e.*, a 15-fold emissions reduction above the amounts already proposed) will result in significant adverse economic impacts and direct and indirect significant adverse environmental impacts necessitating the District prepare subsequent or supplemental socio-economic environmental impact assessments. [14 CCR § 15162].

As noted by the District, Exide has an average production of 100,000 to 120,000 tons of lead per year, equivalent to approximately 11 million automotive batteries. Exide and Quemetco are the only two large lead battery recyclers in the Western United States, with the closest comparable facility in Texas. [Staff Report. at 1-7.] If Exide is forced to discontinue its Vernon Facility operations, Exide's departure would reasonably result in "significant adverse effects" not previously considered in the existing rulemaking documents, including but not limited to:

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- Loss of approximately 125+ union jobs at the Vernon Facility and additional jobs in industries servicing the Vernon Facility.
- Substantial loss of lead acid battery recycling capacity in the District.
- Increased truck traffic and pollution (including diesel particulate and GHG emissions) from shipping batteries out of California or to Mexico.
- Increased risk of illegal or improper disposal of lead batteries in the District.
- Increased lead, diesel particulate and GHG and other emissions including truck traffic from Quemetco's facility closer to a residential community environment.

These impacts would require subsequent or supplemental socio-economic and environmental impact assessments; the District's existing assessments are presently inadequate and fail to analyze those foreseeable adverse impacts. [*See, e.g., Bakersfield Cit. Loc. Con, v. City of Bakersfield*, 124 Cal. App. 4th 1184 (2004) (agency must conduct a CEQA analysis if economic harm is reasonably likely to result in direct or indirect environmental impact). H&S Code § 40440.8(b)(2).] To properly consider for adoption a 0.003 lbs/hr facility mass emissions rate limit, the District must evaluate these potentially significant adverse economic and environmental impacts (which it has not done in the existing rulemaking documents) through preparation of subsequent or supplemental socio-economic and environmental impact assessments. Re-circulation and allowance for comment is also required. Obviously, this will further delay the approval of an applicable rule.

D. Conclusion.

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In conclusion, Exide contends that the mass emissions rate limit is untenable and unjustified, particularly because the District has not considered cost-effective alternatives designed to satisfy the NAAQS. In addition, District consideration of Quemetco's proposal to

1-10 Cont.

lower the mass limit to 0.003 lbs/hr will threaten the economic viability of Exide's Vernon Facility, requiring further analysis of the rule's potentially significant adverse socio-economic and environmental impacts, not previously evaluated or considered in the existing rulemaking documents. We appreciate your consideration of these comments.

Very truly yours,

Randolph C. Visser

for SHEPPARD, MULLIN, RICHTER & HAMPTON LLP

W02-WEST:1OFTM402075458.1

cc: Mr. Barry R. Wallerstein (***Via Email***)
Laki Tisopulos, Ph.D., P.E.
Ms. Cheryl Marshall (***Via Email***)
Kurt Wiese, Esq. (***Via Email***)
William Wong, Esq. (***Via Email***)
Christine Graessle, Esq. (***Via Email***)
Robert L. Collings, Esq. (***Via Email***)

PROPOSED ALTERNATIVE 3 FOR CONSIDERATION AT THE NEXT HEARING BOARD MEETING

AGENDA NO. 36 — Adopt Rule 1420.1 – Emissions Standard for Lead from Large Lead-acid Battery Recycling Facilities

Modify subparagraph (f)(2) of Proposed Rule 1420.1

"(2) ~~The total facility mass lead emissions from all lead point sources shall not exceed 0.045 pounds of lead per hour. The maximum emission rate for any single lead point source shall not exceed 0.010 pounds of lead per hour. The total facility and maximum emission rates shall be based on the most recent source tests conducted pursuant to subdivision (k).~~"

Modify subparagraph (g)(2)(A) of Proposed Rule 1420.1

(A) A description of additional lead emission reduction measures including, but not limited to, requirements for the following:

(i) Housekeeping, inspection, and maintenance activities;

(ii) Additional total enclosures;

(iii) Modifications to lead control devices and installation of multi-stage lead control devices necessary to achieve a total facility lead emission rate of 0.045 pounds per hour from all lead point sources and a maximum emission rate of 0.010 pounds of lead per hour for any single lead point source;

~~(iv) Installation of multi-stage lead control devices;~~

(iv) Process changes including reduced throughput limits; and

(vi) Conditional curtailments including, at a minimum, information specifying the curtailed processes, process amounts, and length of curtailment.

Add subparagraph (g)(2)(D) of Proposed Rule 1420.1

(D) An implementation schedule for (g)(2)(A)(iii) to achieve a total lead emission rate of 0.045 pounds per hour from all lead point sources and a maximum emission rate of 0.010 pounds of lead per hour for any single lead point source if lead emissions discharged from the facility contribute to ambient air concentrations of lead to exceed 0.15 $\mu g/m^3$ averaged over any 30 consecutive days measured at any monitor pursuant to subdivision (j) or at any District-installed monitor no later than one year after the date of exceeding the 0.15 $\mu g/m^3$ average.

Modify paragraph (g)(4) of Proposed Rule 1420.1

(4) ~~The owner or operator shall implement measures based on the schedule in the approved Compliance Plan if~~ If lead emissions discharged from the facility contribute to ambient air concentrations of lead to exceed 0.15 $\mu g/m^3$ averaged over any 30 consecutive days measured at any monitor pursuant to subdivision (j) or at any District-installed monitor, the owner or operator shall:.

(A) Implement lead emission reduction measures based on the schedule in the approved Compliance Plan; and

(B) Notwithstanding paragraph (f)(2), meet a total facility emission rate of 0.045 pounds per hour from all lead point sources and a maximum emission rate of 0.010 pounds of lead per hour for any single lead point source no later than one year after the date of exceedance. The total facility emission rate shall be determined using the most recent source tests conducted by the facility or the District

EXIDE TECHNOLOGIES

October 12, 2010

South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, CA 91765

Attention: Elaine Chang, DrPH
Deputy Executive Officer

Ms. Susan Nakamura
Planning & Rules Manager

Re: Comments on Proposed Rule 1420.1

Dear Mses. Chang and Nakamura:

Exide provides the following additional comments on proposed Rule 1420.1, and requests SCAQMD's consideration of, and response to, them prior to adopting a final rule.

With regard to the Quemetco, Inc. comments submitted to the District Board on September 22, 2010, Exide agrees with AQMD staff that the proposed lower emission rate limit of 0.003 lbs/hr of lead is unnecessary, cost prohibitive and should not be included in the final rule [October 2010 Staff Report, Appendix A, Page A-17 and 18.].

Since the proposal for the 0.003 lb/hr facility-wide lead emission rate was only submitted a little more than a week before the rule was to be approved, Exide has had little time to fully evaluate such a proposal and has the following concerns with it.

First, Exide is unsure if the control technology installed at the Quemetco facility is technically feasible and compatible with Exide's process. The Exide facility uses a fundamentally different furnace technology (blast furnace) than what Quemetco uses (electric arc furnace) to process reverberatory furnace slag. Exide has no basis for assuming that this fundamental difference is amenable to the wet electrostatic precipitator (WESP) emission control technology. Exide is aware of no other emission control technology that even claims to be able to reach the 0.003 lb/hr facility-wide level. At this point, Exide could only speculate (at best) that the WESP technology is technically feasible and could be employed at our facility. Whether emissions from our facility would also remain below 0.003 lb/hr with implementation of the WESP is unknown.

Additionally, it has been reported that Quemetco spent $18 million on installation of its emission control system, inclusive of the WESP. We have no way of knowing what portion of these costs are attributable to the regenerative thermal oxidizer (RTO) that was also installed as part of Quemetco's project. Organic emissions are not an issue from a risk perspective from our facility and we presume, therefore, that installation of a WESP to achieve the 0.003 lb/hr lead emission rate would not also require installation of an RTO. Thus, we can, at best, "guess" that the cost to achieve a 0.003 lb/hr Pb rate would be on the order of $18 million on the basis of no site or process-specific analysis.

Finally, at a cost of this magnitude, and from what we know of this control technology at this time, this proposal will threaten the economic viability of the Exide Vernon, CA recycling facility and Exide would have to consider the alternative of expanding operations at its other recycling facilities outside of California. Such would result in previously unconsidered significantly adverse socio-economic and environmental consequences including loss of jobs, loss of Basin lead acid battery recycling capacity and related air emission increases.

In follow-up to Exide's original comments on the reasons a 0.045 lb./hr. lead emission rate is not the proper control methodology for this rule, is not needed to ensure compliance with the ambient standard and should not be included in the final rule, Exide provides the following proposed alternative by which a mass emission rate could be included in the rule. Exide proposes that if compliance with the 0.15 ug/m3 ambient standard cannot be achieved by the compliance deadline of January 1, 2012, then the facility wide and individual point source mass emission rate limits would go into effect as a component of the required contingency compliance plan. [*See* enclosed Proposed Rule Alternative 3.] As the proposed rule already incorporates a compliance plan "safety valve" trigger of 0.12 ug/m^3 (80% of the 0.15 ug/m^3 NAAQS), the use of emissions rate limit as a core requirement is unnecessary. If a facility mass emission rate limit is to be considered at all, please submit this proposal to the Governing Board for consideration as well.

The SCAQMD first proposed a facility mass emissions rate of 0.045 lb./hr. in its August 31, 2010 proposed rule. At the Governing Board hearing on October 1, 2010 an alternative facility mass emissions rate of 0.003 lb./hr. was proposed. Exide has evaluated its compliance options with the Proposed Rule based on the 0.15 ug/m3 standard in the NAAQS that was amended in 2008. Neither Exide, nor the SCAQMD have had sufficient time to review the technical feasibility and economic aspects of meeting an facility Pb emission rate of 0.003 lb./hr. from stationary sources. Exide's proposal provides for existing control measures and housekeeping activities to be implemented and take effect. If additional emission reduction measures are then required to meet the 0.15 ug/m3 standard, Exide can evaluate which measures will be effective in complying with the standard, rather than relying on an arbitrary emission rate or control technology that would not be practicable for Exide's overall equipment configuration.

Exide has extensively evaluated the issue of its facility's ambient lead concentration impacts and finds that the REAL impacts are predominantly caused by two effects – fugitive emissions and stacks that are being affected by building downwash.

Several of the facility stacks are just barely taller than their adjacent buildings. Stacks that are legitimately subject to downwash in this manner can legitimately be improved by simply increasing the stack height to avoid the downwash zone. That is, the "problem" with these stacks is NOT that their emissions are too great or in any way indicative of inadequate control effectiveness, but that they are simply too short. Contrary to the Staff response on this issue [October 2010 Staff Report, Appendix A, Page A-3], neither the federal Clean Air Act nor relevant California or District rules would in any way "prohibit" the use of stack height increases to resolve adverse building downwash influences. We would be happy to provide full citations of the relevant statutes and regulations on this point.

On 6-25-2009 Exide signed a consent order with the SCAQMD that required the construction of additional total enclosures, venting them to existing control equipment, and additional housekeeping activities such as the installation of a vehicle wash station. When Exide completes the requirements of this consent order the emission rate from fugitive sources should be substantially reduced and contribute to Exide's compliance with the NAAQS.

The ultimate goal here is to help to protect public health by reducing their ambient concentrations. For heavily downwash-influenced stacks, the prescription is a redesign of the geometry rather than wasting resources on essentially unachievable emission limitations. The District's dispersion modeling exercise used to derive and back-calculate the new Subsection (f)(2) emission rate limits gave no consideration to the possibility of alternate stack physical geometries and the impact of fugitive emissions and only considered alternate emission rate scenarios to achieve modeled compliance. The District does not have the authority to impose such a narrow compliance standard, and has not properly considered all possible methods for achieving the standard. We believe that this lack of consideration of reasonable and appropriate alternatives has resulted in a proposed rule which would serve to distract and misdirect resources from the primary focus for achieving the revised NAAQS – reduction in fugitive emissions.

We respectfully request due consideration of the comments outlined above and acceptance by the District of Exide's requested revisions.

Please contact Fred Ganster at 610-921-4052 with any questions you may have regarding this submittal.

Sincerely,
EXIDE TECHNOLOGIES

Corey Vodvarka

Corey Vodvarka
Plant Manager

cc: Mr. Barry R. Wallerstein
Laki Tisopulos, Ph.D., P.E.
Ms. Cheryl Marshall
Kurt Wiese, Esq.
William Wong, Esq.
Christine Graessle, Esq.
Robert L. Collings, Esq.

COMMENT LETTER NO. 1
SHEPPARD MULLIN
OCTOBER 12, 2010

Response to Comment 1-1

Thank you for your comments. Detailed responses to comments regarding inclusion of a mass emission rate limit in PR 1420.1(f)(2), reducing the facility mass emission rate limit for point sources in PR 1420.1 from 0.045lbs/hr to 0.003 lbs/hr, and the anticipated closure of any facilities subject to PR 1420.1 are addressed below.

Response to Comment 1-2

PR 1420.1 does not specify the method or control approach that a facility must use to meet either the total facility lead point source emission rate of 0.045 lb/hr or individual point source lead emission rate of 0.010 lb/hr. Furthermore, Health and Safety Code Section 40001(d)(3) states that "if a district rule specifies an emission limit for a facility or system, the district shall not set operational or effectiveness requirements for any specific control equipment operating on a facility or system under that limit." PR 1420.1 simply requires achieving an emission rate limit and does not set any operational or effectiveness requirements for any specific emission control equipment operating on a facility or system under the proposed emission rate limit.

Regarding the commenter's objection to the facility mass emissions rate limit for point sources: based on air dispersion modeling using the most recent source tests results and stack parameters, the stack emissions of one facility subject to PR 1420.1 would exceed the ambient lead standard of 0.15 micrograms per cubic meter averaged over 30 days. As a result, Proposed Rule 1420.1 establishes a point source emission rate of 0.045 lbs/hour as a core requirement. This facility-wide emission level was derived from modeling, which demonstrates that at the point of maximum impact, the ambient concentration would be about 30 percent below the new ambient lead standard. The 30 percent "buffer" is necessary so the facility has an emissions budget for fugitive emissions. Staff believes that if the 0.045 lbs/hr emission rate limit is not established as a core requirement, at least one of the facilities subject to PR 1420.1 would most likely exceed the standard based on point source emissions alone, and would be well above the standard when fugitive emissions are included. As a result, implementation of controls would be delayed if the 0.045 lbs/hr emission rate is not required. Thus, staff's proposal of the emission rate limit as a core requirement stands.

Response to Comment 1-3

Please see response to comment 1-2.

Response to Comment 1-4

The commenter's reference to the Health & Safety Code Section 39666(f) states, "Where an airborne toxic control measure requires the use of a specified method or methods to reduce, avoid, or eliminate the emissions of a toxic air contaminant, a source may submit to the district an alternative method or methods that will achieve an equal or greater amount of reduction in emissions of, and risk associated with, that toxic air contaminant…" PR 1420.1 does not

implement an ATCM. As a result, the reference to Health and Safety Code Section 39666(d) is removed.

Response to Comment 1-5

The staff response has been revised in Response to Comment #45 in Appendix A of the Staff Report, reflecting that PR 1420.1 is not a BARCT rule. The response no longer states that PR 1420.1 is a BARCT rule. The intent of PR 1420.1 is to achieve attainment with the revised NAAQS for lead.

The commentator states that the environmental impacts of the 0.045 pound per hour facility limit were not considered as required by Health and Safety Code §40406. SCAQMD staff disagrees with this statement. Control strategies are presented in Chapter 1 of the Final EA. Each control strategy is presented and a statement is made as to whether the control strategy is expected to be used for the proposed project. Baghouses, wet scrubbers and HEPA filters are listed as control strategies that would be used. Electrostatic precipitators/wet electrostatic precipitators are strategies that are not expected to be used. No comment was received on this section of the Draft EA.

Construction and operation of the control technologies were analyzed in the aesthetics, agricultural resources, biological resources, cultural resources, geology and soils, mineral resources, noise, population and housing, public services, recreation and transportation and traffic sections of Chapter 2 of the Final EA and found to have no impacts on these environmental topics. Construction and operation of the control technologies were analyzed in the air quality, energy, hazards and hazardous materials, hydrology and water quality, land use and planning, and solid/hazardous waste sections of Chapter 2 of the Final EA and found to have no significant impacts.

Response to Comment 1-6

Regarding requirements for availability and cost-effectiveness analyses required by the Health and Safety Code Sections referenced by the commenter, the District continues to take the position that section 40922 does not pertain to lead. Although Health and Safety Code Sections 40440.8 and 40703 require these analyses, both require the analyses pursuant to section 40922 which again only pertains to ozone, CO, SOx, and NOx. It should also be noted that staff's proposal remains at the 0.045 lb/hr and 0.010 lb/hr lead emission rate for total facility and individual point sources, respectively.

Response to Comment 1-7

The commenter is correct in that stack heights legally may be altered up to the specified maximum in order to change the dispersion of lead emissions from the point sources. Staff's position, however, is that increasing the stack height or buoyancy would just be a dilution of fence line monitor concentrations, and that the same amount of lead emissions are being dispersed in the atmosphere. Lead is a persistent and would continue to accumulate on the ground in areas of dispersion. Simply changing the air dispersion of emissions without overtly reducing emissions is not in the best interest for air quality and public health.

Response to Comment 1-8

PR 1420.1 requires affected facilities to meet an emission rate of 0.045 lbs/hr total mass emission rate from all point sources of lead at the facility. The Staff Report, Environmental Analysis and Socioeconomic Analysis are based on PR 1420.1, which requires a total stack mass emission rate of 0.045 lbs/hr from all point sources of lead emissions at a facility. If the Governing Board were to direct staff to incorporate a total stack emission rate of 0.003 lbs/hr of lead, either as a core requirement, or in the contingency Compliance Plan, additional environmental and economic analyses would be needed. The Board could, however, select an option that would require the facility to evaluate the feasibility of a total stack emission rate of 0.003 lb/hr of lead if the facility triggered the need for a compliance plan. If it is determined that it is technically and environmentally feasible to lower the total stack emission rate, Rule 1420.1 could be amended and the appropriate environmental and socioeconomic analyses would be conducted.

Response to Comment 1-9

Staff's proposal is a total facility mass emission rate limit of 0.045 lb/hr and not the 0.003 lb/hr rate. This comment requests the analysis of the closure of an affected facility. As stated in Response to Comment 1-8, the closure of affected facilities because of PR 1420.1 is not expected. Therefore no analysis will be prepared for the closure of affected facilities.

Response to Comment 1-10

See response to comment 1-2 regarding the applicability of the facility mass emission rate limit. See response to comment 1-8 regarding the inclusion of a lower (i.e. 0.003 lbs/hr) facility mass emission rate limit in PR 1420.1, and the expected closure of any facilities subject to PR 1420.1.

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Ms. Susan Nakamura
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Re: Comments on Proposed Rule 1420.1

Dear Mses. Chang and Nakamura:

Exide provides the following additional comments on proposed Rule 1420.1, and requests SCAQMD's consideration of, and response to, them prior to adopting a final rule.

With regard to the Quemetco, Inc. comments submitted to the District Board on September 22, 2010, Exide agrees with AQMD staff that the proposed lower emission rate limit of 0.003 lbs/hr of lead is unnecessary, cost prohibitive and should not be included in the final rule [October 2010 Staff Report, Appendix A, Page A-17 and 18.].

2-1 Since the proposal for the 0.003 lb/hr facility-wide lead emission rate was only submitted a little more than a week before the rule was to be approved, Exide has had little time to fully evaluate such a proposal and has the following concerns with it.

First, Exide is unsure if the control technology installed at the Quemetco facility is technically feasible and compatible with Exide's process. The Exide facility uses a fundamentally different furnace technology (blast furnace) than what Quemetco uses (electric arc furnace) to process reverberatory furnace slag. Exide has no basis for assuming that this fundamental difference is amenable to the wet electrostatic precipitator (WESP) emission control technology. Exide is aware of no other emission control technology that even claims to be able to reach the 0.003 lb/hr facility-wide level. At this point, Exide could only speculate (at best) that the WESP technology is technically feasible and could be employed at our facility. Whether emissions from our facility would also remain below 0.003 lb/hr with implementation of the WESP is unknown.

2-2 Additionally, it has been reported that Quemetco spent $18 million on installation of its emission control system, inclusive of the WESP. We have no way of knowing what portion of these costs are attributable to the regenerative thermal oxidizer (RTO) that was also installed as part of Quemetco's project. Organic emissions are not an issue from a risk perspective from our facility and we presume, therefore, that installation of a WESP to achieve the 0.003 lb/hr lead emission rate would not also require installation of an RTO. Thus, we can, at best, "guess" that the cost to achieve a 0.003 lb/hr Pb rate would be on the order of $18 million on the basis of no site or process-specific analysis.

Finally, at a cost of this magnitude, and from what we know of this control technology at this time, this proposal will threaten the economic viability of the Exide Vernon, CA recycling facility and Exide would have to consider the alternative of expanding operations at its other recycling facilities outside of California. Such would result in previously unconsidered significantly adverse socio-economic and environmental consequences including loss of jobs, loss of Basin lead acid battery recycling capacity and related air emission increases.

2-3

In follow-up to Exide's original comments on the reasons a 0.045 lb./hr. lead emission rate is not the proper control methodology for this rule, is not needed to ensure compliance with the ambient standard and should not be included in the final rule, Exide provides the following proposed alternative by which a mass emission rate could be included in the rule. Exide proposes that if compliance with the 0.15 ug/m3 ambient standard cannot be achieved by the compliance deadline of January 1, 2012, then the facility wide and individual point source mass emission rate limits would go into effect as a component of the required contingency compliance plan. [*See* enclosed Proposed Rule Alternative 3.] As the proposed rule already incorporates a compliance plan "safety valve" trigger of 0.12 ug/m^3 (80% of the 0.15 ug/m^3 NAAQS), the use of emissions rate limit as a core requirement is unnecessary. If a facility mass emission rate limit is to be considered at all, please submit this proposal to the Governing Board for consideration as well.

The SCAQMD first proposed a facility mass emissions rate of 0.045 lb./hr. in its August 31, 2010 proposed rule. At the Governing Board hearing on October 1, 2010 an alternative facility mass emissions rate of 0.003 lb./hr. was proposed. Exide has evaluated its compliance options with the Proposed Rule based on the 0.15 ug/m3 standard in the NAAQS that was amended in 2008. Neither Exide, nor the SCAQMD have had sufficient time to review the technical feasibility and economic aspects of meeting an facility Pb emission rate of 0.003 lb./hr. from stationary sources. Exide's proposal provides for existing control measures and housekeeping activities to be implemented and take effect. If additional emission reduction measures are then required to meet the 0.15 ug/m3 standard, Exide can evaluate which measures will be effective in complying with the standard, rather than relying on an arbitrary emission rate or control technology that would not be practicable for Exide's overall equipment configuration.

2-4

Exide has extensively evaluated the issue of its facility's ambient lead concentration impacts and finds that the REAL impacts are predominantly caused by two effects – fugitive emissions and stacks that are being affected by building downwash.

Several of the facility stacks are just barely taller than their adjacent buildings. Stacks that are legitimately subject to downwash in this manner can legitimately be improved by simply increasing the stack height to avoid the downwash zone. That is, the "problem" with these stacks is NOT that their emissions are too great or in any way indicative of inadequate control effectiveness, but that they are simply too short. Contrary to the Staff response on this issue [October 2010 Staff Report, Appendix A, Page A-3], neither the federal Clean Air Act nor relevant California or District rules would in any way "prohibit" the use of stack height increases to resolve adverse building downwash influences. We would be happy to provide full citations of the relevant statutes and regulations on this point.

On 6-25-2009 Exide signed a consent order with the SCAQMD that required the construction of additional total enclosures, venting them to existing control equipment, and additional housekeeping activities such as the installation of a vehicle wash station. When Exide completes the requirements of this consent order the emission rate from fugitive sources should be substantially reduced and contribute to Exide's compliance with the NAAQS.

2-5

The ultimate goal here is to help to protect public health by reducing their ambient concentrations. For heavily downwash-influenced stacks, the prescription is a redesign of the geometry rather than wasting resources on essentially unachievable emission limitations. The District's dispersion modeling exercise used to derive and back-calculate the new Subsection (f)(2) emission rate limits gave no consideration to the possibility of alternate stack physical geometries and the impact of fugitive emissions and only considered alternate emission rate scenarios to achieve modeled compliance. The District does not have the authority to impose such a narrow compliance standard, and has not properly considered all possible methods for achieving the standard. We believe that this lack of consideration of reasonable and appropriate alternatives has resulted in a proposed rule which would serve to distract and misdirect resources from the primary focus for achieving the revised NAAQS – reduction in fugitive emissions.

2-6

We respectfully request due consideration of the comments outlined above and acceptance by the District of Exide's requested revisions.

Please contact Fred Ganster at 610-921-4052 with any questions you may have regarding this submittal.

Sincerely,
EXIDE TECHNOLOGIES

Corey Vodvarka

Corey Vodvarka
Plant Manager

cc: Mr. Barry R. Wallerstein
Laki Tisopulos, Ph.D., P.E.
Ms. Cheryl Marshall
Kurt Wiese, Esq.
William Wong, Esq.
Christine Graessle, Esq.
Robert L. Collings, Esq.

COMMENT LETTER NO. 2
EXIDE COMMENT LETTER
OCTOBER 12, 2010

Response to Comment 2-1

Staff understands that Wet Electrostatic Precipitator (WESP) control technology installed at the commenter's facility may result in different emission rates than those achieved at another facility subject to PR 1420.1 utilizing the WESP technology. AQMD staff agrees that additional time is needed to further evaluate the technical feasibility, potential environmental impacts and economic impacts of such a proposal. Staff's proposal is to retain the total facility lead emission rate of 0.045 lb/hr.

Response to Comment 2-2

Proposed Rule 1420.1 requires as a core requirement that affected facilities achieve a total stack emission rate of 0.045 lbs/hr. AQMD staff agrees that additional time is needed further evaluate the technical feasibility, potential environmental impacts and economic impacts of lowering the stack emission rate to 0.003 pounds per hour. Staff's proposal is to retain the total facility lead emission rate of 0.045 lbs/hr.

Response to Comment 2-3

PR 1420.1 requires affected facilities to meet an emission rate of 0.045 lbs/hr total mass emission rate from all point sources of lead at the facility. The Staff Report, Environmental Analysis and Socioeconomic Analysis are based on PR 1420.1, which requires a total stack mass emission rate of 0.045 lbs/hr from all point sources of lead emissions at a facility. If the Governing Board were to direct staff to incorporate a total stack emission rate of 0.003 lbs/hr of lead, either as a core requirement, or in the contingency Compliance Plan, additional environmental and economic analyses would be needed. The Board could, however, select an option that would require the facility to evaluate the feasibility of a total stack emission rate of 0.003 lb/hr of lead if the facility triggered the need for a compliance plan. If it is determined that it is technically and environmentally feasible to lower the total stack emission rate, Rule 1420.1 could be amended and the appropriate environmental and socioeconomic analyses would be conducted.

Response to Comment 2-4

Based on air dispersion modeling using the most recent source tests results and stack parameters, the stack emissions of one facility subject to PR 1420.1 would exceed the ambient lead standard of 0.15 micrograms per cubic meter averaged over 30 days. As a result, Proposed Rule 1420.1 establishes a point source emission rate of 0.045 lbs/hour as a core requirement. This facility-wide emission level was derived from modeling, which demonstrates that at the point of maximum impact, the ambient concentration would be about 30 percent below the new ambient lead standard. The 30 percent "buffer" is necessary so the facility has an emissions budget for fugitive emissions. Staff believes that if the 0.045 lbs/hr emission rate limit is not established as a core requirement, at least one of the facilities subject to PR 1420.1 would most likely exceed the standard based on point source emissions alone, and would be well above the standard when

fugitive emissions are included. As a result, implementation of controls would be delayed if the 0.045 lbs/hr emission rate is not required. Thus, staff's proposal of the emission rate limit as a core requirement stands.

Regarding the comments on stack height, staff agrees that stack heights may be legally altered up to the specified maximum in order to change the dispersion of lead emissions from the point sources. Staff's position, however, is that increasing the stack height or buoyancy would just result in a dilution of fence line monitor concentrations, and that the same amount of lead emissions are being dispersed in the atmosphere. Lead is a persistent and would continue to accumulate on the ground in areas of dispersion. Simply changing the air dispersion of emissions without overtly reducing emissions is not in the best interest for air quality and public health.

Response to Comment 2-5

AQMD staff agrees that the completion of additional total enclosures, vented to existing control equipment as well as additional housekeeping activities should help to reduce fugitive emissions.

Response to Comment 2-6

See response to comment 2-4 regarding stack height. Air dispersion modeling conducted in support of this rulemaking used the most recent stack parameters. The AQMD maintains that it does have the authority to set an emission standard. Furthermore, Health and Safety Code Section 40001(d)(3) states that "if a district rule specifies an emission limit for a facility or system, the district shall not set operational or effectiveness requirements for any specific control equipment operating on a facility or system under that limit." PR 1420.1 simply requires achieving an emission rate limit and does not set any operational or effectiveness requirements for any specific emission control equipment operating on a facility or system under the proposed emission rate limit. See response to comment 1-2 in the letter from Sheppard Mullin dated October 12, 2010.

Back to Agenda

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 35

PROPOSAL: 2010 Clean Communities Plan

SYNOPSIS: The 2010 Clean Communities Plan builds from existing traditional toxic regulatory approaches and includes 23 measures designed to address cumulative air toxics exposure in communities and neighborhoods throughout the South Coast Air Quality Management District. The 2010 Clean Communities Plan includes measures to address reductions of air toxics and air related nuisance issues at the community level. Increased community participation, communication and outreach, agency coordination, enhanced monitoring and compliance programs as well as traditional source-specific measures.

COMMITTEE: Stationary Source, September 19, 2008, April 16, 2010, and September 24, 2010, Reviewed.

RECOMMENDED ACTION:
Approve the 2010 Clean Communities Plan as a planning document for possible future actions.

Barry R. Wallerstein, D.Env.
Executive Officer

EC:LT:SN:CAM

Background

The 2010 Clean Communities Plan is a planning document that outlines the overall control strategy for the South Coast Air Quality Management District's (AQMD's) air toxics control program. The Clean Communities Plan is an update to the Air Toxics Control Plan (ATCP) developed in 2000 and the subsequent Addendum in 2004. Over the past two decades, the AQMD's toxics regulatory program has focused on individual source categories that emit a specific toxic air contaminant. Although significant progress has been made to reduce air toxic emissions from individual sources there are communities throughout the district that are impacted by multiple toxic

emitting sources that surround these communities. The combined or cumulative effect of multiple toxic emitting sources on these communities can be substantial. The 2010 Clean Communities Plan continues to build on the district's source-specific air toxics program while addressing cumulative air quality impacts.

Clean Communities Plan

The objective of the 2010 Clean Communities Plan is to reduce the exposure to air toxics and air-related nuisances throughout the district, with emphasis on cumulative impacts. The Clean Communities Plan includes 23 measures in seven groups that utilize a variety of different implementation approaches such as community participation, increased outreach and communication, additional agency coordination, and enhanced monitoring and compliance programs. Many of these approaches will require the participation from all sectors such as community representatives, agencies, elected officials, and businesses. In addition, many of the measures work together. Figure 1 shows the overall structure and lists the measures in the Clean Communities Plan.

Figure 1
Clean Communities Plan Structure and Measures

The centerpiece of the Clean Communities Plan is the Community Exposure Reduction Measures which includes a pilot study for two communities to develop Community Exposure Reduction Plans and development of a template so other communities can develop a Community Exposure Reduction Plan. Implementation of Community

Exposure Reduction Measures relies on many of the other measures in the 2010 Clean Communities Plan reach the goal of creating "clean communities."

Public Process
A Working Group was formed in order to ensure that public input and comments were considered in the early development of the Clean Communities Plan. Members included representatives from communities, environmentalists, industry, the AQMD, and other government agencies. The CCP Working Group met throughout the process of developing and reviewing the plan. In addition to Working Group meetings, many other briefings and meetings were held during development of the CCP. The AQMD staff briefed the Stationary Source Committee three times, the Environmental Justice Advisory Group three times, and the Local Government and Small Business Assistance Advisory Group twice. Outside meetings included presentations to the California Supply Chain Jobs Alliance, Los Angeles County Chamber of Commerce, a San Bernardino Town Hall Meeting, and several meetings attended by staff from the AQMD Legislative and Public Affairs office.

The Draft 2010 Clean Communities Plan was released for public review and comment at the April 2, 2010 Board meeting. The draft document was revised based comments from the Working Group and the public and presented in a Public Workshop on September 28, 2010. Comments received after the Public Workshop have been addressed in the final version of the 2010 CCP.

Legal Mandates
The Clean Communities Plan is a planning document for air toxics and it is not required by state or federal law. The Clean Communities Plan will not be submitted as part of the State Implementation Plan and it will not be a legally binding document. Development and implementation of specific measures may require partnership with other agencies, the regulated community, environmental groups, and the public. If rules are developed, each rule will go through the appropriate public review, socioeconomic assessment, and CEQA process. Applicable documents will be prepared at the time individual measures are developed. On this basis, the plan is exempt from the California Environmental Quality Act requirements. A copy of the Notice of Exemption is attached to this Board letter.

Recommendation
The AQMD staff recommends that the 2010 Clean Communities Plan be approved as a planning document for possible future actions.

Attachments
A. Resolution
B. 2010 Clean Communities Plan
C. Notice of Exemption

ATTACHMENT A

RESOLUTION NO. 10-_____

A Resolution of the AQMD Governing Board Approving the 2010 Clean Communities Plan.

WHEREAS, the 2010 Clean Communities Plan is an update to the March 2000 Final Draft Air Toxics Control Plan and the 2004 Addendum, fulfills the AQMD Governing Board direction set forth in the September 2003 Environmental Justice Workplan; and

WHEREAS, the 2010 Clean Communities Plan is not required by any federal or state regulation, or the AQMD's Air Quality Management Plan (AQMP); and

WHEREAS, the 2010 Clean Communities Plan will not be submitted for inclusion in the State Implementation Plan (SIP); and

WHEREAS, the 2010 Clean Communities Plan is a planning document designed to assist future regulatory programs and rule development efforts to reduce exposure to air toxics; and

WHEREAS, although the results of MATES III show regional reductions in health risk from exposure to toxic air contaminants, health risk is still elevated and some communities are disproportionately impacted; and

WHEREAS, the 2010 Clean Communities Plan builds on the existing air toxic programs, with greater emphasis on cumulative impacts; and

WHEREAS, the objective of the 2010 Clean Communities Plan is to reduce the exposure of air toxics and air-related nuisances in communities in the district; and

WHEREAS, the AQMD staff is aware that small business representatives have expressed concern that the "neighborhood walks" that are part of the pilot for Community Exposure Reduction Plans could negatively impact local businesses; and

NOW, THEREFORE BE IT RESOLVED, that the AQMD Governing Board directs staff to periodically report to the Stationary Source

Committee on the implementation Clean Communities Plan, including the status of development of methodologies to quantify cumulative impacts at the community level and to provide any issues raised by local businesses during neighborhood walks when implementing Community-01; and

NOW, THEREFORE BE IT RESOLVED, that the AQMD Governing Board directs staff to continue working toward development of methodologies to quantify cumulative impacts at the community level; and

NOW, THEREFORE BE IT RESOLVED, that the AQMD Governing Board approves the Clean Communities Plan dated November 2010; and

NOW, THEREFORE BE IT RESOLVED, that the AQMD Governing Board directs staff to update/revise, as appropriate, the Clean Communities Plan. Revisions or updates should reflect improvements in scientific tools for monitoring, emissions inventory, and modeling projections, when available.

DATE: _____

_____

CLERK OF THE BOARDS

2010 Clean Communities Plan

(Formerly the Air Toxics Control Plan)

Working Together to Build Cleaner Communities

November 2010

AQMD

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD

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EXECUTIVE OFFICER:
BARRY R. WALLERSTEIN, D.Env.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Deputy Executive Officer
Planning, Rule Development, and Area Sources
Elaine Chang, DrPH

Assistant Deputy Executive Officer
Planning, Rule Development, and Area Sources
Laki Tisopulos, Ph.D., P.E.

Planning and Rules Manager
Planning, Rule Development, and Area Sources
Susan Nakamura

Authors: Cheryl Marshall – Program Supervisor
Eugene Kang – Air Quality Specialist
Tim Kobata – Air Quality Specialist

Preface

The 2010 Clean Communities Plan (CCP, formerly the Air Toxics Control Plan) is the result of a collaborative effort by SCAQMD staff with input from community representatives, business representatives, local government officials, and partnering government agencies. The CCP builds from the existing traditional regulatory approaches and incorporates new implementation approaches to address cumulative air toxics exposure in communities and neighborhoods throughout the South Coast Air Quality Management District (District).

The 2010 CCP utilizes a variety of implementation approaches and tools to address exposure to air toxics at the community level and develop solutions. The CCP is an “action” plan which identifies activities for the public, community representatives, agencies, elected officials, and the regulated industries to help identify air quality issues in their neighborhoods and work together to develop solutions.

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ACRONYMS

AB – Assembly Bill
AQMD – South Coast Air Quality Management District
AQMP – Air Quality Management Plan
ATCM – Air Toxics Control Measure
ATCP – Air Toxics Control Plan
BACT – Best Available Control Technology
CAA – Clean Air Act
Cal-EMA – California Emergency Management Agency
Cal-EPA – California Environmental Protection Agency
CARB – California Air Resources Board
CARE – US-EPA's Community Action for a Renewed Environment Program
CCP – Clean Communities Plan
CERP – Community Exposure Reduction Plan
CEQA – California Environmental Quality Act
CO – Carbon Monoxide
CUPA – Certified Unified Program Agencies
DOT – Department of Transportation
DPM – Diesel Particulate Matter from Internal Combustion Engines
DRRP – CARB Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles
DTSC – Department of Toxic Substances Control
EJ – Environmental Justice
HAP – Hazardous Air Pollutant
HRA – Health Risk Assessment
IGR – Intergovernmental Review
MATES – Multiple Air Toxics Exposure Study
NAAQS – National Ambient Air Quality Standard
NESHAPS – National Emission Standards for Hazardous Air Pollutants
NOx – Oxides of Nitrogen
OSHA – Occupational Safety and Health Administration
PM – Particulate Matter
SIP – State Implementation Plan
T-BACT – Toxic Best Available Control Technology
TAC – Toxic Air Contaminant
US-EPA – United States Environmental Protection Agency
VOC – Volatile Organic Compound

Executive Summary

Introduction

The 2010 Clean Communities Plan (CCP) is a planning document that outlines the overall control strategy for the South Coast Air Quality Management District's (AQMD's) air toxics control program. The plan is the continuing effort and update to both the Air Toxics Control Plan (ATCP) developed in 2000 and the subsequent Addendum in 2004. The 2010 CCP is comprised of traditional source-specific control measures and measures to address cumulative toxic impacts that affect neighborhoods and communities within the South Coast Air Quality Management District (District).

Public Process

A CCP working group was formed in the second half of 2008 in order to ensure that public input and comments were considered in the early development of the new measures. Members included representatives from communities, environmentalists, industry, the AQMD, and other government agencies. On April 2, 2010 the AQMD staff released the first draft of the CCP for public review. The AQMD staff reconvened the CCP working group to further discuss and receive additional input on the Draft CCP. The Revised Draft Clean Communities Plan was released at a Public Workshop held on September 28, 2010. Additional comments received after the Public Workshop were incorporated in the 2010 Clean Communities Plan to be presented to the Governing Board for approval in November 2010. As with previous versions of the ATCP, staff is seeking the Board's approval of the plan as a planning document for possible future actions. As a result, the Board's action is not binding and does not commit the AQMD to a definitive course of action.

Regulatory Progress

Federal, state, and AQMD rules, regulations, and programs have led to significant progress in reducing toxic air contaminant exposure. The AQMD's air toxics regulatory program regulates over 10,000 sources in the region such as, but not limited to, hexavalent chromium plating and finishing, hexavalent chromium spraying operations, perchloroethylene dry cleaners, benzene emissions from gasoline dispensing, and diesel-fueled stationary engines. In addition, the AQMD's regulatory program requires that every new and modified permitted source meet specific toxic requirements ensuring that these sources meet stringent air toxics requirements. During the past decade a number of local, state, and federal regulations have addressed diesel particulate emissions from idling trucks and school buses, fleet rules, locomotives, cargo handling equipment, heavy duty trucks, and transport refrigeration units to name a few.

Current District Average Cancer Risk

CARB and AQMD source-specific rules have markedly reduced exposure to toxic air contaminants. The results of the Multiple Air Toxics Exposure Studies (MATES II and MATES III) air quality monitoring have shown some regional reductions in exposure to key toxic air contaminants (TACs) and reduced cancer risk throughout the District. During the MATES III study period, the overall regional population

weighted estimated cancer risk from air toxics was approximately 853 in a million as compared to 931 in a million in MATES II. The greatest contributor to estimated cancer risk in both MATES II and III is diesel exhaust. In MATES III diesel exhaust accounts for 83% of the total estimated cancer risk from air toxics. MATES III is based on 2005 emissions inventory data and 2004-2006 monitoring data.

Many of the recently adopted diesel rules and regulations have implementation dates after 2005 and will not be fully implemented until 2010 and beyond. As a result, the reductions from diesel regulations are not realized in MATES III. Exposure reductions from implementation of current diesel regulations with future effective dates will occur as rules are fully implemented.

Future Population District Average Cancer Risk

The AQMD staff used projected toxic emissions estimates based on adopted rules and regulations with future effective compliance dates and short-term measures from the 2007 Air Quality Management Plan (AQMP). Based on these emissions projections, continued implementation of existing rules and regulations, and 2007 AQMP/State Implementation Plan (SIP) short-term measures, overall regional estimated risk from air toxics is expected to be reduced by 75 percent by 2023. Regionally, the 2023 population weighted estimated cancer risk from air toxics is expected to be approximately 210 in a million. Although many areas will have substantial reductions, the residual or remaining risk in some communities will be well above 200 in a million and of concern. Risk levels in between 2010 and 2023 are, as expected, much higher.

Chapter 1 of the September 2008 "Final Report, Multiple Air Toxics Exposure Study in the South Coast Air Basin, Mates-III, South Coast Air Quality Management District" provides the following discussion of perspectives of risk on pages 1-3 and 1-4:

> It may be useful to compare risks estimated from assessments of environmental exposures to the overall rates of health effects in the general population. For example, it is often estimated that the incidence of cancer over a lifetime in the U.S. population is about 1 in 4, to 1 in 3. This translates into a risk of about 300,000 in a million. It has been also estimated that the bulk of cancers from known risk factors are associated with lifestyle factors such as tobacco use, diet, and being overweight. One such study, the Harvard Report on Cancer Prevention, estimated that of cancers associated with known risk factors, about 30% were related to tobacco, about 30% were related to diet and obesity, and about 2% were associated with environmental pollution related exposures.

Limitations of Data Results

Because MATES III is based on regional modeling and shows average risk over a fairly large area, some neighborhoods and communities with elevated risk may not be identified. In addition, areas may show elevated health risk that is due to pollution transport from nearby areas. However, impacts from toxic emissions are generally localized and most heavily affect nearby receptors. Therefore, the 2010 CCP will go beyond the MATES III findings and take a closer look at toxic exposure at the community level.

Need for the Clean Communities Plan

AQMD rules, along with state and federal rules and regulations establish the foundation of the AQMD's air toxics regulatory program. These rules and regulations reduce air toxics from

thousands of sources throughout the District. However, even with an existing broad-based air toxics regulatory program, there are areas throughout the District where there are clusters of toxic emitting sources that, when combined together, can have substantial cumulative effects on neighborhoods. In addition, although the results of MATES II and MATES III have shown regional reductions in exposure to key TACs and reduced cancer risk throughout the District, future projections of MATES III show unacceptable cancer risk levels regionally. Local health risks in some communities are expected to be even more concentrated and elevated. Therefore, in addition to the traditional District-wide approach to air toxic programs, the CCP will include measures to address localized effects and cumulative impacts in communities and neighborhoods.

Clean Communities Plan Approach

The 2010 CCP builds upon the 2000 ATCP and 2004 Addendum to the ATCP. The CCP will continue to utilize traditional source-specific rules to address air toxics, but put greater emphasis on cumulative effects and neighborhood and community air-related issues.

The solution for cumulative air quality impacts is multi-faceted. The complexity is that the issues and solutions are community-specific. The CCP utilizes a variety of implementation approaches and tools to address exposure to air toxics at the community level and develop solutions. During the past several years, AQMD has realized the need for further action at the community level and has worked with highly impacted communities through Town Hall meetings, public outreach, and its compliance program. The CCP is designed as an "action" plan that calls for action by the public, community representatives, agencies, elected officials, and the regulated industries to help identify air quality issues in their neighborhoods and work together to develop solutions.

The CCP includes a pilot measure that will work with two communities to develop a Community Exposure Reduction Plan (CERP) that is tailored to the issues within those specific communities. Solutions to individual issues identified in each community will vary. Lessons learned from the CERP development will be formulated into a guidance document for other communities to follow when developing their own CERP. To address cumulative impacts throughout the District, the CCP provides a variety of implementation approaches to address existing high emitting toxic sources, encourage informed land use decisions for future projects, education and outreach programs for the public and agencies, and enhanced compliance programs.

Document Format

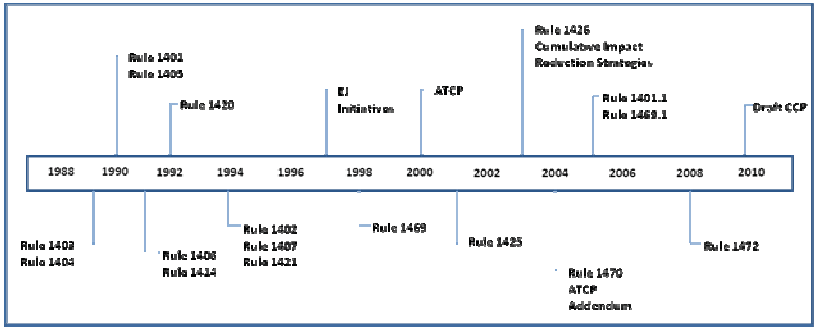
Chapter 1 of this document provides background information on toxic air contaminants (TACs) and summarizes federal, state, and local regulatory efforts to reduce air toxics exposure, including the 2000 Air Toxics Control Plan and its 2004 Addendum. Chapter 2 describes the progress made in reducing exposure to TACs in the District. A discussion on AQMD's Multiple Air Toxics Exposure Studies has been included with key findings relating to regional risk posed by various TACs within the District. Also included are historical, current, and projected air toxic levels, based on data and analyses of AQMD toxic inventories, AQMP and ATCP-related emission reductions, and risk models. Chapter 3 describes the measures and implementation approaches for the CCP and how they are integrated. It also details the specific measures of the CCP. Chapter 4 includes the implementation schedule for each of the measures presented in Chapter 3.

Chapter 1: Background

Introduction

The AQMD's air toxics program began in 1990 with the adoption of Rule 1401 – New Source Review of Toxic Air Contaminants. In 1994, Rule 1402 - Control of Toxic Air Contaminants from Existing Sources, which incorporates the state AB2588 Toxics "Hot Spots" Program, was adopted. During the past two decades, much of the focus has been on regulating individual source categories that emit a specific toxic air contaminant. The AQMD's air toxics program currently has 15 source-specific rules that target toxic emission reductions. In addition, criteria pollutant source-specific rules such as some coating and solvent rules also achieve concurrent air toxics emission reductions. Figure 1-1 shows the development of AQMD's air toxics program.

Figure 1-1
Development Timeline of AQMD's Air Toxics Program



During the past decade, the AQMD's Air Toxics Control Plan and Cumulative Impact Reduction Strategies have been strong influences in the AQMD's air toxics regulatory program as they provided the structure for the AQMD's current air toxics program. The following provides an overview of these two plans and the AQMD's regulatory program.

2000 Air Toxics Control Plan (ATCP)

In March 2000, the AQMD's Governing Board approved the Air Toxics Control Plan (ATCP) which was the first comprehensive plan in the nation to guide future toxic rulemaking and programs. The ATCP was developed to lay out the AQMD's air toxics control program which built upon existing federal, state, and local toxic control programs as well as co-benefits from implementation of State Implementation Plan (SIP) measures. The concept for the plan was an outgrowth of the Environmental Justice principles and the Environmental Justice Initiatives adopted by the Governing Board in October 1997. Monitoring studies and air toxics regulations that were created from these initiatives emphasized the need for a more systematic approach to reducing toxic air contaminants. The intent of the plan was to reduce exposure to air toxics in an equitable and cost-effective manner that promotes clean, healthful air in the District. The plan proposed control strategies to reduce toxic air contaminants in the District implemented between years 2000 and 2010 through cooperative efforts of the AQMD, local governments, CARB and US-EPA.

2003 Cumulative Impact Reduction Strategies

The AQMD's Governing Board approved a cumulative impacts reduction strategy in September 2003. The resulting 25 cumulative impacts strategies were a key element of the 2004 Addendum to the ATCP. The strategies included rules, policies, funding, education, and cooperation with other agencies. Some of the key AQMD accomplishments related to the cumulative impacts reduction strategies were:

- Rule 1401.1 which set more stringent health risk requirements for new and relocated facilities near schools
- Rule 1470 which established diesel PM emission limits and other requirements for diesel-fueled engines
- Rule 1469.1 which regulated chrome spraying operations
- Rule 410 which addresses odors from transfer stations and material recovery facilities
- Intergovernmental Review comment letters for CEQA documents
- AQMD's land use guidance document
- Additional protection in toxics rules for sensitive receptors, such as more stringent requirements for chrome plating operations and diesel engines located near schools

2004 Addendum to the ATCP

The Addendum to the ATCP (Addendum) was published by the AQMD in 2004 and served as a status report regarding implementation of the various mobile and stationary source strategies in the 2000 ATCP and introduced new measures to further address air toxics. The main elements of the Addendum were to:

- address the progress made in implementation of the 2000 ATCP control strategies;
- provide a historical perspective of air toxic emissions and current air toxic levels;
- incorporate the Cumulative Impact Reduction Strategies approved by the Board in 2003 and additional measures identified in the 2003 AQMP;
- project future air toxic levels to the extent feasible; and
- summarize future efforts to develop the next ATCP.

Significant progress has been made in implementing most of the AQMD strategies from the 2000 ATCP and the 2004 Addendum. The California Air Resources Board (CARB) has also made notable progress in mobile source measures via its Diesel Risk Reduction Plan, especially for goods movement-related sources, while the US-EPA continues to implement their air toxic programs applicable to stationary sources as discussed below.

Federal Toxics Regulatory Programs

Under Section 112 of the Clean Air Act (CAA), US-EPA is required to regulate sources that emit one or more of the 187 federally listed hazardous air pollutants (HAPs)[1]. In order to implement the CAA, approximately 100 National Emission Standards for Hazardous Air Pollutants (NESHAPs) have been

[1] Hazardous air pollutant (HAP) is the term used in the Clean Air Act for air toxics which are pollutants that are known or suspected of causing cancer or other serious health effects. The federal HAPs are listed on the US-EPA website at http://www.epa.gov/ttn/atw/orig189.html. The State of California adopted the original list of 189 HAPs from the Clean Air Act (Title 17 CCR 93000-93001) and refers to them as toxic air contaminants (TACs). In addition to the original list, the state identifies additional TACs using the procedure in H&S Code Sections 39660-39664.

promulgated by US-EPA for major sources (sources emitting greater than 10 tons per year of a single HAP or greater than 25 tons per year of multiple HAPs). The AQMD can either directly implement NESHAPs or adopt rules that contain requirements at least as stringent as the NESHAP requirements. However, since NESHAPs often apply to sources in the District that are controlled, many of the sources that would have been subject to federal requirements already comply or are exempt.

In addition to the major source NESHAPs, US-EPA has also controlled HAPs from urban areas by developing Area Source NESHAPs under their Urban Air Toxics Strategy. US-EPA defines an area source as a source that emits less than 10 tons annually of any single hazardous air pollutant or less than 25 tons annually of a combination of hazardous air pollutants. The Clean Air Act (CAA) requires the US-EPA to identify a list of at least 30 air toxics that pose the greatest potential health threat in urban areas. US-EPA is further required to identify and establish a list of area source categories that represent 90 percent of the emissions of the 30 urban air toxics associated with area sources, for which Area Source NESHAPs are to be developed under the CAA. US-EPA has identified a total of 70 area source categories with regulations promulgated for more than 30 categories so far. Appendix A lists key NESHAPs recently adopted or amended by US-EPA.

The federal toxics program recognizes diesel engine exhaust as a health hazard, however, diesel particulate matter itself is not one of their listed toxic air contaminants. Rather, each toxic compound in the speciated list of compounds in exhaust is considered separately. Although there are no specific NESHAP regulations for diesel PM, diesel particulate emission reductions are realized through federal regulations including diesel fuel standards and emission standards for stationary, marine, and locomotive engines; and idling controls for locomotives.

State Air Toxics Regulatory Program

The California air toxics program was based on the CAA and the original federal list of hazardous air pollutants. The state program was established in 1983 under the Toxic Air Contaminant Identification and Control Act, Assembly Bill (AB) 1807, Tanner. Under the state program, toxic air contaminants are identified through a two-step process of risk identification and risk management. This two-step process was designed to protect residents from the health effects of toxic substances in the air.

As part of its risk management efforts, CARB has passed state Air Toxic Control Measures (ATCMs) to address air toxics from mobile and stationary sources. Some key ATCMs for stationary sources include reductions of benzene emissions from service stations, hexavalent chromium emissions from chrome plating, perchloroethylene emissions from dry cleaning, ethylene oxide emissions from sterilizers, and multiple air toxics from the automotive painting and repair industries.

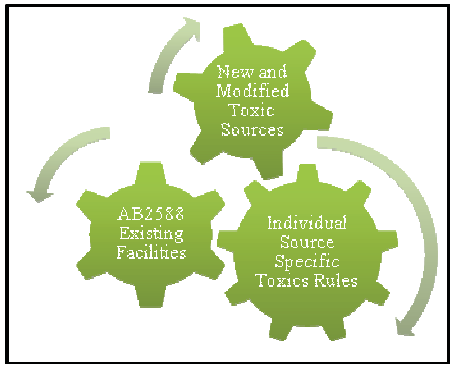
Many of CARB's recent ATCMs are part of the CARB Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (DRRP) which was adopted in September 2000 (http://www.arb.ca.gov/diesel/documents/rrpapp.htm) with the goal of reducing diesel particulate matter emissions from compression ignition engines and associated health risk by 75

percent by 2010 and 85 percent by 2020. The DRRP includes strategies to reduce emissions from new and existing engines through the use of ultra-low sulfur diesel fuel, add-on controls, and engine replacement. In addition to stationary source engines, the plan addresses diesel PM emissions from mobile sources such as trucks, buses, construction equipment, locomotives, and ships. Appendix A lists key ATCMs recently adopted or amended by CARB.

AQMD's Toxics Regulatory Program

The AQMD's current toxics regulatory program is composed of three major components: rules that address new and modified toxic sources, AB2588 facilities (existing toxic sources), and source-specific toxic rules which can be an equipment or industry category. Figure 1-2 provides an overview of these three components of the AQMD's toxics regulatory program.

Figure 1-2: AQMD's Existing Regulatory Program



New and Modified Toxic Emitting Sources

The AQMD has two rules addressing new and modified sources. Rule 1401 sets health risk thresholds for air toxic emissions from new, modified, and relocated sources. The rule lists nearly 300 TACs that are evaluated during the AQMD's permitting process for new, modified or relocated sources. During the past decade, more than 80 compounds have been added or had risk values amended. The addition of diesel particulate matter from diesel-fueled internal combustion engines as a TAC in March 2008 was the most significant of recent amendments to the rule.

Rule 1401.1 sets risk thresholds for new and relocated facilities near schools. The requirements are more stringent than those for other air toxics rules in order to provide additional protection to school children.

Existing Toxic Emitting Facilities (AB2588)

Rule 1402 sets health risk thresholds for existing facilities. Depending upon facility-wide air toxic emissions, the program requires emissions inventories, health risk assessments (HRAs), public notices, public meetings, and/or risk reduction. The AB2588 Toxics "Hot Spots" Program is implemented through Rule 1402. There are currently about 600 facilities in the AQMD's AB2588 program. Since 1992 when the state Health and Safety Code incorporated a risk reduction requirement in the program, the AQMD has reviewed and approved over 300 HRAs, 44 facilities were required to do a public notice, and 21 facilities were subject to risk reduction. Currently, over 96 percent of the facilities in the program have cancer risks below ten in a million and over 98 percent have acute and chronic hazard indices of less than one.

Source-Specific Rules and Regulations

The 2000 Air Toxics Control Plan and 2003 Cumulative Impacts Strategies were two documents that influenced the

AQMD's rulemaking efforts during the past decade. Source-specific rules address either a source or industry category.

Under the AQMD's toxic regulatory program there are 15 source-specific rules that target toxic emission reductions that regulate over 10,000 sources such as metal finishing, spraying operations, dry cleaners, film cleaning, gasoline dispensing, and diesel-fueled stationary engines to name a few. In addition, other source-specific rules targeting criteria pollutant reductions also reduce toxic emissions, such as Rule 461 which reduces benzene emissions from gasoline dispensing and Rule 1124 which reduces perchloroethylene, trichloroethylene, and methylene chloride emissions from aerospace operations. Figure 1-3 provides a summary of the source-specific rule and targeted toxic air contaminant.

Figure 1-3
AQMD's Source-Specific Toxics Rules

In addition to the AQMD's stationary source-specific rules, the AQMD's toxics regulatory program includes a series of rules to address diesel emissions from certain types of mobile source fleets in the District.

Other AQMD Programs to Address Toxics

Exposure to air toxics emissions is also addressed through other AQMD programs such as environmental justice, projects that undergo California Environmental Quality Act (CEQA) review, AB2766 subvention funding projects, and Carl Moyer. These programs are summarized below.

AQMD's CEQA Intergovernmental Review Program

The AQMD staff, through its Intergovernmental Review (IGR) provides comments to lead agencies on air quality analyses and mitigation measures in CEQA documents. The following are some key programs and tools that have been developed more recently to strengthen air quality analyses, specifically as they relate to exposure of mobile source air toxics:

- AQMD's Mobile Source Committee approved the "Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions" (August 2002). This document provides guidance for analyzing cancer risks from diesel particulate matter from truck idling and movement (e.g., truck stops, warehouse and distribution centers, or transit centers), ship hotelling at ports, and train idling.
- Cal-EPA and CARB's "Air Quality and Land Use Handbook: A Community Health Perspective" (April 2005), provides recommended siting distances for incompatible land uses.
- Western Riverside Council of Governments Air Quality Task Force developed a policy document titled, "Good

Neighbor Guidelines for Siting New and/or Modified Warehouse/Distribution Facilities" (September 2005). This document provides guidance to local government on preventive measures to reduce neighborhood exposure to toxic air contaminants from warehousing facilities.

Environmental Justice (EJ)

Environmental justice has long been a focus of the AQMD. In 1990, the AQMD formed an Ethnic Community Advisory Group that was recently restructured as the Environmental Justice Advisory Group (EJAG). EJAG's mission is to advise and assist AQMD in protecting and improving public health in AQMD's most impacted communities through the reduction and prevention of air pollution.

In 1997 the Governing Board adopted four guiding principles and ten initiatives (http://www.aqmd.gov/ej/history.htm) to ensure environmental equity. In 1997 the Governing Board expanded the initiatives to include the "Children's Air Quality Agenda" focusing on the disproportionate impacts of poor air quality on children. Some key initiatives that have been implemented were the MATES II and MATES III studies; the Clean Fleet Rules, the Cumulative Impacts strategies; funding for lower emitting technologies under the Carl Moyer Program; the Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning; a guidance document on Air Quality Issues in School Site Selection; and the 2000 Air Toxics Control Plan and its 2004 Addendum. Key initiatives focusing on communities and residents include the Clean Air Congress; the Clean School Bus Program; Asthma and Air Quality Consortium; Brain and Lung Tumor and Air Pollution Foundation; air quality presentations to schools and community and civic groups; and Town Hall meetings.

Technological and scientific projects and programs have been a large part of the AQMD's EJ program since its inception. Over time, the EJ program's focus on public education, outreach, and opportunities for public participation have greatly increased. Public education materials and other resources for the public are available on the AQMD's website (www.AQMD.gov) and examples of ways the public can get involved can be found at http://www.aqmd.gov/ej/getting_involved.htm.

AB 2766 Subvention Funds

AB2766 subvention funds, money collected by the state as part of vehicle registration and passed through to the AQMD, is used to fund projects of local cities that reduce motor vehicle air pollutants. The Clean Fuels Program, funded by a surcharge on motor vehicle registrations in the AQMD, reduces TAC emissions through co-funding projects to develop and demonstrate low-emission clean fuels and advanced technologies, and to promote commercialization and deployment of promising or proven technologies in Southern California.

Carl Moyer Program

Another program that targets diesel emission reductions is the Carl Moyer program which provides grants for projects that achieve early or extra emission reductions beyond what is required by regulations. Examples of eligible projects include cleaner on-road, off-road, marine, locomotive, and stationary agricultural pump engines. Other endeavors of the AQMD's Technology Advancement Office help to reduce diesel PM emissions through co-funding research and demonstration projects of clean technologies, such as low-emitting locomotives.

Chapter 2: Progress to Date and Future Projections

Regulatory Progress

Results of the Multiple Air Toxics Exposure Studies (MATES) have helped to guide the AQMD's air toxics regulatory program. The 2000 ATCP identified a list of ten toxic air contaminants (TACs) based on the results of the second Multiple Air Toxics Exposure Study (MATES II) conducted in 1998 and 1999 that were primarily responsible for cancer risk in the AQMD. Of this list of ten, six TACs contributed to over 90 percent of the average risk in the District. These six TACs and their contribution to risk, based on the MATES II study, are as follows:

Table 2-1
Top Six MATES II Contributors to Cancer Risk

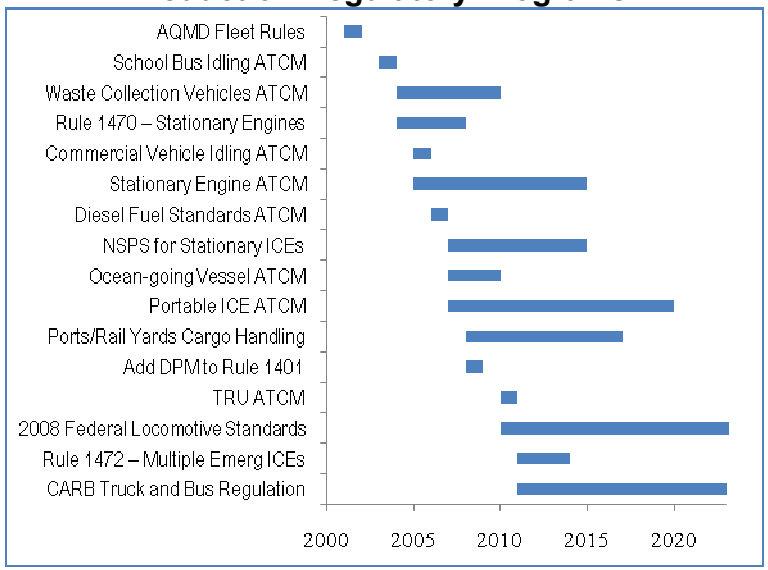
Toxic Air Contaminant	Risk Contribution (%)
Diesel particulate	72.0
1,3-butadiene	8.4
Benzene	6.5
Formaldehyde	2.0
Hexavalent chromium	1.8
Perchloroethylene	0.8

The above toxic air contaminants were the focus of many of the measures in the 2000 ATCP. The AQMD and CARB have aggressively adopted and amended regulations to reduce these TACs. The following provides an overview of the progress in adopting regulatory and other programs to address these six TACs during the past 10 years.

Diesel Particulate Matter

Significant regulatory progress has been made to reduce diesel particulate from stationary and mobile sources. Figure 2-1 provides a summary of regulatory programs that have been adopted since the 2000 ATCP to address diesel particulate emissions. Figure 2-1 shows the implementation start date and when the rule or regulation is at full implementation. Most rules and regulations have an initial implementation date after 2005 and will not be fully implemented until 2010 and beyond.

Figure 2-1
Implementation Timeline of Diesel PM Emission Reduction Regulatory Programs



The following summarizes key AQMD, state, and federal diesel regulatory programs that have been adopted during the last decade.

AQMD's Stationary Diesel-Fueled Engines
In April 2004 the AQMD's Governing Board adopted Rule 1470 which affects approximately 4,900 facilities with diesel-fueled engines and implements the state ATCM for stationary diesel-fueled engines. Rule 1470 establishes requirements for new and existing stationary diesel-fueled engines. Implementation of Rule 1470 is expected to reduce diesel PM emissions by 73 tons per year or more by 2020.

In March 2008 diesel PM from internal combustion engines was added to the list of TACs for Rules 1401 and 1402. At the same time, Rule 1472 was adopted to address facilities with multiple emergency diesel engines. In addition to these toxics rules, Rule 1110.2, which sets oxides of nitrogen (NOx), volatile organic compound (VOC), and carbon monoxide (CO) emission limits for gaseous- and liquid-fueled engines, was amended in 2008. Implementation of amended Rule 1110.2 essentially eliminates use of new stationary prime diesel engines due to the stringency of NOx emission limits.

AQMD's Clean Fleet Rules
AQMD's Clean Fleet Program has reduced diesel PM emissions from mobile sources through rules for street sweepers, public fleet vehicles, buses, refuse vehicles, school buses, and airport ground access vehicles. The fleet rules result in reductions of diesel PM emissions by requiring replacement of fleet vehicles with alternative-fueled vehicles.

CARB's Diesel Risk Reduction Plan
CARB's Diesel Risk Reduction Plan (DRRP) proposed the development of new emissions standards for new stationary and mobile diesel-fueled engines, retrofit requirements for in-use engines, and requirements for ultra low-sulfur content diesel fuel needed by the advanced diesel PM emission controls. Emission standards for new diesel-fueled engines take a phased-in approach to allow time for development of engine technology. Ultra low-sulfur fuel requirements were effective in 2006, allowing adequate time for fuel reformulation and for refineries to re-tool and produce the fuel in sufficient quantities. Add-on controls for existing engines require the use of ultra-low sulfur fuel, so implementation dates for these requirements were developed based on the availability of the fuel. In addition, the process for developing each new air toxics regulation is lengthy in order to ensure that requirements are feasible and cost effective and to allow full public participation.

Many ATCMs for diesel-fueled engines have been adopted by CARB as a result of the Diesel Risk Reduction Plan. Diesel PM emissions sources addressed by ATCMs so far include:

- Stationary Engines
- Portable Engines
- School Bus Idling
- Solid Waste Collection Vehicles
- Transport Refrigeration Units
- Commercial Motor Vehicle Idling
- Mobile Cargo Handling Equipment at Ports and Intermodal Rail Yards
- Ocean-going Vessels within California Waters

US-EPA's Diesel Emission Reductions
During the past 10 years, US-EPA has addressed diesel emissions through several regulations and programs. In addition to diesel fuel standards, US-EPA sets emission standards for on-road diesel fueled engines used in trucks and buses. US-EPA also promulgated emission standards for stationary diesel engines, including PM standards, in July 2006 (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines). More stringent NOx and PM emission standards for locomotives and marine engines were adopted in May 2008 (Control of Emissions of Air Pollution from Locomotive Engines and Marine Compression-Ignition Engines Less Than 30 Liters per Cylinder).

Summary of Regulatory Progress of AQMD Source – Specific Rules for Key TACs

Table 2-2 summarizes source-specific toxic rules that have been adopted or amended during the past 10 years, the number of affected sources, and emission reductions, if quantified. The AQMD's air toxics regulatory program is as or more stringent than state and federal air toxics programs. As such, many of the AQMD's rules incorporate requirements from state ATCMs and federal NESHAPs.

Hexavalent Chromium

Other key accomplishments have been with amendments to Rule 1469 which affects 130 chromium plating and chromic acid anodizing facilities. The 2003 amendments to Rule 1469 reduced hexavalent chromium emissions by 48 pounds per year. Rule 1469.1, a new rule for hexavalent chrome spraying operations, applies to 70 facilities and will reduce hexavalent chrome emissions by an estimated 85 percent.

Perchloroethylene from Dry Cleaning and Film Cleaning

In December 2002, the AQMD's Governing Board amended Rule 1421 which reduced perchloroethylene emissions from dry cleaners. Implementation of this rule affects approximately 2,100 dry cleaners throughout the District and is expected to result in approximately 850 tons of perchloroethylene emissions reduced by 2021. In addition, Rule 1425, adopted in 2001, affects 37 motion picture film cleaning facilities and reduced perchloroethylene emissions by 39.5 tons per year from film cleaning operations.

Benzene from Gasoline Dispensing and Reformulated Gasoline

Amendments to Rule 461 which require vapor recovery devices on gasoline dispensing nozzles are expected to reduce benzene emissions by about 35.9 tons per year affecting over 5,500 facilities. Benzene emissions are primarily from mobile sources and have been reduced by reformulated gasoline and vehicle turnover.

1,3-Butadiene and Formaldehyde

Formaldehyde and 1,3-butadiene emissions are products of fuel combustion. They are primarily attributable to mobile sources. CARB reformulated gasoline requirements and mobile source regulations addressed these TACs. Vehicle turnover has also reduced these TACs.

Other TACs

Source-specific rules for criteria pollutant reductions have also reduced air toxic emissions by eliminating their use in coatings and solvents. For example, a 2001 amendment to Rule 1124 which affects 237 aerospace facilities decreased emissions of methylene chloride, perchloroethylene, trichloroethylene, and

hexavalent chromium. Rules 1168 and 1171 also prohibit the use of methylene chloride and additionally prohibit the use of trichloroethylene in adhesive and sealant operations, and perchloroethylene in adhesive, sealant, and solvent cleaning operations. Rule 1426, a rule for metal finishing, reduces emissions of nickel and other toxic metals through improved housekeeping and recordkeeping requirements.

Table 2-2 – AQMD Air Toxics Control Regulations – Stationary Sources

Rule	Topic	Key Adoption / Amendment Dates	TAC	Affected Facilities	Estimated Reductions
1421	Dry Cleaning Operations*	12/6/2002 (amended)	Perchloroethylene	2100	849 tons total by 2021
1425	Motion Picture Film Labs	3/16/2001 (adopted)	Perchloroethylene	55	39.5 tons/yr (including NESHAP reductions)
1426	Metal Finishing	5/2/2003 (adopted)	Nickel, Cadmium, Lead, Copper, Chromic Acid	268	Not quantified
1469	Hexavalent Chromium Emissions from Chrome Plating Operations**	5/2/2003 (amended) 12/5/2008 (amended)	Hexavalent Chromium Hexavalent Chromium	~130	48 lbs/yr 0.87 lbs/yr
1469.1	Hexavalent Chromium Emissions from Spraying Operations	3/4/2005 (adopted)	Hexavalent Chromium	70	Baseline reduction of 85% (total emissions not quantified)
1470	Stationary Diesel-Fueled Engines***	4/2/2004 (adopted)	Diesel PM	4900	73 tons/yr or more by 2020
1472	Multiple Stationary Emergency Standby Diesel-Fueled IC Engines	3/7/2008 (adopted)	Diesel PM	~150	Not quantified
461	Gasoline Transfer and Dispensing	4/21/2000 (amended) 6/3/2005 (amended)	Benzene	~5500	35.9 tons/yr (benzene) 0.007 ton/yr (benzene)
1122	Degreasing Operations	5/9/2009 (amended)	Perchloroethylene, 1,1,1-Trichloroethane Trichloroethylene Methylene Chloride	251	295.7 tons/yr
1124	Aerospace Operations	9/21/2001 (amended)	Perchloroethylene Hexavalent Chromium Trichloroethylene Methylene Chloride	237	Facility's toxicity-weighted VOC and particulate emissions by 90 and 99 percent when Rule 1402 levels are exceeded
1156	Cement Manufacturing Facilities	3/6/2009 (amended)	Hexavalent Chromium	2	32 lbs/yr of total PM (hexavalent chromium not quantified)

*Implements ATCM for Emissions of Perchloroethylene Emissions from Dry Cleaning Systems, and the NESHAPS for Perchloroethylene Dry Cleaning Facilities
**Implements Hexavalent ATCM for Decorative and Hard Chrome Plating and Chromic Acid Anodizing Facilities
***Implements ATCM for Stationary Compression Ignition Engine

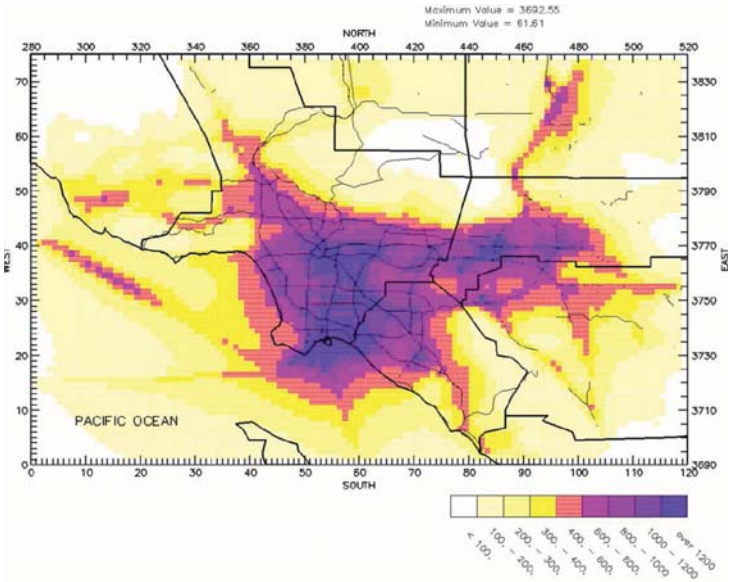
Current District Average Cancer Risk

In March 2006, the AQMD staff completed the Multiple Air Toxics Exposure Study III (MATES III)[2], a two-year toxic air contaminant monitoring and evaluation study conducted in the District. During the MATES III study period, the overall District estimated cancer risk from air toxics based on the fixed monitoring site data was approximately 1,200 per million as compared to 1,400 per million in MATES II. The overall District population weighted estimated cancer risk from air toxics was approximately 853 in a million as compared to 931 in a million in MATES II. The greatest contributor to cancer risk was diesel exhaust, accounting for an estimated 83 percent of the total.

MATES III is based on 2005 emissions inventory data and 2004-2006 monitoring data. Many of the recently adopted diesel rules and regulations have implementation dates after 2005 and will not be fully implemented until 2010 and beyond. As a result, the reductions from diesel regulations are not realized in MATES III. Exposure reductions from implementation of current diesel regulations with future effective dates will occur as rules are fully implemented.

Modeling analysis shows the highest estimated cancer risks from air toxics surrounds the port areas, with the highest grid cell risk of about 3,700 in a million. Following the ports, the next highest estimated risk is in the Central Los Angeles area extending southeast following the Interstate 5 Corridor. The highest grid cell cancer risk in a residential area is in Long Beach along the coast just northeast of the port, with about 2,900 in a million risk due to significant nearby diesel sources such as ships, trains, and trucks. Modeling analysis also showed pronounced exposure along freeways and near intermodal facilities. Figure 2-2 shows the MATES III modeled risk from all sources.

Figure 2-2
MATES III Modeled Risk from All Sources



As shown in Table 2-3 below, based on cancer potency weighting of the emissions inventory, the primary contributors to estimated cancer risk from air toxics were diesel particulate, benzene, 1,3 butadiene, hexavalent chromium, and formaldehyde. Other TACs contributed to less than one percent of the cancer risk.

[2] Final Report, Multiple Air Toxics Exposure Study in the South Coast Air Basin, Mates-III, South Coast Air Quality Management District, September 2008.

Table 2-3
2005 Risk from Simulated
Individual Toxic Air Contaminants

Toxic Compound	Cumulative Risk (per million)	Percent Contribution
Diesel	703.76	82.5
Benzene	44.53	5.2
1,3 Butadiene	30.45	3.6
Hexavalent Chromium	23.41	2.7
Primary Formaldehyde	11.78	1.4
Sec Formaldehyde	9.61	1.1

On-road and off-road mobile sources contribute nearly 93 percent of the potency weighted carcinogenic risks and stationary sources contribute about 7 percent. Carcinogenic emissions from on-road, point, and area source categories decreased by 12 percent, 66 percent, and 42 percent, respectively, and off-road carcinogenic emissions are essentially unchanged compared to MATES II.

Ambient levels of most substances measured were lower during the period of the MATES III study compared to that of the MATES II study of 1998-99, reflecting the success of various control strategies to reduce exposure to air toxics. Diesel PM emissions decreased by an estimated 2.5 percent from MATES II to MATES III, largely due to state and AQMD regulation of stationary diesel-fueled engines. Hexavalent chromium emissions were reduced by approximately 13 percent, largely due to amendments to the AQMD's chrome plating rule and the new rule for chrome spraying operations. A 50 percent reduction in benzene emissions and a 73 percent reduction in 1,3 butadiene emissions were seen and are attributed primarily to mobile source emission reductions associated with vehicle turnover and the use of reformulated gasoline. Perchloroethylene emissions have decreased by 78 percent, primarily because of 2002 amendments to the AQMD's perchloroethylene dry cleaning rule. Additional future perchloroethylene reductions are anticipated as Rule 1421 is fully implemented.

It should be noted that there are uncertainties in estimating risk. These uncertainties, as they relate to MATES III, are discussed in the Executive Summary (page ES-6) and in Chapter 1 of the September 2008 "Final Report, Multiple Air Toxics Exposure Study in the South Coast Air Basin, Mates-III, South Coast Air Quality Management District." The following is from pages ES-6 and ES-7 of the Executive Summary of MATES III:

> There are also uncertainties in the risk potency values used to estimate lifetime risk of cancer. This study used the unit risks for cancer potency established by OEHHA and the annual average concentration measured or modeled to calculate risk. This methodology has long been used to estimate the relative risks from exposure to air toxics in California and is useful as a yardstick to compare potential risks from varied sources and emissions and to assess any changes in risks over time that may be associated with changing air quality.
>
> The estimates of health risks are based on the state of current knowledge, and the process has undergone extensive scientific and public review. However, there is uncertainty associated with the processes of risk assessment. This uncertainty stems from the lack of

data in many areas necessitating the use of assumptions. The assumptions are consistent with current scientific knowledge, but are often designed to be conservative and on the side of health protection in order to avoid underestimation of public health risks.

As noted in the OEHHA risk assessment guidelines, sources of uncertainty, which may either overestimate or underestimate risk, include: (1) extrapolation of toxicity data in animals to humans, (2) uncertainty in the estimation of emissions, (3) uncertainty in the air dispersion models, and (4) uncertainty in the exposure estimates. Uncertainty may be defined as what is not known and may be reduced with further scientific studies. In addition to uncertainty, there is a natural range or variability in the human population in such properties as height, weight, and susceptibility to chemical toxicants.

Thus, the risk estimates should not be interpreted as actual rates of disease in the exposed population, but rather as estimates of potential risk, based on current knowledge and a number of assumptions. However, a consistent approach to risk assessment is useful to compare different sources and different substances to prioritize public health concerns.

Limitations of Data Results

MATES III uses regional air quality modeling of emissions inventories and monitoring data to calculate cancer risk. Under the MATES approach, toxic emissions are averaged over a 2 kilometer (km) by 2 kilometer grid. This approach provides a regional perspective of generally where there are elevated toxic emissions and risk throughout the District. This approach, however, does not capture clusters of emission sources concentrated within a small section of the 2 km by 2 km grid since these emissions will be averaged over the entire grid. This methodology may not adequately characterize exposure at a community level.

Because MATES III is based on regional modeling and shows average risk over a fairly large area, some neighborhoods and communities with elevated risk may not be identified. In addition, areas may show elevated health risk that is due to pollution transport from nearby areas. However, impacts from toxic emissions are generally localized and most heavily affect nearby receptors. Therefore, the 2010 CCP will go beyond the MATES III findings and take a closer look at toxic exposure at the community level. While conventional regulatory programs will continue to further reduce the overall community exposure, more needs to be done to address neighborhoods and communities which are more heavily impacted due to their proximity to multiple toxic sources.

Future Toxic Emission Projections

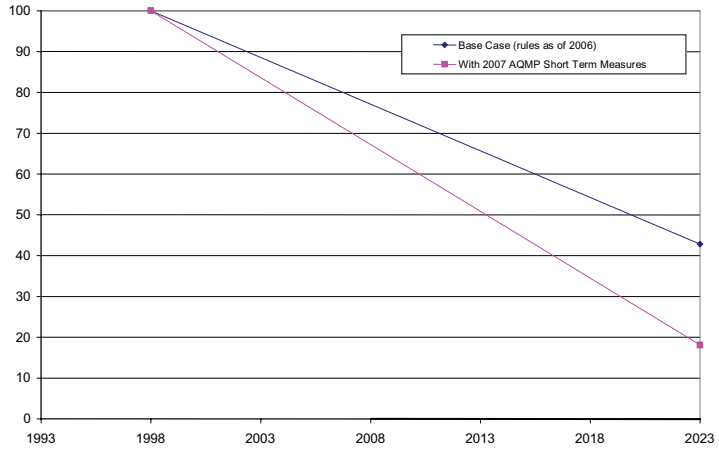
As previously discussed, many of the diesel PM reductions are not captured in MATES III as the rules and regulations will not be fully implemented until after 2005. The AQMD used 2002 reported stationary source emissions as the base year to develop emission inventories for past and future years. Additional emissions data obtained from CARB, California Department of Transportation, and the Southern California Association of Governments were included to produce a more accurate and comprehensive emissions inventory.

The AQMD staff projected future baseline emissions inventories from the 2002 base year accounting for emission

reductions and controls required by rules adopted as of June 30, 2006 and most CARB rules adopted by June 2005. Specific growth factors were then applied for factors such as population, industry, and motor vehicle activity. Toxic emissions for the selected years were then calculated by applying the latest CARB speciation profiles to the total organic gases and PM emissions.

Figure 2-3 shows projected reductions in toxic emissions from 1998 to 2023 using 1998 as the base year and including implementation of the 2007 AQMP Short Term Measures. Although the AQMP measures are primarily intended for criteria pollutant emission reduction, concurrent reductions are achieved for toxics emissions resulting from criteria pollutant reductions of total organic gases and PM. This co-benefit is also reflected in previous AQMP efforts.

Figure 2-3
Toxicity Weighted Emission Reductions from 1998 to 2023



Figures 2-4 through 2-6 show the percent contribution to District-wide risk for the largest contributors for 2005 and projected years 2014 and 2023, including implementation of the Short Term Measures in the 2007 AQMP.

Figure 2-4

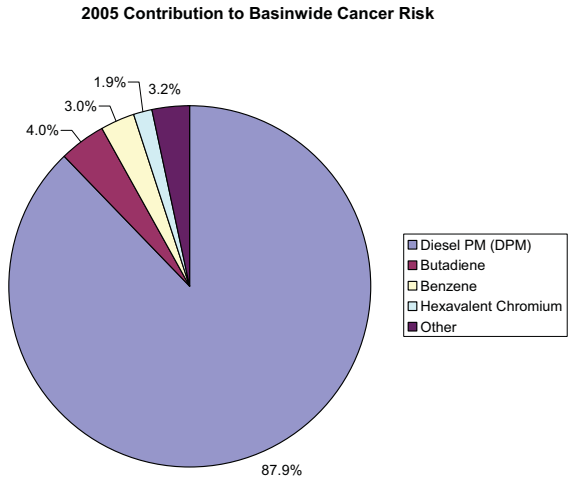


Figure 2-5

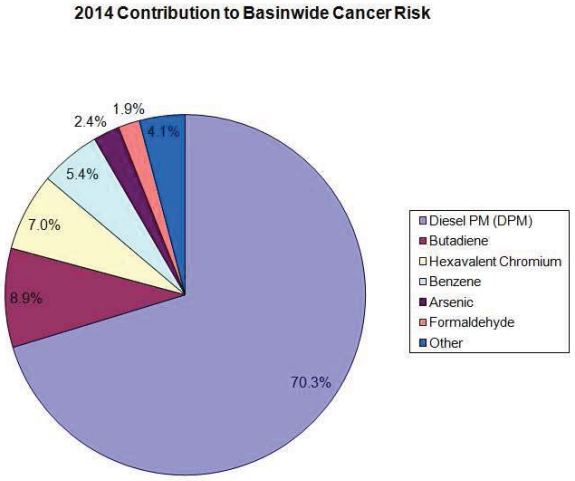
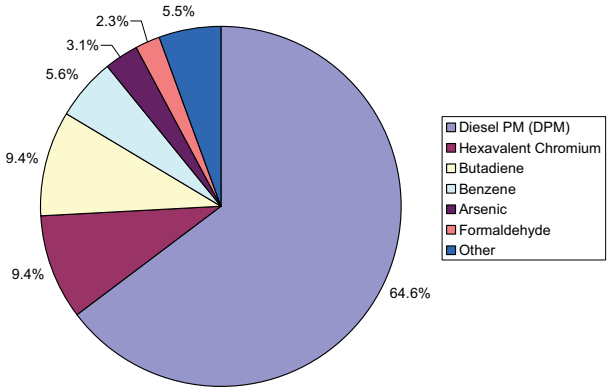


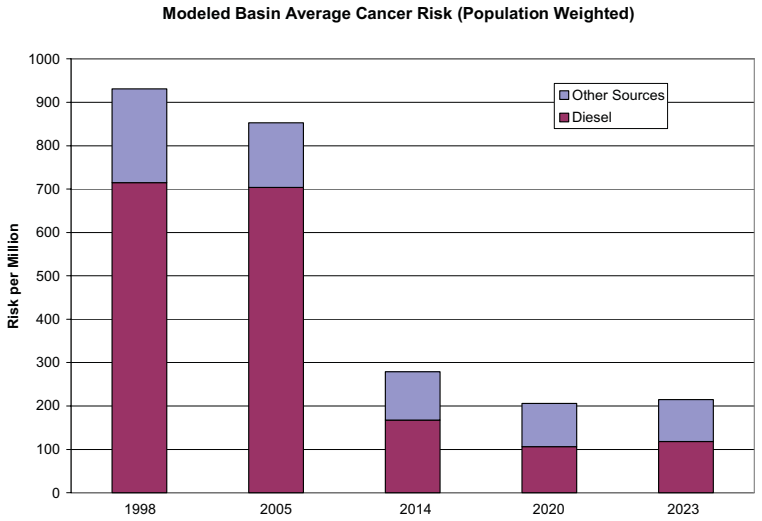
Figure 2-6



Modeled Future District Average Cancer Risk

Implementation of the AQMP, previous versions of the ATCP, and CARB programs have reduced toxic emissions during the past few years. However, these programs and regulations address toxic air pollution on a regional level. Figure 2-7 shows the modeled District average cancer risk for selected years.

Figure 2-7



Figures 2-8 through 2-10 show the modeled estimated risks distributed throughout the District for selected years. The figures show significant reductions in overall regional risk through 2023, however, the modeled District average risk is expected to be at 200 in a million. Although many areas will have substantial reductions, the residual or remaining risk in some areas is expected to still be elevated. In addition, there may be a need to accelerate reductions beyond existing regulations in some highly impacted communities.

Figure 2-8
1998 MATES III Model Estimated District Cancer Risk

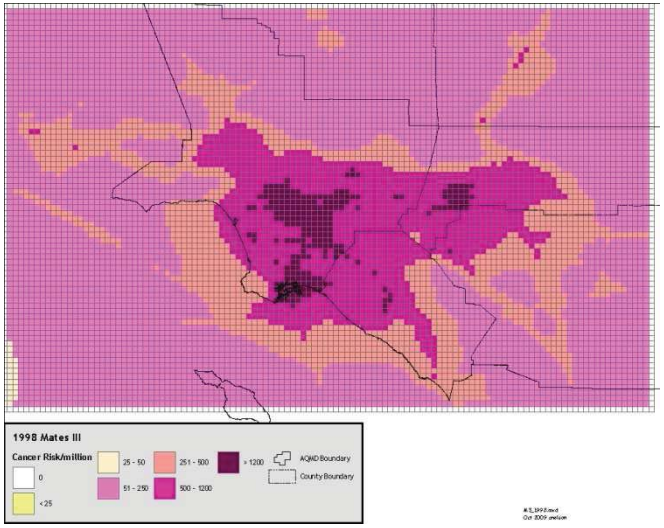


Figure 2-9
2005 MATES III Model Estimated District Cancer Risk

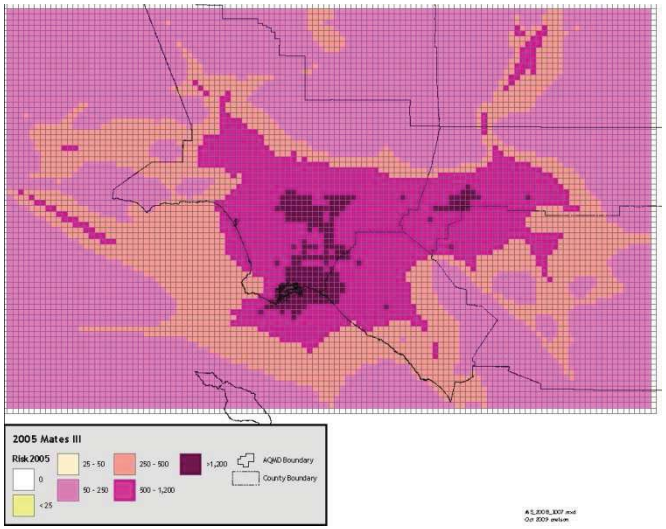
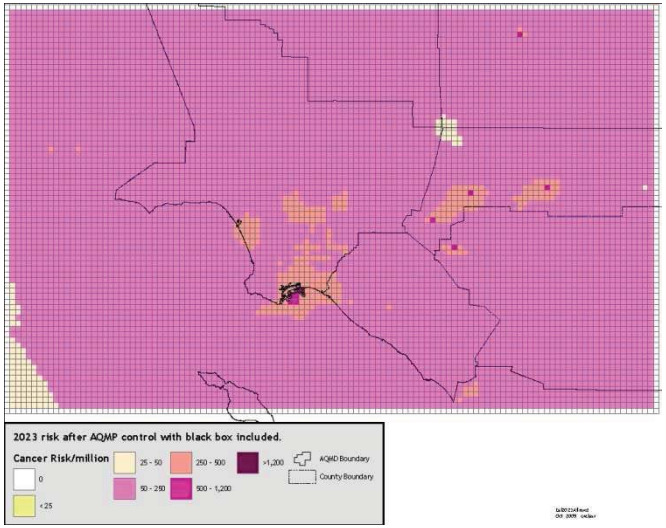


Figure 2-10
2023 Model Estimated District Cancer Risk



Need for the CCP

AQMD rules, along with state and federal rules and regulations establish the foundation of the AQMD's air toxics regulatory program. These rules and regulations reduce air toxics from thousands of sources throughout the District. However, even with an existing broad-based air toxics regulatory program there are areas throughout the District where there are clusters of toxic emitting sources that, when combined together, can have substantial cumulative effects on neighborhoods. In addition, although the results of MATES II and MATES III have shown regional reductions in exposure to key TACs and reduced cancer risk throughout the District, future projections of MATES III shows unacceptable cancer risk levels regionally. Local health risks in some communities are expected to be even more concentrated and elevated.

The 2010 CCP is needed to address toxic air pollution at localized areas of concern where higher cancer risk levels and other air-related issues exist. During the past several years, AQMD has realized the need for further action at the community level and has worked with highly impacted communities through Town Hall meetings, public outreach, and its compliance program. Therefore, in addition to the traditional District-wide approach to air toxic programs, the CCP will include measures to address localized effects and cumulative impacts in communities and neighborhoods. The approach of the CCP is to utilize a variety of implementation approaches and tools to address exposure to air toxics at the community level and develop solutions. The CCP is designed as an "action" plan that calls for action on behalf of the public, community representatives, agencies, elected officials, and regulated industries to help identify air quality issues in their neighborhoods and work together to develop solutions.

Chapter 3: CCP Measures

Introduction

The overall objective of the 2010 CCP is to reduce exposure to air toxics and air-related nuisances. The CCP utilizes a variety of different implementation approaches and includes measures that will continue to build on and strengthen existing source-specific rules while identifying new source-specific categories. In addition, a greater emphasis will be placed on addressing cumulative impacts in neighborhoods and communities. Other solutions focus on precautionary measures and public education in order to prevent exposure rather than mitigation. Improving communication within and among government agencies is another example of strategies proposed to provide more efficient infrastructure to address air toxic related problems. To reach the goal of creating "clean communities", the plan takes two approaches; a District-wide Approach, the more traditional approach, which benefits the entire South Coast Air Quality Management District, and a Community Approach which focuses on localized air quality issues and benefits communities and neighborhoods throughout the District.

The CCP is a planning document. The measures and implementation approaches are initial concepts. As measures are developed, staff may identify additional implementation approaches or implementation approaches identified will become more refined. If a regulatory approach is selected for implementation, the AQMD staff will analyze its legal authority, environmental impacts including greenhouse gas emissions, and socioeconomic impacts. In addition, the AQMD staff will develop measures through a public process.

Measures

Figure 3-1 shows the groups of measures that comprise the CCP. The individual CCP measures contain a brief description of an air quality issue, the purpose of the measure, and implementation approaches for each measure. The sidebars on the measures briefly summarize the objective and the implementation approaches. Many of the CCP measures are intended to work in coordination with other measures to provide a comprehensive approach to address air quality issues. Table 3-1 lists the measures in the CCP, briefly describes the implementation approach for each measure, and notes the relationship with other measures.

Figure 3-1
Clean Communities Plan Structure and Measures

TABLE 3-1
Summary of CCP Measures

Measure/Objective	Implementation Approach	Related Measures
Community Exposure Reduction Measures		
Community-01: Community Exposure Reduction Plan AQMD staff will develop Community Exposure Reduction Plans tailored to address air-related issues in specific communities.	Six-phase pilot study: • Phase 1: Selection of two pilot communities • Phase 2: Stakeholder Input • Phase 3: Investigation and Data Validation • Phase 4: Implementation of Immediate Action Items • Phase 5: Development of Community Exposure Reduction Plan • Phase 6: Implementation of Community Exposure Reduction Plan	• Community-02 • Community-03
Community-02: Community Guidance for Reducing Air Toxic Exposure Provide a process for communities and local governments to follow in developing Community Exposure Reduction Plans with AQMD assistance.	• Develop a process, somewhat similar to the process followed in the pilot study of Community-01, that will guide communities and local governments to develop CERPs with AQMD assistance • Update the process as experience is gained in developing CERPs	• Community-01 • Community-03 • Outreach-01
Community-03: Greening Communities through Accelerated Toxic Emission Reduction Projects for Existing Sources Reduce existing toxic emissions from older toxic emitting sources in residential communities disproportionately impacted by toxic emission sources.	• Identify disproportionately-impacted communities and assess cumulative impacts • Retrofit or replace existing toxic sources • Establish funding for emission reduction programs • Provide outreach and education for permitted and unpermitted sources of emissions	• Community-01 • Community-02 • Outreach-01
Community Participation Measures		
Participation-01: Clean Communities Pledge Develop a “Clean Communities Pledge” that will encourage local government participation in air quality training and outreach programs.	• Develop a “Clean Communities Pledge” • Recognize achievements of participating members	• Outreach-01 • Agency-01
Participation-02: Clean Schools Pledge Empower schools to take practical steps to reduce school children’s exposure to air pollution. Increase participation and awareness of AQMD programs and guidelines among local school districts.	• Develop a “Clean Schools Pledge” • Advocate school participation in air quality-related programs • Recognize achievements of participating members	• Outreach-03

Measure/Objective	Implementation Approach	Related Measures
Participation-03: Enhanced AQMD Community Meetings Further engage the public to inform the AQMD of air quality issues in communities.	• Continue and enhance existing AQMD community meetings to include round table discussions to further understand community concerns	• Outreach-05
Communication and Outreach Measures		
Outreach-01: Clean Air Toolbox for Local Governments, Communities, and Schools Develop a series of guidance documents that communities can use for planning, making land use decisions, identifying clean air solutions, and key agency contacts for addressing air issues.	Develop a "Clean Air Toolbox" that includes: • "Proximity Matters" advisory document for planners • CARB's "Land Use Planning Handbook" • Educational and outreach materials	• Community-02 • Community-03 • Participation-01 • Agency-01
Outreach-02: Community Dialogue Improve public access to community-level air quality information by establishing an enhanced and open dialogue between local communities and the AQMD.	• "Ask AQMD" online forum • Electronic tools	N/A
Outreach-03: "Playing it Safe" Campaign Increase public awareness for parents, educators, coaches, and youth organizations of when outdoor activities should be curtailed due to air quality concerns. Provide education on the effects of exposure to different air quality situations. Provide sources of additional information.	• Develop a "Playing it Safe" campaign to provide information on the AQMD website on situations when outdoor activities should be curtailed and potential health effects for children • Develop outreach materials and provide info on AQMD website on situations when outdoor activities should be curtailed and potential health effects for children	• Participation-02
Outreach-04: Cleaner Choices to Reduce School Children's Exposure to Toxics Increase public awareness for parents, educators, and children to make daily choices that will reduce children's exposure to air toxics.	• Educational material development • Recommendations to reduce exposure to toxics	N/A
Outreach-05: Advocating Toxic-Free Choices Educate the public and increase awareness of ways to minimize or avoid toxic exposure through brochures and online Community Health Bulletins.	• Use several approaches including Community Health Bulletins on TACs, AQMD website enhancements, and brochures to proactively disseminate information to the public on health concerns from TACs and avoiding or minimizing exposure	• Participation-03

Measure/Objective	Implementation Approach	Related Measures
Outreach-06: Business Outreach and Assistance Increase outreach efforts of AQMD's Small Business Assistance Program. Enhance existing services for assistance on permitting and compliance. Develop additional resources available to all businesses.	• Add other means to disseminate information regarding AQMD's Small Business Assistance Program • Develop an air quality compliance outreach program • Develop an online forum on AQMD's website where the business community can communicate and share air quality solutions	• N/A
Agency Coordination Measures		
Agency-01: Promoting Better Land-Use Decisions Provide additional tools for local governments to be more proactive and make better informed land-use decisions.	• "Proximity Matters" advisory for planners • Siting requirements in source-specific toxic rules • "Reverse" CEQA analysis for sensitive land uses • Outreach and training • Early consultation for new projects • Preliminary site assessment • CEQA project tracking	• Participation-01 • Outreach-01
Agency-02: Multi-Agency Coordinated Response Improve multi-agency communication by combining jurisdictional efforts to solve complex cross-media issues. Improve agency coordination efforts to resolve air pollution related public health issues.	• Establish an "Interagency Task Force" • Establish process to address recurring issues • Develop an interagency information sharing system	• Stationary-04
Monitoring and Compliance Measures		
Compliance-01: Enhancements to AQMD's Compliance Program Assess compliance presence and response time. Identify mechanisms to improve feedback with the public for reported incidents.	• Assess how resources are deployed to improve compliance presence and response • Investigate the development of an enhanced tracking and feedback system • Agreements with other agencies	N/A
Compliance-02: Increased Public Awareness and Participation to Enhance Compliance Enhance AQMD's compliance program through additional public participation in compliance activities.	• Public education on air quality issues • Outreach to improve public awareness and participation • Enhanced air quality complaint reporting	N/A

Measure/Objective	Implementation Approach	Related Measures
Source Specific Measures		
Stationary-01: Lead Emissions Reduce lead exposure to the public from lead-related activities. Comply with the NAAQS for lead adopted in 2008.	• Action plan development • Amend Rule 1420 to address smaller lead-emitting facilities	N/A
Stationary-02: Lead Paint for Pre-1978 Structures Further reduce lead exposure to children from renovation or demolition of existing sources. Innovative approaches to reduce lead exposure. Assist in enforcing new US-EPA standard.	• Public outreach and online information • Determine feasibility of development of more stringent lead rules	N/A
Stationary-03: Identifying New Sources Proactively identify potential air toxic sources in the District through rigorous and systematic research methods.	Develop a multi-step approach for identifying sources emitting selected, highly toxic air contaminants including: • Literature searches • Evaluation of rare and exotic TACs • Investigative monitoring and sampling	N/A
Stationary-04: Alternative Assessment for Use of Acutely Hazardous Materials For new or modified sources, use CEQA process to evaluate substitution of acutely hazardous materials with less hazardous materials, where possible.	• Where applicable, during the permitting and CEQA review process, evaluate uses of acutely hazardous materials to identify where less hazardous alternatives can be substituted • Work with other agencies to ensure that substitutions do not duplicate and are not in conflict with other programs	• Agency-02
Stationary-05: Indirect Sources Develop approaches for reducing exposure to diesel PM from facilities with associated diesel-fueled vehicle emissions.	Multi-step approach to reduce diesel PM emissions from sources associated with diesel mobile source emissions: • Step 1: Establish applicability criteria • Step 2: Develop list of implementation options for diesel PM reduction • Step 3: Compliance Plan submittal • Step 4: Diesel Reduction Plan	N/A
Public Nuisance Measures		
Nuisance-01: Nuisance Rule Enhance effectiveness of AQMD Nuisance Rule 402.	• Evaluate and consider revisions to Rule 402 and "Policies and Procedures on Public Nuisance Investigation"	N/A

Measure/Objective	Implementation Approach	Related Measures
Nuisance-02: Source-Specific Nuisance Rules Address nuisance issues through industry-specific rules or programs.	• Identify persistent odor issues and develop industry-specific rules or programs to reduce odors • Conduct research on a systematic, scientifically-based odor nuisance resolution practice	N/A

COMMUNITY-01
Community Exposure Reduction Plan (Multiple TACs, other pollutants)

Measure Objective

- *AQMD staff will develop Community Exposure Reduction Plans tailored to address air-related issues in specific communities*

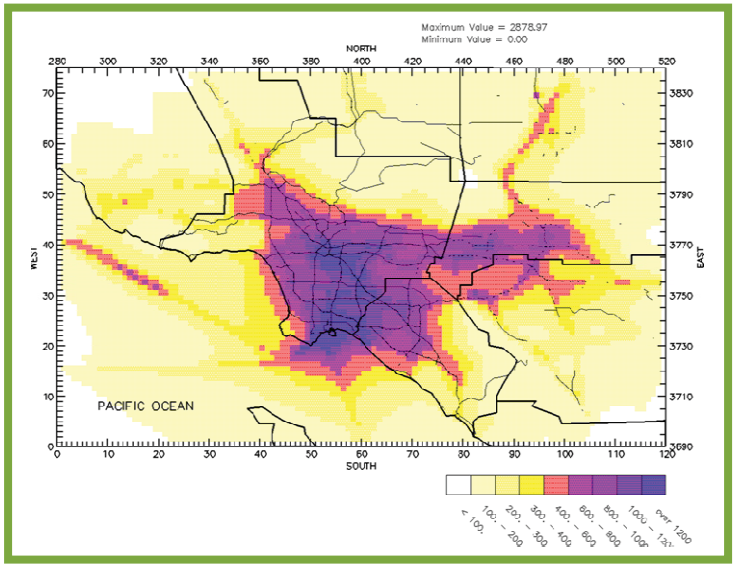
Implementation Approach

This measure will be implemented as a pilot study in the following six phases:

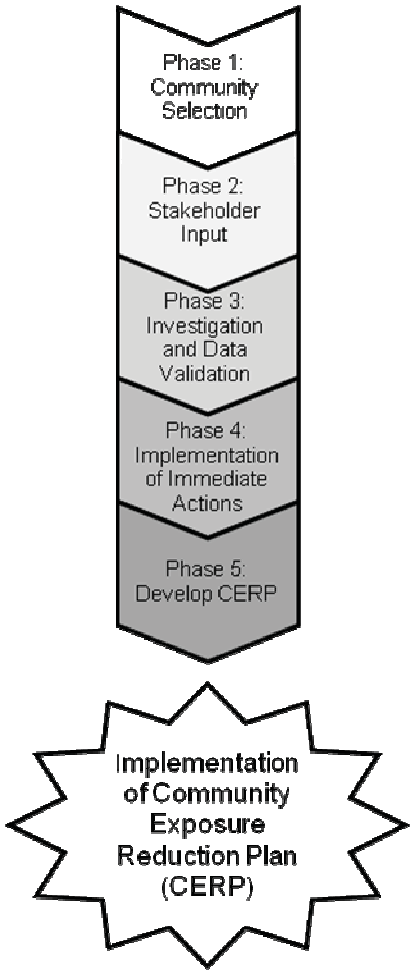
- *Phase 1: Community Selection for two Pilot Communities*
- *Phase 2: Stakeholder Input*
- *Phase 3: Investigation and Data Validation*
- *Phase 4: Implementation of Immediate Action Items*
- *Phase 5: Development of Community Exposure Reduction Plan*
- *Phase 6: Implementation of Community Exposure Reduction Plan*

Background

Toxic emissions throughout the District have been reduced through implementation of AQMD's air toxics regulatory program for source and industry categories such as chrome plating, dry cleaning, and gasoline dispensing, as well as more stringent state and federal fuel and tail pipe emission standards to reduce air toxic emissions from on- and off-road mobile sources. Reducing toxic air contaminants from these individual source categories has benefits to all communities. Some communities, however, may have a disproportionate number of toxic sources that are clustered together resulting in a higher concentration of toxic emissions. The combined effect or cumulative effect of toxic emissions on these communities can result in an elevated exposure to toxic air contaminants. Data from the AQMD's MATES III shows that in some communities the toxic emissions are more concentrated. In addition, through the AQMD's Complaint Response Program and Town Hall Meetings, the AQMD staff has learned that many neighborhoods face unique air pollution and toxic issues not identified through MATES or air monitoring data. This control measure is designed to address those specific issues for specified neighborhoods with elevated cumulative toxic emissions.



The concept of this measure would overlay on the AQMD's existing traditional air toxics regulatory program and is designed to address community-specific air toxics issues. This control measure will focus on individual communities where AQMD staff will work with community representatives to identify specific air-related issues and to develop solutions. Issues



that cross agency jurisdictions and responsibilities will also be addressed through enhanced cross-agency communication and designation of responsibilities discussed further in proposed CCP measure Agency-02. Through this interactive process, the AQMD staff will develop, with the input of the community, a Community Exposure Reduction Plan that will outline specific measures to be implemented for that community to reduce exposure to air toxics and minimize public nuisances.

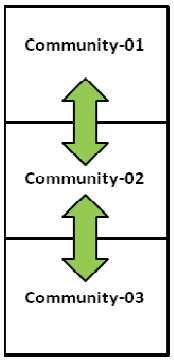
Implementation Approach

This measure will be implemented as a pilot study in six phases: Phase 1: Community Selection; Phase 2: Stakeholder Input; Phase 3: Investigation and Data Validation; Phase 4: Implementation of Immediate Actions; Phase 5: Development of Community Exposure Reduction Plan; and Phase 6: Implementation of Community Exposure Reduction Plan. The final product is a Community Exposure Reduction Plan containing specific elements to be implemented to reduce cumulative air toxic emissions in the community. Because this approach is tailored to an individual community, actual implementation is expected to vary based on the number, type, and extent of each community's air quality issues. This process is more resource intensive than a traditional source-specific regulatory approach, however, the result will be a customized plan to address issues specific to that community.

Phase 1: *Community Selection*

At the onset, the following two pilot communities are recommended: City of San Bernardino and Boyle Heights and surrounding areas. The selection of these two communities was based on health risk data from MATES III, emissions data from the AQMP, demographics, particulate matter (PM) emissions, areas with high concentrations of toxic-emitting facilities in close proximity to residential or sensitive receptors, history of complaints, known air pollution sources, and community-identified air quality issues. The willingness of the community to participate in the process of providing input, and developing and implementing an exposure reduction plan is important for this program to be successful. The AQMD staff will continue to work with other communities through the Community Guidance for Reducing Toxic Exposure measure (Community-02).

Related Measures



Phase 2: *Stakeholder Input*

Input from stakeholders in the community is critical in the identification of air quality related issues in a particular community. Meeting with community members, local businesses, and elected officials will help the District to better understand the air quality concerns of the community and prioritize potential solutions based on health impacts and community feedback. Partnering with local businesses early in the process helps to foster cooperation and to ensure measures are tailored to the specific needs of the community. Interaction with District staff will help to build an open line of communication, allowing for status updates of ongoing investigations and air pollution mitigation efforts, and enabling the community and businesses to actively participate in the ongoing improvement of their environment. This phase will be implemented through a variety of approaches as discussed below.

Neighborhood Walks

The AQMD staff will walk through the neighborhood to better understand air quality issues raised during the stakeholder input stage. Some stakeholders may join the AQMD staff during the neighborhood walks; however, the AQMD will be sensitive to residents and local businesses to ensure that the size and composition of the group is not intimidating. The AQMD staff believes that neighborhood walks are an important part of this process to better understand the air quality issues residents and businesses are facing on a daily basis. The walks will not be used for compliance audit purposes and will be used to allow AQMD staff to witness firsthand the neighborhood's air quality-related issues. This phase will give AQMD staff an understanding of the community's perspective and will help with the development of practical, real-world solutions to address the community's concerns. During the "Neighborhood Walks," AQMD staff will speak directly with community members near their homes and businesses to listen to individual issues about air quality. For the "neighborhood walks" the AQMD will not enter a business unannounced. This hands-on approach will allow the AQMD staff to gather valuable information about the community's air quality issues while providing an opportunity for local residents, local government, and businesses to voice their concerns directly to the AQMD in a more familiar and informal setting.

Community Exposure Reduction Plan (CERP) Website

The AQMD staff will also provide an electronic interface for community members to track the progress of the pilot program and ask questions. A website will be made available for community

members to view detailed information about their neighborhood's Community Exposure Reduction Plan (CERP). The community's CERP webpage will include information such as: key contacts at the AQMD; background information about the CERP process; information about the community and its history of air quality related issues; progress reports of ongoing investigation and/or mitigation efforts; notifications of upcoming community meetings and other events; written reports of findings from air monitoring, and health studies; and a summary of steps taken to address the community's air quality concerns. The CERP web page will give the community round-the-clock access to information about the air quality issues most important to them, will allow the community to ask the AQMD questions, and will enable community members to remain involved throughout the process of cleaning their community's air.

Phase 3: *Investigation and Data Validation*

In Phase 3, air quality-related issues will be sorted and prioritized. Any issues that require immediate action will go directly to Phase 4 and will be addressed and implemented before development of the Community Exposure Reduction Plan. For non-immediate actions, air quality issues will be sorted by those that are solely, partially, and not within the AQMD's jurisdiction. Sorting the issues by jurisdiction will help to identify additional agencies that the AQMD will be coordinating with to help identify solutions. Those issues that are solely and partially within the AQMD's jurisdiction will be further investigated. Where deemed necessary, further investigation can include, but is not limited to, additional analysis of existing controls, source of air issue, data collection and analysis, micro-scale monitoring, and identification of control strategies. This information will help AQMD staff to pinpoint air contaminants of concern and their sources so that a comprehensive exposure reduction plan can be developed to address those specific contaminants and sources.

The complexity and duration of the investigation phase will vary depending on the unique circumstances faced by each community. AQMD staff will work closely with the community and businesses, and partner with other agencies to determine the extent of the investigation phase. Efforts will be focused on identifying and quantifying specific air contaminants affecting the community, and where necessary, health surveys or risk assessments may be conducted to evaluate risks to public health. Where air quality issues cross other agency jurisdictions or responsibilities, the AQMD staff will coordinate multi-agency solutions.

***Phase 4:** Implementation of Immediate Actions*

This phase would begin implementation of actions found in Phases 2 and 3 that warrant immediate action. Air-related problems that require immediate attention may be characterized by issues resulting in significant health impacts to residential and sensitive receptors, rapid depletion or irreparable damage to natural resources within a community, and violation(s) of existing local, state, or federal air regulations. These immediate action items will later be recognized in the Community Exposure Reduction Plan for the community. For issues requiring immediate action that fall under the purview of other agencies, the AQMD will relay information and provide assistance, if necessary, to allow for timely resolution.

***Phase 5:** Development of Community Exposure Reduction Plan*

In this phase the AQMD staff will develop a Community Exposure Reduction Plan providing solutions that will address the localized air quality issues identified in Phases 1 through 4. The CERP will be developed through a public process which will include comments and suggestions from community members, academia, local governments, and local businesses. Issues brought up at various forums including public workshops and working group meetings will be addressed throughout the process to allow for a dynamic, comprehensive CERP. At a minimum, the CERP will include the geographical boundary of the selected community. The plan will also identify all air polluting sources (permitted, non-permitted, mobile, indirect, etc.) within the community, including their respective and most current TAC emissions inventory. A profile for compliance items such as complaint history and Notice to Comply/Notice of Violation information will also be included for each source or region within the community. Other information, such as relevant health studies may be included.

The CERP will ultimately recommend a number of general and community-specific control strategies that will be implemented to accomplish maximum toxic exposure reduction. General control strategies will include less complex solutions based on those found in AQMD's existing rules and regulations and CARB's Land Use Guidance Document. Community-specific control strategies will be the product of information derived from Phases 2 through 4. It is expected that some solutions may require the assistance and cooperation of local government or other agencies, such as local ordinances or zoning changes. This would be a collaborative process among all stakeholders to seek effective solutions. The San Pedro Bay Ports Clean Air Action Plan (CAAP) is an example of a community-based exposure reduction plan that incorporated a stakeholder

process. Some solutions may be technology-based, such as installation of pollution controls or fuel changes. Other solutions may be to seek funding to mitigate emissions where feasible, or require operational changes such as relocating a truck entrance, establishing buffer zones, or limiting operations during certain times of the day.

Phase 6: *Implementation of the CERP*

An implementation schedule for all control strategies within the AQMD's jurisdiction will be included in the first CERP developed under this pilot study. Once developed and approved, the CERP will be monitored by both the AQMD and the respective community through a feedback and resolution element in order to ensure timely progress and success of scheduled control strategies, and to make modifications to any portion of the CERP resulting from unforeseen or new issues that develop. AQMD staff will update the Stationary Source Committee and the Governing Board's Environmental Justice Advisory Committee on the CERP progress and solicit input regarding potential CERP modifications on an as needed basis.

In addition to implementation of measures, the CERP will also include ongoing efforts for the community. Ongoing efforts may include, but are not limited to, ambient air monitoring in the affected community; partnerships with public health agencies and/or universities to conduct additional health studies in impacted areas; agency coordination for air quality issues that cross agency jurisdictions; and more frequent inspections of facilities suspected of contributing to the community's air quality related concerns. AQMD partnerships with public health agencies and universities may include health surveys, or studies of air pollution-related health issues in impacted communities. Past health studies have been funded through grants or from other sources such as AQMD's Health Effects Research Fund upon approval of the Governing Board. Findings from these studies may be used to influence air quality related public health decisions, develop new air pollution reduction and/or health programs, increase knowledge of the relationship between air quality and public health, and to further support air quality improvement policies. In conjunction with other CERP elements, these studies will help to provide a comprehensive investigation and action plan to address the community's air quality concerns.

COMMUNITY-02
Community Guidance for Reducing Air Toxic Exposure

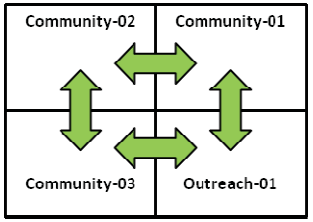
Measure Objective

- *Provide a process for communities and local governments to follow in developing Community Exposure Reduction Plans with AQMD assistance*

Implementation Approach

- *Develop a process, somewhat similar to the process followed in the pilot study of Community-01, that will guide communities and local governments to develop CERPs with AQMD assistance*
- *Update the process as experience is gained in developing CERPs*

Related Measures



Background

Under Community-01, the AQMD staff will work with the community, business representatives, and local government to develop a Community Exposure Reduction Plan (CERP) through the six step process described in Community-01. The objective of this measure is to develop a process, somewhat similar to the process used in Community-01, which can be used for other communities and local governments allowing them to develop their own Community Exposure Reduction Plans with assistance from the AQMD staff. This AQMD-assisted process can be used by communities with fewer, less complex air quality issues.

The AQMD staff will develop guidelines based on existing air quality information and knowledge gained from the pilot study. The AQMD-developed guidelines will provide general information and tools needed to guide other communities and local governments through the process of identifying air quality issues, gathering data, working with stakeholders, and developing a community-specific CERP with solutions tailored to their air-quality issues.

Implementation Approach

The AQMD staff will develop a process, based on the process used in the pilot study, to be used by local governments and communities. The AQMD staff will provide assistance as communities follow the process and develop a community-specific CERP. Tools provided will include those found in the Clean Air Toolbox in Outreach-01 as well as a handbook with a menu of options of solutions to various air quality issues.

Periodic updates to the process and the handbook will be made based on knowledge gained as other communities go through the CERP process. Updates will incorporate concepts, data, and successful solutions obtained from pilot CERPs under Community-01 and AQMD-assisted CERPs under this measure. The AQMD may also solicit suggestions for improving the process through AQMD's webpage, existing town hall meetings, and community meetings. Additionally, the handbook will include funding sources and grants such as US-EPA's Community Action for a Renewed Environment (CARE) program, to help implement solutions to various air quality issues.

COMMUNITY-03
Greening Communities through Accelerated Toxic Emission Reduction Projects for Existing Sources (Multiple TACs, other pollutants)

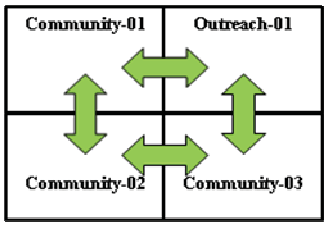
Measure Objective
- *Reduce existing toxic emissions from older toxic emitting sources in residential communities disproportionately impacted by toxic emission sources*

Implementation Approach
- *Identify disproportionately-impacted communities and assess cumulative impacts*
- *Retrofit or replace existing toxic sources*
- *Establish funding for emission reduction programs*
- *Provide outreach and education for permitted and unpermitted sources of emissions*

Background
Under the AQMD's permitting program, new, relocated, and modified sources must comply with AQMD's Regulation XIII for traditional air pollutants and risk requirements of Rule 1401 and Rule 1401.1 before a permit can be issued. Since Rule 1401 was adopted in 1990, existing sources may have permits that were issued prior to its adoption or before certain TACs were listed, and hence were not subject to a risk evaluation during permitting. If a source permitted before 1990 is modified, Rule 1401 would be triggered and a risk evaluation would be performed. Rule 1402 applies to existing facilities that emit toxic air contaminants and sets facility-wide health risk thresholds. Under Rule 1402, facilities may be required to submit inventories of air toxics if requested by the AQMD staff. Based on an estimate of the facility's health risks, additional requirements may include health risk assessments, public notification, and/or risk reduction.

During meetings of the CCP Working Group the AQMD staff received written comments requesting that the AQMD staff examine permitting practices to consider cumulative impacts for communities which are already heavily impacted by existing sources of toxic air pollution. It is the AQMD staff's understanding that some representatives from environmental and community groups desire a program that would prohibit new permits that result in toxic emissions in specific communities that cannot tolerate any new toxic sources due to its existing, elevated health risk. The AQMD staff is concerned that a program that limits new permits in certain areas may also eliminate the ability for newer, cleaner sources to replace older, higher polluting sources. Part of the AQMD's permitting process requires that new, relocated, and modified sources be evaluated under New Source Review regulations, be equipped with Best Available Control Technology (BACT), and meet specific toxic requirements. Another concern is that limiting new permits in certain areas may adversely affect the local economy of that community while providing little air quality benefit. Furthermore, since AQMD does not permit all emission sources (e.g., mobile sources), restricting AQMD permits in certain communities does not necessarily assure that there will be no increases in emissions. There is a need, however, to provide outreach and education for

Related Measures



permitted and unpermitted sources of emissions regarding the AQMD and ways to minimize impacts on the community. Assessing cumulative impacts in communities is also a concern of the AQMD, and staff will continue to work toward developing methodologies to quantitatively assess cumulative impacts. In addition, the AQMD staff will continue to monitor US-EPA's efforts to further address environmental justice issues in permitting.

Implementation Approach

Existing sources, particularly older sources, generally have higher emissions since new permitted sources must be equipped with the current BACT, and, if required under Rule 1401, BACT for toxic air contaminants (T-BACT). Instead of limiting new permits in highly impacted areas, the AQMD staff is recommending that this measure focus on existing, higher emitting sources, including those which are permitted and otherwise in compliance with applicable regulations. This measure seeks to encourage retrofitting existing sources with pollution control equipment or replacement of existing sources with cleaner sources, particularly in communities that are disproportionately impacted.

Retrofitting and Replacing Existing Toxic Sources

Under this control measure, emission reduction projects can be implemented that will reduce emissions from older, higher emitting sources through either retrofitting or replacing existing equipment with newer cleaner equipment in these highly impacted areas. Projects will likely focus on the highest emitting sources in the community that will produce the greatest benefit in reducing exposure to toxic air contaminants. In addition, these projects would reduce emissions beyond existing rules and regulations. The AQMD staff will take the lead on this measure.

This measure will coordinate with other programs such as, but not limited to, MATES III and AB2588 to prioritize communities in the District and emission reduction projects in highly impacted communities. This measure will be implemented with Community-01 and Community-02. Staff anticipates that during implementation of Community-01, emission reduction projects will be identified in these pilot study areas. As Community-02 is developed and implemented, it is likely that emission projects will be identified in these areas as well.

Establish Funding for Emission Reduction Programs
To help fund retrofit and replacement projects, funding opportunities will be explored via re-directing existing funding sources or identifying new funding sources, including state or federal grant programs, such as the US-EPA's Community Action for a Renewed Environment (CARE) program (additional tools and resources may be found on the US-EPA's CARE website at: http://www.epa.gov/care/basic.htm). Implementation of projects will be ongoing and based on funding. To further assist funding activities, the AQMD will develop and promote a "Good Neighbor Challenge" to challenge businesses to submit emission reduction proposals to the AQMD. The AQMD staff will explore the possibility of either co-funding or providing assistance in securing available federal or state grant and funding opportunities to implement selected emission reduction projects. Selection for awarding funding for proposals will be based on several factors including a project's total emission and exposure reduction potential, feasibility, completion time, and cost considerations. Another possible source of funding may come from penalties and fines received from violations of AQMD rules. To the extent feasible, monies would be used to fund projects in the community where the violation occurred.

Provide Outreach and Education for Permitted and Unpermitted Sources of Emissions
To help better educate sources on how to identify ways to minimize exposure to the community, the AQMD staff will work with permitted and unpermitted facilities. This could include meeting with the owners and training. The tools in the "Clean Air Toolbox" (Outreach-01) would also be used to educate the sources.

PARTICIPATION-01
Clean Communities Pledge

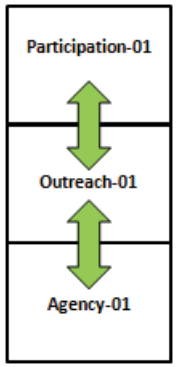
Measure Objective

- *AQMD to develop Clean Communities Pledge that will encourage local government participation in air quality training and outreach programs*

Implementation Approach

- *Develop a "Clean Communities Pledge" for local cities, counties, and other government agencies*
- *Recognize achievements of participating members*

Related Measures



Background

Implementation of the Clean Communities Plan will rely in part on participation by local government. The AQMD staff needs local government to participate in training and public outreach activities to better educate local government on air quality issues that they are in position to decide on. The objective of this measure is to ask local governments to take a "Clean Communities Pledge" that is simply their commitment to participate in training activities to increase awareness of compatible land uses, CEQA air quality analyses, air related health effects, and how AQMD can assist in addressing air-related nuisance complaints. The objective is to provide information to planners and decision makers so they can make better informed decisions in their community. In addition, as part of the Clean Communities Pledge, local government can help with outreach activities to inform their residents and businesses about AQMD programs and AQMD contact information regarding air quality, permits, or compliance issues. Local governments that take the Clean Communities Pledge will signal to their community a commitment to understand air quality issues and willingness to enhance activities to address such issues. The Clean Communities Pledge is an important aspect of the Clean Communities Plan as it will encourage local government participation in the implementation of the Clean Communities Plan.

Implementation Approach

Development of "Clean Communities Pledge"

The AQMD will develop a "Clean Communities Pledge" that local cities, counties, and other government agencies can voluntarily take that would include commitments to participate in various air quality training and outreach activities. To be recognized as taking the Clean Communities Pledge, the pledge must be approved either by government officials of the city or county such as, but not limited to, the City Council, Board of Supervisors, Planning Commission, etc.

Recognizing Participation and Achievements

Those cities and counties that take the Clean Communities Pledge would be recognized on the AQMD's website. In addition, cities and counties can submit information on how their

community is addressing air quality issues or air quality achievements made to reduce or prevent air quality problems within their community for posting on the website. Other incentives for participation would be developed.

PARTICIPATION-02
Clean Schools Pledge

Measure Objective

- *Empower schools to take practical steps to reduce school children's exposure to air pollution*
- *Increase participation and awareness of AQMD programs and guidelines among local school districts*

Implementation Approach

- *Develop a pledge for local school districts to express their commitment to participate in training and air quality improvement activities*
- *Advocate school participation in air quality-related programs*
- *Recognize achievements of participating members*

Background

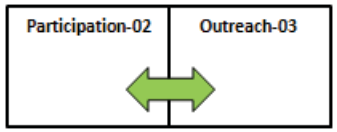
An important component of the Clean Communities Plan is reducing children's exposure to toxic air contaminants. Since children spend a substantial amount of time at school, it is important that school officials better recognize the critical role that clean air plays in children's health and development, and take action to reduce children's exposure to air pollution and help clean the air in their community. The AQMD staff needs school districts and individual schools to participate in training and public outreach activities to better educate school leaders on air quality issues that they are in position to decide on. The objective of this measure is to ask school districts and individual schools to take a "Clean Schools Pledge" that represents their commitment to participate in training activities to increase awareness of school siting issues, CEQA air quality analyses, air related health effects, and resources available to assist in improving the air quality in and around their schools. Participation in the "Clean Schools Pledge" will signal to the school community (parents, staff, students, etc.) a commitment to better understand air quality issues and willingness to participate in training and air quality improvement activities.

Implementation Approach

Development of "Clean Schools Pledge"

The AQMD will develop a "Clean Schools Pledge" for school districts and individual schools to voluntarily express their commitment to participate in training and air quality improvement activities. The "Clean Schools Pledge" will incorporate other AQMD air toxics education and outreach programs, such as the "Playing it Safe" campaign (Outreach-03). Simple solutions such as limiting school bus/delivery truck/automobile idling near schools, limiting outdoor school activities during periods of poor air quality, conducting outdoor school activities at times and locations where children will be least impacted by local air pollution (e.g., away from high traffic roads and avoiding peak traffic times), and replacing old diesel-fueled school buses with low-emitting buses, can make significant reductions in the amount of air pollutants children may be exposed to while at school. Other proactive steps, such as developing policies to avoid constructing schools near major roadways or industrial facilities, can also help to prevent and reduce children's exposure to toxic air contaminants.

Related Measures



Recognizing Participation and Achievements

Each school district or individual school that has taken the pledge would be recognized on AQMD's website which would also include additional information on specific efforts and achievements made to reduce or prevent air quality exposures at their schools.

PARTICIPATION-03
Enhanced AQMD Community Meetings

Measure Objective

- *Further engage the public to inform the AQMD of air quality issues in communities*

Implementation Approach

- *Continue and enhance existing AQMD community meetings to include round table discussions to further understand community concerns*

Related Measures

Background

There are many sources of information available that help the AQMD staff understand air-related issues that exist within a given community. From a compliance perspective, community air-impact evaluations may be based on facility compliance status, complaint information, and surveillance activity. Ambient air monitoring studies and TAC emissions inventories are some examples of scientific approaches that the AQMD utilizes to assess air quality within communities. These indicators, however useful, do not give a complete understanding of how the community stands in terms of air-related issues.

Input and accounts from community members who experience air-related issues on a daily basis, both known and unknown to the AQMD, are a good source to identify neighborhood air quality issues. The purpose of this measure is to continue engaging the public to better inform the AQMD of air quality issues.

Implementation Approach

This measure will further engage the public to inform the AQMD of community air-related issues through the enhancement of the current community meetings. Enhancements will be implemented by AQMD's Public Affairs Office through the proposal of a new community meeting format and process that would generate local gatherings of diverse groups of key stakeholders including residents, local business representatives, health agencies, universities, and public/private agencies. Initial concepts are to revise the current format for community meetings to include multiple interactive "round table" discussions that would take place within several smaller groups that include individuals from differing stakeholder groups in order to encourage community representatives to speak more openly in a more intimate and less formal setting. Among other goals, this meeting format would seek to elicit input and collaborative ideas for addressing air-related issues and also build support for action at local and state levels. In addition to collaborating with key stakeholder groups, these meetings may serve as an opportunity for AQMD staff to direct communities to additional resources for help in addressing other environmental issues, such as water quality or hazardous wastes. For example, grants from the US-EPA's Community Action for a Renewed Environment (CARE) program, a competitive grant program

that offers communities an innovative way to address the risks from multiple sources of toxic pollution in their environment, may help provide monetary support for communities working towards addressing multi-media environmental issues. Additional resources may be found on the US-EPA's CARE website at: http://www.epa.gov/care/basic.htm.

OUTREACH-01
Clean Air Toolbox for Local Governments, Communities, and Schools

Measure Objective

- *Develop a series of guidance documents that communities can use for planning, making land use decisions, identifying clean air solutions, and key agency contacts for addressing air issues*

Implementation Approach

- *Develop a "Clean Air Toolbox" that includes:*
  - *"Proximity Matters" advisory document for planners*
  - *CARB's "Land Use Planning Handbook"*
  - *Educational and outreach materials*

Background

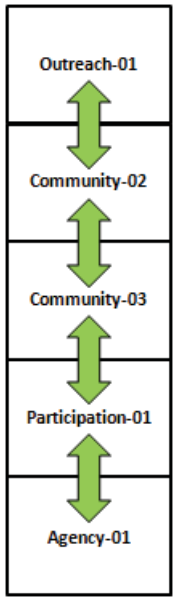
There is no single location for communities to access information when addressing local air quality issues. This measure proposes to develop a "Clean Air Toolbox" for local governments, communities, and schools that will include a series of informational and guidance documents such as "Proximity Matters" advisory document for planners (Agency-01); sample idling ordinances; and signage ideas for idling diesel sources. The modules in the toolbox can then be used to address any air quality issue that arises. The toolbox can be used for planning, making land use decisions, identifying clean air solutions, and contacting key agencies.

Implementation Approach

The "Clean Air Toolbox" will provide a single location on the AQMD website where up-to-date information can be made available. Links will be provided to documents available throughout the AQMD website. The toolbox will be a general resource for local governments, communities, and the general public to reference when addressing air quality issues. For example, the toolbox can be used by local governments for general plans or land use decisions; school districts when siting new schools or renovating; and communities for identifying or finding solutions to local air quality issues. The toolbox would also be used to educate facilities that are sources of toxic emissions of ways to minimize impacts on the community (Community-03 and Participation-01). Examples of modules that may be provided in the toolbox include:

- CARB's "Land Use Planning Handbook: A Community Health Perspective"
- "Proximity Matters" advisory document (Agency-01)
- AQMD's "Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning"
- AQMD's "Air Quality Issues in Site Selection Guidance Document"
- Risk communication document
- Educational and outreach materials
- Handbook with menu of options of solutions for air quality issues (Community-02)

Related Measures



- AQMD regulations and permitting requirements
- AQMD and other agency contact information

The toolbox will be updated periodically. Additional modules will be added as needs are identified and new materials are developed.

OUTREACH-02
Community Dialogue

Measure Objective

- *Improve public access to community-level air quality information by establishing an open dialogue between local communities and the AQMD*

Implementation Approach

- *Institute the "Ask AQMD" forum to address public inquiries and concerns*
- *Enhance existing web-based tools including the MATES III interactive map, to include more detailed information regarding toxic air contaminants and source-specific emissions and development of new tools to improve two-way communication with communities*

Background

As public awareness of air quality issues increases, there is a need for enhanced public access to information regarding the impacts of air quality on specific communities. Existing District tools provided for public use, such as the Facility INformation Detail (FIND) system, MATES III Carcinogenic Risk Interactive Map, and the 1-800-CUT-SMOG® hotline, allow the public to find facility-specific data related to compliance history and air emissions and information on cancer risk as well as providing a method to report air quality complaints. A web inquiry system is provided to answer questions from the public. An AQMD application for the iPhone™ has been developed for the public to provide enhanced access to real-time and forecasted air quality levels for user-selected areas, air quality news, calendar of AQMD events, and mechanisms to report smoking vehicles. These existing tools are good methods to help the public obtain air quality information and report concerns, however, their current format does not allow for an exchange of information between the AQMD staff and affected communities.

This measure seeks to enhance the AQMD's communication with the public by creating an open dialogue and flow of information between communities and AQMD staff. The concept is to provide more opportunities for the public to ask air quality related questions and the AQMD staff to respond. This is a more casual and accessible type of approach where the public can make inquiries about air issues in their community.

Implementation Approach

"Ask AQMD" Forum

One approach to establish a dialogue between the public and AQMD is to develop an "Ask AQMD" webpage within the AQMD's website to enhance the existing web inquiry system and allow the public to submit questions and concerns regarding air quality issues in their communities. Responses to public questions and concerns will be sent directly to the requestor via email. In addition, general information and responses to commonly asked questions will be posted on the webpage. Complaints and air quality incidents will still be reported via the District's 1-800-CUT-SMOG hotline, but other informational requests may be submitted to the

"Ask AQMD" forum via email or directly through the AQMD website. Multiple questions or concerns regarding a specific community or topic will be used as a trigger for a public outreach effort such as a town hall meeting, news release, or other means of disseminating information to the public. This online tool will provide a convenient outlet for the public to express concerns about the air quality in their community, and will enable the District to respond to and address community concerns in an expedient manner.

Electronic Tools

Another method of facilitating dialogue with the public is to enhance the AQMD's online tools available for the public to find information about the air quality in their community. Existing tools, such as FIND, will be evaluated to determine what steps could be taken to make them more user-friendly by redesigning the format, providing on-line tutorials, and translation into multiple languages. Enhancements to the MATES III interactive risk map will help the public access more detailed information regarding cancer risk in their communities. Some concepts to enhance the MATES III interactive map include information that identifies the toxic air contaminants (TACs) being emitted within each geographical area, sources contributing to the cancer risk in the area, and health information regarding the TACs identified on the map. Individuals can then utilize this information in conjunction with the District's FIND system to retrieve detailed compliance history and air emissions data for facilities in their specific neighborhood. Users will be able to pinpoint which TACs are contributing to risk in their community, which sources are emitting the TACs of concern, and the health risks associated with the pollutants in their community. In addition, new electronic tools may be developed to improve two-way communication with communities using avenues such as webinars, cell phones, and other multi-media tools.

OUTREACH-03
"Playing it Safe" Campaign *(All Pollutants)*

Measure Objective
- *Increase public awareness for parents, educators, coaches, and youth organizations of when outdoor activities should be curtailed due to air quality concerns*
- *Provide education on the effects of exposure to different air quality situations*
- *Provide sources of additional information*

Implementation Approach
- *Develop a "Playing it Safe" campaign*
- *Develop outreach materials and provide information on AQMD website on situations when outdoor activities should be curtailed and potential health effects for children*

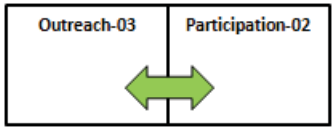
Background
Participating in outdoor activities during wild fires, high wind days, or near a construction site can increase children's exposure to fine particulates, some of which are toxic. Depending on the source of pollution and the meteorological conditions, conducting outdoor activities, particularly strenuous activities, may be harmful to children, especially for those with respiratory diseases. Children may be more susceptible to the harmful effects of air pollution than adults because their respiratory systems are still developing and they breathe more air per pound of body weight. Fine particles can lodge in the lungs and cause irritation or other effects. Over the long-term they can cause decreased lung function and can lead to diseases such as asthma, bronchitis, emphysema, and possibly cancer. Short term exposures can result in health problems such as eye irritation, respiratory irritation, and headaches. A need exists for greater awareness of circumstances when outdoor activities should be curtailed due to harmful air quality conditions.

Implementation Approach
This measure will be used in conjunction with the "Clean Schools Pledge" (Participation-02) to provide a more proactive approach to communicating with parents, educators, coaches, and youth organizations to increase awareness of health effects of air quality and when there is a need to curtail outdoor activities.

"Playing it Safe" Campaign
The objective of this control strategy is to develop a "Playing it Safe" campaign to increase public awareness of certain types of air quality situations where outdoor activities should be curtailed and to increase awareness of the potential health effects for children. These situations are generally temporary in nature, so providing a proactive public outreach and education program will be more health protective than providing notification during or after the air quality event.

Outreach Material Development and Website Enhancements
The AQMD staff would develop educational material for parents, educators, coaches, and youth organizations providing

Related Measures



specific information on when outdoor activities should be curtailed. Educational materials will include a "Playing it Safe" brochure with key information about specific air quality situations to be aware of, potential health effects, and tips for "Playing it Safe." This control strategy will also include updated information on the AQMD website and where additional information can be obtained. Information will include children's health advisories which will also be disseminated through available networking services such as Facebook, Twitter, and text and email alerts.

OUTREACH-04
Cleaner Choices to Reduce School Children's Exposure to Toxics *(All TACs)*

Measure Objective
- *Increase public awareness for parents, educators, and children to make daily choices that will reduce children's exposure to air toxics*

Implementation Approach
- *Develop education materials for parents, educators, and children on how to reduce exposure to toxic substances*
- *Provide practical recommendations on how the public can reduce their exposure to toxics*

Background
There are a variety of toxic sources that surround children in their daily lives. Some examples include consumer products containing toxic compounds; toxic diesel particulate matter from idling diesel school buses; toxic exhaust fumes from vehicles on nearby freeways; pesticides; and commercial and industrial businesses conducting processes resulting in toxic emissions.

Agency regulatory efforts have helped to decrease toxic levels from a variety of sources that children may be exposed to. For example, the Department of Toxic Substances Control regulates toxic chemicals in consumer products, the Department of Pesticide Regulation regulates pesticides, and CARB regulates idling of diesel-fueled vehicles. However, exposure to some of these sources can simply be eliminated or reduced through use of cleaner less-polluting products or avoidance of some sources. The objective of this control measure is to increase awareness of these types of sources and to educate parents, teachers, administrators, and children of cleaner less-polluting choices to reduce children's exposure to harmful air toxics.

Implementation Approach
Educational Material Development

The AQMD staff will develop educational brochures for parents and educators that identify sources of toxic air pollution that may be harmful to children, such as diesel exhaust from idling diesel buses; gasoline exhaust from idling cars; diesel exhaust from portable diesel generators used for school events such as carnivals or sporting events; and lead paint from buildings. Brochures will also explain associated health problems resulting from both short and long term exposures, such as eye and respiratory irritation, asthma, and lung damage from exposure to diesel exhaust and neurological damage from lead paint.

Recommendations to Reduce Exposure to Toxics

In addition, this control strategy will include recommendations to keep children safe from

exposure to toxics by providing a list of safe pesticides, school supplies, other consumer products, and toxic-free cleaning products through AQMD's "Clean Air Choices" certification program. This measure will include recommendations regarding the benefits of carpooling, clean-fueled school buses, and ideas for safer walking routes to avoid certain types of toxic emitting businesses such as gasoline stations, rail yards, active construction sites, and busy highways.

OUTREACH-05
Advocating Toxic-Free Choices (All TACs)

Measure Objective

- *Educate the public and increase awareness of ways to minimize or avoid toxic exposure through brochures and online Community Health Bulletins on TACs*

Implementation Approach

- *Use several approaches including Community Health Bulletins, AQMD website enhancements, and brochures to proactively disseminate information to the public on health concerns from TACs and avoiding or minimizing exposure*

Background

People are exposed to toxic air contaminants on a daily basis from a variety of different pollution sources and chemicals. Some types of pollution sources are not as well known to the general public, such as living near a freeway or exposure to mercury from handling a broken fluorescent light bulb. This measure seeks to better inform the public of sources of toxic air contaminants and their health impacts, so the public can make more informed decisions to protect themselves and their families.

The public may or may not be aware of potential exposure from such activities as refueling their cars, breathing fumes from diesel trucks, or exercising outdoors during episodes of poor air quality. In addition, the public may not be aware of exposure to toxic air contaminants from nearby industrial sources, roadways, and ports. The objective of this measure is to increase awareness of these types of sources and educate the public so they can make better informed decisions.

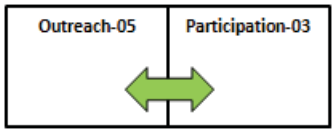
Implementation Approach

This measure will be used in conjunction with the Enhanced Community Meetings (Participation-03) to provide a more proactive approach to educate the public regarding exposure to toxic air contaminants and ways to minimize exposure. Several approaches will be used to educate the public and increase awareness of ways to minimize or avoid exposure to toxic air contaminants.

Community Health Bulletins and AQMD Website Enhancements

Community Health Bulletins on specific TACs will be developed. The health bulletins will be posted on the District's website and accessible via links on the MATES III Carcinogenic Risk Interactive Map. The public will be able to use the MATES interactive map to find out which TACs are contributing to the cancer risk in a specific area and how those TACs can impact the air quality in their community. The Health Bulletins will include information regarding individual

Related Measures



TACs, including a summary of health effects associated with the TAC, potential sources of the TAC, and suggestions for simple actions residents can take to help reduce their exposure. Health Bulletins will help to raise community awareness of risks associated with TACs and will provide practical actions that can be taken to minimize exposure.

Communities near Pollution Sources

Communities that are imbedded amongst industrial and commercial sources and/or freeways and busy highways have unique air quality challenges. The AQMD staff will develop other materials that will provide advice to community members on how to minimize exposure and steps they can take to help improve air quality in their neighborhood, such as scheduling outdoor activities during non-business hours or choosing routes for walking or biking that avoid areas of highest exposure.

Other Educational Materials

The AQMD staff will develop a brochure with suggestions for avoiding or minimizing exposure, such as not standing near the nozzle when refueling automobiles; using electric rather than gas-powered gardening equipment; avoiding exposure to idling diesel trucks; and proper disposal of hazardous household items such as batteries, fluorescent light bulbs, and electronics. Another educational brochure could provide the public with suggestions on avoiding or minimizing exposure to air toxics when selecting a place to live. Practical ideas for residents to ask about their residence may include questions regarding proximity to freeways or major roads; proximity to industrial facilities that emit toxic air contaminants; the age of the house; and whether lead paint and/or asbestos building materials are present. This information will enable residents to assess general air quality in and around their prospective new home and identify potential air quality hazards. Other opportunities to disseminate these messages to the public could include public service announcements on radio, television, the AQMD website, and AQMD telephone line "hold" messages.

OUTREACH-06
Business Outreach and Assistance

Measure Objective
- *Increase outreach efforts of AQMD's Small Business Assistance Program*
- *Enhance existing services for assistance on permitting and compliance*
- *Develop additional resources available to all businesses*

Implementation Approach
- *Add other means to disseminate information regarding AQMD's Small Business Assistance Program*
- *Develop an air quality compliance outreach program*
- *Develop an online forum on AQMD's website where the business community can communicate and share air quality solutions*

Background
The AQMD Small Business Assistance Office helps small business owners and operators to comply with AQMD Rules and Regulations, permitting requirements, and provides assistance on how to conduct recordkeeping through a variety of services offered. Other services include assistance on resolving AQMD fee-related disputes, providing information to businesses regarding available grants, and assistance with the AQMD variance process. These free services are provided onsite, by phone or email, and at AQMD Headquarters, and are offered to eligible businesses with 100 or fewer employees or with annual gross revenues up to $5 million. Various small business events are also attended and/or hosted throughout the year to provide additional communication opportunities between business owners and AQMD staff.

The objective of this measure is to increase efforts for outreach to businesses to improve compliance with AQMD rules and regulations, to allow businesses to become more familiar with AQMD requirements, and to reduce emissions from business. This measure is designed for all businesses, with focus on outreach to small businesses located in impacted areas, and would encourage communication and sharing of air quality solutions.

Implementation Approach
Currently, outreach of AQMD's existing small business assistance service is carried through a variety of methods. These include providing presentations and/or information via visits to chambers of commerce, trade associations, and economic development entities, through attendance at business-friendly community events, via the AQMD website and AQMD iPhone application. Further outreach is provided through handouts at small business events, field compliance staff's distribution of pamphlets to small businesses when conducting inspections and complaint investigations, and through public notices included as supplements to mailouts.

Enhanced Outreach
As part of this initiative, the Public Advisor will continue its current efforts, as well as increase efforts, by making information available through public service announcements on television, radio, YouTube, and AQMD telephone line "hold" messages. The Public Advisor will

additionally conduct an assessment of its current role and function to determine if additional steps need to be taken to meet the needs of the business community. AQMD staff will work with businesses, where appropriate, to develop outreach material for compliance with AQMD rules, pollution prevention process changes, material substitution, and other methods to encourage pollution prevention practices. AQMD staff will also reach out to contact businesses within the two pilot communities of Community-01 in order to seek out input from businesses to better determine their financial needs for compliance. AQMD staff would then utilize the information gathered to craft programs directly responsive to those needs, to facilitate the reduction of emissions from businesses. AQMD's Legislative & Public Affairs Division (L&PA) will additionally enhance awareness of the AQMD Ombudsmen to facilitate business retention, and will brief federal and state legislators and regulatory agencies to inform them of the CCP efforts, showcase successes, and advocate for adequate funding for all elements of the CCP, particularly in regards to incentives for business compliance.

Air Quality Compliance

Staff will develop additional assistance materials that provide frequently asked questions and answers specific to different business categories. Staff will also enhance existing assistance materials through the development of an air quality compliance outreach program that will be available on the AQMD website and accessible to all businesses. In addition to existing available tools on guidance for permit applications, the program will include:

- AQMD rule summaries;
- "What to Expect During an AQMD Inspection";
- Best practices guidance document, with empahsis on pollution prevention; and
- Tips on compliance.

Online Business Assistance Forum

Staff will also look into developing a forum on the AQMD website where business owners can discuss and share solutions to compliance issues based on experience. The forum will also allow for interaction with the AQMD for popular issues, topics, and questions that are posed to staff. The AQMD will explore opportunities to showcase technologies that can help facilities. In addition, facilities that pioneer new Best Available Control Technologies standards can be highlighted on AQMD's website and other media.

AGENCY-01
Promoting Better Land-Use Decisions

Measure Objective

- *Provide additional tools for local governments to be more proactive and make better informed land-use decisions*

Implementation Approach

- *"Proximity Matters" advisory to planners*
- *Siting requirements in source specific toxic rules*
- *"Reverse" CEQA Analysis for Sensitive Land Uses*
- *Outreach and training*
- *Early consultation for new projects*
- *Preliminary site assessment*
- *CEQA project tracking*

Background

Through its Intergovernmental Review (IGR) program, the AQMD staff comments on other lead agencies' California Environmental Quality Act (CEQA) projects. The AQMD staff reviews and provides comments on the adequacy of the air quality analysis and mitigation measures in the CEQA document. The AQMD staff also informs lead agencies about incompatible land uses where sensitive receptors, such as schools and residences, may be exposed to toxic air contaminants. The AQMD staff often references the California Air Resources Board's "Land Use Planning Handbook: A Community Health Perspective" which recommends siting distances for sensitive receptors and various land uses. For example, designing a project with a buffer zone between sensitive receptors and freeways can substantially reduce the exposure to toxic air contaminants. As shown in Figure 3-2, the cancer risk is significantly reduced by distancing receptors 1,000 to 1,500 feet from the freeway.[3] Once a land use decision is made and the project is built, reducing the exposure to neighborhoods or communities to toxic emissions becomes more difficult. The AQMD staff believes that the CEQA process can be a preventative approach to inform lead agencies about incompatible land uses, allowing the lead agency to modify the design of the project before it is approved and built.

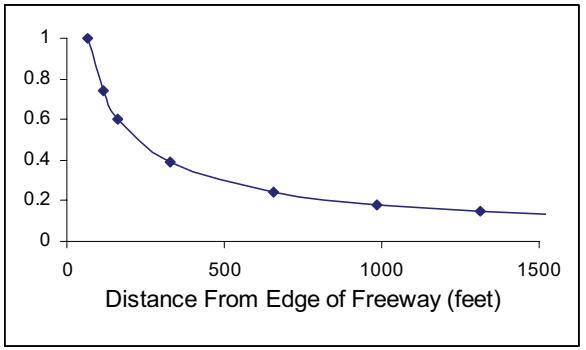
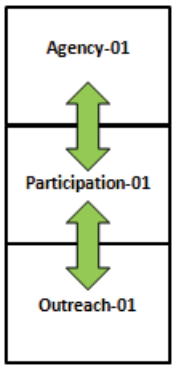


Figure 3-2: Relative Cancer Risk from Freeway as a Function of Downwind Distance

In general, CEQA requires that impacts imposed from the proposed project on the surrounding environment be evaluated. CEQA includes additional requirements for schools. CEQA requires

[3] Rochelle S. Green, Svetlana Smorodinsky, Janice J. Kim, Robert McLauglin, Bart Ostro, Proximity of California Public Schools to Busy Roads, Environmental Health Perspectives, January 2004

Related Measures



that new schools evaluate the impacts imposed from the proposed school project on the surrounding environment, and the health risk at the school from hazardous emitting facilities within ¼ mile of the proposed school site and freeways and busy traffic corridors within 500 feet of the school boundary. Thus, for schools, CEQA requires that the lead agency evaluate the "outward" impacts that the proposed school imposes on the surrounding environment and the "inward" impacts that surrounding sources could impose on the proposed school.

Implementation Approach

This measure will consist of a variety of enhancements to the AQMD's existing programs to assist local government and schools to make informed land use planning decisions to minimize exposure of toxic air contaminants to sensitive receptors. A summary of these enhancements is as follows:

"Proximity Matters" Advisory to Planners

The AQMD staff will further enhance CARB's siting recommendations to add additional source categories and update recommendations if needed. An advisory document called "Proximity Matters" will be developed for planners that incorporates principles of the CARB's "Air Quality and Land Use Handbook: A Community Health Perspective" and additional information to reduce exposure to toxic air contaminants. This advisory document will include technical information, in a user friendly format, regarding air toxics, health effects, and the importance of buffer zones.

Siting Requirements in Source-Specific Toxic Rules

Some of AQMD's toxics rules and CARB's Air Toxics Control Measures (ATCMs) specify siting requirements for certain new toxic sources such as minimum distances for new toxic sources relative to sensitive receptors. The AQMD staff will continue to evaluate other toxic rules to update siting recommendations as necessary. The AQMD staff will consolidate siting recommendations from existing toxics rules for sensitive land uses and will make this information available on its website for local planning agencies, school districts, and the public.

"Reverse" CEQA Analysis for Sensitive Land Uses

During the past few years, some lead agencies with residential development projects have conducted health risk assessments to evaluate the "inward" impacts that existing surrounding sources, such as freeways, may impose on the proposed residential development projects. This "reverse-type" CEQA analysis of the potential effects of the surrounding environment on the

proposed project is currently required where impacts may occur for school projects. Other sensitive land uses, such as residential developments should be required to conduct a reverse CEQA analysis. The AQMD staff will, as directed by the Governing Board at its May 2009 retreat, provide comments that request lead agencies to conduct the "reverse" CEQA analysis for sensitive land use projects.

AQMD staff will also look into using other types of health assessments and studies as possible additional information to quantify air-related health impacts from a project. Some examples include studies on air-related non-cancer health effects. In recent years, studies relating to exposure of ultrafine particles formed from vehicle tailpipe emissions along areas of vehicle traffic have been of concern. When inhaled, ultrafine particles are deposited along human airways and easily migrate due to their minute size, to the central nervous system and organs throughout the body including the heart and brain. In addition, ultrafine particles increased surface areas allow for transport of much larger amounts of toxic compounds into the body.

Outreach and Training

Although the AQMD receives about 50 CEQA documents a month, the AQMD staff estimates that about 30 percent of agencies and schools do not send their CEQA documents to the AQMD for review. The AQMD staff will inform local governments, schools, and the public about the AQMD's Intergovernmental Review program and again request receipt of local CEQA documents. In addition, the AQMD staff will host a series of workshops to educate consultants, local planners, school districts, and the public about the AQMD's role in reviewing and commenting on CEQA projects. The workshops would likely cover a variety of air quality related CEQA issues such as the different types of air quality analyses needed in a CEQA analysis, significance thresholds, calculation methodologies, appropriate emission factors, default assumptions, compatible land uses, and mitigation measures. The AQMD staff is considering issuing participation certificates for these workshops. The "Clean Communities Pledge" (Participation -01), a voluntary pledge that local cities, counties, and other government agencies can take that includes commitments to participate in various air quality training and outreach activities, can be used to encourage participation.

Early Consultation for New Projects
The AQMD staff will more actively encourage early consultation with local governments and schools to ensure that siting and design considerations can be incorporated into the proposed project in its early stages of planning. Often a lead agency will consult with the AQMD staff during the CEQA review period after the design of the proposed project is well established. Early consultation allows more flexibility to design a project to minimize potential exposure to air toxics.

Preliminary Site Assessment
When the AQMD staff receives a request from a school district to identify hazardous emitting facilities, the AQMD staff identifies all permitted facilities and does a physical inspection of the area to identify non-permitted facilities and area sources that may potentially emit air toxics or have odorous operations. The AQMD will look into developing a service available to local governments where staff would conduct a preliminary site assessment for a sensitive land use that would identify permitted facilities within ¼ mile of the proposed project and provide a list of past complaints and violations in the area. AQMD staff will also conduct a visual inspection of the area surrounding the proposed project to identify potential non-permitted sources that may adversely affect sensitive receptors. This type of service would require a fee for AQMD staff time and material. Criteria will also be developed to prioritize and accept site assessment requests. Because this type of program is very resource intensive, the AQMD staff is recommending implementation as a pilot program for a period of 12 months to ensure that existing resources are sufficient and to assess the effectiveness of this service.

CEQA Project Tracking
There is also the possibility for development of a web-based geographic information system (GIS) map displaying selected areas and concentrations of emissions sources that are undergoing the CEQA review processes. This tool can be used by the AQMD and other agencies and local governments to track development of new projects and geographically see trends in developments such as increases in warehouses in specific areas or land use trends for siting housing developments near freeways.

AGENCY-02
Multi-Agency Coordinated Response

Measure Objective

- *Improve multi-agency communication by combining jurisdictional efforts to solve complex cross-media issues*
- *Improve agency coordination efforts to resolve air pollution related public health issues*

Implementation Approach

- *Establish an "Interagency Task Force"*
- *Establish process to address recurring issues*
- *Develop an interagency information sharing system*

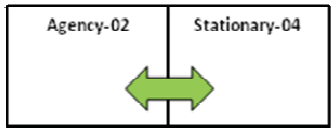
Background

Public concerns regarding the environment frequently involve multi-media pollution issues which fall under the jurisdiction of several regulatory agencies. For example, if a community is concerned about odors or toxic emissions from a nearby landfill, they may require support from several agencies, including the Department of Resources Recycling and Recovery, AQMD, Regional Water Quality Control Board, Department of Toxic Substances Control, the local city/county government, and possibly other agencies. Efforts have been made at the state level to improve inter-agency communication, however, there is a remaining need to have a streamlined, coordinated response from multiple government agencies when multi-media environmental pollution issues arise. In addition, there are opportunities for improved communication and coordination during multi-agency responses to air quality related incidents and emergencies.

The AQMD participates in programs with other government agencies to coordinate efforts, such as emergency response for local police, fire, and health departments where sampling and monitoring support is provided for emergency events such as fires, explosions, toxic spills, and toxic gas releases at industrial and commercial facilities. Other efforts include the AQMD's Engineering & Compliance (E&C) Toxics/Waste Management unit's regular communication with agencies such as the Department of Toxic Substances Control (DTSC), Regional Water Quality Control Board, and the California Department of Resources Recycling and Recovery (CalRecycle) where issues such as compliance, permitting and complaints are addressed. The AQMD's Engineering & Compliance unit for gasoline dispensing operations is also an active participant in a regional taskforce which coordinates fire safety, water, and air quality issues. Although the AQMD currently works to communicate regularly with some agencies, improvements can be made to establish more frequent, regular multi-agency meetings to address non-emergency air quality issues.

AQMD staff has received comments about multi-media issues that are air-related, however sometimes resolution of the issue is outside of the AQMD's jurisdiction or authority. Similarly, it

Related Measures



is expected that other agencies also receive complaints for issues that are within the AQMD's jurisdiction and authority. Some environmental issues may straddle several agencies or may not be the distinct responsibility of any one specific agency. Pollution issues that have multi-media impacts require coordination among various agencies. Better coordination between agencies will help to address issues raised by the public and will ensure agency efforts are not duplicative or in conflict with each other. Agency coordination is also important for emergencies such as accidental releases and fires. The participation of several agencies has sometimes resulted in duplicative efforts for sampling and monitoring which complicate resolution of the issue. Better coordination is needed in order to develop a more comprehensive solution for public health and safety issues.

Implementation Approach

The purpose of this measure is to improve multi-agency communication and coordination efforts to resolve air pollution related public health issues. Jurisdictional efforts of various governmental agencies could be combined to address complex cross-media environmental issues and provide a more comprehensive response. For air quality related issues, AQMD enforcement staff will take the lead and involve other agencies such as health and fire departments, local planning departments, CARB, and DTSC, as appropriate.

Establish an "Interagency Task Force"

Under this measure, an "Interagency Task Force" would be created with the list of participating agencies. AQMD staff will establish a list of agencies, their general responsibilities, and the name and contact information for their representative on air quality issues. This information will be posted on the AQMD website along with links to the agency websites.

Establish Process to Address Recurring Issues

To better understand specific issues raised by the public that require multi-agency coordination, the AQMD staff will take the lead to convene meetings with other agencies on an as needed basis. Public input will also be solicited. The objective of these meetings will be to gather specific, relevant information from the public regarding issues and concerns, and to develop a process to address and resolve recurring issues. Each approach to resolve issues raised may vary depending on the nature and extent of the issue and the agencies involved.

Develop an Interagency Information Sharing System

To ensure that air quality-related issues that are raised by the public to other agencies are being addressed, the AQMD staff will develop a process whereby agencies can share information with each other regarding complaints and community issues. Agencies can share public communication and complaint information received by their respective agencies, as well as monitoring and compliance information such as notices to comply, notices of violations, and settlements. This will better ensure that agencies are informed about community issues and that agencies are fully aware of compliance actions that other agencies may be implementing at common facilities. The AQMD staff can conduct periodic meetings with other agencies to discuss unresolved air-quality related issues. Action items and issues derived from multi-agency working group meetings will be reported to the AQMD's Stationary Source Committee on an as needed basis.

COMPLIANCE-01
Enhancements to AQMD's Compliance Program

Measure Objective
- *Assess compliance presence and response time*
- *Identify mechanisms to improve feedback with the public for reported incidents*

Implementation Approach
- *Assess how resources are deployed to improve compliance presence and response*
- *Investigate the development of an enhanced compliance feedback and tracking system for the public*
- *Agreements with other agencies to optimize compliance resources*

Background
The AQMD staff receives over 5,000 complaints from the public annually through its toll-free 24-hour 1-800-CUT-SMOG line. Complaints received range across various air-related issues such as odors, smoke, overspray, and fugitive dust. Depending on the nature of the complaint, the date and time received, and the accuracy of information provided, the AQMD, under most circumstances, dispatches an inspector to conduct a field investigation. The AQMD staff currently maintains a "Hot List" of facilities that have received multiple complaints or have compliance issues. In addition, facilities notify the AQMD via the 1-800-CUT-SMOG line of equipment breakdowns and rule-related notifications of various air-related activities (e.g., asbestos abatement activities, tank degassing, and soil decontamination) which are relayed to the compliance staff for follow-up action. Compliance reports are created and data analyses are performed in order to develop facility profiles and track compliance progress.

Although the infrastructure for enforcement activities has been established by the AQMD, issues such as compliance response time, limited availability of staff to respond to complaints received associated with after hour operations, and fleeting air quality-related nuisance problems still remain. In addition, at times when a member of the public notifies the AQMD of an air-related issue, they may not always be apprised of ongoing activities such as the status of the investigation. This measure will focus on improving AQMD's current enforcement program by enhancing compliance presence, response times, investigation, and compliance feedback for the public.

Implementation Approach
Assess Deployment of Compliance Resources
Implementation approaches for this measure would include assessment of how compliance resources are deployed. Criteria would also be developed to proactively facilitate more focused enforcement presence. AQMD staff will look into automating notification, facility breakdown,

and complaint information to field inspectors to further allow for improved compliance response time.

Investigate Development of Tracking and Feedback System

The AQMD is concerned with increases in complaint trends and currently tracks trends for complaints received. However, problems with generic complaint descriptions, unidentified sources, and unconfirmed complaints present difficulties when assessing the data for accurate trends. The AQMD staff will investigate the development of an enhanced compliance tracking and feedback system where the community can interact with compliance staff regarding air related issues that are assigned a tracking or case number. Additional and more detailed inputs for complaint information requested will also be investigated. AQMD staff will explore development of an automated process to inform the public how their complaint was resolved to improve complaint handling and resolution. Other means to communicate with the public could include internet-based filing to serve as a central repository for certain types of air quality information. In addition, ways to integrate the latest technologies for compliance monitoring equipment and remote communication/data devices will also be researched to improve compliance effectiveness and response out in the field. The AQMD staff is always open to feedback from the public and businesses regarding suggestions to improve its compliance programs. The AQMD will periodically work with complainants to seek their feedback.

Studies and Agreements with Other Agencies

The AQMD staff will contact other agencies that often deal with community issues and complaints to discuss how they receive and resolve complaints and their complaint resolution process and use findings to determine if there are mechanisms to enhance AQMD's complaint response program. AQMD staff will propose where appropriate, agreements with other agencies and organizations for enforcement, such as the California Highway Patrol and code enforcement, to optimize the resources devoted to enforcement of air regulations.

COMPLIANCE-02
Increased Public Awareness and Participation to Enhance Compliance

Measure Objective
- *Enhance AQMD's compliance program through additional public participation in compliance activities*

Implementation Approach
- *Public education on air quality issues*
- *Outreach to improve public awareness and participation*
- *Enhanced air quality complaint reporting*

Background
The AQMD has adopted a sufficient number of regulations, many of which are implemented through permit conditions. An effective compliance/enforcement program is needed to ensure the intended emissions and health risk reductions are achieved. A major component of the AQMD's compliance program is field inspections where inspectors conduct visual inspections of permitted equipment, observe a facility's operations, review records, and verify compliance with permit conditions and regulatory requirements. Field inspections allow the AQMD to physically verify compliance with AQMD rules and regulations. The AQMD currently has over 100 field inspectors conducting regular inspections at over 28,000 facilities annually in the District. Facilities are inspected at various frequencies depending on factors such as facility size and complexity, processes conducted at the facility, past compliance history, and federal or state funded mandates.

The public is also a key component in the success of AQMD's compliance program. The AQMD periodically receives information from the public on air-related issues resulting from both permitted and unpermitted facilities and activities. Despite available mechanisms and pathways for public input, some air related incidents are either reported well after the fact or unreported due to a lack of community awareness of the AQMD and its role in air pollution related issues. In other cases, the public may be unclear on how to report incidents to the AQMD and the necessary information required for effective enforcement of air related issues. Furthermore, businesses have often expressed concerns that unfair business competitiveness exists between compliant and non-compliant facilities. A well informed public can assist the AQMD in identifying businesses that are operating without proper permits or air pollution control equipment.

The objective of this measure is to enhance AQMD's compliance program through additional public participation in compliance activities. The AQMD staff believes compliance efforts can be improved with assistance from the public. Although the AQMD employs a staff of highly trained, knowledgeable inspectors, increased public participation in the compliance process can help strengthen the District's compliance efforts by enabling the public to closely monitor air quality related activities in their neighborhoods. A well-informed public will help to identify air quality

issues in the community, make the AQMD's complaint response process more efficient by providing more accurate information, and minimize AQMD staff time spent responding to issues which may not be within AQMD jurisdiction.

Implementation Approach

Enhanced compliance can be achieved through improved public communication with the AQMD and increased outreach activities, including informing and educating the public regarding AQMD's compliance program and air quality complaint reporting and response procedures.

Public Education on Air Quality Issues

Training sessions conducted by staff on how to recognize air related problems and when to contact the AQMD would be offered to help educate the community regarding air quality compliance. The AQMD staff can also educate the public on AQMD's jurisdiction and compliance issues. Training content would include information such as: AQMD's roles and responsibilities; responsibilities of other government agencies; AQMD's rule enforcement procedures; typical sources and types of dust/smoke/odors or other air quality nuisances; air quality complaint referral process; permitting procedures; and other general air quality information. Training materials could be made accessible through the AQMD website and also at other local agency offices.

Outreach to Improve Public Awareness and Participation

A multi-media public outreach effort will be initiated to further promote the AQMD's existing air quality complaint reporting procedure (i.e., 1-800-CUT-SMOG hotline). Currently, the AQMD readily distributes 1-800-CUT-SMOG pamphlet to the public and businesses. Additional efforts to promote the CUT-SMOG hotline would include an increased presence on the internet, such as creating "links" on city/county and other public agency websites to the AQMD's "Making Air Quality Complaints" YouTube video, basic information on air quality complaint reporting, and directions for the public about the CUT-SMOG hotline and other complaint reporting methods. In addition, software applications for mobile devices have been developed to provide information on how to report smoking vehicles through the CUT-SMOG hotline, such as the AQMD application for the iPhone.

Enhanced Air Quality Complaint Reporting
AQMD's website would include enhanced information on various compliance and complaint reporting procedures and online filing of complaints. Website enhancements would include a "one-click complaint" feature, which allows the public to submit air quality related complaints via a link on the front page of the AQMD's website. Other complaint reporting methods may include an air quality complaint "texting" mechanism, which would allow the public to use their cell phones to send the AQMD text messages with air quality complaint information.

Periodic Community Meetings would also be used to enhance outreach and other possible mechanisms to improve communication between the community and AQMD. To further enhance outreach efforts and to facilitate greater public awareness of environmental issues, AQMD will advocate public participation in environmental education programs, such as those funded or led by US-EPA (see the following link for resources on US-EPA's Environmental Education programs - http://www.epa.gov/enviroed/index.html).

STATIONARY-01
Lead Emissions

Measure Objective
- *Reduce lead exposure to the public from lead-related activities*
- *Comply with the 2008-adopted NAAQS for lead*

Implementation Approach
- *Action plan development*
- *Amend Rule 1420 to address smaller lead-emitting facilities*

Background
Adverse health effects of exposure to lead emissions include neurodevelopmental effects in children; increased blood pressure and related cardiovascular conditions in adults; and possibly cancer. Secondary lead smelting, foundries, and lead-acid battery manufacturing and recycling are examples of stationary source operations that result in emissions of lead. General aviation airports are also a source of lead emissions because the fuel used in piston airplanes and helicopters still contains lead. Reduction of lead emissions in the air from both stationary and mobile sources reduces the amount of lead deposited to soil which is an additional pathway for lead exposure.

On October, 15, 2008, the US-EPA adopted a new National Ambient Air Quality Standard (NAAQS) for lead of 0.15 micrograms/cubic meter ($\mu g/m^3$) to be attained no later than 5 years after final attainment designations are made. The previous standard was 1.5 $\mu g/m^3$. No later than 18 months after final designations are made, states are required to submit State Implementation Plans outlining how the standard will be achieved. Various lead use and processing operations are regulated by US-EPA, the state, and AQMD Rule 1420 – Emissions Standard for Lead. Rule 1420 applies to all nonvehicular sources of lead emissions and contains requirements for emission levels, controls, housekeeping, and monitoring.

Implementation Approach
This measure will address the new NAAQS for lead emissions. It will focus on lead emissions from all lead emitting facilities beginning with the largest lead emitters which currently may have difficulties meeting the new lead standard.

Action Plan Development
Implementation of this measure will require analysis of the impacts of the new lead standard on affected industries, which includes a review of lead emissions for all facilities that use or process lead-containing materials. AQMD staff will work with affected facilities to gather information on typical industry and facility processes/practices and develop lead emission control strategies. Implementation of this measure will include development of an action plan which incorporates

additional emission control requirements, housekeeping, cleanup, and monitoring requirements to achieve the new NAAQS for lead.

Amend Rule 1420

Rule development is currently underway for Proposed Rule 1420.1, specifically for large lead-acid battery recyclers, the largest stationary source of lead emissions, to help ensure attainment with the lead NAAQS by US-EPA deadlines. Special requirements for the siting of new lead-emitting sources close to sensitive receptors are also a part of the proposed rule. A working group list including affected facilities, environmental groups, and other governmental agencies has already been established and worked with the AQMD staff during rule development for Proposed Rule 1420.1. This purpose of this measure is to develop an amendment to Rule 1420 for smaller lead-emitting facilities.

STATIONARY-02
Lead Paint for Pre-1978 Structures *(Lead)*

Measure Objective
- *Further reduce lead exposure to children from renovation or demolition of existing sources*
- *Innovative approaches to reduce lead exposure*
- *Assist in enforcing new US-EPA standard*

Implementation Approach
- *Public outreach and online information*
- *Determine feasibility of development of more stringent lead rule(s)*

Background
Lead-containing paint was commonly used to paint houses and other structures constructed before 1978 when lead paint was banned. The paint presents a health hazard when disturbed during renovation and repair activities. US-EPA has adopted a rule with lead standards for renovation of pre-1978 structures which takes effect in April 2010. The regulation requires notification before renovating six square feet or more of painted surfaces in a room for interior projects or more than twenty square feet of painted surfaces for exterior projects in housing, child care facilities and schools built before 1978. Contractors conducting renovations that disturb lead-based paint will also be required to be certified and follow specific work practices to prevent lead contamination. Young children are particularly susceptible to the neurodevelopmental effects of lead.[4]

Implementation Approach
This measure was developed because of the potential health impacts of lead exposure, particularly for children. Reduction of lead emissions from renovation activities for houses, apartments, childcare facilities and schools would also reduce the amount of airborne lead deposited to soil and water which are additional pathways for lead exposure.

Public Outreach and Online Information
The implementation approach would include education and outreach to increase public awareness of the health impacts associated with exposure to lead, particularly for children. Brochures developed under CCP measure Outreach-04 would include information on children's exposure to lead paint and the associated health effects. The AQMD website will provide links to other agency websites with information on lead paint related issues. Elements of the lead abatement certification process can be provided on the AQMD website along with a list of certified contractors.

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[4] U.S. Department of Health and Human Services, Public Health Service Agency for Toxic Substances and Disease Registry, "Toxicological Profile for Lead," August 2007.

Determine Feasibility of Development of More Stringent Lead Paint Rules

Under this approach, AQMD staff will evaluate the need and feasibility of more stringent lead paint rules. During the feasibility analysis, staff will determine if a gap exists and the need for additional rules. Approaches could take the form of a program or rule to implement the US-EPA standard or require specific work practices conducted by certified lead abatement contractors. More stringent requirements including notifications for lead abatement activities and ambient air monitoring clearances upon renovation completion may be required. Additional requirements for the maintenance of lead painted buildings and structures where children may be exposed to paint chips or paint dust will also be considered. If a new rule is developed, the AQMD staff will consider resource impacts and program effectiveness in the scope of the rule.

STATIONARY-03
Identifying New Sources

Measure Objective

- *Proactively identify potential air toxic sources in the District through rigorous and systematic research methods*

Implementation Approach

- *Develop a multi-step approach for identifying sources emitting selected, highly toxic air contaminants involving:*
  - *Literature searches*
  - *Evaluation of rare and exotic TACs, and*
  - *Investigative monitoring and sampling*

Background

The AQMD has an extensive air toxics program covering a wide variety of sources. The AQMD also implements state Air Toxics Control Measures (ATCMs) and federal National Emissions Standards for Hazardous Air Pollutants (NESHAPs) where there is no source specific AQMD rule. In the first half of 2008, ambient air sampling conducted by the AQMD detected elevated levels of hexavalent chromium in the Rubidoux area. Extensive additional sampling and modeling traced these emissions to loading, unloading, and transferring of clinker material containing hexavalent chromium that was stored in the open at a cement plant located in Riverside. This was an unconventional source of hexavalent chromium and highlighted the need to find other unconventional sources of toxic air contaminants (TACs) that may pose a significant public health risk. The objective of this measure is to proactively identify potential sources of highly toxic air emissions through a systematic scientific approach.

Implementation Approach

The following is a sample of some of the approaches and techniques the AQMD staff will use to take additional steps to proactively identify unknown sources:

- Develop a concentrated list of TACs prioritized by highest toxicity values and examine and analyze existing air quality data to identify areas with higher than average concentrations
- Literature searches of high potency TACs for unconventional uses of these TACs and verifying if there are any sources in the District that use these TACs
- Evaluation of exotic and rare TACs that may be used in the District
- Investigative monitoring and sampling in identified areas of unconventional TAC use
- Enhanced air quality data analysis, including routine air quality monitoring and targeted studies, to help identify emissions sources
- Analyze existing data, collect additional data, and/or perform testing from sources, such as the metal finishing industry, to determine if further air toxic regulation is needed

If a source or a group of sources are found that are determined to pose an elevated health risk, the AQMD staff will bring them into Rule 1402 or possibly develop a source-specific rule.

STATIONARY-04
Alternative Assessment for Use of Acutely Hazardous Materials

Measure Objective

- *For new or modified sources, use CEQA process to evaluate substitution of acutely hazardous materials with less hazardous materials where possible*

Implementation Approach

- *Where applicable, during the permitting and CEQA review process, evaluate new uses of acutely hazardous materials to identify where less hazardous alternatives can be substituted*
- *Work with other agencies to ensure substitutions do not duplicate and are not in conflict with other programs*

Background

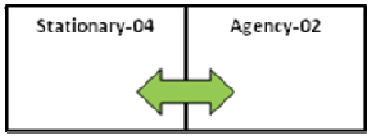
Acutely hazardous materials are used in a variety of processes throughout the district. Examples of some acutely hazardous materials include hydrogen fluoride, anhydrous ammonia, chlorine, and sodium hydroxide.[5] Replacements for some acutely hazardous materials are available. Refineries in the district have eliminated the transport and use of hydrogen fluoride over the past two decades using modified less hazardous alternatives. In addition, most new and modified permits for Selective Catalytic Reduction systems use aqueous instead of anhydrous ammonia. Some alternatives may come with tradeoffs in performance, efficiency, cost, and other environmental effects. The purpose of this measure is to decrease the potential for adverse health impacts due to the accidental release of acutely hazardous materials. It should be noted that the intent is not to regulate storage, transport, reporting, or any other activities that are already controlled by other regulating entities.

Implementation Approach

The most likely approach will be to use the CEQA process to evaluate substitution of less hazardous materials when permitting new and modified sources to reduce or eliminate the exposure to an acutely hazardous material during an accidental release. The AQMD staff will evaluate new uses of acutely hazardous materials and will consider potential trade-offs and other potential adverse impacts from alternatives while ensuring that no other environmental impacts are introduced. In addition, the AQMD staff will work with other agencies such as the state Certified Unified Program Agencies, California Emergency Management Agency (Cal-EMA), California Department of Occupational Safety and Health (Cal-OSHA), California Department of Toxic Substances Control (DTSC), U.S. Department of Transportation (DOT), and U.S. Environmental Protection Agency (US-EPA) to ensure that substitution assessments do not duplicate and are not

[5]List of Acutely Hazardous Materials, California Code of Regulations, Title 8, Section 5189, California Department of Industrial Relations, April 2009 <http://www.dir.ca.gov/title8/5189a.html>.

Related Measures



in conflict with other programs. Substitutions have been required in some instances, however using a more systematic approach during permitting would ensure that substitutions could be made wherever feasible.

STATIONARY-05
Indirect Sources *(Diesel PM)*

Measure Objective

- *Develop approaches for reducing exposure to diesel PM from facilities with associated diesel-fueled vehicle emissions*

Implementation Approach

- *Use a multi-step approach to reduce diesel PM emissions from sources associated with diesel mobile source emissions*
  - *Step 1: Establish Applicability Criteria*
  - *Step 2: Develop List of Implementation Options for Diesel PM Reduction*
  - *Step 3: Compliance Plan Submittal*
  - *Step 4: Diesel Reduction Plan*

Background

The AQMD's MATES II and III studies both showed diesel particulate matter (diesel PM) as the largest contributor to the District's cancer risk from toxic air pollutants. On average, diesel particulate, primarily from mobile sources, contributes approximately 83 percent of the cancer risk from toxic air pollutants in the District. Diesel fuel currently remains the primary fuel used for heavy duty trucks, locomotives, ships, and cargo handling equipment.

Studies have shown that the cancer risk from air toxics is elevated in communities that surround sources with diesel emissions. In 2006, the California Air Resources Board (CARB) conducted health risk assessments for 18 major railyards in the state. The results of the health risk assessments showed that nearly all of the railyards in the District had cancer risks from diesel emissions greater than 100 in a million, with the highest cancer risk from a Burlington Northern Santa Fe railyard in San Bernardino of 2,500 in a million. Risks at the rail yards have decreased and are expected to decrease further over time due to adopted regulations and fleet turnover; however, the residual health risk still remains elevated.

Because of the potency of diesel particulate and the high diesel particulate emissions, the health risk from other facilities that are associated with diesel mobile sources, such as warehouse and distribution centers, solid waste facilities, rock quarries, airports, and other types of businesses that rely on diesel mobile sources are expected to be elevated, particularly in densely populated neighborhoods. For example, many facilities rely on diesel-fueled trucks to deliver raw materials and distribute product. While the vehicle trips are peripheral to their main business, they may be a significant source of diesel PM emissions and impacting nearby receptors. Currently diesel PM emissions from mobile sources that either exclusively operate onsite or go offsite are not accounted for when a facility-wide health risk assessment is done which leads to an underestimate of the health risk to the surrounding neighborhood from these sources.

Progress in reducing diesel PM emissions from mobile sources has been made through the AQMD fleet rules requiring the use of alternative-fuel vehicles, cleaner diesel vehicles, and retrofitting or early retirement of older diesel vehicles. These rules only apply to diesel vehicles used by or under contract to government agencies and only for certain uses, such as street sweepers, trash trucks, airport access, transit buses, and school buses. In addition, significant progress in diesel PM emission reductions are also expected due to implementation of CARB's regulations and DRRP which is targeting an 85 percent reduction in diesel risk on average by 2020. Even if the District achieves these reductions in diesel PM, there will still be elevated health risks from diesel PM in the District. In addition, some diesel PM reduction measures accomplished through CARB's plan and US-EPA regulations will take a decade or more to be fully implemented as shown in Figure 2-1 of Chapter 2.

Implementation Approach

The purpose of this measure is to reduce exposure of diesel PM emissions from new, existing, and modified facilities with diesel mobile source emissions including, but not limited to, large warehousing facilities, distribution facilities, delivery facilities, and rail facilities. Additionally, facilities whose business is not primarily associated with diesel mobile sources, such as manufacturing facilities, may be included due to increased diesel PM emissions from truck or rail traffic for deliveries of raw materials and distribution of finished products. The basic approach to this measure is to establish criteria for applicability and, for a facility that meets the criteria, provide a menu of options that can be implemented to reduce diesel particulate exposure. Implementation may be developed in the form of a rule or any other appropriate implementation approach such as a guidance document which may require working with CARB to change their guidelines on mobile sources under AB2588. This measure will be implemented in several steps.

The AQMD staff may initiate development of an indirect source rule containing an applicability criteria that will account for diesel PM emissions, exposure to diesel PM, and the proximity to residential and sensitive receptors.[6] AQMD staff will compile a menu of options that facility

[6] Based on the Ninth's Circuit decision, local air district regulations addressing railroad emissions may be upheld and harmonized with the Interstate Commerce Commission Termination Act of 1995, but only if the regulations have been incorporated into a State Implementation Plan.

operators can implement. Potential options include, but are not limited to, use of accelerated fleet turnover, minimization of truck routes in or near neighborhoods, idling requirements, automated truck gates, and pre-scheduling of deliveries. AQMD staff will start development of an implementation schedule for facilities to submit a compliance plan outlining what measures they will implement to reduce exposure to diesel PM emissions. A Diesel Reduction Plan will be developed based on the findings of Steps 1 and 2. Strategies to reduce diesel PM emissions may include developing an indirect source rule for diesel or requiring health risk assessments similar to the ones CARB required for the rail yards. Other possible approaches would include ways to reduce idling, traffic studies to improve the flow of diesel vehicle traffic and vehicular scheduling and operating changes. This may require faster implementation of strategies in CARB's Diesel Risk Reduction Plan. Incentives for facilities would be developed to voluntarily accelerate turnover of fleets switching to equipment using alternative fuels or retrofitting with diesel particulate filters. Several implementation approaches are possible. If a regulatory approach is pursued, staff will conduct an analysis of the AQMD's regulatory authority.

NUISANCE-01
Nuisance Rule (Odors/Nuisances, Possibly TACs and Criteria Pollutants)

Measure Objective
- *Enhance effectiveness of AQMD Nuisance Rule 402*

Implementation Approach
- *Evaluate and consider revisions to Rule 402 and "Policies & Procedures on Public Nuisance Investigation"*

Background
Public nuisance issues relating to the release of air contaminants are addressed by the AQMD through enforcement of Rule 402 – Nuisance, adopted in 1976. The rule is generally a restatement of the text found in the California Health and Safety Code Sections 41700 and 41705. Air quality complaints that may result in a public nuisance situation are received through the AQMD's 24-hour complaint line (1-800-CUT-SMOG) and may be immediately dispatched to an inspector for investigation depending on the nature of the complaint, date and time received, and accuracy of the information provided. Complaints are responded to by communication with the complainant and investigation of the complaint site. Violations under Rule 402 require verification of the nuisance by the inspector with each of a considerable number of complainants (typically 6 persons from different households), and must be traced to a confirmed source. These requirements support AQMD's ability to meet the definition of "public nuisance". AQMD "Policies & Procedures on Public Nuisance Investigation" is provided in Appendix C of this document.

Although overall numbers of complaints received by the AQMD has decreased during the last decade, a need to develop public nuisance prevention strategies still exists. Federal, state and local rules and regulations continue to reduce emissions of criteria pollutants and toxic air contaminants from various sources, however, eliminating public nuisance issues associated with processes at these sources remains a challenge. Affected communities experience problems ranging from odors at landfills, rendering facilities, and refineries; overspray from painting operations; and dust exposure from outdoor operations to name a few. Resolving odor related nuisances can be problematic due to dissipation of often intermittent odors prior to verification, and weather and wind conditions making it difficult to trace problems to a source. Establishing public nuisance violations can also be difficult when only a few complaints are made to the AQMD, preventing enforcement staff from concluding that it is a "public" nuisance and there that has been a violation under Rule 402.

Implementation Approach
Evaluate and Consider Revisions to Rule 402 and Public Nuisance Procedures
The first step of this measure is to evaluate Rule 402 implementation and determine ways for the

AQMD staff to be more proactive in resolving nuisance issues. During this first step, AQMD staff will evaluate options of how "public" nuisance may be defined and the process to address recurring nuisance complaints. Evaluations may result in amendments to Rule 402 and "Policies & Procedures on Public Nuisance Investigation" to provide for a more systematic and prompt response to nuisance incidents. This may result in the need to amend existing rules and policies and procedures or amendments to Health and Safety Code Section 41700. In addition, the District may use legal tools, such as Orders for Abatement (administrative sanctions which can be used to require a facility to mitigate odors or other air pollution impacts), to address public nuisances originating from individual facilities. Another concept the AQMD is considering is the development of a new rule requiring facilities with recurring odor nuisance issues to submit odor management plans requiring odor control equipment or operational modifications.

NUISANCE-02
Source-Specific Nuisance Rules (Odors/Nuisances, Possibly TACs and Criteria Pollutants)

Measure Objective
- *Address nuisance issues through industry-specific rules or programs*

Implementation Approach
- *Identify persistent odor issues and develop industry-specific rules or programs to reduce odors*
- *Conduct research on a systematic, scientifically-based odor nuisance resolution practice*

Background
Approximately 50 percent of the air quality complaints received by the AQMD involve the reporting of odor events. Some events cannot be attributed to a known source or are a product of unpredictable events such as breakdowns or emergencies. For those that are regularly associated with particular industries and processes, odor prevention may be possible through the development of rules or programs specific to industries or sources such as waste water treatment plants and landfills.

One of the measures in the 2004 Addendum to the Air Toxics Control Plan was to develop a pilot program for odor mitigation. Rule 410 – Odors from Transfer Stations and Material Recovery Facilities (MRFs) was adopted in 2006 as the first AQMD rule to address odor nuisances. Combined with AQMD Rule 402 – Nuisance, a comprehensive strategy for prevention and mitigation is available for transfer stations and material recycling facilities. The rule reduces the possibility of odors from the subject facilities by requiring site-specific odor management practices. The purpose of this measure is to use this approach or other types of programs to address nuisance issues from other industries.

Implementation Approach
The first step in implementing this measure would be to evaluate odor complaints received by the AQMD to identify types of facilities or processes with odor issues occurring on a regular basis. Approaches to this measure could take the form of additional rules modeled after Rule 410 or some other type of program to reduce odors from specific sources. Requirements may include performance requirements, odor minimization plans, or community notification and reporting requirements.

Another approach currently in early development is researching a new systematic, scientifically-based odor nuisance resolution practice to be developed by the academic community and the AQMD. A contract with a UCLA team of olfactory experts was recently approved to enhance AQMD's ability to better characterize nuisance odors and enhance potential mitigation measures

to resolve odor complaints. AQMD staff will look into developing new rules or policies for odor nuisances based on findings of the study.

Chapter 4: Implementation Schedule

Implementation Schedule

The CCP, like the previous air toxics plans, addresses specific sources of air toxics and nuisance. Further, it enhances compliance efforts making them more accessible, understandable, and responsive to the public. It contains elements to improve coordination with other government organizations. It also focuses on education and outreach to increase awareness of toxic exposure and better alternatives for the public and schools. In order to address these highly impacted areas and their unique circumstances, an integral part of the CCP is a community-based approach which provides an opportunity for input from stakeholders in the community and focuses on the cumulative impacts of individual communities and neighborhoods.

Due to the varied scopes and complexities of each measure, full implementation of the CCP will depend on AQMD staff resources and availability of members from the community and other governmental regulatory entities. Resource needs will be assessed more fully as each measure is implemented. Stakeholders for each program will be included in the process of developing implementation approaches. Once implementation approaches are developed, the AQMD staff will assess resource needs. The AQMD will endeavor to use existing resources wherever possible to implement the measures. If needed, staff resources may be reallocated and projects reprioritized. Some additional resources may be needed for some measures. For example, increasing off-hour compliance presence and additional outreach activities may require additional staffing and changes to computer programs may require additional contract funding. As needs are identified during implementation of each measure, the annual budget process will be used to allocate resources subject to Board approval. Periodic reports will be made to the Stationary Source Committee regarding resource needs.

Table 4-1 lists all the measures of the CCP along with a schedule describing when specific actions for each are proposed to begin. It should be noted that the AQMD staff will need some lead time for implementing the agreed upon approaches. The implementation schedule presented in this chapter accounts for this lead time and may be changed if additional lead time is needed.

Table 4-1

CCP Measures Implementation Schedule

Measure	Proposed Action	Implementation Date
Community-01 Community Exposure Reduction Plan	• Phase 1: Select two pilot communities • Phase 2: Collect Stakeholder Input • Phase 3: Investigate and Validate Data • Phase 4: Implementation of Early Action Items • Phase 5: Develop Community Exposure Reduction Plan • Phase 6: Implement Community Exposure Reduction Plan	Completed Ongoing 2011-2013 2011-2012 Late 2011 2012+
Community-02 Community Guidance for Reducing Air Toxic Exposure	• Develop CERP process similar to the process followed in the pilot study to guide communities and local governments to develop CERPs with AQMD assistance • Update CERP process as experience is gained in developing CERPs	Beginning 2013 As needed
Community-03 Greening Communities Through Accelerated Toxic Emission Reduction Projects for Existing Sources	• Identify disproportionately-impacted communities and assess cumulative impacts • Provide outreach for permitted and unpermitted sources • Establish funding for emission reduction programs • Retrofit or replace existing toxic sources	Mid 2011 Mid 2011 and ongoing Beginning in 2011 Mid 2011 and ongoing
Participation-01 Clean Communities Pledge	• Develop Clean Communities Pledge and outreach for participation • Recognize achievements of participating members	Mid 2011 Mid 2011 and ongoing
Participation-02 Clean Schools Pledge	• Develop Clean Schools Pledge and outreach materials • Advocate school participation in air quality-related programs • Recognize achievements of participating members	Early 2011 Mid 2011 and ongoing Mid 2011 and ongoing
Participation-03 Enhanced AQMD Community Meetings	• Continue and enhance existing AQMD community meetings to include round table discussions to further understand community concerns • Develop new community meeting process to include local gatherings of diverse groups of key stakeholders (residents, local business representatives, health agencies, universities, public/private agencies)to seek input and collaborative ideas for addressing air-related issues	Beginning late 2010 Beginning late 2010
Outreach-01 Clean Air Toolbox for Local Governments, Communities, and Schools	• Establish "Clean Air Toolbox" website and add existing tools • Develop "Proximity Matters" advisory document for planners • Develop sample anti-idling ordinances and signage for idling trucks and trains • Develop additional tools	Early 2011 and ongoing Early 2011 Beginning in 2012 Ongoing

Table 4-1

CCP Measures Implementation Schedule

Measure	Proposed Action	Implementation Date
Outreach-02 Community Dialogue	• Begin development of "Ask AQMD" online forum • Develop additional tools to improve two-way communication with communities • Enhance MATES III interactive risk map	Beginning 2011 Beginning mid 2011 and ongoing 2011
Outreach-03 "Playing it Safe" Campaign	• Begin developing "Playing it Safe" Campaign • Provide outreach and information on AQMD website on situations when outdoor activities should be curtailed	Early 2011 Mid 2011
Outreach-04 Cleaner Choices to Reduce School Children's Exposure to Toxics	• Develop education materials for parents, educators, and children on how to reduce exposure to toxic substances • Provide practical recommendations on how the public can reduce their exposure to toxics	Late 2010 Late 2010
Outreach-05 Advocating Toxic-Free Choices	• Begin development of health bulletins and brochures identifying air toxic sources • Begin using several approaches including Community Health Bulletins, AQMD website enhancements, and brochures to proactively disseminate information to the public	Early 2011 Mid 2011
Outreach-06 Business Outreach and Assistance	• Add other means to disseminate information regarding AQMD's Small Business Assistance Program • Develop an air quality compliance outreach program • Develop an online forum on AQMD's website where the business community can communicate and share air quality solutions	Early 2011 Mid 2011 Mid 2011
Agency-01 Promoting Better Land-Use Decisions	• Develop tracking system for CEQA projects • Develop "Proximity Matters" advisory to planners • Evaluate feasibility of providing a preliminary site assessment service for land use planners • Implement "Reverse" CEQA Analysis for Sensitive Land Uses • Begin outreach and training • Develop and add siting requirements to source specific toxic rules	Currently in progress Early 2011 Mid 2011 Mid 2011 and ongoing Mid 2011 Ongoing
Agency-02 Multi-Agency Coordinated Response	• Establish list of participants for the Interagency Task Force • Establish process to address recurring issues • Develop interagency information sharing system	Early 2011 Mid 2011 Late 2011

Table 4-1

CCP Measures Implementation Schedule

Measure	Proposed Action	Implementation Date
Compliance-01 Enhancements to AQMD's Compliance Program	• Assess how resources are deployed to improve compliance presence and response • Investigate the development of an enhanced compliance feedback and tracking system • Enter agreements with other agencies to optimize compliance resources	Beginning late 2010 2012 Mid 2011
Compliance-02 Increased Public Awareness and Participation to Enhance Compliance	• Encourage additional public participation in compliance activities through training and outreach • Enhanced air quality complaint reporting	Beginning Early 2011 2012
Stationary-01 Lead Emissions	• Amend Rule 1420 to address smaller facilities	2012
Stationary-02 Lead Paint for Pre-1978 Structures	• Develop materials for public outreach and online information • Determine feasibility of more stringent lead rule(s)	Early 2011 Mid 2012
Stationary-03 Identifying New Sources	• Develop a multi-step approach for identifying sources emitting selected, highly toxic air contaminants	Beginning 2011
Stationary-04 Alternative Assessment for Use of Acutely Hazardous Materials	• Where applicable, during the permitting and CEQA review process, evaluate uses of acutely hazardous materials to identify where less hazardous alternatives can be substituted • Work with other agencies to ensure substitutions do not duplicate and are not in conflict with other programs	Mid 2012 Mid 2012
Stationary-05 Indirect Sources (Diesel PM)	• Develop multi-step approach to reduce diesel PM emissions from sources associated with diesel-fueled vehicle emissions	Beginning early 2012
Nuisance-01 Nuisance Rule	• Evaluate and consider revisions to Rule 402 and "Policies & Procedures on Public Nuisance Investigation"	Early 2011
Nuisance-02 Source-Specific Nuisance Rules	• Identify persistent odor issues and develop industry-specific rules or programs to reduce odors • Conduct research on a systematic, scientifically-based odor nuisance resolution practice	Mid 2012 Ongoing

APPENDIX A

KEY FEDERAL, STATE, AND LOCAL TOXIC AIR REGULATIONS

Table A-1
Examples of the AQMD Air Toxics Control Program

Source Category	Target TAC(s)
Toxic New Source Review Rule 1401 amended several times to add new TACS and most recently on 3/7/2008 to add diesel PM from internal combustion engines.	Various TACS, Diesel PM
Toxic Emitting Facilities near Schools Rule 1401.1 adopted 11/4/2005.	Various
Control of Toxic Air Contaminants from Existing Sources Rule 1402 amended 3/17/2000 to add industry categories and committed to assessing the need for source specific rules. Rules 461, 1421, 1425, 1426, 1469 were either adopted or amended. Reports to the Board for no further action on ethylene oxide, rubber and furniture stripping industries.	Various
Aerospace Coating Operations Rule 1124 amended 9/21/2001.	Perchloroethylene, Hexavalent Chromium, Trichloroethylene, Methylene Chloride
Perchloroethylene Film Cleaning and Printing Rule 1425 adopted 3/16/2001.	Perchloroethylene
Perchlorethylene Dry Cleaners Rule 1421 amended 12/6/2002 to phase out perchloroethylene.	Perchloroethylene
Gasoline Dispensing Rule 461 amended 3/7/2008 to incorporate more stringent emission limits and housekeeping requirements.	Benzene, Hexane, Toluene, Ethylbenzene, Xylene
Chrome Plating Rule 1469 amended twice on 5/2/2003 and 12/5/2008 to make emission limits more stringent and enhance housekeeping requirements.	Hexavalent Chromium
Hexavlent Chrome Spraying Rule 1469.1 adopted 3/4/2005.	Hexavalent Chromium

Table A-1
Examples of the AQMD Air Toxics Control Program

Source Category	Target TAC(s)
Other Metal Finishing Rule 1426 adopted 5/2/2003 to gather information from other types of plating with TAC emissions.	Nickel, Cadmium, Copper, Lead
Single Diesel Engines Rules 1470 adopted 4/2/2004.	Diesel PM
Multiple Standby Emergency Diesel Engines Rule 1472 adopted 3/7/2008.	Diesel PM

Table A-2
Examples of Recently Adopted Key ATCMs

Source Category	Target TAC(s)
Perchloroethylene from Dry Cleaning Operations 17 CCR 93109 amended on 1/25/2007.	Perchloroethylene
Decorative and Hard Chrome Plating and Chromic Acid Anodizing Facilities 17 CCR 93102 – 93102.16 amended on 12/7/2006.	Hexavalent Chromium
Mobile Cargo Handling Equipment at Ports and Intermodal Rail Yards 13 CCR § 2479 adopted on 12/8/2005.	Diesel PM
Hexavalent Chromium and Nickel from Thermal Spraying 17 CCR 93101.5 adopted on 9/30/2005.	Hexavelent Chromium, Nickel
Stationary Compression Ignition Engines 17 CCR 93115 adopted on 2/26/2004.	Diesel PM
In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generation Sets 13 CCR § 2477 and Article 8 adopted on 2/26/2004.	Diesel PM

Table A-2
Examples of Recently Adopted Key ATCMs

Source Category	Target TAC(s)
Diesel PM from Portable Engines Rated at ≥ 50 hp 17 CCR § 93116 adopted on 2/26/2004.	Diesel PM
On-Road Heavy-Duty Diesel-Fueled Solid Waste Collection Vehicles 13 CCR § 2020 & § 2020 adopted on 9/25/2003.	Diesel PM
Outdoor Residential Waste Burning 17 CCR 93113 adopted on 2/3/2003.	Multiple TACs
School Bus Idling 13 CCR Chapter 10 § 2480 adopted on 12/12/2002.	Diesel PM
Construction, Grading, Quarrying and Surface Mining Operations 17 CCR 93105 adopted on 7/26/2001.	Asbestos

Table A-3
Examples of Recently Adopted Key NESHAPs

Source Category	Target TAC(s)
Ferroalloys Production (Area Sources) 40 CFR Part 63 Subpart YYYYYY amended 12/23/2008	Chromium, Manganese, Nickel
Metal Fabrication and Finishing Source Nine Categories (Area Sources) 40 CFR Part 63 Subpart XXXXXX adopted 7/25/2008	Cadmium, Chromium, Lead, Manganese, Nickel
Plating and Polishing Operations (Area Sources) 40 CFR Part 63 Subpart WWWWWW adopted 7/1/2008	Cadmium, Chromium, Lead, Manganese, Nickel
Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities (Area Sources) 40 CFR Part 63 Subpart BBBBBB adopted 1/10/2008	Multiple HAPs
Gasoline Dispensing Facilities (Area Sources) 40 CFR Part 63 Subpart CCCCCC adopted 1/10/2008	Multiple HAPs

Table A-3
Examples of Recently Adopted Key NESHAPs

Source Category	Target TAC(s)
Paint Stripping and Miscellaneous Surface Coating Operations (Area Sources) 40 CFR Part 63 Subpart HHHHHH adopted 1/9/2008	Cadmium, Chromium, Lead, Manganese, Nickel
Iron and Steel Foundries (Area Sources) 40 CFR Part 63 Subpart ZZZZZ adopted 1/2/2008	Chromium, Lead, Manganese, Nickel
Electric Arc Furnace Steelmaking Facilities (Area Sources) 40 CFR Part 63 Subpart YYYYY adopted 12/28/2007	Chromium, Lead, Manganese, Mercury
Secondary Nonferrous Metals Processing Brass, Bronze, Magnesium and Zinc (Area Sources) 40 CFR Part 63 Subpart TTTTTT adopted 12/26/2007	Arsenic, Chromium, Lead, Manganese, Nickel
Acrylic/Modacrylic Fiber (Area Sources) 40 CFR Part 63 Subpart LLLLLL adopted 7/16/2007	Acrylonitrile
Carbon Black Production (Area Sources) 40 CFR Part 63 Subpart LLLLLL adopted 7/16/2007	Polycyclic Organic Matter
Chemical Manufacturing Chromium Compounds (Area Sources) 40 CFR Part 63 Subpart NNNNNN adopted 7/16/2007	Chromium
Clay Ceramics Manufacturing (Area Sources) 40 CFR Part 63 Subpart RRRRRR adopted 7/16/2007	Chromium, Lead, Manganese, Nickel
Lead Acid Battery Manufacturing (Area Sources) 40 CFR Part 63 Subpart PPPPPP adopted 7/16/2007	Cadmium, Lead
Flexible Polyurethane Foam Production and Fabrication (Area Sources) 40 CFR Part 63 Subpart OOOOOO adopted 7/16/2007	Methylene Chloride
Wood Preserving (Area Sources) 40 CFR Part 63 Subpart QQQQQQ adopted 7/16/2007	Arsenic, Chromium, Dioxin, Methylene Chloride
Primary Nonferrous Metals-Zinc, Cadmium, and Beryllium (Area Sources) 40 CFR Part 63 Subpart GGGGGG adopted 1/23/2007	Arsenic, Cadmium, Chromium, Lead, Manganese, Mercury, Nickel

Table A-3
Examples of Recently Adopted Key NESHAPs

Source Category	Target TAC(s)
Secondary Copper Smelting (Area Sources) 40 CFR Part 63 Subpart FFFFFF adopted 1/23/2007	Cadmium, Dioxin, Lead
Clean Air Mercury Rule 40 CFR Part 60 Subparts Da and HHHH adopted 5/18/2005	Mercury
Auto & Light Duty Truck 40 CFR Part 63 Subpart IIII amended 4/26/2004	Multiple HAPs
Benzene Waste Operations 40 CFR Part 61 Subpart FF amended 12/4/2003 (amendments issued 11/12/2002)	Benzene
Engine Test Cells/Stands 40 CFR Part 63 Subpart PPPPP amended 5/29/2003	Benzene, Mixed Xylenes, Toluene, 1,3-Butadiene
For a complete list of Federal NESHAPs, refer to the EPA website at: http://www.epa.gov/ttn/atw/mactfnlalph.html	

APPENDIX B

UPDATED AIR TOXIC EMISSIONS INVENTORY

Table B-1: 1998 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	Fuel Conbustion									
10	Electric Utilities	23.86	20.45	94.42	0.59	0.00	0.00	0.00	0.00	0.00
20	Cogeneration	4.79	0.00	17.59	0.00	0.00	0.00	0.00	0.00	0.00
30	Oil and Gas Production	4.52	3.07	34.95	0.08	0.00	0.00	0.00	0.00	0.00
40	Petroleum Refining	0.99	0.47	55.01	0.84	0.00	0.00	0.00	0.00	0.00
50	Manufacturing and Industrial	43.45	36.61	155.25	1.44	0.00	0.00	0.00	0.00	0.00
52	Food and Agricultural Processing	24.71	25.13	20.96	0.71	0.00	0.00	0.00	0.00	0.00
60	Service and Commercial	53.15	44.47	177.63	3.35	0.00	0.00	0.00	0.00	0.00
99	Other	15.40	7.15	57.75	12.31	0.00	0.00	0.00	0.00	0.00
	Total	**170.88**	**137.36**	**613.56**	**19.33**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Waste Disposal									
110	Sewage Treatment	1.31	1.48	3.81	0.00	0.60	65.89	0.00	0.26	0.20
120	Landfills	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130	Incineration	0.00	0.00	135.63	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.91	2187.74	27.84	0.00	0.41	45.79	0.00	0.18	0.14
	Total	**2.23**	**2189.22**	**167.27**	**0.00**	**1.01**	**111.68**	**0.00**	**0.44**	**0.34**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	20084.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.00	2239.30	5.86	0.00	0.00	0.00	0.00	0.00	0.00
240	Printing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	2454.54	3.13	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	8.75	0.19	0.00	0.00	0.00	0.00	0.01	0.00
	Total	**0.00**	**24787.14**	**9.19**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.38	0.56	245.92	0.19	0.06	0.01	0.00	0.00	0.00
320	Petroleum Refining	0.57	0.71	346.21	0.00	0.09	0.01	0.00	0.00	0.00
330	Petroleum Marketing	0.00	0.00	656.51	0.00	0.00	0.00	0.00	0.00	0.00
399	Other	0.00	0.00	8.61	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.95**	**1.27**	**1257.26**	**0.19**	**0.15**	**0.02**	**0.00**	**0.00**	**0.00**

Table B-1: 1998 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	Industrial Processes									
410	Chemical	104.21	146.62	574.96	563.91	16.88	2.24	0.00	0.00	0.00
420	Food and Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
430	Mineral Processes	0.00	0.00	154.10	0.00	0.00	0.00	0.00	0.00	0.00
440	Metal Processes	2.89	4.28	17.38	1.42	0.47	0.07	0.00	0.00	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
460	Glass and Related Products	0.00	0.00	1.31	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.09	0.13	0.50	0.04	0.01	0.00	0.00	0.00	0.00
499	Other	0.73	1.11	7.35	0.35	0.12	0.02	0.00	0.00	0.00
	Total	**107.92**	**152.14**	**755.59**	**565.73**	**17.48**	**2.33**	**0.00**	**0.00**	**0.00**
	Solvent Evaporation									
510	Consumer Products	0.00	19664.35	1.16	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	8.00	1763.95	70.34	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**8.00**	**21428.69**	**75.49**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	442.79	326.74	269.58	0.00	0.00	0.00	0.00	0.00	0.00
620	Farming Operations	0.00	5200.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660	Fires	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670	Waste Burning and Disposal	0.00	0.00	0.00	122.54	0.00	0.00	0.00	0.00	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**442.79**	**5527.54**	**269.58**	**122.54**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table B-1: 1998 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	1265.74	925.33	10512.09	2082.92	0.00	0.00	0.00	0.00	0.00
722	Light Duty Trucks 1	388.73	267.19	2543.33	534.90	0.00	0.00	0.00	0.00	0.00
723	Light Duty Trucks 2	428.30	312.88	3536.89	745.59	0.00	0.00	0.00	0.00	0.00
724	Medium Duty Trucks	243.20	171.50	1808.47	395.86	0.00	0.00	0.00	0.00	0.00
732	Light Heavy Duty Gas Trucks 1	144.29	106.14	1320.41	281.30	0.00	0.00	0.00	0.00	0.00
733	Light Heavy Duty Gas Trucks 2	33.67	24.24	279.24	61.08	0.00	0.00	0.00	0.00	0.00
734	Medium Heavy Duty Gas Trucks	81.03	61.37	640.14	154.67	0.00	0.00	0.00	0.00	0.00
736	Heavy Heavy Duty Gas Trucks	35.95	26.34	276.78	67.03	0.00	0.00	0.00	0.00	0.00
742	Light Heavy Duty Diesel Trucks 1	4.56	4.65	1.24	0.12	0.00	0.00	0.00	0.00	0.00
743	Light Heavy Duty Diesel Trucks 2	43.57	44.49	11.86	1.13	0.00	0.00	0.00	0.00	0.00
744	Medium Heavy Duty Diesel Truck	192.47	196.50	52.38	4.97	0.00	0.00	0.00	0.00	0.00
746	Heavy Heavy Duty Diesel Trucks	2076.25	2119.74	564.99	53.65	0.00	0.00	0.00	0.00	0.00
750	Motorcycles	54.38	34.65	337.73	68.74	0.00	0.00	0.00	0.00	0.00
760	Diesel Urban Buses	64.03	65.37	17.42	1.65	0.00	0.00	0.00	0.00	0.00
762	Gas Urban Buses	3.29	2.19	26.74	5.83	0.00	0.00	0.00	0.00	0.00
770	School Buses	15.90	14.87	23.51	4.95	0.00	0.00	0.00	0.00	0.00
776	Other Bus	10.72	9.52	46.73	11.06	0.00	0.00	0.00	0.00	0.00
780	Motor Homes	23.02	14.81	128.02	29.40	0.00	0.00	0.00	0.00	0.00
	Total	**5109.10**	**4401.79**	**22127.98**	**4504.85**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Other Mobile Sources									
810	Aircraft	608.54	3.48	302.95	238.87	0.00	0.00	0.00	0.00	0.00
820	Trains	411.44	420.06	111.96	10.63	0.00	0.00	0.00	0.00	0.00
830	Ships and Commercial Boats	485.45	495.62	162.29	12.54	0.00	0.00	0.00	0.00	0.00
840	Recreational Boats	592.53	376.59	2653.07	620.80	0.00	0.00	0.00	0.00	0.00
850	Off-Road Recreational Vehicles	131.08	80.40	614.45	145.06	0.00	0.00	0.00	0.00	0.00
860	Off-Road Equipment	7136.05	6914.44	6007.35	1161.24	0.00	0.00	0.00	0.00	0.00
870	Farm Equipment	281.53	286.18	91.07	10.56	0.00	0.00	0.00	0.00	0.00
890	Fuel Storage and Handling	0.00	0.00	148.27	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**9646.62**	**8576.78**	**10091.42**	**2199.71**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Stationary and Area Sources	**732.76**	**54223.36**	**3147.94**	**707.79**	**18.64**	**114.03**	**0.00**	**0.45**	**0.34**
	Total On-Road Vehicles	**5109.10**	**4401.79**	**22127.98**	**4504.85**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Other Mobile	**9646.62**	**8576.78**	**10091.42**	**2199.71**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Anthropogenic	**15488.48**	**67201.92**	**35367.34**	**7412.35**	**18.64**	**114.03**	**0.00**	**0.45**	**0.34**

Table B-1: 1998 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	Fuel Conbustion									
10	Electric Utilities	0.00	0.00	294.71	4.02	0.00	0.00	0.26	0.00	0.00
20	Cogeneration	0.00	0.00	129.53	0.00	0.00	0.00	0.00	0.00	0.00
30	Oil and Gas Production	0.00	0.00	103.96	0.60	0.00	0.01	0.04	0.00	0.00
40	Petroleum Refining	0.00	0.00	266.18	0.06	0.00	1.89	0.13	0.00	0.00
50	Manufacturing and Industrial	0.00	0.00	507.84	7.19	0.00	1.12	0.50	0.00	0.00
52	Food and Agricultural Processing	0.00	0.00	78.84	4.94	0.00	0.17	0.30	0.00	0.00
60	Service and Commercial	0.00	0.00	581.50	8.67	0.00	5.05	0.84	0.00	0.00
99	Other	0.00	0.00	71.84	0.94	0.00	1.73	2.09	0.00	0.00
	Total	**0.00**	**0.00**	**2034.39**	**26.42**	**0.00**	**9.97**	**4.16**	**0.00**	**0.00**
	Waste Disposal									
110	Sewage Treatment	0.36	0.00	6.93	0.00	101.24	0.00	0.00	10.03	82.49
120	Landfills	0.00	0.00	36.76	0.00	0.00	0.00	0.00	0.00	0.00
130	Incineration	0.00	0.01	0.85	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.25	0.00	4.81	0.00	70.36	0.00	0.00	6.97	57.32
	Total	**0.62**	**0.01**	**49.35**	**0.00**	**171.60**	**0.00**	**0.00**	**16.99**	**139.81**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16917.92
220	Degreasing	0.00	0.00	0.00	8291.35	14172.58	0.00	189.86	0.00	2717.86
230	Coatings and Related Processes	0.00	0.00	0.00	3416.59	107.46	0.00	13.88	0.00	726.13
240	Printing	0.00	0.00	0.00	1251.89	0.00	0.00	23.16	0.00	0.00
250	Adhesives and Sealants	0.00	0.00	0.00	2063.93	57.47	0.00	0.00	0.00	0.00
299	Other	0.00	0.00	0.38	6.97	2.89	0.00	0.53	0.00	0.03
	Total	**0.00**	**0.00**	**0.38**	**15030.73**	**14340.40**	**0.00**	**227.43**	**0.00**	**20361.94**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.52	0.02	1.37	0.39	0.00	0.46	0.03	0.66	0.00
320	Petroleum Refining	0.77	0.02	456.21	0.58	0.00	19.70	0.03	0.98	0.00
330	Petroleum Marketing	0.00	0.00	0.08	0.00	0.00	21153.63	14.57	0.00	0.00
399	Other	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00
	Total	**1.28**	**0.04**	**457.67**	**0.97**	**0.00**	**21174.07**	**14.63**	**1.64**	**0.00**

Table B-1: 1998 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	Industrial Processes									
410	Chemical	141.24	3.92	48.45	116.07	0.00	0.00	0.09	180.41	0.00
420	Food and Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
430	Mineral Processes	0.00	0.00	85.75	0.00	0.00	0.00	69.11	0.00	0.00
440	Metal Processes	3.92	0.12	4.25	2.96	0.00	0.00	0.21	5.02	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
460	Glass and Related Products	0.00	0.00	0.73	0.00	0.00	0.00	0.60	0.00	0.00
470	Electronics	0.12	0.00	0.13	0.09	0.00	0.00	0.01	0.15	0.00
499	Other	0.98	0.03	2.58	0.76	0.00	0.00	2.24	1.26	0.00
	Total	**146.26**	**4.07**	**141.88**	**119.89**	**0.00**	**0.00**	**72.25**	**186.84**	**0.00**
	Solvent Evaporation									
510	Consumer Products	0.00	46.83	7.99	1977.21	7876.53	0.00	376.53	4946.61	4898.17
520	Architectural Coatings & Related Solvent	0.00	0.00	2.29	269.24	114.44	0.00	30.07	0.00	15.47
530	Pesticides/Fertilizers	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	0.00	0.00	0.00	0.00	62.41	0.00	0.00
	Total	**0.00**	**46.83**	**10.28**	**2246.45**	**7990.97**	**0.00**	**469.04**	**4946.61**	**4913.64**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	0.00	1017.88	0.00	0.00	0.00	0.00	0.00	0.00
620	Farming Operations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660	Fires	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670	Waste Burning and Disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**1017.88**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table B-1: 1998 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	0.00	0.00	5790.28	144.96	0.00	40050.63	225.73	0.00	0.00
722	Light Duty Trucks 1	0.00	0.00	1691.80	41.40	0.00	7347.43	64.99	0.00	0.00
723	Light Duty Trucks 2	0.00	0.00	2053.11	47.46	0.00	9938.33	77.83	0.00	0.00
724	Medium Duty Trucks	0.00	0.00	1135.39	26.11	0.00	4165.79	43.25	0.00	0.00
732	Light Heavy Duty Gas Trucks 1	0.00	0.00	753.35	16.65	0.00	2929.98	26.44	0.00	0.00
733	Light Heavy Duty Gas Trucks 2	0.00	0.00	164.73	4.23	0.00	623.64	5.73	0.00	0.00
734	Medium Heavy Duty Gas Trucks	0.00	0.00	350.60	15.42	0.00	1521.08	10.25	0.00	0.00
736	Heavy Heavy Duty Gas Trucks	0.00	0.00	165.86	6.01	0.00	469.24	4.94	0.00	0.00
742	Light Heavy Duty Diesel Trucks 1	0.00	0.00	9.12	0.92	0.00	0.00	0.05	0.00	0.00
743	Light Heavy Duty Diesel Trucks 2	0.00	0.00	87.20	8.75	0.00	0.00	0.50	0.00	0.00
744	Medium Heavy Duty Diesel Truck	0.00	0.00	385.15	38.66	0.00	0.00	2.22	0.00	0.00
746	Heavy Heavy Duty Diesel Trucks	0.00	0.00	4154.76	417.03	0.00	0.00	24.00	0.00	0.00
750	Motorcycles	0.00	0.00	227.96	5.67	0.00	1301.62	9.04	0.00	0.00
760	Diesel Urban Buses	0.00	0.00	128.13	12.86	0.00	0.00	0.74	0.00	0.00
762	Gas Urban Buses	0.00	0.00	18.45	0.28	0.00	24.46	0.61	0.00	0.00
770	School Buses	0.00	0.00	40.25	2.82	0.00	26.27	0.74	0.00	0.00
776	Other Bus	0.00	0.00	34.31	2.06	0.00	110.17	0.82	0.00	0.00
780	Motor Homes	0.00	0.00	105.18	1.98	0.00	95.49	3.93	0.00	0.00
	Total	**0.00**	**0.00**	**17295.64**	**793.27**	**0.00**	**68604.12**	**501.81**	**0.00**	**0.00**
	Other Mobile Sources									
810	Aircraft	0.00	0.00	1955.77	0.97	0.00	3.62	74.90	0.00	0.00
820	Trains	0.00	0.00	823.34	82.64	0.00	0.00	4.76	0.00	0.00
830	Ships and Commercial Boats	0.00	0.00	972.83	97.51	0.00	0.00	6.59	0.00	0.00
840	Recreational Boats	0.00	0.00	2395.14	51.31	0.00	4886.26	97.48	0.00	0.00
850	Off-Road Recreational Vehicles	0.00	0.00	545.29	10.49	0.00	943.51	22.72	0.00	0.00
860	Off-Road Equipment	0.00	0.00	16296.04	1323.57	0.00	9578.91	228.68	0.00	0.00
870	Farm Equipment	0.00	0.00	569.93	56.18	0.00	69.88	3.75	0.00	0.00
890	Fuel Storage and Handling	0.00	0.00	0.00	0.00	0.00	6931.70	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**23558.32**	**1622.67**	**0.00**	**22413.88**	**438.87**	**0.00**	**0.00**
	Total Stationary and Area Sources	**148.16**	**50.94**	**3711.82**	**17424.46**	**22502.96**	**21184.04**	**787.51**	**5152.08**	**25415.39**
	Total On-Road Vehicles	**0.00**	**0.00**	**17295.64**	**793.27**	**0.00**	**68604.12**	**501.81**	**0.00**	**0.00**
	Total Other Mobile	**0.00**	**0.00**	**23558.32**	**1622.67**	**0.00**	**22413.88**	**438.87**	**0.00**	**0.00**
	Total Anthropogenic	**148.16**	**50.94**	**44565.78**	**19840.39**	**22502.96**	**112202.04**	**1728.19**	**5152.08**	**25415.39**

Table B-1: 1998 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	Fuel Conbustion									
10	Electric Utilities	0.00	0.17	53.77	0.00	0.00	0.00	0.00	0.21	215.74
20	Cogeneration	0.00	0.00	13.42	0.00	0.00	0.00	0.00	0.66	0.00
30	Oil and Gas Production	0.00	0.02	17.41	0.00	0.00	0.75	0.08	0.89	31.19
40	Petroleum Refining	0.00	0.13	32.54	0.00	0.00	0.00	2.43	26.77	0.00
50	Manufacturing and Industrial	0.00	0.36	83.03	0.00	0.00	0.03	0.42	4.99	375.92
52	Food and Agricultural Processing	0.00	0.21	16.25	0.00	0.00	0.00	0.03	0.38	297.21
60	Service and Commercial	0.00	0.69	104.21	0.00	0.00	0.02	0.12	1.46	466.19
99	Other	0.00	1.96	112.95	0.00	0.00	0.75	0.12	1.47	466.98
	Total	**0.00**	**3.55**	**433.58**	**0.00**	**0.00**	**1.55**	**3.20**	**36.83**	**1853.23**
	Waste Disposal									
110	Sewage Treatment	0.00	0.17	85.93	10.14	0.43	0.00	0.00	0.00	0.00
120	Landfills	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130	Incineration	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.00	0.12	116.69	7.05	0.30	1.84	0.17	1.84	0.00
	Total	**0.00**	**0.30**	**202.62**	**17.19**	**0.72**	**1.84**	**0.17**	**1.84**	**0.00**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	15.16	4580.28	2821.53	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.00	0.83	26934.78	0.00	0.00	0.00	0.00	0.00	0.00
240	Printing	0.00	0.00	33.29	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	0.00	632.18	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	0.15	538.31	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**16.14**	**32718.84**	**2821.53**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.93	136.75	0.00	0.33	0.03	0.00	0.01	0.00
320	Petroleum Refining	0.01	1.19	402.14	0.00	0.49	0.87	0.02	0.00	0.00
330	Petroleum Marketing	0.00	0.00	2853.79	0.00	0.00	0.00	0.00	0.00	0.00
399	Other	0.00	0.00	5.05	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.01**	**2.12**	**3397.73**	**0.00**	**0.82**	**0.89**	**0.02**	**0.01**	**0.00**

Table B-1: 1998 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	Industrial Processes									
410	Chemical	1.12	6445.64	2038.22	0.00	360.38	0.00	0.39	0.09	0.00
420	Food and Agriculture	0.00	0.00	324.78	0.00	0.00	0.05	0.00	1.42	0.00
430	Mineral Processes	0.00	0.81	47.81	0.00	0.00	21.34	2.03	46.15	0.00
440	Metal Processes	0.02	7.25	218.48	0.00	2.50	0.44	0.43	12.28	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.00
460	Glass and Related Products	0.00	0.00	11.41	0.00	0.00	9.26	0.00	2.55	0.00
470	Electronics	0.00	0.21	0.11	0.00	0.07	0.00	0.00	0.00	0.00
499	Other	0.01	201.85	932.29	0.00	0.62	0.12	0.12	0.28	0.00
	Total	**1.15**	**6655.77**	**3573.11**	**0.00**	**363.58**	**31.22**	**2.98**	**62.82**	**0.00**
	Solvent Evaporation									
510	Consumer Products	0.14	12.73	9737.27	653.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	0.00	29.57	1280.61	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	9.48	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.14**	**42.31**	**11027.81**	**653.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	0.00	274.51	0.00	0.00	0.13	0.06	0.09	0.00
620	Farming Operations	0.00	0.00	0.00	0.00	0.00	0.07	0.08	0.86	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	3.18	3.93	41.90	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	8.79	2.03	11.49	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.94	0.82	1.07	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.25	0.34	3.50	0.00
660	Fires	0.00	0.00	55.11	0.00	0.00	0.00	0.02	0.01	0.00
670	Waste Burning and Disposal	0.00	0.00	0.75	0.00	0.00	0.33	0.03	0.01	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	454.00	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.66	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**785.03**	**0.00**	**0.00**	**13.68**	**7.30**	**58.93**	**0.00**

Table B-1: 1998 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	0.00	568.33	28587.09	0.00	0.00	0.05	0.03	8.17	478.81
722	Light Duty Trucks 1	0.00	119.80	6333.31	0.00	0.00	0.01	0.01	1.32	184.60
723	Light Duty Trucks 2	0.00	201.33	9235.59	0.00	0.00	0.02	0.01	3.69	78.20
724	Medium Duty Trucks	0.00	98.86	4541.39	0.00	0.00	0.01	0.00	1.38	19.00
732	Light Heavy Duty Gas Trucks 1	0.00	75.03	3398.71	0.00	0.00	0.00	0.00	0.36	0.00
733	Light Heavy Duty Gas Trucks 2	0.00	15.07	714.95	0.00	0.00	0.00	0.00	0.07	0.00
734	Medium Heavy Duty Gas Trucks	0.00	34.83	1735.61	0.00	0.00	0.00	0.00	0.06	0.00
736	Heavy Heavy Duty Gas Trucks	0.00	14.57	706.96	0.00	0.00	0.00	0.00	0.05	0.00
742	Light Heavy Duty Diesel Trucks 1	0.00	0.04	1.61	0.00	0.00	0.00	0.00	0.00	33.80
743	Light Heavy Duty Diesel Trucks 2	0.00	0.34	15.42	0.00	0.00	0.00	0.01	0.03	211.00
744	Medium Heavy Duty Diesel Truck	0.00	1.52	68.13	0.00	0.00	0.01	0.23	0.16	3471.40
746	Heavy Heavy Duty Diesel Trucks	0.00	16.38	734.92	0.00	0.00	0.08	1.25	0.63	18713.40
750	Motorcycles	0.00	12.57	843.27	0.00	0.00	0.00	0.00	0.06	0.00
760	Diesel Urban Buses	0.00	0.51	22.66	0.00	0.00	0.00	0.03	0.02	400.40
762	Gas Urban Buses	0.00	1.27	59.76	0.00	0.00	0.00	0.00	0.01	0.00
770	School Buses	0.00	0.95	49.05	0.00	0.00	0.00	0.02	0.01	246.20
776	Other Bus	0.00	2.70	126.64	0.00	0.00	0.00	0.01	0.01	100.59
780	Motor Homes	0.00	5.30	266.39	0.00	0.00	0.00	0.00	0.04	22.41
	Total	**0.00**	**1169.40**	**57441.47**	**0.00**	**0.00**	**0.18**	**1.61**	**16.07**	**23959.80**
	Other Mobile Sources									
810	Aircraft	0.00	55.39	174.83	0.00	0.00	3.38	0.32	3.82	0.00
820	Trains	0.00	3.25	145.64	0.00	0.00	0.01	0.12	0.02	1730.20
830	Ships and Commercial Boats	0.00	3.83	201.88	0.00	0.00	0.00	0.00	0.00	7508.15
840	Recreational Boats	0.00	97.36	5433.17	0.00	0.00	0.00	0.00	1.98	29.80
850	Off-Road Recreational Vehicles	0.00	22.72	1248.61	0.00	0.00	0.00	0.00	0.28	0.00
860	Off-Road Equipment	0.00	205.81	11125.83	0.00	0.00	0.10	1.74	2.12	26019.43
870	Farm Equipment	0.00	2.72	132.35	0.00	0.00	0.00	0.08	0.02	1153.15
890	Fuel Storage and Handling	0.00	0.00	693.79	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**391.07**	**19156.11**	**0.00**	**0.00**	**3.50**	**2.26**	**8.23**	**36440.72**
	Total Stationary and Area Sources	**1.30**	**6720.18**	**52138.73**	**3491.72**	**365.12**	**49.18**	**13.68**	**160.43**	**1853.23**
	Total On-Road Vehicles	**0.00**	**1169.40**	**57441.47**	**0.00**	**0.00**	**0.18**	**1.61**	**16.07**	**23959.80**
	Total Other Mobile	**0.00**	**391.07**	**19156.11**	**0.00**	**0.00**	**3.50**	**2.26**	**8.23**	**36440.72**
	Total Anthropogenic	**1.30**	**8280.65**	**128736.31**	**3491.72**	**365.12**	**52.86**	**17.54**	**184.73**	**62253.75**

Table B-1: 1998 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	Fuel Conbustion									
10	Electric Utilities	208.62	558.83	557.58	0.01	0.00	0.21	3.92	0.01	1.24
20	Cogeneration	0.00	265.08	262.96	0.03	0.00	0.66	0.00	0.00	0.00
30	Oil and Gas Production	30.16	59.62	58.72	0.04	0.79	0.21	0.00	0.19	0.17
40	Petroleum Refining	0.00	378.19	354.34	0.00	2.43	26.77	0.00	26.77	0.00
50	Manufacturing and Industrial	363.51	875.58	865.60	0.02	0.44	4.97	0.00	4.59	2.07
52	Food and Agricultural Processing	278.56	69.17	68.08	0.00	0.03	0.38	0.00	0.38	1.63
60	Service and Commercial	450.81	1342.93	1340.58	0.01	0.13	1.45	0.00	1.26	2.56
99	Other	421.38	142.52	126.93	0.07	0.78	5.12	0.00	0.13	2.57
	Total	1753.04	**3691.92**	3634.79	**0.19**	**4.61**	**39.76**	**3.92**	**33.33**	**10.25**
	Waste Disposal									
110	Sewage Treatment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120	Landfills	0.00	170.67	170.67	0.00	0.00	0.00	0.00	0.00	0.00
130	Incineration	0.00	47.70	47.70	0.00	0.00	11.97	0.00	0.00	11.97
199	Other	0.00	52.13	21.89	0.09	1.91	0.17	0.00	0.17	0.00
	Total	0.00	**270.50**	240.26	**0.09**	**1.91**	**12.14**	**0.00**	**0.17**	**11.97**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.30	0.28	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.00	57.59	53.27	0.00	0.00	0.00	0.00	0.00	0.00
240	Printing	0.00	0.02	0.01	0.00	0.00	0.00	0.06	0.00	0.00
250	Adhesives and Sealants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	1.13	1.13	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**59.04**	**54.69**	**0.00**	**0.00**	**0.00**	**0.06**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	3.74	3.33	0.00	0.03	0.03	4.50	0.00	5.13
320	Petroleum Refining	0.00	38.19	39.30	0.00	0.87	0.88	0.00	0.00	170.12
330	Petroleum Marketing	0.00	35.60	32.94	0.00	0.00	0.00	0.00	0.00	0.00
399	Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**77.53**	**75.57**	**0.00**	**0.90**	**0.91**	**4.50**	**0.00**	**175.25**

Table B-1: 1998 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	Industrial Processes									
410	Chemical	0.00	143.58	132.21	0.00	0.09	0.39	6.91	0.00	0.00
420	Food and Agriculture	0.00	264.30	2.50	0.00	0.00	0.83	0.00	0.00	146.43
430	Mineral Processes	0.00	1092.28	407.80	0.45	2.25	14.85	1.98	2.67	2848.11
440	Metal Processes	0.00	173.56	139.84	3.01	8.05	4.03	116.05	0.02	2.57
450	Wood and Paper	0.00	43.63	12.89	0.00	0.06	0.06	31.14	0.00	0.22
460	Glass and Related Products	0.00	52.80	53.52	0.13	2.55	0.23	0.00	17.60	0.56
470	Electronics	0.00	0.84	0.32	0.00	0.00	0.00	2.39	0.00	0.00
499	Other	0.00	75.11	24.31	0.05	5.15	0.69	34.46	0.38	28.01
	Total	**0.00**	**1846.10**	**773.39**	**3.64**	**18.16**	**21.08**	**192.95**	**20.68**	**3025.89**
	Solvent Evaporation									
510	Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	21.24	19.64	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**21.24**	**19.64**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	5195.42	4400.37	0.00	0.23	0.01	6557.66	0.02	0.20
620	Farming Operations	0.00	18.13	1.47	0.00	0.25	0.21	110.61	0.01	774.54
630	Construction and Demolition	0.00	864.99	56.63	0.00	104.19	11.04	8222.41	0.37	35581.88
640	Paved Road Dust	0.00	5216.24	359.92	0.61	83.81	8.11	40376.86	1.35	205238.58
645	Unpaved Road Dust	0.00	73.04	4.28	0.00	8.16	2.32	2113.71	0.19	20383.99
650	Fugitive Windblown Dust	0.00	49.48	2.94	0.00	5.83	0.86	444.19	0.03	3025.46
660	Fires	0.00	219.29	193.06	0.00	0.05	0.00	215.66	0.00	37.27
670	Waste Burning and Disposal	0.00	3048.95	2533.98	0.00	0.63	0.01	7981.78	0.05	19.40
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	13113.14	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**14685.54**	**7552.64**	**0.61**	**203.16**	**22.55**	**79136.03**	**2.02**	**265061.34**

Table B-1: 1998 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	440.50	1820.08	1131.43	0.41	0.74	5.62	2276.71	0.16	334.08
722	Light Duty Trucks 1	169.83	338.71	223.90	0.07	0.11	0.94	417.43	0.02	50.15
723	Light Duty Trucks 2	71.95	928.25	652.92	0.18	0.26	2.77	756.04	0.06	120.24
724	Medium Duty Trucks	17.48	336.32	229.82	0.07	0.10	1.02	288.05	0.02	47.06
732	Light Heavy Duty Gas Trucks 1	0.00	97.29	61.00	0.02	0.04	0.27	96.54	0.01	12.14
733	Light Heavy Duty Gas Trucks 2	0.00	18.89	11.57	0.00	0.01	0.05	18.83	0.00	2.36
734	Medium Heavy Duty Gas Trucks	0.00	18.02	10.86	0.00	0.01	0.05	16.86	0.00	2.11
736	Heavy Heavy Duty Gas Trucks	0.00	7.70	4.57	0.00	0.00	0.03	9.28	0.00	2.13
742	Light Heavy Duty Diesel Trucks 1	31.10	9.23	8.37	0.00	0.00	0.00	24.50	0.00	0.25
743	Light Heavy Duty Diesel Trucks 2	194.12	59.80	52.81	0.00	0.01	0.02	158.09	0.00	2.25
744	Medium Heavy Duty Diesel Truck	3193.69	915.66	850.49	0.02	0.12	0.13	2439.67	0.02	16.79
746	Heavy Heavy Duty Diesel Trucks	17216.33	4919.17	4579.77	0.08	0.65	0.56	13106.38	0.11	78.40
750	Motorcycles	0.00	21.38	13.84	0.00	0.00	0.06	4.38	0.00	0.75
760	Diesel Urban Buses	368.37	104.89	97.92	0.00	0.01	0.01	279.87	0.00	1.96
762	Gas Urban Buses	0.00	1.69	1.09	0.00	0.00	0.00	1.54	0.00	0.21
770	School Buses	226.50	65.22	60.55	0.00	0.01	0.01	172.95	0.00	1.20
776	Other Bus	92.54	28.02	25.46	0.00	0.00	0.01	72.51	0.00	0.72
780	Motor Homes	20.61	14.69	9.29	0.00	0.01	0.03	29.68	0.00	1.86
	Total	**22043.01**	**9705.01**	**8025.67**	**0.85**	**2.10**	**11.56**	**20169.33**	**0.41**	**674.65**
	Other Mobile Sources									
810	Aircraft	0.00	271.40	245.72	0.19	3.51	0.76	0.00	0.32	0.00
820	Trains	1574.39	444.89	416.21	0.01	0.05	0.03	1188.84	0.01	4.96
830	Ships and Commercial Boats	6998.32	300.33	279.93	0.02	0.00	0.00	0.00	0.00	41.29
840	Recreational Boats	27.42	800.70	546.52	0.10	0.00	1.98	20.47	0.00	0.09
850	Off-Road Recreational Vehicles	0.00	112.80	76.70	0.01	0.00	0.28	0.00	0.00	0.00
860	Off-Road Equipment	23938.87	7432.43	6845.69	0.17	0.78	2.27	17878.17	0.13	74.65
870	Farm Equipment	1061.01	298.82	282.07	0.00	0.03	0.02	792.34	0.01	3.31
890	Fuel Storage and Handling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**33600.00**	**9661.37**	**8692.84**	**0.51**	**4.38**	**5.35**	**19879.81**	**0.46**	**124.30**
	Total Stationary and Area Sources	**1753.04**	**20651.87**	**12350.99**	**4.54**	**228.74**	**96.45**	**79337.45**	**56.20**	**268284.69**
	Total On-Road Vehicles	**22043.01**	**9705.01**	**8025.67**	**0.85**	**2.10**	**11.56**	**20169.33**	**0.41**	**674.65**
	Total Other Mobile	**33600.00**	**9661.37**	**8692.84**	**0.51**	**4.38**	**5.35**	**19879.81**	**0.46**	**124.30**
	Total Anthropogenic	**57396.06**	**40018.24**	**29069.50**	**5.90**	**235.21**	**113.36**	**119386.59**	**57.07**	**269083.66**

Table B-2: 2005 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	Fuel Combustion									
10	Electric Utilities	20.34	18.40	167.59	0.47	0.00	0.00	0.00	0.00	0.00
20	Cogeneration	0.59	0.00	2.17	0.00	0.00	0.00	0.00	0.00	0.00
30	Oil and Gas Production	2.07	0.89	17.41	0.03	0.00	0.00	0.00	0.00	0.00
40	Petroleum Refining	1.30	0.11	12.02	0.20	0.00	0.00	0.00	0.00	0.00
50	Manufacturing and Industrial	19.43	12.85	114.02	1.04	0.00	0.00	0.00	0.00	0.00
52	Food and Agricultural Processing	15.33	15.64	13.87	0.41	0.00	0.00	0.00	0.00	0.00
60	Service and Commercial	27.28	22.16	118.62	2.13	0.00	0.00	0.00	0.00	0.00
99	Other	17.53	10.23	50.03	12.06	0.00	0.00	0.00	0.00	0.00
	Total	**103.87**	**80.29**	**495.73**	**16.33**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Waste Disposal									
110	Sewage Treatment	3.89	4.31	11.84	0.00	1.74	192.44	0.00	0.76	0.58
120	Landfills	0.00	0.90	1.91	0.00	0.00	0.00	0.52	0.00	0.00
130	Incineration	0.00	0.00	80.87	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.24	2532.49	0.69	0.00	0.11	11.91	0.00	0.05	0.04
	Total	**4.13**	**2537.69**	**95.31**	**0.00**	**1.85**	**204.35**	**0.52**	**0.81**	**0.62**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	2544.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.01	1139.62	6.67	0.00	0.00	0.00	0.00	0.00	0.00
240	Printing	0.00	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	888.04	1.30	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.01**	**4573.67**	**7.97**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	48.02	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	44.18	0.00	0.00	0.00	0.00	0.00	0.00
330	Petroleum Marketing	1.35	0.00	225.35	0.00	1.35	1.35	0.00	0.00	1.35
399	Other	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**1.35**	**0.00**	**317.72**	**0.00**	**1.35**	**1.35**	**0.00**	**0.00**	**1.35**

Table B-2: 2005 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	Industrial Processes									
410	Chemical	48.03	69.71	325.92	532.67	7.77	1.06	0.00	0.00	0.03
420	Food and Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
430	Mineral Processes	0.00	0.00	11.92	0.04	0.00	0.00	0.00	0.00	0.00
440	Metal Processes	0.12	0.18	0.98	0.06	0.02	0.00	0.00	0.00	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
460	Glass and Related Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.00	0.00	5.90	0.00	0.00	0.00	0.00	0.00	0.00
499	Other	0.69	1.20	13.62	0.37	0.23	0.16	0.00	0.00	0.14
	Total	**48.84**	**71.09**	**358.34**	**533.13**	**8.03**	**1.23**	**0.00**	**0.00**	**0.18**
	Solvent Evaporation									
510	Consumer Products	0.00	16846.20	1.30	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	7.61	1230.45	17.93	0.00	0.00	0.00	0.00	0.66	0.00
530	Pesticides/Fertilizers	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	4.70	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**7.61**	**18076.93**	**23.93**	**0.00**	**0.00**	**0.00**	**0.00**	**0.66**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	465.10	343.21	216.85	0.00	0.00	0.00	0.00	0.00	0.00
620	Farming Operations	0.00	3774.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660	Fires	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670	Waste Burning and Disposal	0.00	0.00	0.00	96.31	0.00	0.00	0.00	0.00	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**465.10**	**4117.59**	**216.85**	**96.31**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table B-2: 2005 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	889.67	519.31	5427.49	1109.11	0.00	0.00	0.00	0.00	0.00
722	Light Duty Trucks 1	250.63	141.34	1172.36	250.41	0.00	0.00	0.00	0.00	0.00
723	Light Duty Trucks 2	337.76	201.02	2236.18	463.48	0.00	0.00	0.00	0.00	0.00
724	Medium Duty Trucks	214.73	126.20	1295.45	286.67	0.00	0.00	0.00	0.00	0.00
732	Light Heavy Duty Gas Trucks 1	104.53	65.68	731.12	158.89	0.00	0.00	0.00	0.00	0.00
733	Light Heavy Duty Gas Trucks 2	19.52	12.13	130.64	28.75	0.00	0.00	0.00	0.00	0.00
734	Medium Heavy Duty Gas Trucks	53.28	33.69	335.64	82.39	0.00	0.00	0.00	0.00	0.00
736	Heavy Heavy Duty Gas Trucks	36.49	22.03	233.06	56.95	0.00	0.00	0.00	0.00	0.00
742	Light Heavy Duty Diesel Trucks 1	41.75	42.62	11.36	1.08	0.00	0.00	0.00	0.00	0.00
743	Light Heavy Duty Diesel Trucks 2	44.19	45.12	12.03	1.14	0.00	0.00	0.00	0.00	0.00
744	Medium Heavy Duty Diesel Truck	226.96	231.71	61.76	5.86	0.00	0.00	0.00	0.00	0.00
746	Heavy Heavy Duty Diesel Trucks	2326.69	2375.42	633.14	60.12	0.00	0.00	0.00	0.00	0.00
750	Motorcycles	194.22	96.94	809.68	185.25	0.00	0.00	0.00	0.00	0.00
760	Diesel Urban Buses	68.00	69.42	18.50	1.76	0.00	0.00	0.00	0.00	0.00
762	Gas Urban Buses	3.84	2.13	26.54	5.97	0.00	0.00	0.00	0.00	0.00
770	School Buses	17.69	16.95	16.21	3.15	0.00	0.00	0.00	0.00	0.00
776	Other Bus	12.21	10.55	32.69	7.88	0.00	0.00	0.00	0.00	0.00
780	Motor Homes	14.83	8.26	60.91	14.24	0.00	0.00	0.00	0.00	0.00
	Total	**4856.99**	**4020.52**	**13244.76**	**2723.10**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Other Mobile Sources									
810	Aircraft	790.31	4.19	388.71	309.55	0.00	0.00	0.00	0.00	0.00
820	Trains	449.99	459.41	122.45	11.63	0.00	0.00	0.00	0.00	0.00
830	Ships and Commercial Boats	446.97	456.33	172.53	11.55	0.00	0.00	0.00	0.00	0.00
840	Recreational Boats	705.58	363.78	2390.09	566.41	0.00	0.00	0.00	0.00	0.00
850	Off-Road Recreational Vehicles	72.90	35.18	277.39	62.22	0.00	0.00	0.00	0.00	0.00
860	Off-Road Equipment	5938.72	5649.52	4274.11	785.86	0.00	0.00	0.00	0.00	0.00
870	Farm Equipment	217.91	220.66	71.60	8.42	0.00	0.00	0.00	0.00	0.00
890	Fuel Storage and Handling	0.00	0.00	111.44	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**8622.38**	**7189.07**	**7808.33**	**1755.64**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Stationary and Area Sources	**630.91**	**29457.25**	**1515.85**	**645.78**	**11.22**	**206.93**	**0.52**	**1.46**	**2.15**
	Total On-Road Vehicles	**4856.99**	**4020.52**	**13244.76**	**2723.10**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Other Mobile	**8622.38**	**7189.07**	**7808.33**	**1755.64**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Anthropogenic	**14110.29**	**40666.85**	**22568.94**	**5124.52**	**11.22**	**206.93**	**0.52**	**1.46**	**2.15**

Table B-2: 2005 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	Fuel Combustion									
10	Electric Utilities	0.00	0.00	412.13	3.62	0.00	0.00	0.21	0.00	0.00
20	Cogeneration	0.00	0.00	15.95	0.00	0.00	0.00	0.00	0.00	0.00
30	Oil and Gas Production	0.00	0.00	59.60	0.18	0.00	0.00	0.01	0.00	0.00
40	Petroleum Refining	0.00	0.00	275.68	0.01	0.00	0.00	0.03	0.00	0.00
50	Manufacturing and Industrial	0.00	0.00	383.56	2.50	0.00	0.00	0.26	0.00	0.00
52	Food and Agricultural Processing	0.00	0.00	49.97	3.08	0.00	0.00	0.18	0.00	0.00
60	Service and Commercial	0.00	0.00	339.12	4.33	0.00	0.00	0.53	0.00	0.00
99	Other	0.00	0.00	53.22	1.56	0.00	0.00	1.95	0.00	0.00
	Total	**0.00**	**0.00**	**1589.23**	**15.27**	**0.00**	**0.00**	**3.18**	**0.00**	**0.00**
	Waste Disposal									
110	Sewage Treatment	1.06	0.33	20.77	0.00	295.71	0.00	0.00	29.28	240.93
120	Landfills	0.08	0.00	44.93	1.12	2.69	0.00	0.00	0.00	1.37
130	Incineration	0.00	0.00	0.62	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.07	0.00	1.25	0.00	18.30	0.00	0.00	1.81	14.91
	Total	**1.21**	**0.33**	**67.58**	**1.12**	**316.70**	**0.00**	**0.00**	**31.10**	**257.21**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4681.60
220	Degreasing	0.00	0.00	0.00	1030.23	5283.64	0.00	24.86	0.00	664.31
230	Coatings and Related Processes	0.01	0.00	0.01	2581.70	8.35	0.00	6.67	0.01	160.50
240	Printing	0.00	0.00	0.00	617.33	0.00	0.00	16.57	0.00	1.41
250	Adhesives and Sealants	0.00	0.00	0.00	746.72	23.85	0.00	0.00	0.00	0.00
299	Other	0.00	13.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.01**	**13.97**	**0.01**	**4976.00**	**5315.85**	**0.00**	**48.09**	**0.01**	**5507.82**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	2.79	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	164.76	0.00	0.00	0.00	0.01	0.00	0.00
330	Petroleum Marketing	0.00	0.00	1.35	0.00	0.00	1.35	5.17	0.00	0.00
399	Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**168.90**	**0.00**	**0.00**	**1.35**	**5.18**	**0.00**	**0.00**

Table B-2: 2005 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	Industrial Processes									
410	Chemical	65.03	1.81	1.18	54.25	0.00	88.05	0.22	83.09	0.00
420	Food and Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
430	Mineral Processes	0.00	0.00	14.15	0.00	0.00	0.00	4.28	0.00	0.00
440	Metal Processes	0.16	0.00	0.17	0.12	0.00	0.00	0.01	0.21	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
460	Glass and Related Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.00	0.00	0.12	0.00	0.00	0.00	0.01	0.00	0.00
499	Other	0.74	0.02	2.20	0.73	0.00	0.14	0.05	0.95	0.00
	Total	**65.93**	**1.83**	**17.83**	**55.10**	**0.00**	**88.20**	**4.58**	**84.25**	**0.00**
	Solvent Evaporation									
510	Consumer Products	0.00	52.57	8.97	2047.58	7969.87	0.00	387.65	5553.91	4854.28
520	Architectural Coatings & Related Solvent	0.00	0.00	1.74	615.95	270.94	0.00	57.88	0.00	6.43
530	Pesticides/Fertilizers	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	0.00	0.00	0.00	0.00	78.16	0.00	0.00
	Total	**0.00**	**52.57**	**10.71**	**2663.53**	**8240.81**	**0.00**	**523.70**	**5553.91**	**4860.71**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	0.00	936.54	0.00	0.00	0.00	0.00	0.00	0.00
620	Farming Operations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660	Fires	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670	Waste Burning and Disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**936.54**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table B-2: 2005 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	0.00	0.00	2965.32	81.89	0.00	0.00	253.03	0.00	0.00
722	Light Duty Trucks 1	0.00	0.00	791.73	22.09	0.00	0.00	53.14	0.00	0.00
723	Light Duty Trucks 2	0.00	0.00	1196.68	30.74	0.00	0.00	96.71	0.00	0.00
724	Medium Duty Trucks	0.00	0.00	749.70	19.37	0.00	0.00	49.36	0.00	0.00
732	Light Heavy Duty Gas Trucks 1	0.00	0.00	361.51	11.17	0.00	0.00	30.32	0.00	0.00
733	Light Heavy Duty Gas Trucks 2	0.00	0.00	64.52	2.27	0.00	0.00	5.45	0.00	0.00
734	Medium Heavy Duty Gas Trucks	0.00	0.00	166.64	8.33	0.00	0.00	10.37	0.00	0.00
736	Heavy Heavy Duty Gas Trucks	0.00	0.00	134.34	4.59	0.00	0.00	5.82	0.00	0.00
742	Light Heavy Duty Diesel Trucks 1	0.00	0.00	83.54	8.39	0.00	0.00	0.48	0.00	0.00
743	Light Heavy Duty Diesel Trucks 2	0.00	0.00	88.43	8.88	0.00	0.00	0.51	0.00	0.00
744	Medium Heavy Duty Diesel Truck	0.00	0.00	454.16	45.59	0.00	0.00	2.62	0.00	0.00
746	Heavy Heavy Duty Diesel Trucks	0.00	0.00	4655.91	467.33	0.00	0.00	26.90	0.00	0.00
750	Motorcycles	0.00	0.00	611.28	14.48	0.00	0.00	33.70	0.00	0.00
760	Diesel Urban Buses	0.00	0.00	136.08	13.66	0.00	0.00	0.79	0.00	0.00
762	Gas Urban Buses	0.00	0.00	17.50	0.27	0.00	0.00	0.66	0.00	0.00
770	School Buses	0.00	0.00	39.20	3.27	0.00	0.00	0.57	0.00	0.00
776	Other Bus	0.00	0.00	29.76	2.13	0.00	0.00	1.05	0.00	0.00
780	Motor Homes	0.00	0.00	50.34	1.17	0.00	0.00	1.96	0.00	0.00
	Total	**0.00**	**0.00**	**12596.64**	**745.60**	**0.00**	**0.00**	**573.43**	**0.00**	**0.00**
	Other Mobile Sources									
810	Aircraft	0.00	0.00	2541.17	1.17	0.00	4.35	97.20	0.00	0.00
820	Trains	0.00	0.00	900.47	90.38	0.00	0.00	5.20	0.00	0.00
830	Ships and Commercial Boats	0.00	0.00	896.79	89.78	0.00	0.00	6.81	0.00	0.00
840	Recreational Boats	0.00	0.00	2125.73	50.08	0.00	0.00	90.76	0.00	0.00
850	Off-Road Recreational Vehicles	0.00	0.00	224.44	4.56	0.00	0.00	9.93	0.00	0.00
860	Off-Road Equipment	0.00	0.00	12760.68	1086.68	0.00	0.00	163.93	0.00	0.00
870	Farm Equipment	0.00	0.00	439.69	43.30	0.00	0.00	2.94	0.00	0.00
890	Fuel Storage and Handling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**19888.96**	**1365.95**	**0.00**	**4.35**	**376.77**	**0.00**	**0.00**
	Total Stationary and Area Sources	**67.15**	**68.70**	**2790.80**	**7711.03**	**13873.36**	**89.55**	**584.72**	**5669.27**	**10625.74**
	Total On-Road Vehicles	**0.00**	**0.00**	**12596.64**	**745.60**	**0.00**	**0.00**	**573.43**	**0.00**	**0.00**
	Total Other Mobile	**0.00**	**0.00**	**19888.96**	**1365.95**	**0.00**	**4.35**	**376.77**	**0.00**	**0.00**
	Total Anthropogenic	**67.15**	**68.70**	**35276.40**	**9822.58**	**13873.36**	**93.90**	**1534.93**	**5669.27**	**10625.74**

Table B-2: 2005 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	Fuel Combustion									
10	Electric Utilities	0.00	0.14	88.12	0.00	0.00	0.00	0.00	0.09	164.77
20	Cogeneration	0.00	0.00	7.82	0.00	0.00	0.00	0.00	0.06	0.00
30	Oil and Gas Production	0.00	0.01	8.33	0.00	0.00	1.07	0.11	1.24	15.01
40	Petroleum Refining	0.00	0.03	6.71	0.00	0.00	0.00	1.44	15.95	0.00
50	Manufacturing and Industrial	0.00	0.21	61.15	0.00	0.00	0.02	0.28	3.30	111.50
52	Food and Agricultural Processing	0.00	0.12	10.39	0.00	0.00	0.00	0.02	0.19	166.81
60	Service and Commercial	0.00	0.41	64.89	0.00	0.00	0.02	0.01	0.29	166.76
99	Other	0.00	1.94	104.16	0.00	0.00	0.00	0.04	0.42	482.95
	Total	**0.00**	**2.86**	**351.57**	**0.00**	**0.00**	**1.11**	**1.90**	**21.54**	**1107.81**
	Waste Disposal									
110	Sewage Treatment	0.10	0.75	251.27	29.62	1.29	0.00	0.00	0.00	0.00
120	Landfills	0.00	0.00	33.64	0.81	1.01	0.00	0.00	0.11	0.00
130	Incineration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.00	0.03	78.96	1.83	0.08	0.26	0.02	0.26	0.00
	Total	**0.10**	**0.78**	**363.88**	**32.27**	**2.38**	**0.26**	**0.03**	**0.37**	**0.00**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	4.68	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	1.96	596.15	538.55	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.00	0.52	13047.96	33.54	0.01	0.00	0.00	0.00	0.00
240	Printing	0.00	0.00	24.23	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	0.00	228.72	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	0.00	70.67	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**2.48**	**13967.73**	**576.78**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	28.58	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	278.48	0.00	0.00	0.90	0.00	0.00	0.00
330	Petroleum Marketing	1.35	0.00	1074.70	0.00	0.00	0.00	0.00	0.00	0.00
399	Other	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**1.35**	**0.00**	**1382.07**	**0.00**	**0.00**	**0.90**	**0.00**	**0.00**	**0.00**

Table B-2: 2005 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	Industrial Processes									
410	Chemical	0.55	1329.04	1142.24	0.00	48.15	0.00	0.35	0.13	0.00
420	Food and Agriculture	0.00	0.00	69.35	0.00	0.00	0.02	0.00	0.45	0.00
430	Mineral Processes	0.00	0.04	6.66	0.00	0.00	13.37	1.07	26.59	0.00
440	Metal Processes	0.00	0.36	5.63	0.00	0.10	0.50	0.50	19.98	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.06	0.00
460	Glass and Related Products	0.00	0.00	3.44	0.00	0.00	10.55	0.00	2.90	0.00
470	Electronics	0.00	0.03	13.25	0.00	0.00	0.00	0.01	0.01	0.00
499	Other	0.15	1.33	994.72	0.00	0.47	0.00	0.02	0.07	0.00
	Total	**0.70**	**1330.81**	**2235.27**	**0.00**	**48.73**	**24.44**	**1.98**	**50.19**	**0.00**
	Solvent Evaporation									
510	Consumer Products	0.16	11.60	8901.95	611.09	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	0.00	60.44	1796.44	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	11.16	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.16**	**72.04**	**10709.87**	**611.09**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	0.00	255.18	0.00	0.00	0.13	0.06	0.09	0.00
620	Farming Operations	0.00	0.00	0.00	0.00	0.00	0.05	0.06	0.65	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	3.15	3.90	41.56	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	7.06	1.63	9.23	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.62	0.53	0.70	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.15	0.21	2.16	0.00
660	Fires	0.00	0.00	55.11	0.00	0.00	0.00	0.02	0.01	0.00
670	Waste Burning and Disposal	0.00	0.00	0.75	0.00	0.00	0.24	0.03	0.01	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	432.25	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**743.28**	**0.00**	**0.00**	**11.40**	**6.44**	**54.40**	**0.00**

Table B-2: 2005 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	0.00	282.90	16501.81	0.00	0.00	0.06	0.01	9.48	222.20
722	Light Duty Trucks 1	0.00	52.35	3212.17	0.00	0.00	0.01	0.01	1.48	158.01
723	Light Duty Trucks 2	0.00	124.00	6728.93	0.00	0.00	0.03	0.00	5.72	44.20
724	Medium Duty Trucks	0.00	75.20	3685.78	0.00	0.00	0.01	0.00	2.61	23.00
732	Light Heavy Duty Gas Trucks 1	0.00	46.14	2264.76	0.00	0.00	0.00	0.00	0.34	0.00
733	Light Heavy Duty Gas Trucks 2	0.00	7.97	407.34	0.00	0.00	0.00	0.00	0.07	0.00
734	Medium Heavy Duty Gas Trucks	0.00	20.05	1020.57	0.00	0.00	0.00	0.00	0.05	0.00
736	Heavy Heavy Duty Gas Trucks	0.00	13.30	630.27	0.00	0.00	0.00	0.00	0.06	0.00
742	Light Heavy Duty Diesel Trucks 1	0.00	0.33	14.78	0.00	0.00	0.00	0.01	0.07	158.60
743	Light Heavy Duty Diesel Trucks 2	0.00	0.35	15.64	0.00	0.00	0.00	0.01	0.04	150.60
744	Medium Heavy Duty Diesel Truck	0.00	1.79	80.34	0.00	0.00	0.02	0.23	0.22	3479.60
746	Heavy Heavy Duty Diesel Trucks	0.00	18.35	823.57	0.00	0.00	0.07	1.15	0.71	17112.57
750	Motorcycles	0.00	31.56	1970.19	0.00	0.00	0.00	0.00	0.18	0.00
760	Diesel Urban Buses	0.00	0.54	24.07	0.00	0.00	0.00	0.03	0.02	399.00
762	Gas Urban Buses	0.00	1.33	63.26	0.00	0.00	0.00	0.00	0.01	0.00
770	School Buses	0.00	0.69	34.77	0.00	0.00	0.00	0.02	0.01	265.80
776	Other Bus	0.00	2.23	95.73	0.00	0.00	0.00	0.01	0.02	113.80
780	Motor Homes	0.00	2.63	133.96	0.00	0.00	0.00	0.00	0.04	37.20
	Total	**0.00**	**681.71**	**37707.93**	**0.00**	**0.00**	**0.20**	**1.49**	**21.13**	**22164.56**
	Other Mobile Sources									
810	Aircraft	0.00	71.62	216.79	0.00	0.00	3.85	0.36	4.37	0.00
820	Trains	0.00	3.55	159.28	0.00	0.00	0.01	0.13	0.02	1884.39
830	Ships and Commercial Boats	0.00	3.53	208.87	0.00	0.00	0.00	0.00	0.00	11102.81
840	Recreational Boats	0.00	90.60	5146.49	0.00	0.00	0.00	0.00	2.65	42.80
850	Off-Road Recreational Vehicles	0.00	9.93	643.03	0.00	0.00	0.00	0.00	0.06	0.00
860	Off-Road Equipment	0.00	144.93	8328.80	0.00	0.00	0.09	1.57	2.04	23441.80
870	Farm Equipment	0.00	2.15	107.68	0.00	0.00	0.00	0.06	0.02	934.37
890	Fuel Storage and Handling	0.00	0.00	558.20	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**326.31**	**15369.16**	**0.00**	**0.00**	**3.95**	**2.13**	**9.16**	**37406.17**
	Total Stationary and Area Sources	**2.30**	**1408.97**	**29753.67**	**1220.14**	**51.12**	**38.11**	**10.34**	**126.50**	**1107.81**
	Total On-Road Vehicles	**0.00**	**681.71**	**37707.93**	**0.00**	**0.00**	**0.20**	**1.49**	**21.13**	**22164.56**
	Total Other Mobile	**0.00**	**326.31**	**15369.16**	**0.00**	**0.00**	**3.95**	**2.13**	**9.16**	**37406.17**
	Total Anthropogenic	**2.30**	**2416.99**	**82830.76**	**1220.14**	**51.12**	**42.27**	**13.95**	**156.79**	**60678.54**

Table B-2: 2005 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	Fuel Combustion									
10	Electric Utilities	159.33	949.06	947.35	0.00	0.00	0.09	15.30	0.01	1.11
20	Cogeneration	0.00	25.90	25.70	0.00	0.00	0.06	0.00	0.00	0.00
30	Oil and Gas Production	14.51	46.56	45.33	0.05	1.13	0.27	0.00	0.25	0.08
40	Petroleum Refining	0.00	432.90	418.33	0.01	1.44	15.95	0.00	15.80	0.00
50	Manufacturing and Industrial	107.81	804.11	800.45	0.01	0.30	3.28	0.00	3.06	0.61
52	Food and Agricultural Processing	156.32	61.76	61.16	0.00	0.02	0.19	0.00	0.19	0.92
60	Service and Commercial	161.19	1277.11	1276.34	0.01	0.04	0.26	0.00	0.14	0.92
99	Other	445.76	32.81	30.85	0.00	0.04	0.42	0.00	0.40	2.66
	Total	**1044.92**	**3630.21**	**3605.51**	**0.09**	**2.95**	**20.54**	**15.30**	**19.84**	**6.30**
	Waste Disposal									
110	Sewage Treatment	0.00	2.80	2.80	0.00	0.00	0.00	0.00	0.00	0.00
120	Landfills	0.00	303.13	283.19	0.00	0.13	0.06	72.13	0.00	0.00
130	Incineration	0.00	77.55	77.55	0.00	0.00	10.68	0.00	0.00	10.68
199	Other	0.00	7.47	7.21	0.01	0.27	0.03	0.13	0.02	0.55
	Total	**0.00**	**390.95**	**370.75**	**0.02**	**0.40**	**10.77**	**72.26**	**0.02**	**11.22**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	0.09	0.08	0.00	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.00	696.49	644.83	0.00	0.00	0.00	0.00	0.00	0.00
240	Printing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	103.88	96.10	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**800.46**	**741.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	3.74	3.74	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	128.19	125.47	0.00	0.90	0.90	0.00	0.00	176.90
330	Petroleum Marketing	0.00	29.71	27.48	0.00	0.00	0.00	0.00	0.00	0.00
399	Other	0.00	0.14	0.13	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**161.78**	**156.82**	**0.00**	**0.90**	**0.90**	**0.00**	**0.00**	**176.90**

Table B-2: 2005 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	Industrial Processes									
410	Chemical	0.00	162.36	146.85	0.00	0.14	0.39	38.22	0.00	2.85
420	Food and Agriculture	0.00	281.77	2.77	0.00	0.00	0.26	0.00	0.00	152.31
430	Mineral Processes	0.00	558.44	104.94	0.19	1.07	8.96	15.30	1.94	3313.62
440	Metal Processes	0.00	225.58	126.68	0.20	5.60	5.53	76.11	0.00	0.00
450	Wood and Paper	0.00	57.98	18.27	0.00	0.09	0.09	106.24	0.00	0.75
460	Glass and Related Products	0.00	60.14	60.96	0.15	2.90	0.30	0.00	20.05	26.88
470	Electronics	0.00	1.24	0.30	0.00	0.02	0.01	4.39	0.00	1.30
499	Other	0.00	238.10	170.24	0.00	0.23	0.13	43.24	0.07	25.61
	Total	**0.00**	**1585.61**	**631.02**	**0.54**	**10.06**	**15.67**	**283.50**	**22.07**	**3523.32**
	Solvent Evaporation									
510	Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	24.82	22.96	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**24.82**	**22.96**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	4865.58	4028.84	0.00	0.24	0.01	6901.64	0.02	0.21
620	Farming Operations	0.00	13.68	1.11	0.00	0.19	0.15	83.47	0.01	584.53
630	Construction and Demolition	0.00	857.82	56.16	0.00	103.33	10.95	8154.27	0.37	35286.99
640	Paved Road Dust	0.00	4190.52	289.15	0.49	67.33	6.52	32437.15	1.09	164880.42
645	Unpaved Road Dust	0.00	47.82	2.80	0.00	5.34	1.52	1383.84	0.12	13345.41
650	Fugitive Windblown Dust	0.00	31.62	1.86	0.00	3.37	0.53	274.09	0.02	1870.85
660	Fires	0.00	219.29	193.06	0.00	0.05	0.00	215.66	0.00	37.27
670	Waste Burning and Disposal	0.00	2227.61	1855.59	0.00	0.46	0.01	5818.64	0.03	15.70
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	13961.30	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**12453.94**	**6428.57**	**0.49**	**180.31**	**19.68**	**69230.07**	**1.66**	**216021.38**

Table B-2: 2005 Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	204.42	2048.20	1269.56	0.47	0.84	6.55	2383.40	0.18	381.67
722	Light Duty Trucks 1	145.37	352.94	227.92	0.07	0.13	1.02	452.28	0.03	59.16
723	Light Duty Trucks 2	40.66	1466.12	1054.43	0.28	0.39	4.37	1066.53	0.08	177.07
724	Medium Duty Trucks	21.16	654.07	462.95	0.13	0.18	1.97	505.68	0.04	83.75
732	Light Heavy Duty Gas Trucks 1	0.00	85.56	47.16	0.02	0.04	0.24	110.68	0.01	13.91
733	Light Heavy Duty Gas Trucks 2	0.00	16.89	9.04	0.00	0.01	0.05	22.63	0.00	2.85
734	Medium Heavy Duty Gas Trucks	0.00	14.36	8.27	0.00	0.01	0.04	16.16	0.00	2.03
736	Heavy Heavy Duty Gas Trucks	0.00	9.56	5.85	0.00	0.00	0.04	11.26	0.00	2.56
742	Light Heavy Duty Diesel Trucks 1	145.91	53.07	41.88	0.00	0.02	0.04	138.01	0.00	4.10
743	Light Heavy Duty Diesel Trucks 2	138.55	46.61	38.75	0.00	0.01	0.03	122.11	0.00	2.78
744	Medium Heavy Duty Diesel Truck	3201.23	930.11	855.81	0.02	0.13	0.16	2474.50	0.02	20.49
746	Heavy Heavy Duty Diesel Trucks	15743.56	4531.81	4196.86	0.08	0.62	0.59	12062.58	0.11	79.41
750	Motorcycles	0.00	60.53	39.22	0.01	0.00	0.16	12.65	0.00	2.13
760	Diesel Urban Buses	367.08	104.74	97.64	0.00	0.01	0.02	279.41	0.00	2.04
762	Gas Urban Buses	0.00	2.35	1.45	0.00	0.00	0.01	2.43	0.00	0.29
770	School Buses	244.54	70.78	65.53	0.00	0.01	0.01	187.44	0.00	1.37
776	Other Bus	104.69	33.07	29.25	0.00	0.01	0.01	85.13	0.00	1.21
780	Motor Homes	34.22	17.40	12.12	0.00	0.01	0.02	39.80	0.00	1.87
	Total	**20391.40**	**10498.17**	**8463.68**	**1.10**	**2.43**	**15.32**	**19972.68**	**0.49**	**838.69**
	Other Mobile Sources									
810	Aircraft	0.00	320.42	290.00	0.22	3.99	0.89	0.00	0.36	0.00
820	Trains	1715.04	484.54	453.39	0.01	0.06	0.03	1294.78	0.01	5.41
830	Ships and Commercial Boats	10365.17	444.11	414.61	0.03	0.00	0.00	0.00	0.00	61.07
840	Recreational Boats	39.39	1068.96	729.83	0.13	0.00	2.65	29.41	0.00	0.12
850	Off-Road Recreational Vehicles	0.00	24.96	16.97	0.00	0.00	0.06	0.00	0.00	0.00
860	Off-Road Equipment	21567.22	6750.75	6206.58	0.16	0.70	2.18	16107.07	0.12	67.25
870	Farm Equipment	859.71	243.65	229.59	0.00	0.03	0.02	642.01	0.00	2.68
890	Fuel Storage and Handling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**34546.53**	**9337.40**	**8340.97**	**0.56**	**4.78**	**5.84**	**18073.27**	**0.49**	**136.53**
	Total Stationary and Area Sources	**1044.92**	**19047.77**	**11956.64**	**1.14**	**194.63**	**67.55**	**69601.13**	**43.60**	**219739.11**
	Total On-Road Vehicles	**20391.40**	**10498.17**	**8463.68**	**1.10**	**2.43**	**15.32**	**19972.68**	**0.49**	**838.69**
	Total Other Mobile	**34546.53**	**9337.40**	**8340.97**	**0.56**	**4.78**	**5.84**	**18073.27**	**0.49**	**136.53**
	Total Anthropogenic	**55982.85**	**38883.34**	**28761.29**	**2.80**	**201.83**	**88.71**	**107647.08**	**44.58**	**220714.33**

Table B-3: 2014 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	Fuel Combustion									
10	Electric Utilities	20.77	18.78	171.09	0.48	0.00	0.00	0.00	0.00	0.00
20	Cogeneration	0.45	0.00	1.66	0.00	0.00	0.00	0.00	0.00	0.00
30	Oil and Gas Production	2.07	0.89	17.41	0.03	0.00	0.00	0.00	0.00	0.00
40	Petroleum Refining	1.30	0.11	12.02	0.20	0.00	0.00	0.00	0.00	0.00
50	Manufacturing and Industrial	22.58	15.09	133.80	1.22	0.00	0.00	0.00	0.00	0.00
52	Food and Agricultural Processing	4.64	4.73	11.59	0.14	0.00	0.00	0.00	0.00	0.00
60	Service and Commercial	30.53	24.13	126.16	2.65	0.00	0.00	0.00	0.00	0.00
99	Other	11.88	7.55	30.09	7.12	0.00	0.00	0.00	0.00	0.00
	Total	**94.24**	**71.29**	**503.83**	**11.84**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Waste Disposal									
110	Sewage Treatment	4.35	4.82	13.27	0.00	1.95	215.44	0.00	0.85	0.65
120	Landfills	0.00	0.98	2.08	0.00	0.00	0.00	0.56	0.00	0.00
130	Incineration	0.00	0.00	93.52	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.31	2370.52	0.89	0.00	0.14	15.47	0.00	0.06	0.05
	Total	**4.66**	**2376.33**	**109.76**	**0.00**	**2.09**	**230.91**	**0.56**	**0.91**	**0.70**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	3011.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.01	967.30	10.17	0.00	0.00	0.00	0.00	0.00	0.00
240	Printing	0.00	1.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	1164.54	1.71	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.01**	**5145.25**	**11.88**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	24.16	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	40.76	0.00	0.00	0.00	0.00	0.00	0.00
330	Petroleum Marketing	1.35	0.00	220.48	0.00	1.35	1.35	0.00	0.00	1.35
399	Other	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**1.35**	**0.00**	**285.48**	**0.00**	**1.35**	**1.35**	**0.00**	**0.00**	**1.35**

Table B-3: 2014 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	Industrial Processes									
410	Chemical	54.33	80.22	402.58	834.16	8.79	1.21	0.00	0.00	0.04
420	Food and Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
430	Mineral Processes	0.00	0.00	12.19	0.05	0.00	0.00	0.00	0.00	0.00
440	Metal Processes	0.21	0.31	1.56	0.10	0.03	0.01	0.00	0.00	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
460	Glass and Related Products	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.00	0.00	7.05	0.00	0.00	0.00	0.00	0.00	0.00
499	Other	0.74	1.28	14.22	0.38	0.26	0.19	0.00	0.00	0.17
	Total	**55.28**	**81.82**	**437.59**	**834.70**	**9.10**	**1.40**	**0.00**	**0.00**	**0.22**
	Solvent Evaporation									
510	Consumer Products	0.00	17842.60	1.06	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	4.60	912.49	14.28	0.00	0.00	0.00	0.00	0.47	0.00
530	Pesticides/Fertilizers	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	5.59	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**4.60**	**18755.31**	**20.94**	**0.00**	**0.00**	**0.00**	**0.00**	**0.47**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	505.50	373.02	243.47	0.00	0.00	0.00	0.00	0.00	0.00
620	Farming Operations	0.00	2088.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660	Fires	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670	Waste Burning and Disposal	0.00	0.00	0.00	96.23	0.00	0.00	0.00	0.00	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**505.50**	**2461.16**	**243.47**	**96.23**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table B-3: 2014 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	227.04	141.04	1719.19	315.57	0.00	0.00	0.00	0.00	0.00
722	Light Duty Trucks 1	64.03	39.71	382.94	70.08	0.00	0.00	0.00	0.00	0.00
723	Light Duty Trucks 2	129.90	80.14	1064.83	188.44	0.00	0.00	0.00	0.00	0.00
724	Medium Duty Trucks	97.03	58.69	668.70	133.47	0.00	0.00	0.00	0.00	0.00
732	Light Heavy Duty Gas Trucks 1	42.48	27.28	307.71	63.06	0.00	0.00	0.00	0.00	0.00
733	Light Heavy Duty Gas Trucks 2	7.31	4.75	52.52	10.59	0.00	0.00	0.00	0.00	0.00
734	Medium Heavy Duty Gas Trucks	17.32	11.21	105.25	25.69	0.00	0.00	0.00	0.00	0.00
736	Heavy Heavy Duty Gas Trucks	11.98	7.50	76.71	18.80	0.00	0.00	0.00	0.00	0.00
742	Light Heavy Duty Diesel Trucks 1	34.32	35.04	9.34	0.89	0.00	0.00	0.00	0.00	0.00
743	Light Heavy Duty Diesel Trucks 2	30.39	31.03	8.27	0.79	0.00	0.00	0.00	0.00	0.00
744	Medium Heavy Duty Diesel Truck	148.12	151.22	40.31	3.83	0.00	0.00	0.00	0.00	0.00
746	Heavy Heavy Duty Diesel Trucks	1557.49	1590.11	423.83	40.25	0.00	0.00	0.00	0.00	0.00
750	Motorcycles	133.09	68.29	603.84	141.07	0.00	0.00	0.00	0.00	0.00
760	Diesel Urban Buses	61.03	62.31	16.61	1.58	0.00	0.00	0.00	0.00	0.00
762	Gas Urban Buses	3.26	1.84	23.52	5.26	0.00	0.00	0.00	0.00	0.00
770	School Buses	22.32	22.20	13.28	2.24	0.00	0.00	0.00	0.00	0.00
776	Other Bus	7.98	7.28	15.57	3.57	0.00	0.00	0.00	0.00	0.00
780	Motor Homes	4.02	2.90	15.75	3.43	0.00	0.00	0.00	0.00	0.00
	Total	**2599.11**	**2342.54**	**5548.16**	**1028.58**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Other Mobile Sources									
810	Aircraft	1097.03	5.18	530.72	428.41	0.00	0.00	0.00	0.00	0.00
820	Trains	432.18	441.23	117.60	11.17	0.00	0.00	0.00	0.00	0.00
830	Ships and Commercial Boats	312.69	319.24	163.20	8.08	0.00	0.00	0.00	0.00	0.00
840	Recreational Boats	513.13	278.13	1695.69	391.05	0.00	0.00	0.00	0.00	0.00
850	Off-Road Recreational Vehicles	91.18	44.00	340.68	77.82	0.00	0.00	0.00	0.00	0.00
860	Off-Road Equipment	3485.92	3261.47	2838.18	546.24	0.00	0.00	0.00	0.00	0.00
870	Farm Equipment	115.23	116.39	39.82	4.91	0.00	0.00	0.00	0.00	0.00
890	Fuel Storage and Handling	0.00	0.00	47.71	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**6047.36**	**4465.64**	**5773.61**	**1467.68**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Stationary and Area Sources	**665.64**	**28891.15**	**1612.94**	**942.78**	**12.54**	**233.67**	**0.56**	**1.38**	**2.27**
	Total On-Road Vehicles	**2599.11**	**2342.54**	**5548.16**	**1028.58**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Other Mobile	**6047.36**	**4465.64**	**5773.61**	**1467.68**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Anthropogenic	**9312.11**	**35699.34**	**12934.71**	**3439.03**	**12.54**	**233.67**	**0.56**	**1.38**	**2.27**

Table B-3: 2014 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	Fuel Combustion									
10	Electric Utilities	0.00	0.00	421.03	3.70	0.00	0.00	0.21	0.00	0.00
20	Cogeneration	0.00	0.00	12.21	0.00	0.00	0.00	0.00	0.00	0.00
30	Oil and Gas Production	0.00	0.00	59.60	0.18	0.00	0.00	0.01	0.00	0.00
40	Petroleum Refining	0.00	0.00	275.68	0.01	0.00	0.00	0.03	0.00	0.00
50	Manufacturing and Industrial	0.00	0.00	446.35	2.94	0.00	0.00	0.31	0.00	0.00
52	Food and Agricultural Processing	0.00	0.00	29.83	0.93	0.00	0.00	0.06	0.00	0.00
60	Service and Commercial	0.00	0.00	367.41	4.71	0.00	0.00	0.66	0.00	0.00
99	Other	0.00	0.00	36.34	1.22	0.00	0.00	1.16	0.00	0.00
	Total	**0.00**	**0.00**	**1648.46**	**13.68**	**0.00**	**0.00**	**2.45**	**0.00**	**0.00**
	Waste Disposal									
110	Sewage Treatment	1.19	0.37	23.27	0.00	331.05	0.00	0.00	32.78	269.73
120	Landfills	0.09	0.00	50.93	1.22	2.92	0.00	0.00	0.00	1.49
130	Incineration	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.09	0.00	1.63	0.00	23.77	0.00	0.00	2.35	19.37
	Total	**1.36**	**0.37**	**76.53**	**1.22**	**357.74**	**0.00**	**0.00**	**35.14**	**290.58**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1861.26
220	Degreasing	0.00	0.00	0.00	1224.26	6123.36	0.00	28.86	0.00	741.42
230	Coatings and Related Processes	0.01	0.00	0.01	2009.04	12.36	0.00	4.89	0.02	178.55
240	Printing	0.00	0.00	0.00	535.72	0.00	0.00	13.03	0.00	1.68
250	Adhesives and Sealants	0.00	0.00	0.00	979.21	31.33	0.00	0.00	0.00	0.00
299	Other	0.00	17.50	0.00	0.01	0.00	0.00	0.00	0.00	0.00
	Total	**0.01**	**17.50**	**0.01**	**4748.23**	**6167.04**	**0.00**	**46.78**	**0.02**	**2782.92**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	2.79	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	116.40	0.00	0.00	0.00	0.00	0.00	0.00
330	Petroleum Marketing	0.00	0.00	1.35	0.00	0.00	1.35	2.87	0.00	0.00
399	Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**120.54**	**0.00**	**0.00**	**1.35**	**2.87**	**0.00**	**0.00**

Table B-3: 2014 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	Industrial Processes									
410	Chemical	73.55	2.04	1.34	62.07	0.00	60.01	0.27	93.98	0.00
420	Food and Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
430	Mineral Processes	0.00	0.00	14.31	0.00	0.00	0.00	4.31	0.00	0.00
440	Metal Processes	0.29	0.01	0.31	0.22	0.00	0.00	0.02	0.37	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
460	Glass and Related Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.00	0.00	0.14	0.00	0.00	0.00	0.02	0.00	0.00
499	Other	0.77	0.02	2.61	0.76	0.00	0.17	0.05	0.98	0.00
	Total	**74.61**	**2.07**	**18.71**	**63.05**	**0.00**	**60.18**	**4.66**	**95.33**	**0.00**
	Solvent Evaporation									
510	Consumer Products	0.00	57.70	9.84	2186.78	7887.18	0.00	424.73	3698.52	5289.18
520	Architectural Coatings & Related Solvent	0.00	0.00	1.03	445.35	195.82	0.00	41.66	0.00	4.93
530	Pesticides/Fertilizers	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	0.00	0.00	0.00	0.00	99.68	0.00	0.00
	Total	**0.00**	**57.70**	**10.87**	**2632.13**	**8083.00**	**0.00**	**566.08**	**3698.52**	**5294.10**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	0.00	1033.48	0.00	0.00	0.00	0.00	0.00	0.00
620	Farming Operations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660	Fires	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670	Waste Burning and Disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**1033.48**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table B-3: 2014 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	0.00	0.00	758.48	22.56	0.00	0.00	92.73	0.00	0.00
722	Light Duty Trucks 1	0.00	0.00	204.26	6.40	0.00	0.00	21.19	0.00	0.00
723	Light Duty Trucks 2	0.00	0.00	455.61	12.48	0.00	0.00	59.76	0.00	0.00
724	Medium Duty Trucks	0.00	0.00	331.10	9.17	0.00	0.00	32.03	0.00	0.00
732	Light Heavy Duty Gas Trucks 1	0.00	0.00	135.72	4.62	0.00	0.00	15.47	0.00	0.00
733	Light Heavy Duty Gas Trucks 2	0.00	0.00	21.82	0.82	0.00	0.00	2.85	0.00	0.00
734	Medium Heavy Duty Gas Trucks	0.00	0.00	50.92	2.35	0.00	0.00	3.78	0.00	0.00
736	Heavy Heavy Duty Gas Trucks	0.00	0.00	43.47	1.30	0.00	0.00	2.06	0.00	0.00
742	Light Heavy Duty Diesel Trucks 1	0.00	0.00	68.68	6.89	0.00	0.00	0.40	0.00	0.00
743	Light Heavy Duty Diesel Trucks 2	0.00	0.00	60.81	6.10	0.00	0.00	0.35	0.00	0.00
744	Medium Heavy Duty Diesel Truck	0.00	0.00	296.40	29.75	0.00	0.00	1.71	0.00	0.00
746	Heavy Heavy Duty Diesel Trucks	0.00	0.00	3116.68	312.83	0.00	0.00	18.00	0.00	0.00
750	Motorcycles	0.00	0.00	444.78	10.07	0.00	0.00	21.22	0.00	0.00
760	Diesel Urban Buses	0.00	0.00	122.13	12.26	0.00	0.00	0.71	0.00	0.00
762	Gas Urban Buses	0.00	0.00	15.12	0.23	0.00	0.00	0.59	0.00	0.00
770	School Buses	0.00	0.00	47.10	4.33	0.00	0.00	0.48	0.00	0.00
776	Other Bus	0.00	0.00	18.01	1.41	0.00	0.00	0.60	0.00	0.00
780	Motor Homes	0.00	0.00	13.57	0.48	0.00	0.00	0.45	0.00	0.00
	Total	**0.00**	**0.00**	**6204.66**	**444.07**	**0.00**	**0.00**	**274.38**	**0.00**	**0.00**
	Other Mobile Sources									
810	Aircraft	0.00	0.00	3529.62	1.45	0.00	5.39	134.79	0.00	0.00
820	Trains	0.00	0.00	864.83	86.81	0.00	0.00	5.00	0.00	0.00
830	Ships and Commercial Boats	0.00	0.00	629.34	62.81	0.00	0.00	6.14	0.00	0.00
840	Recreational Boats	0.00	0.00	1518.74	39.91	0.00	0.00	62.86	0.00	0.00
850	Off-Road Recreational Vehicles	0.00	0.00	280.74	5.70	0.00	0.00	12.43	0.00	0.00
860	Off-Road Equipment	0.00	0.00	7587.49	623.77	0.00	0.00	109.03	0.00	0.00
870	Farm Equipment	0.00	0.00	233.10	22.82	0.00	0.00	1.62	0.00	0.00
890	Fuel Storage and Handling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**14643.85**	**843.26**	**0.00**	**5.39**	**331.87**	**0.00**	**0.00**
	Total Stationary and Area Sources	**75.98**	**77.65**	**2908.59**	**7458.31**	**14607.78**	**61.53**	**622.85**	**3829.01**	**8367.61**
	Total On-Road Vehicles	**0.00**	**0.00**	**6204.66**	**444.07**	**0.00**	**0.00**	**274.38**	**0.00**	**0.00**
	Total Other Mobile	**0.00**	**0.00**	**14643.85**	**843.26**	**0.00**	**5.39**	**331.87**	**0.00**	**0.00**
	Total Anthropogenic	**75.98**	**77.65**	**23757.11**	**8745.65**	**14607.78**	**66.92**	**1229.09**	**3829.01**	**8367.61**

Table B-3: 2014 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	Fuel Combustion									
10	Electric Utilities	0.00	0.15	89.95	0.00	0.00	0.00	0.00	0.09	168.16
20	Cogeneration	0.00	0.00	5.46	0.00	0.00	0.00	0.00	0.05	0.00
30	Oil and Gas Production	0.00	0.01	8.33	0.00	0.00	1.07	0.11	1.24	15.01
40	Petroleum Refining	0.00	0.03	6.71	0.00	0.00	0.00	1.44	15.95	0.00
50	Manufacturing and Industrial	0.00	0.25	71.89	0.00	0.00	0.02	0.23	2.81	130.71
52	Food and Agricultural Processing	0.00	0.04	6.92	0.00	0.00	0.00	0.02	0.18	50.13
60	Service and Commercial	0.00	0.51	69.38	0.00	0.00	0.03	0.01	0.25	185.85
99	Other	0.00	1.15	62.96	0.00	0.00	0.00	0.04	0.42	298.58
	Total	**0.00**	**2.13**	**321.59**	**0.00**	**0.00**	**1.12**	**1.85**	**21.00**	**848.44**
	Waste Disposal									
110	Sewage Treatment	0.11	0.84	281.31	33.16	1.44	0.00	0.00	0.00	0.00
120	Landfills	0.00	0.00	36.59	0.89	1.10	0.00	0.00	0.12	0.00
130	Incineration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.00	0.04	86.78	2.38	0.10	0.29	0.03	0.29	0.00
	Total	**0.11**	**0.88**	**404.67**	**36.43**	**2.64**	**0.29**	**0.03**	**0.41**	**0.00**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	1.64	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	2.28	694.41	591.75	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.00	0.38	12623.26	45.25	0.01	0.00	0.00	0.00	0.00
240	Printing	0.00	0.00	19.28	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	0.00	299.93	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	0.00	85.42	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**2.65**	**13722.31**	**638.64**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	13.84	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	273.78	0.00	0.00	0.54	0.00	0.00	0.00
330	Petroleum Marketing	1.35	0.00	1043.67	0.00	0.00	0.00	0.00	0.00	0.00
399	Other	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**1.35**	**0.00**	**1331.62**	**0.00**	**0.00**	**0.54**	**0.00**	**0.00**	**0.00**

Table B-3: 2014 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	Industrial Processes									
410	Chemical	0.62	1784.73	1406.98	0.00	54.38	0.00	0.43	0.17	0.00
420	Food and Agriculture	0.00	0.00	81.59	0.00	0.00	0.02	0.00	0.60	0.00
430	Mineral Processes	0.00	0.05	7.50	0.00	0.00	10.78	0.84	22.55	0.00
440	Metal Processes	0.00	0.60	5.63	0.00	0.18	0.65	0.65	25.89	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.09	0.00
460	Glass and Related Products	0.00	0.00	3.44	0.00	0.00	11.44	0.00	3.15	0.00
470	Electronics	0.00	0.04	18.52	0.00	0.00	0.00	0.01	0.01	0.00
499	Other	0.18	1.38	1081.15	0.00	0.49	0.00	0.02	0.08	0.00
	Total	**0.81**	**1786.80**	**2604.81**	**0.00**	**55.05**	**22.89**	**1.99**	**52.53**	**0.00**
	Solvent Evaporation									
510	Consumer Products	0.23	12.70	9513.72	626.20	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	0.00	41.35	1803.59	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	13.29	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.23**	**54.05**	**11330.85**	**626.20**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	0.00	281.23	0.00	0.00	0.14	0.07	0.10	0.00
620	Farming Operations	0.00	0.00	0.00	0.00	0.00	0.04	0.05	0.49	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	4.08	5.04	53.76	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	7.16	1.65	9.36	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.52	0.45	0.59	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.12	0.17	1.77	0.00
660	Fires	0.00	0.00	55.11	0.00	0.00	0.00	0.02	0.01	0.00
670	Waste Burning and Disposal	0.00	0.00	0.75	0.00	0.00	0.24	0.03	0.01	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	489.72	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**826.81**	**0.00**	**0.00**	**12.30**	**7.48**	**66.08**	**0.00**

Table B-3: 2014 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	0.00	91.69	5844.32	0.00	0.00	0.06	0.00	9.92	44.57
722	Light Duty Trucks 1	0.00	17.55	1238.01	0.00	0.00	0.01	0.00	1.56	59.74
723	Light Duty Trucks 2	0.00	54.23	3651.17	0.00	0.00	0.03	0.00	6.43	10.71
724	Medium Duty Trucks	0.00	37.37	2123.62	0.00	0.00	0.01	0.00	2.96	8.76
732	Light Heavy Duty Gas Trucks 1	0.00	19.71	1030.12	0.00	0.00	0.00	0.00	0.31	0.00
733	Light Heavy Duty Gas Trucks 2	0.00	3.44	182.49	0.00	0.00	0.00	0.00	0.06	0.00
734	Medium Heavy Duty Gas Trucks	0.00	7.49	330.37	0.00	0.00	0.00	0.00	0.05	0.00
736	Heavy Heavy Duty Gas Trucks	0.00	5.27	211.02	0.00	0.00	0.00	0.00	0.02	0.00
742	Light Heavy Duty Diesel Trucks 1	0.00	0.27	12.15	0.00	0.00	0.00	0.01	0.06	98.47
743	Light Heavy Duty Diesel Trucks 2	0.00	0.24	10.76	0.00	0.00	0.00	0.01	0.04	79.79
744	Medium Heavy Duty Diesel Truck	0.00	1.17	52.43	0.00	0.00	0.01	0.13	0.19	2007.30
746	Heavy Heavy Duty Diesel Trucks	0.00	12.29	551.30	0.00	0.00	0.04	0.63	0.82	9422.33
750	Motorcycles	0.00	26.74	1446.48	0.00	0.00	0.00	0.00	0.13	0.00
760	Diesel Urban Buses	0.00	0.48	21.60	0.00	0.00	0.00	0.02	0.02	336.26
762	Gas Urban Buses	0.00	1.21	57.17	0.00	0.00	0.00	0.00	0.01	0.00
770	School Buses	0.00	0.54	26.40	0.00	0.00	0.00	0.02	0.02	302.02
776	Other Bus	0.00	1.15	46.47	0.00	0.00	0.00	0.01	0.02	80.76
780	Motor Homes	0.00	0.72	37.05	0.00	0.00	0.00	0.00	0.04	30.55
	Total	**0.00**	**281.55**	**16872.93**	**0.00**	**0.00**	**0.16**	**0.84**	**22.66**	**12481.24**
	Other Mobile Sources									
810	Aircraft	0.00	98.83	281.76	0.00	0.00	4.77	0.45	5.42	0.00
820	Trains	0.00	3.41	162.36	0.00	0.00	0.01	0.11	0.02	1698.21
830	Ships and Commercial Boats	0.00	2.47	188.43	0.00	0.00	0.00	0.00	0.00	8918.61
840	Recreational Boats	0.00	62.65	3762.70	0.00	0.00	0.00	0.00	4.26	56.59
850	Off-Road Recreational Vehicles	0.00	12.43	772.84	0.00	0.00	0.00	0.00	0.07	0.00
860	Off-Road Equipment	0.00	98.25	5642.76	0.00	0.00	0.05	0.84	1.99	12592.05
870	Farm Equipment	0.00	1.21	61.63	0.00	0.00	0.00	0.03	0.02	511.18
890	Fuel Storage and Handling	0.00	0.00	238.99	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**279.25**	**11111.48**	**0.00**	**0.00**	**4.83**	**1.45**	**11.77**	**23776.64**
	Total Stationary and Area Sources	**2.49**	**1846.51**	**30542.66**	**1301.26**	**57.71**	**37.15**	**11.34**	**140.03**	**848.45**
	Total On-Road Vehicles	**0.00**	**281.55**	**16872.93**	**0.00**	**0.00**	**0.16**	**0.84**	**22.66**	**12481.24**
	Total Other Mobile	**0.00**	**279.25**	**11111.48**	**0.00**	**0.00**	**4.83**	**1.45**	**11.77**	**23776.64**
	Total Anthropogenic	**2.49**	**2407.31**	**58527.07**	**1301.26**	**57.71**	**42.14**	**13.62**	**174.46**	**37106.33**

Table B-3: 2014 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	Fuel Combustion									
10	Electric Utilities	162.61	969.30	967.55	0.00	0.00	0.09	15.62	0.01	1.14
20	Cogeneration	0.00	18.16	18.01	0.00	0.00	0.05	0.00	0.00	0.00
30	Oil and Gas Production	14.51	46.56	45.33	0.05	1.13	0.27	0.00	0.25	0.08
40	Petroleum Refining	0.00	432.90	418.33	0.01	1.44	15.95	0.00	15.80	0.00
50	Manufacturing and Industrial	126.39	926.69	923.35	0.01	0.25	2.79	0.00	2.53	0.72
52	Food and Agricultural Processing	47.00	60.26	59.97	0.00	0.02	0.18	0.00	0.18	0.28
60	Service and Commercial	179.64	1316.88	1316.08	0.01	0.04	0.23	0.00	0.09	1.02
99	Other	276.18	26.41	25.03	0.00	0.04	0.42	0.00	0.40	1.64
	Total	**806.34**	**3797.16**	**3773.65**	**0.10**	**2.91**	**19.98**	**15.62**	**19.25**	**4.88**
	Waste Disposal									
110	Sewage Treatment	0.00	3.18	3.18	0.00	0.00	0.00	0.00	0.00	0.00
120	Landfills	0.00	329.32	307.49	0.00	0.14	0.07	78.97	0.00	0.00
130	Incineration	0.00	96.42	96.42	0.00	0.00	10.58	0.00	0.00	10.58
199	Other	0.00	8.25	7.96	0.01	0.30	0.03	0.12	0.03	0.52
	Total	**0.00**	**437.17**	**415.05**	**0.02**	**0.44**	**10.68**	**79.09**	**0.03**	**11.10**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.00	927.71	859.01	0.00	0.00	0.00	0.00	0.00	0.00
240	Printing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	58.75	54.35	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**986.55**	**913.44**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	3.74	3.74	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	113.76	109.76	0.00	0.54	0.54	0.00	0.00	106.78
330	Petroleum Marketing	0.00	15.91	14.72	0.00	0.00	0.00	0.00	0.00	0.00
399	Other	0.00	0.09	0.08	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**133.50**	**128.31**	**0.00**	**0.54**	**0.54**	**0.00**	**0.00**	**106.78**

Table B-3: 2014 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	Industrial Processes									
410	Chemical	0.00	172.12	154.18	0.01	0.19	0.49	57.82	0.00	3.19
420	Food and Agriculture	0.00	316.55	3.10	0.00	0.00	0.35	0.00	0.00	172.65
430	Mineral Processes	0.00	381.57	91.23	0.20	0.84	7.01	18.30	1.68	1420.71
440	Metal Processes	0.00	289.27	163.39	0.26	7.24	7.16	89.80	0.00	0.00
450	Wood and Paper	0.00	83.01	25.46	0.00	0.12	0.12	112.36	0.00	0.79
460	Glass and Related Products	0.00	65.21	66.10	0.16	3.15	0.30	0.00	21.74	12.91
470	Electronics	0.00	1.72	0.41	0.00	0.03	0.01	5.99	0.01	1.66
499	Other	0.00	253.81	175.87	0.00	0.27	0.16	45.23	0.10	30.44
	Total	**0.00**	**1563.27**	**679.75**	**0.62**	**11.84**	**15.60**	**329.49**	**23.52**	**1642.33**
	Solvent Evaporation									
510	Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	29.14	26.95	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**29.14**	**26.95**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	5368.21	4455.94	0.00	0.26	0.01	7524.62	0.02	0.23
620	Farming Operations	0.00	10.37	0.84	0.00	0.15	0.12	63.28	0.00	443.13
630	Construction and Demolition	0.00	1109.69	72.65	0.00	133.67	14.16	10548.49	0.48	45647.83
640	Paved Road Dust	0.00	4247.94	293.11	0.50	68.25	6.60	32881.62	1.10	167139.69
645	Unpaved Road Dust	0.00	40.44	2.37	0.00	4.52	1.29	1170.15	0.10	11284.64
650	Fugitive Windblown Dust	0.00	23.47	1.42	0.00	3.26	0.44	224.42	0.01	1523.04
660	Fires	0.00	219.29	193.06	0.00	0.05	0.00	215.66	0.00	37.27
670	Waste Burning and Disposal	0.00	2226.02	1854.36	0.00	0.46	0.01	5815.96	0.03	15.69
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	15793.46	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**13245.42**	**6873.75**	**0.50**	**210.61**	**22.62**	**74237.68**	**1.76**	**226091.50**

Table B-3: 2014 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	41.00	2147.50	1356.22	0.49	0.85	6.94	2301.03	0.18	387.98
722	Light Duty Trucks 1	54.96	364.37	241.41	0.08	0.13	1.11	382.35	0.03	58.48
723	Light Duty Trucks 2	9.85	1750.91	1315.73	0.32	0.38	5.09	1031.17	0.08	174.93
724	Medium Duty Trucks	8.06	805.34	604.75	0.15	0.18	2.34	477.71	0.04	80.58
732	Light Heavy Duty Gas Trucks 1	0.00	75.26	40.07	0.02	0.04	0.21	103.43	0.01	13.00
733	Light Heavy Duty Gas Trucks 2	0.00	15.50	8.32	0.00	0.01	0.04	21.08	0.00	2.65
734	Medium Heavy Duty Gas Trucks	0.00	12.31	6.87	0.00	0.01	0.03	15.56	0.00	1.95
736	Heavy Heavy Duty Gas Trucks	0.00	4.16	2.59	0.00	0.00	0.02	4.80	0.00	1.08
742	Light Heavy Duty Diesel Trucks 1	90.59	35.68	26.74	0.00	0.01	0.03	92.14	0.00	3.36
743	Light Heavy Duty Diesel Trucks 2	73.40	27.34	21.24	0.00	0.01	0.02	70.94	0.00	2.23
744	Medium Heavy Duty Diesel Truck	1846.71	548.47	496.90	0.01	0.09	0.13	1455.64	0.02	15.37
746	Heavy Heavy Duty Diesel Trucks	8668.55	2600.32	2338.64	0.06	0.43	0.58	6884.75	0.07	67.91
750	Motorcycles	0.00	40.15	25.45	0.01	0.01	0.11	13.73	0.00	2.33
760	Diesel Urban Buses	309.36	88.62	82.38	0.00	0.01	0.01	236.35	0.00	1.88
762	Gas Urban Buses	0.00	3.36	2.20	0.00	0.00	0.01	3.08	0.00	0.40
770	School Buses	277.86	80.33	74.37	0.00	0.01	0.01	213.09	0.00	1.54
776	Other Bus	74.30	24.44	21.19	0.00	0.00	0.01	62.08	0.00	1.07
780	Motor Homes	28.10	16.35	10.46	0.00	0.01	0.03	38.21	0.00	2.25
	Total	**11482.75**	**8640.41**	**6675.55**	**1.15**	**2.17**	**16.73**	**13407.13**	**0.44**	**819.00**
	Other Mobile Sources									
810	Aircraft	0.00	397.27	360.01	0.27	4.95	1.11	0.00	0.45	0.00
820	Trains	1545.55	436.67	408.59	0.01	0.05	0.03	1166.85	0.01	4.87
830	Ships and Commercial Boats	8332.77	356.74	333.31	0.03	0.00	0.00	0.00	0.00	49.05
840	Recreational Boats	52.07	1717.31	1171.65	0.21	0.00	4.26	38.88	0.00	0.16
850	Off-Road Recreational Vehicles	0.00	28.16	19.15	0.00	0.00	0.07	0.00	0.00	0.00
860	Off-Road Equipment	11585.04	3984.55	3584.94	0.13	0.38	2.07	8652.12	0.06	36.13
870	Farm Equipment	470.33	135.40	127.04	0.00	0.02	0.02	351.23	0.00	1.47
890	Fuel Storage and Handling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**21985.76**	**7056.09**	**6004.68**	**0.65**	**5.39**	**7.55**	**10209.09**	**0.52**	**91.68**
	Total Stationary and Area Sources	**806.34**	**20192.21**	**12810.90**	**1.24**	**226.35**	**69.43**	**74661.89**	**44.56**	**227856.59**
	Total On-Road Vehicles	**11482.75**	**8640.41**	**6675.55**	**1.15**	**2.17**	**16.73**	**13407.13**	**0.44**	**819.00**
	Total Other Mobile	**21985.76**	**7056.09**	**6004.68**	**0.65**	**5.39**	**7.55**	**10209.09**	**0.52**	**91.68**
	Total Anthropogenic	**34274.84**	**35888.72**	**25491.13**	**3.04**	**233.91**	**93.71**	**98278.11**	**45.53**	**228767.28**

Table B-4: 2014 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	Fuel Combustion									
10	Electric Utilities	20.76	18.78	171.08	0.48	0.00	0.00	0.00	0.00	0.00
20	Cogeneration	0.42	0.00	1.55	0.00	0.00	0.00	0.00	0.00	0.00
30	Oil and Gas Production	1.97	0.89	16.79	0.03	0.00	0.00	0.00	0.00	0.00
40	Petroleum Refining	1.13	0.10	11.38	0.17	0.00	0.00	0.00	0.00	0.00
50	Manufacturing and Industrial	21.62	14.49	128.92	1.20	0.00	0.00	0.00	0.00	0.00
52	Food and Agricultural Processing	4.63	4.72	11.13	0.14	0.00	0.00	0.00	0.00	0.00
60	Service and Commercial	29.53	23.20	125.12	2.55	0.00	0.00	0.00	0.00	0.00
99	Other	11.86	7.53	30.08	7.12	0.00	0.00	0.00	0.00	0.00
	Total	**91.93**	**69.71**	**496.05**	**11.68**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Waste Disposal									
110	Sewage Treatment	4.33	4.80	13.20	0.00	1.94	214.37	0.00	0.85	0.65
120	Landfills	0.00	0.98	2.07	0.00	0.00	0.00	0.56	0.00	0.00
130	Incineration	0.00	0.00	84.24	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.31	2370.52	0.89	0.00	0.14	15.34	0.00	0.06	0.05
	Total	**4.64**	**2376.30**	**100.41**	**0.00**	**2.08**	**229.70**	**0.56**	**0.91**	**0.70**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	3011.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.01	951.26	10.02	0.00	0.00	0.00	0.00	0.00	0.00
240	Printing	0.00	1.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	1159.47	1.71	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.01**	**5124.15**	**11.73**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	24.04	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	38.48	0.00	0.00	0.00	0.00	0.00	0.00
330	Petroleum Marketing	1.35	0.00	190.07	0.00	1.35	1.35	0.00	0.00	1.35
399	Other	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**1.35**	**0.00**	**252.66**	**0.00**	**1.35**	**1.35**	**0.00**	**0.00**	**1.35**

Table B-4: 2014 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	Industrial Processes									
410	Chemical	48.36	71.37	354.57	721.69	7.83	1.08	0.00	0.00	0.04
420	Food and Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
430	Mineral Processes	0.00	0.00	11.18	0.05	0.00	0.00	0.00	0.00	0.00
440	Metal Processes	0.21	0.31	1.56	0.10	0.03	0.01	0.00	0.00	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
460	Glass and Related Products	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.00	0.00	7.01	0.00	0.00	0.00	0.00	0.00	0.00
499	Other	0.72	1.27	13.23	0.37	0.24	0.17	0.00	0.00	0.15
	Total	**49.30**	**72.96**	**387.55**	**722.21**	**8.11**	**1.25**	**0.00**	**0.00**	**0.19**
	Solvent Evaporation									
510	Consumer Products	0.00	14934.26	0.88	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	4.60	912.49	14.28	0.00	0.00	0.00	0.00	0.47	0.00
530	Pesticides/Fertilizers	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	5.59	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**4.60**	**15846.97**	**20.76**	**0.00**	**0.00**	**0.00**	**0.00**	**0.47**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	505.50	373.02	243.47	0.00	0.00	0.00	0.00	0.00	0.00
620	Farming Operations	0.00	1714.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660	Fires	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670	Waste Burning and Disposal	0.00	0.00	0.00	96.23	0.00	0.00	0.00	0.00	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**505.50**	**2087.38**	**243.47**	**96.23**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table B-4: 2014 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	201.01	124.91	1506.35	279.28	0.00	0.00	0.00	0.00	0.00
722	Light Duty Trucks 1	57.30	35.59	338.79	62.58	0.00	0.00	0.00	0.00	0.00
723	Light Duty Trucks 2	115.89	71.51	939.91	168.09	0.00	0.00	0.00	0.00	0.00
724	Medium Duty Trucks	86.38	52.25	590.71	118.79	0.00	0.00	0.00	0.00	0.00
732	Light Heavy Duty Gas Trucks 1	36.11	23.19	259.51	53.60	0.00	0.00	0.00	0.00	0.00
733	Light Heavy Duty Gas Trucks 2	6.88	4.47	48.94	9.96	0.00	0.00	0.00	0.00	0.00
734	Medium Heavy Duty Gas Trucks	17.32	11.21	104.77	25.69	0.00	0.00	0.00	0.00	0.00
736	Heavy Heavy Duty Gas Trucks	11.98	7.50	76.60	18.80	0.00	0.00	0.00	0.00	0.00
742	Light Heavy Duty Diesel Trucks 1	28.93	29.54	7.87	0.75	0.00	0.00	0.00	0.00	0.00
743	Light Heavy Duty Diesel Trucks 2	27.87	28.45	7.58	0.72	0.00	0.00	0.00	0.00	0.00
744	Medium Heavy Duty Diesel Truck	69.91	71.38	19.02	1.81	0.00	0.00	0.00	0.00	0.00
746	Heavy Heavy Duty Diesel Trucks	735.14	750.53	200.05	19.00	0.00	0.00	0.00	0.00	0.00
750	Motorcycles	107.40	55.11	489.57	113.85	0.00	0.00	0.00	0.00	0.00
760	Diesel Urban Buses	61.03	62.31	16.61	1.58	0.00	0.00	0.00	0.00	0.00
762	Gas Urban Buses	3.26	1.84	23.50	5.26	0.00	0.00	0.00	0.00	0.00
770	School Buses	22.32	22.20	13.26	2.24	0.00	0.00	0.00	0.00	0.00
776	Other Bus	7.98	7.28	15.50	3.57	0.00	0.00	0.00	0.00	0.00
780	Motor Homes	4.02	2.90	15.73	3.43	0.00	0.00	0.00	0.00	0.00
	Total	**1600.73**	**1362.16**	**4674.29**	**888.98**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Other Mobile Sources									
810	Aircraft	1097.03	5.18	530.72	428.41	0.00	0.00	0.00	0.00	0.00
820	Trains	308.60	315.06	83.98	7.97	0.00	0.00	0.00	0.00	0.00
830	Ships and Commercial Boats	224.41	229.11	139.18	5.80	0.00	0.00	0.00	0.00	0.00
840	Recreational Boats	417.60	232.03	1351.80	309.52	0.00	0.00	0.00	0.00	0.00
850	Off-Road Recreational Vehicles	78.14	37.71	291.16	66.70	0.00	0.00	0.00	0.00	0.00
860	Off-Road Equipment	2577.84	2336.83	2570.94	519.01	0.00	0.00	0.00	0.00	0.00
870	Farm Equipment	115.23	116.39	39.78	4.91	0.00	0.00	0.00	0.00	0.00
890	Fuel Storage and Handling	0.00	0.00	47.71	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**4818.85**	**3272.32**	**5055.26**	**1342.31**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Stationary and Area Sources	**657.32**	**25577.46**	**1512.63**	**830.13**	**11.53**	**232.30**	**0.56**	**1.38**	**2.23**
	Total On-Road Vehicles	**1600.73**	**1362.16**	**4674.29**	**888.98**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Other Mobile	**4818.85**	**3272.32**	**5055.26**	**1342.31**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Anthropogenic	**7076.91**	**30211.94**	**11242.18**	**3061.43**	**11.53**	**232.30**	**0.56**	**1.38**	**2.23**

Table B-4: 2014 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	Fuel Combustion									
10	Electric Utilities	0.00	0.00	420.91	3.70	0.00	0.00	0.21	0.00	0.00
20	Cogeneration	0.00	0.00	11.41	0.00	0.00	0.00	0.00	0.00	0.00
30	Oil and Gas Production	0.00	0.00	56.35	0.18	0.00	0.00	0.01	0.00	0.00
40	Petroleum Refining	0.00	0.00	240.21	0.01	0.00	0.00	0.03	0.00	0.00
50	Manufacturing and Industrial	0.00	0.00	428.32	2.82	0.00	0.00	0.30	0.00	0.00
52	Food and Agricultural Processing	0.00	0.00	28.89	0.93	0.00	0.00	0.06	0.00	0.00
60	Service and Commercial	0.00	0.00	363.66	4.53	0.00	0.00	0.64	0.00	0.00
99	Other	0.00	0.00	36.30	1.21	0.00	0.00	1.16	0.00	0.00
	Total	**0.00**	**0.00**	**1586.04**	**13.37**	**0.00**	**0.00**	**2.41**	**0.00**	**0.00**
	Waste Disposal									
110	Sewage Treatment	1.18	0.37	23.15	0.00	329.40	0.00	0.00	32.62	268.38
120	Landfills	0.09	0.00	50.93	1.22	2.92	0.00	0.00	0.00	1.48
130	Incineration	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.08	0.00	1.61	0.00	23.57	0.00	0.00	2.33	19.20
	Total	**1.36**	**0.37**	**76.35**	**1.22**	**355.88**	**0.00**	**0.00**	**34.95**	**289.07**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1861.26
220	Degreasing	0.00	0.00	0.00	1223.15	6123.36	0.00	28.86	0.00	725.92
230	Coatings and Related Processes	0.01	0.00	0.01	1981.91	10.77	0.00	4.89	0.02	169.62
240	Printing	0.00	0.00	0.00	492.06	0.00	0.00	12.71	0.00	1.68
250	Adhesives and Sealants	0.00	0.00	0.00	974.96	31.33	0.00	0.00	0.00	0.00
299	Other	0.00	17.50	0.00	0.01	0.00	0.00	0.00	0.00	0.00
	Total	**0.01**	**17.50**	**0.01**	**4672.08**	**6165.46**	**0.00**	**46.46**	**0.02**	**2758.49**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	2.76	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	113.30	0.00	0.00	0.00	0.00	0.00	0.00
330	Petroleum Marketing	0.00	0.00	1.35	0.00	0.00	1.35	2.66	0.00	0.00
399	Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**117.41**	**0.00**	**0.00**	**1.35**	**2.67**	**0.00**	**0.00**

Table B-4: 2014 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	Industrial Processes									
410	Chemical	65.47	1.82	1.24	55.19	0.00	51.49	0.27	83.66	0.00
420	Food and Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
430	Mineral Processes	0.00	0.00	13.75	0.00	0.00	0.00	3.85	0.00	0.00
440	Metal Processes	0.29	0.01	0.31	0.22	0.00	0.00	0.02	0.37	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
460	Glass and Related Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.00	0.00	0.14	0.00	0.00	0.00	0.02	0.00	0.00
499	Other	0.77	0.02	2.58	0.76	0.00	0.15	0.05	0.98	0.00
	Total	**66.53**	**1.85**	**18.03**	**56.17**	**0.00**	**51.65**	**4.20**	**85.01**	**0.00**
	Solvent Evaporation									
510	Consumer Products	0.00	48.30	8.24	1830.33	6601.57	0.00	355.50	3095.66	4427.04
520	Architectural Coatings & Related Solvent	0.00	0.00	1.03	445.35	195.82	0.00	41.66	0.00	4.93
530	Pesticides/Fertilizers	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	0.00	0.00	0.00	0.00	99.68	0.00	0.00
	Total	**0.00**	**48.30**	**9.26**	**2275.68**	**6797.39**	**0.00**	**496.85**	**3095.66**	**4431.97**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	0.00	1033.48	0.00	0.00	0.00	0.00	0.00	0.00
620	Farming Operations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660	Fires	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670	Waste Burning and Disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**1033.48**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table B-4: 2014 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	0.00	0.00	671.41	19.98	0.00	0.00	80.19	0.00	0.00
722	Light Duty Trucks 1	0.00	0.00	182.66	5.74	0.00	0.00	18.52	0.00	0.00
723	Light Duty Trucks 2	0.00	0.00	406.44	11.14	0.00	0.00	52.04	0.00	0.00
724	Medium Duty Trucks	0.00	0.00	294.71	8.16	0.00	0.00	27.94	0.00	0.00
732	Light Heavy Duty Gas Trucks 1	0.00	0.00	115.38	3.93	0.00	0.00	12.86	0.00	0.00
733	Light Heavy Duty Gas Trucks 2	0.00	0.00	20.53	0.77	0.00	0.00	2.62	0.00	0.00
734	Medium Heavy Duty Gas Trucks	0.00	0.00	50.92	2.35	0.00	0.00	3.71	0.00	0.00
736	Heavy Heavy Duty Gas Trucks	0.00	0.00	43.47	1.30	0.00	0.00	2.04	0.00	0.00
742	Light Heavy Duty Diesel Trucks 1	0.00	0.00	57.90	5.81	0.00	0.00	0.33	0.00	0.00
743	Light Heavy Duty Diesel Trucks 2	0.00	0.00	55.77	5.60	0.00	0.00	0.32	0.00	0.00
744	Medium Heavy Duty Diesel Truck	0.00	0.00	139.90	14.04	0.00	0.00	0.81	0.00	0.00
746	Heavy Heavy Duty Diesel Trucks	0.00	0.00	1471.08	147.66	0.00	0.00	8.50	0.00	0.00
750	Motorcycles	0.00	0.00	358.94	8.13	0.00	0.00	17.36	0.00	0.00
760	Diesel Urban Buses	0.00	0.00	122.13	12.26	0.00	0.00	0.71	0.00	0.00
762	Gas Urban Buses	0.00	0.00	15.12	0.23	0.00	0.00	0.59	0.00	0.00
770	School Buses	0.00	0.00	47.10	4.33	0.00	0.00	0.48	0.00	0.00
776	Other Bus	0.00	0.00	18.01	1.41	0.00	0.00	0.59	0.00	0.00
780	Motor Homes	0.00	0.00	13.57	0.48	0.00	0.00	0.45	0.00	0.00
	Total	**0.00**	**0.00**	**4085.03**	**253.33**	**0.00**	**0.00**	**230.06**	**0.00**	**0.00**
	Other Mobile Sources									
810	Aircraft	0.00	0.00	3529.62	1.45	0.00	5.39	134.79	0.00	0.00
820	Trains	0.00	0.00	617.53	61.98	0.00	0.00	3.57	0.00	0.00
830	Ships and Commercial Boats	0.00	0.00	452.69	45.08	0.00	0.00	5.12	0.00	0.00
840	Recreational Boats	0.00	0.00	1224.65	33.94	0.00	0.00	49.84	0.00	0.00
850	Off-Road Recreational Vehicles	0.00	0.00	240.59	4.88	0.00	0.00	10.65	0.00	0.00
860	Off-Road Equipment	0.00	0.00	5765.08	442.01	0.00	0.00	97.96	0.00	0.00
870	Farm Equipment	0.00	0.00	233.10	22.82	0.00	0.00	1.62	0.00	0.00
890	Fuel Storage and Handling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**12063.25**	**612.16**	**0.00**	**5.39**	**303.56**	**0.00**	**0.00**
	Total Stationary and Area Sources	**67.90**	**68.02**	**2840.59**	**7018.52**	**13318.72**	**52.99**	**552.58**	**3215.64**	**7479.53**
	Total On-Road Vehicles	**0.00**	**0.00**	**4085.03**	**253.33**	**0.00**	**0.00**	**230.06**	**0.00**	**0.00**
	Total Other Mobile	**0.00**	**0.00**	**12063.25**	**612.16**	**0.00**	**5.39**	**303.56**	**0.00**	**0.00**
	Total Anthropogenic	**67.90**	**68.02**	**18988.87**	**7884.01**	**13318.72**	**58.38**	**1086.20**	**3215.64**	**7479.53**

Table B-4: 2014 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	Fuel Combustion									
10	Electric Utilities	0.00	0.15	89.95	0.00	0.00	0.00	0.00	0.09	168.16
20	Cogeneration	0.00	0.00	5.42	0.00	0.00	0.00	0.00	0.05	0.00
30	Oil and Gas Production	0.00	0.01	8.07	0.00	0.00	0.97	0.10	1.13	13.53
40	Petroleum Refining	0.00	0.03	6.29	0.00	0.00	0.00	1.16	12.91	0.00
50	Manufacturing and Industrial	0.00	0.24	69.45	0.00	0.00	0.02	0.22	2.61	116.86
52	Food and Agricultural Processing	0.00	0.04	6.68	0.00	0.00	0.00	0.02	0.18	50.06
60	Service and Commercial	0.00	0.49	68.16	0.00	0.00	0.03	0.01	0.24	168.04
99	Other	0.00	1.15	62.95	0.00	0.00	0.00	0.04	0.42	282.12
	Total	**0.00**	**2.10**	**316.97**	**0.00**	**0.00**	**1.02**	**1.55**	**17.63**	**798.77**
	Waste Disposal									
110	Sewage Treatment	0.11	0.84	279.91	32.99	1.44	0.00	0.00	0.00	0.00
120	Landfills	0.00	0.00	36.51	0.88	1.10	0.00	0.00	0.12	0.00
130	Incineration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.00	0.04	78.43	2.36	0.10	0.29	0.03	0.29	0.00
	Total	**0.11**	**0.88**	**394.84**	**36.24**	**2.63**	**0.29**	**0.03**	**0.41**	**0.00**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	1.64	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	2.28	694.38	576.25	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.00	0.38	12255.82	41.49	0.01	0.00	0.00	0.00	0.00
240	Printing	0.00	0.00	18.82	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	0.00	298.63	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	0.00	85.42	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**2.65**	**13353.07**	**619.39**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	13.78	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	238.16	0.00	0.00	0.45	0.00	0.00	0.00
330	Petroleum Marketing	1.35	0.00	898.38	0.00	0.00	0.00	0.00	0.00	0.00
399	Other	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**1.35**	**0.00**	**1150.66**	**0.00**	**0.00**	**0.45**	**0.00**	**0.00**	**0.00**

Table B-4: 2014 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	Industrial Processes									
410	Chemical	0.56	1666.14	1330.99	0.00	49.22	0.00	0.42	0.17	0.00
420	Food and Agriculture	0.00	0.00	71.34	0.00	0.00	0.02	0.00	0.60	0.00
430	Mineral Processes	0.00	0.05	7.22	0.00	0.00	10.78	0.79	22.15	0.00
440	Metal Processes	0.00	0.60	5.63	0.00	0.18	0.58	0.58	23.34	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.09	0.00
460	Glass and Related Products	0.00	0.00	3.44	0.00	0.00	10.31	0.00	2.83	0.00
470	Electronics	0.00	0.04	16.28	0.00	0.00	0.00	0.01	0.01	0.00
499	Other	0.16	1.37	758.59	0.00	0.49	0.00	0.02	0.08	0.00
	Total	**0.72**	**1668.19**	**2193.49**	**0.00**	**49.89**	**21.69**	**1.86**	**49.27**	**0.00**
	Solvent Evaporation									
510	Consumer Products	0.19	10.63	7962.98	524.12	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	0.00	41.35	1803.59	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	13.29	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.19**	**51.98**	**9780.11**	**524.12**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	0.00	281.23	0.00	0.00	0.13	0.06	0.09	0.00
620	Farming Operations	0.00	0.00	0.00	0.00	0.00	0.04	0.05	0.49	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	4.08	5.04	53.76	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	7.16	1.65	9.36	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.52	0.45	0.59	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.12	0.17	1.77	0.00
660	Fires	0.00	0.00	55.11	0.00	0.00	0.00	0.02	0.01	0.00
670	Waste Burning and Disposal	0.00	0.00	0.75	0.00	0.00	0.24	0.03	0.01	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	489.72	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**826.81**	**0.00**	**0.00**	**12.29**	**7.47**	**66.08**	**0.00**

Table B-4: 2014 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	0.00	81.15	5092.23	0.00	0.00	0.06	0.00	9.78	40.60
722	Light Duty Trucks 1	0.00	15.67	1088.61	0.00	0.00	0.01	0.00	1.54	55.32
723	Light Duty Trucks 2	0.00	48.37	3204.35	0.00	0.00	0.03	0.00	6.33	9.91
724	Medium Duty Trucks	0.00	33.26	1866.58	0.00	0.00	0.01	0.00	2.91	8.10
732	Light Heavy Duty Gas Trucks 1	0.00	16.76	864.66	0.00	0.00	0.00	0.00	0.31	0.00
733	Light Heavy Duty Gas Trucks 2	0.00	3.23	169.17	0.00	0.00	0.00	0.00	0.06	0.00
734	Medium Heavy Duty Gas Trucks	0.00	7.49	327.83	0.00	0.00	0.00	0.00	0.05	0.00
736	Heavy Heavy Duty Gas Trucks	0.00	5.27	210.45	0.00	0.00	0.00	0.00	0.02	0.00
742	Light Heavy Duty Diesel Trucks 1	0.00	0.23	10.24	0.00	0.00	0.00	0.01	0.06	90.48
743	Light Heavy Duty Diesel Trucks 2	0.00	0.22	9.86	0.00	0.00	0.00	0.01	0.04	75.16
744	Medium Heavy Duty Diesel Truck	0.00	0.55	24.75	0.00	0.00	0.00	0.00	0.17	74.27
746	Heavy Heavy Duty Diesel Trucks	0.00	5.80	260.21	0.00	0.00	0.01	0.06	0.74	951.65
750	Motorcycles	0.00	21.58	1179.21	0.00	0.00	0.00	0.00	0.13	0.00
760	Diesel Urban Buses	0.00	0.48	21.60	0.00	0.00	0.00	0.02	0.02	319.45
762	Gas Urban Buses	0.00	1.21	57.04	0.00	0.00	0.00	0.00	0.01	0.00
770	School Buses	0.00	0.54	26.31	0.00	0.00	0.00	0.02	0.02	286.92
776	Other Bus	0.00	1.15	46.14	0.00	0.00	0.00	0.01	0.02	76.72
780	Motor Homes	0.00	0.72	36.93	0.00	0.00	0.00	0.00	0.04	29.02
	Total	**0.00**	**243.68**	**14496.19**	**0.00**	**0.00**	**0.12**	**0.14**	**22.24**	**2017.60**
	Other Mobile Sources									
810	Aircraft	0.00	98.83	281.76	0.00	0.00	4.77	0.45	5.42	0.00
820	Trains	0.00	2.43	118.62	0.00	0.00	0.00	0.02	0.00	352.37
830	Ships and Commercial Boats	0.00	1.77	157.18	0.00	0.00	0.00	0.00	0.00	2732.43
840	Recreational Boats	0.00	49.63	3018.24	0.00	0.00	0.00	0.00	3.32	53.75
850	Off-Road Recreational Vehicles	0.00	10.65	658.26	0.00	0.00	0.00	0.00	0.07	0.00
860	Off-Road Equipment	0.00	90.51	5245.91	0.00	0.00	0.03	0.45	1.93	6775.29
870	Farm Equipment	0.00	1.21	61.44	0.00	0.00	0.00	0.03	0.01	485.58
890	Fuel Storage and Handling	0.00	0.00	238.99	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**255.03**	**9780.42**	**0.00**	**0.00**	**4.80**	**0.96**	**10.77**	**10399.42**
	Total Stationary and Area Sources	**2.36**	**1725.80**	**28015.95**	**1179.75**	**52.53**	**35.75**	**10.91**	**133.38**	**798.77**
	Total On-Road Vehicles	**0.00**	**243.68**	**14496.19**	**0.00**	**0.00**	**0.12**	**0.14**	**22.24**	**2017.60**
	Total Other Mobile	**0.00**	**255.03**	**9780.42**	**0.00**	**0.00**	**4.80**	**0.96**	**10.77**	**10399.42**
	Total Anthropogenic	**2.36**	**2224.51**	**52292.55**	**1179.75**	**52.53**	**40.66**	**12.00**	**166.39**	**13215.79**

Table B-4: 2014 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	Fuel Combustion									
10	Electric Utilities	162.61	968.92	967.18	0.00	0.00	0.09	15.62	0.01	1.14
20	Cogeneration	0.00	18.16	18.01	0.00	0.00	0.05	0.00	0.00	0.00
30	Oil and Gas Production	13.07	42.31	41.19	0.05	1.02	0.26	0.00	0.24	0.07
40	Petroleum Refining	0.00	348.83	337.05	0.01	1.16	12.91	0.00	12.78	0.00
50	Manufacturing and Industrial	113.00	874.36	871.27	0.01	0.23	2.59	0.00	2.35	0.64
52	Food and Agricultural Processing	46.93	54.93	54.64	0.00	0.02	0.18	0.00	0.18	0.28
60	Service and Commercial	162.42	1301.42	1300.67	0.01	0.04	0.21	0.00	0.08	0.92
99	Other	260.89	25.15	23.82	0.00	0.04	0.42	0.00	0.40	1.55
	Total	**758.93**	**3634.08**	**3613.83**	**0.09**	**2.51**	**16.70**	**15.62**	**16.04**	**4.60**
	Waste Disposal									
110	Sewage Treatment	0.00	3.18	3.18	0.00	0.00	0.00	0.00	0.00	0.00
120	Landfills	0.00	299.48	277.65	0.00	0.14	0.07	78.97	0.00	0.00
130	Incineration	0.00	96.42	96.42	0.00	0.00	10.58	0.00	0.00	10.58
199	Other	0.00	8.25	7.96	0.01	0.30	0.03	0.12	0.03	0.52
	Total	**0.00**	**407.33**	**385.21**	**0.02**	**0.44**	**10.68**	**79.09**	**0.03**	**11.10**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.00	843.24	780.87	0.00	0.00	0.00	0.00	0.00	0.00
240	Printing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	58.75	54.35	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**902.08**	**835.30**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	3.74	3.74	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	110.16	105.84	0.00	0.45	0.45	0.00	0.00	89.42
330	Petroleum Marketing	0.00	15.91	14.72	0.00	0.00	0.00	0.00	0.00	0.00
399	Other	0.00	0.09	0.08	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**129.90**	**124.39**	**0.00**	**0.45**	**0.45**	**0.00**	**0.00**	**89.42**

Table B-4: 2014 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	Industrial Processes									
410	Chemical	0.00	157.53	140.67	0.01	0.19	0.47	57.82	0.00	2.87
420	Food and Agriculture	0.00	316.55	3.10	0.00	0.00	0.35	0.00	0.00	172.65
430	Mineral Processes	0.00	378.13	88.04	0.18	0.80	6.48	18.30	1.60	1383.27
440	Metal Processes	0.00	263.78	148.10	0.24	6.54	6.46	89.80	0.00	0.00
450	Wood and Paper	0.00	83.01	25.46	0.00	0.12	0.12	112.36	0.00	0.79
460	Glass and Related Products	0.00	58.75	59.56	0.14	2.83	0.27	0.00	19.58	12.91
470	Electronics	0.00	1.72	0.41	0.00	0.03	0.01	5.99	0.01	1.66
499	Other	0.00	226.78	150.86	0.00	0.27	0.15	45.23	0.09	30.44
	Total	**0.00**	**1486.25**	**616.21**	**0.56**	**10.78**	**14.32**	**329.49**	**21.28**	**1604.58**
	Solvent Evaporation									
510	Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	29.14	26.95	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**29.14**	**26.95**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	5051.65	4230.60	0.00	0.24	0.01	6772.16	0.02	0.21
620	Farming Operations	0.00	10.37	0.84	0.00	0.15	0.12	63.28	0.00	443.13
630	Construction and Demolition	0.00	1109.69	72.65	0.00	133.67	14.16	10548.49	0.48	45647.83
640	Paved Road Dust	0.00	4247.94	293.11	0.50	68.25	6.60	32881.62	1.10	167139.69
645	Unpaved Road Dust	0.00	40.44	2.37	0.00	4.52	1.29	1170.15	0.10	11284.64
650	Fugitive Windblown Dust	0.00	23.47	1.42	0.00	3.26	0.44	224.42	0.01	1523.04
660	Fires	0.00	219.29	193.06	0.00	0.05	0.00	215.66	0.00	37.27
670	Waste Burning and Disposal	0.00	2226.02	1854.36	0.00	0.46	0.01	5815.96	0.03	15.69
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	15793.46	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**12928.87**	**6648.41**	**0.50**	**210.59**	**22.62**	**73485.22**	**1.76**	**226091.47**

Table B-4: 2014 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	37.35	2089.54	1304.07	0.48	0.85	6.79	2298.31	0.18	387.96
722	Light Duty Trucks 1	50.89	356.52	234.31	0.08	0.13	1.10	379.31	0.03	58.47
723	Light Duty Trucks 2	9.12	1708.11	1277.22	0.31	0.38	4.98	1030.62	0.08	174.92
724	Medium Duty Trucks	7.46	785.62	587.01	0.14	0.18	2.29	477.27	0.04	80.58
732	Light Heavy Duty Gas Trucks 1	0.00	74.00	38.94	0.02	0.04	0.21	103.43	0.01	13.00
733	Light Heavy Duty Gas Trucks 2	0.00	15.45	8.27	0.00	0.01	0.04	21.08	0.00	2.65
734	Medium Heavy Duty Gas Trucks	0.00	12.31	6.87	0.00	0.01	0.03	15.56	0.00	1.95
736	Heavy Heavy Duty Gas Trucks	0.00	4.16	2.59	0.00	0.00	0.02	4.80	0.00	1.08
742	Light Heavy Duty Diesel Trucks 1	83.24	33.63	24.79	0.00	0.01	0.03	86.65	0.00	3.34
743	Light Heavy Duty Diesel Trucks 2	69.15	26.16	20.12	0.00	0.01	0.02	67.76	0.00	2.22
744	Medium Heavy Duty Diesel Truck	68.33	51.42	26.76	0.01	0.03	0.10	127.43	0.01	9.83
746	Heavy Heavy Duty Diesel Trucks	875.52	422.23	278.45	0.04	0.18	0.44	1064.47	0.03	43.61
750	Motorcycles	0.00	40.15	25.45	0.01	0.01	0.11	13.73	0.00	2.33
760	Diesel Urban Buses	293.89	84.29	78.29	0.00	0.01	0.01	224.79	0.00	1.84
762	Gas Urban Buses	0.00	3.36	2.20	0.00	0.00	0.01	3.08	0.00	0.40
770	School Buses	263.96	76.45	70.70	0.00	0.01	0.01	202.71	0.00	1.50
776	Other Bus	70.58	23.40	20.21	0.00	0.00	0.01	59.30	0.00	1.06
780	Motor Homes	26.70	15.96	10.09	0.00	0.01	0.03	37.16	0.00	2.25
	Total	**1856.19**	**5822.75**	**4016.34**	**1.11**	**1.86**	**16.25**	**6217.46**	**0.39**	**788.98**
	Other Mobile Sources									
810	Aircraft	0.00	397.27	360.01	0.27	4.95	1.11	0.00	0.45	0.00
820	Trains	307.38	90.61	81.26	0.00	0.01	0.01	242.11	0.00	1.01
830	Ships and Commercial Boats	2544.11	109.30	101.76	0.01	0.00	0.00	0.00	0.00	15.03
840	Recreational Boats	49.46	1343.38	917.18	0.17	0.00	3.32	36.93	0.00	0.15
850	Off-Road Recreational Vehicles	0.00	28.16	19.15	0.00	0.00	0.07	0.00	0.00	0.00
860	Off-Road Equipment	6233.51	2487.47	2169.21	0.11	0.20	1.97	4655.36	0.03	19.44
870	Farm Equipment	446.78	128.82	120.81	0.00	0.01	0.02	333.65	0.00	1.39
890	Fuel Storage and Handling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**9581.24**	**4584.99**	**3769.39**	**0.57**	**5.18**	**6.50**	**5268.06**	**0.49**	**37.02**
	Total Stationary and Area Sources	**758.93**	**19517.64**	**12250.30**	**1.17**	**224.78**	**64.78**	**73909.42**	**39.11**	**227801.17**
	Total On-Road Vehicles	**1856.19**	**5822.75**	**4016.34**	**1.11**	**1.86**	**16.25**	**6217.46**	**0.39**	**788.98**
	Total Other Mobile	**9581.24**	**4584.99**	**3769.39**	**0.57**	**5.18**	**6.50**	**5268.06**	**0.49**	**37.02**
	Total Anthropogenic	**12196.37**	**29925.38**	**20036.03**	**2.84**	**231.81**	**87.52**	**85394.95**	**39.99**	**228627.19**

Table B-5: 2020 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	Fuel Combustion									
10	Electric Utilities	22.92	20.72	188.77	0.53	0.00	0.00	0.00	0.00	0.00
20	Cogeneration	0.47	0.00	1.72	0.00	0.00	0.00	0.00	0.00	0.00
30	Oil and Gas Production	2.07	0.89	17.41	0.03	0.00	0.00	0.00	0.00	0.00
40	Petroleum Refining	1.30	0.11	12.02	0.20	0.00	0.00	0.00	0.00	0.00
50	Manufacturing and Industrial	23.97	16.24	141.41	1.32	0.00	0.00	0.00	0.00	0.00
52	Food and Agricultural Processing	3.27	3.33	11.75	0.10	0.00	0.00	0.00	0.00	0.00
60	Service and Commercial	32.50	25.50	124.98	2.89	0.00	0.00	0.00	0.00	0.00
99	Other	9.53	6.43	21.81	5.07	0.00	0.00	0.00	0.00	0.00
	Total	**96.03**	**73.22**	**519.87**	**10.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Waste Disposal									
110	Sewage Treatment	4.61	5.11	14.04	0.00	2.06	228.27	0.00	0.90	0.69
120	Landfills	0.00	1.03	2.19	0.00	0.00	0.00	0.59	0.00	0.00
130	Incineration	0.00	0.00	99.06	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.35	2529.38	1.01	0.00	0.16	17.51	0.00	0.07	0.05
	Total	**4.96**	**2535.53**	**116.31**	**0.00**	**2.22**	**245.78**	**0.59**	**0.97**	**0.74**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	3203.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.01	1030.66	11.53	0.01	0.00	0.00	0.00	0.00	0.00
240	Printing	0.00	1.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	1269.70	1.86	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.01**	**5505.57**	**13.39**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	24.16	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	40.79	0.00	0.00	0.00	0.00	0.00	0.00
330	Petroleum Marketing	1.35	0.00	233.61	0.00	1.35	1.35	0.00	0.00	1.35
399	Other	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**1.35**	**0.00**	**298.64**	**0.00**	**1.35**	**1.35**	**0.00**	**0.00**	**1.35**

Table B-5: 2020 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	Industrial Processes									
410	Chemical	57.38	85.22	439.68	965.91	9.29	1.28	0.00	0.00	0.04
420	Food and Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
430	Mineral Processes	0.00	0.00	12.40	0.05	0.00	0.00	0.00	0.00	0.00
440	Metal Processes	0.24	0.36	1.76	0.12	0.04	0.01	0.00	0.00	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
460	Glass and Related Products	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.00	0.00	7.43	0.00	0.00	0.00	0.00	0.00	0.00
499	Other	0.77	1.33	14.68	0.40	0.28	0.20	0.00	0.00	0.19
	Total	**58.40**	**86.91**	**475.95**	**966.47**	**9.61**	**1.49**	**0.00**	**0.00**	**0.23**
	Solvent Evaporation									
510	Consumer Products	0.00	18423.90	1.11	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	4.91	973.45	15.24	0.00	0.00	0.00	0.00	0.50	0.00
530	Pesticides/Fertilizers	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	6.10	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**4.91**	**19397.54**	**22.44**	**0.00**	**0.00**	**0.00**	**0.00**	**0.50**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	535.05	394.82	256.40	0.00	0.00	0.00	0.00	0.00	0.00
620	Farming Operations	0.00	1820.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660	Fires	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670	Waste Burning and Disposal	0.00	0.00	0.00	96.19	0.00	0.00	0.00	0.00	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**535.05**	**2215.32**	**256.40**	**96.19**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table B-5: 2020 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	108.54	69.76	1039.77	166.04	0.00	0.00	0.00	0.00	0.00
722	Light Duty Trucks 1	22.93	16.10	208.27	29.64	0.00	0.00	0.00	0.00	0.00
723	Light Duty Trucks 2	77.94	49.56	801.58	122.21	0.00	0.00	0.00	0.00	0.00
724	Medium Duty Trucks	60.47	37.45	493.45	87.76	0.00	0.00	0.00	0.00	0.00
732	Light Heavy Duty Gas Trucks 1	31.00	20.15	237.88	45.57	0.00	0.00	0.00	0.00	0.00
733	Light Heavy Duty Gas Trucks 2	5.02	3.30	37.68	7.18	0.00	0.00	0.00	0.00	0.00
734	Medium Heavy Duty Gas Trucks	9.85	6.49	58.95	14.00	0.00	0.00	0.00	0.00	0.00
736	Heavy Heavy Duty Gas Trucks	6.02	3.85	37.64	9.27	0.00	0.00	0.00	0.00	0.00
742	Light Heavy Duty Diesel Trucks 1	32.57	33.25	8.86	0.84	0.00	0.00	0.00	0.00	0.00
743	Light Heavy Duty Diesel Trucks 2	24.72	25.24	6.73	0.64	0.00	0.00	0.00	0.00	0.00
744	Medium Heavy Duty Diesel Truck	124.04	126.64	33.75	3.21	0.00	0.00	0.00	0.00	0.00
746	Heavy Heavy Duty Diesel Trucks	1015.59	1036.86	276.36	26.24	0.00	0.00	0.00	0.00	0.00
750	Motorcycles	121.65	63.39	585.54	135.99	0.00	0.00	0.00	0.00	0.00
760	Diesel Urban Buses	52.81	53.91	14.37	1.36	0.00	0.00	0.00	0.00	0.00
762	Gas Urban Buses	2.83	1.67	23.83	5.24	0.00	0.00	0.00	0.00	0.00
770	School Buses	25.32	25.57	12.15	1.81	0.00	0.00	0.00	0.00	0.00
776	Other Bus	7.29	6.88	10.99	2.35	0.00	0.00	0.00	0.00	0.00
780	Motor Homes	2.07	1.83	5.84	1.16	0.00	0.00	0.00	0.00	0.00
	Total	**1730.66**	**1581.91**	**3893.63**	**660.50**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Other Mobile Sources									
810	Aircraft	1322.30	5.57	630.14	515.01	0.00	0.00	0.00	0.00	0.00
820	Trains	449.97	459.40	122.45	11.63	0.00	0.00	0.00	0.00	0.00
830	Ships and Commercial Boats	268.16	273.77	174.73	6.93	0.00	0.00	0.00	0.00	0.00
840	Recreational Boats	452.33	254.85	1464.76	329.83	0.00	0.00	0.00	0.00	0.00
850	Off-Road Recreational Vehicles	110.31	53.23	411.75	94.15	0.00	0.00	0.00	0.00	0.00
860	Off-Road Equipment	2676.60	2436.97	2577.53	522.75	0.00	0.00	0.00	0.00	0.00
870	Farm Equipment	65.76	66.18	24.10	3.17	0.00	0.00	0.00	0.00	0.00
890	Fuel Storage and Handling	0.00	0.00	36.64	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**5345.43**	**3549.97**	**5442.10**	**1483.46**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Stationary and Area Sources	**700.71**	**29814.09**	**1703.00**	**1072.80**	**13.19**	**248.62**	**0.59**	**1.47**	**2.33**
	Total On-Road Vehicles	**1730.66**	**1581.91**	**3893.63**	**660.50**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Other Mobile	**5345.43**	**3549.97**	**5442.10**	**1483.46**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Anthropogenic	**7776.79**	**34945.97**	**11038.73**	**3216.76**	**13.19**	**248.62**	**0.59**	**1.47**	**2.33**

Table B-5: 2020 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	Fuel Combustion									
10	Electric Utilities	0.00	0.00	464.56	4.08	0.00	0.00	0.24	0.00	0.00
20	Cogeneration	0.00	0.00	12.69	0.00	0.00	0.00	0.00	0.00	0.00
30	Oil and Gas Production	0.00	0.00	59.60	0.18	0.00	0.00	0.01	0.00	0.00
40	Petroleum Refining	0.00	0.00	275.68	0.01	0.00	0.00	0.03	0.00	0.00
50	Manufacturing and Industrial	0.00	0.00	468.52	3.16	0.00	0.00	0.33	0.00	0.00
52	Food and Agricultural Processing	0.00	0.00	28.14	0.65	0.00	0.00	0.04	0.00	0.00
60	Service and Commercial	0.00	0.00	372.86	4.98	0.00	0.00	0.73	0.00	0.00
99	Other	0.00	0.00	29.42	1.08	0.00	0.00	0.84	0.00	0.00
	Total	**0.00**	**0.00**	**1711.46**	**14.13**	**0.00**	**0.00**	**2.21**	**0.00**	**0.00**
	Waste Disposal									
110	Sewage Treatment	1.26	0.39	24.64	0.00	350.76	0.00	0.00	34.74	285.79
120	Landfills	0.10	0.00	53.83	1.29	3.09	0.00	0.00	0.00	1.57
130	Incineration	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.10	0.00	1.84	0.00	26.90	0.00	0.00	2.66	21.92
	Total	**1.45**	**0.39**	**81.06**	**1.29**	**380.75**	**0.00**	**0.00**	**37.40**	**309.28**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	876.73
220	Degreasing	0.00	0.00	0.00	1303.40	6511.59	0.00	30.75	0.00	796.01
230	Coatings and Related Processes	0.01	0.00	0.02	2117.66	14.24	0.00	5.13	0.02	195.50
240	Printing	0.00	0.00	0.00	567.04	0.00	0.00	13.75	0.00	1.82
250	Adhesives and Sealants	0.00	0.00	0.00	1067.64	34.14	0.00	0.00	0.00	0.00
299	Other	0.00	19.76	0.00	0.01	0.00	0.00	0.00	0.00	0.00
	Total	**0.01**	**19.76**	**0.02**	**5055.75**	**6559.98**	**0.00**	**49.62**	**0.02**	**1870.06**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	2.79	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	116.40	0.00	0.00	0.00	0.00	0.00	0.00
330	Petroleum Marketing	0.00	0.00	1.35	0.00	0.00	1.35	3.05	0.00	0.00
399	Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**120.54**	**0.00**	**0.00**	**1.35**	**3.05**	**0.00**	**0.00**

Table B-5: 2020 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	Industrial Processes									
410	Chemical	77.68	2.16	1.42	65.80	0.00	62.52	0.30	99.26	0.00
420	Food and Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
430	Mineral Processes	0.00	0.00	14.46	0.00	0.00	0.00	4.40	0.00	0.00
440	Metal Processes	0.33	0.01	0.36	0.25	0.00	0.00	0.02	0.42	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
460	Glass and Related Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.00	0.00	0.15	0.00	0.00	0.00	0.02	0.00	0.00
499	Other	0.79	0.02	2.80	0.79	0.00	0.19	0.05	1.01	0.00
	Total	**78.80**	**2.19**	**19.20**	**66.84**	**0.00**	**62.71**	**4.78**	**100.69**	**0.00**
	Solvent Evaporation									
510	Consumer Products	0.00	60.60	10.33	2274.73	8278.17	0.00	445.61	3884.69	5556.00
520	Architectural Coatings & Related Solvent	0.00	0.00	1.09	475.10	208.90	0.00	44.44	0.00	5.26
530	Pesticides/Fertilizers	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	0.00	0.00	0.00	0.00	111.92	0.00	0.00
	Total	**0.00**	**60.60**	**11.43**	**2749.83**	**8487.07**	**0.00**	**601.98**	**3884.69**	**5561.26**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	0.00	1091.30	0.00	0.00	0.00	0.00	0.00	0.00
620	Farming Operations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660	Fires	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670	Waste Burning and Disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**1091.30**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table B-5: 2020 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	0.00	0.00	380.61	11.06	0.00	0.00	64.11	0.00	0.00
722	Light Duty Trucks 1	0.00	0.00	77.26	2.67	0.00	0.00	14.34	0.00	0.00
723	Light Duty Trucks 2	0.00	0.00	284.93	7.71	0.00	0.00	51.83	0.00	0.00
724	Medium Duty Trucks	0.00	0.00	210.90	5.85	0.00	0.00	27.44	0.00	0.00
732	Light Heavy Duty Gas Trucks 1	0.00	0.00	95.28	3.37	0.00	0.00	13.67	0.00	0.00
733	Light Heavy Duty Gas Trucks 2	0.00	0.00	14.29	0.56	0.00	0.00	2.29	0.00	0.00
734	Medium Heavy Duty Gas Trucks	0.00	0.00	27.37	1.14	0.00	0.00	2.52	0.00	0.00
736	Heavy Heavy Duty Gas Trucks	0.00	0.00	20.71	0.62	0.00	0.00	1.11	0.00	0.00
742	Light Heavy Duty Diesel Trucks 1	0.00	0.00	65.17	6.54	0.00	0.00	0.38	0.00	0.00
743	Light Heavy Duty Diesel Trucks 2	0.00	0.00	49.47	4.97	0.00	0.00	0.29	0.00	0.00
744	Medium Heavy Duty Diesel Truck	0.00	0.00	248.22	24.91	0.00	0.00	1.43	0.00	0.00
746	Heavy Heavy Duty Diesel Trucks	0.00	0.00	2032.28	203.99	0.00	0.00	11.74	0.00	0.00
750	Motorcycles	0.00	0.00	419.25	9.26	0.00	0.00	19.67	0.00	0.00
760	Diesel Urban Buses	0.00	0.00	105.67	10.61	0.00	0.00	0.61	0.00	0.00
762	Gas Urban Buses	0.00	0.00	14.56	0.21	0.00	0.00	0.56	0.00	0.00
770	School Buses	0.00	0.00	52.52	5.01	0.00	0.00	0.44	0.00	0.00
776	Other Bus	0.00	0.00	15.76	1.33	0.00	0.00	0.49	0.00	0.00
780	Motor Homes	0.00	0.00	6.13	0.33	0.00	0.00	0.17	0.00	0.00
	Total	**0.00**	**0.00**	**4120.36**	**300.14**	**0.00**	**0.00**	**213.08**	**0.00**	**0.00**
	Other Mobile Sources									
810	Aircraft	0.00	0.00	4256.84	1.56	0.00	5.79	162.33	0.00	0.00
820	Trains	0.00	0.00	900.44	90.38	0.00	0.00	5.20	0.00	0.00
830	Ships and Commercial Boats	0.00	0.00	541.31	53.86	0.00	0.00	6.39	0.00	0.00
840	Recreational Boats	0.00	0.00	1319.41	37.67	0.00	0.00	53.17	0.00	0.00
850	Off-Road Recreational Vehicles	0.00	0.00	339.62	6.89	0.00	0.00	15.03	0.00	0.00
860	Off-Road Equipment	0.00	0.00	5962.48	461.66	0.00	0.00	99.28	0.00	0.00
870	Farm Equipment	0.00	0.00	133.49	12.96	0.00	0.00	0.98	0.00	0.00
890	Fuel Storage and Handling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**13453.60**	**664.99**	**0.00**	**5.79**	**342.39**	**0.00**	**0.00**
	Total Stationary and Area Sources	**80.26**	**82.94**	**3035.01**	**7887.84**	**15427.79**	**64.06**	**661.65**	**4022.80**	**7740.59**
	Total On-Road Vehicles	**0.00**	**0.00**	**4120.36**	**300.14**	**0.00**	**0.00**	**213.08**	**0.00**	**0.00**
	Total Other Mobile	**0.00**	**0.00**	**13453.60**	**664.99**	**0.00**	**5.79**	**342.39**	**0.00**	**0.00**
	Total Anthropogenic	**80.26**	**82.94**	**20608.97**	**8852.97**	**15427.79**	**69.86**	**1217.12**	**4022.80**	**7740.59**

Table B-5: 2020 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	Fuel Combustion									
10	Electric Utilities	0.00	0.16	99.24	0.00	0.00	0.00	0.00	0.10	185.53
20	Cogeneration	0.00	0.00	5.56	0.00	0.00	0.00	0.00	0.05	0.00
30	Oil and Gas Production	0.00	0.01	8.33	0.00	0.00	1.07	0.11	1.24	15.01
40	Petroleum Refining	0.00	0.03	6.71	0.00	0.00	0.00	1.44	15.95	0.00
50	Manufacturing and Industrial	0.00	0.27	76.26	0.00	0.00	0.02	0.26	3.16	140.68
52	Food and Agricultural Processing	0.00	0.03	6.71	0.00	0.00	0.00	0.02	0.19	35.21
60	Service and Commercial	0.00	0.55	69.20	0.00	0.00	0.03	0.01	0.27	197.85
99	Other	0.00	0.82	45.82	0.00	0.00	0.00	0.04	0.42	200.20
	Total	**0.00**	**1.87**	**317.83**	**0.00**	**0.00**	**1.13**	**1.88**	**21.38**	**774.48**
	Waste Disposal									
110	Sewage Treatment	0.12	0.89	298.05	35.13	1.53	0.00	0.00	0.00	0.00
120	Landfills	0.00	0.00	38.61	0.94	1.16	0.00	0.00	0.12	0.00
130	Incineration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.00	0.05	92.62	2.69	0.11	0.31	0.03	0.31	0.00
	Total	**0.12**	**0.93**	**429.29**	**38.76**	**2.80**	**0.31**	**0.03**	**0.43**	**0.00**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.76	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	2.42	738.51	636.57	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.00	0.40	13589.11	50.04	0.01	0.00	0.00	0.00	0.00
240	Printing	0.00	0.00	20.36	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	0.00	327.02	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	0.00	91.49	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**2.82**	**14766.49**	**687.37**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	13.84	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	273.78	0.00	0.00	0.54	0.00	0.00	0.00
330	Petroleum Marketing	1.35	0.00	1105.77	0.00	0.00	0.00	0.00	0.00	0.00
399	Other	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**1.35**	**0.00**	**1393.77**	**0.00**	**0.00**	**0.54**	**0.00**	**0.00**	**0.00**

Table B-5: 2020 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	Industrial Processes									
410	Chemical	0.66	1983.95	1543.47	0.00	57.55	0.00	0.47	0.19	0.00
420	Food and Agriculture	0.00	0.00	86.55	0.00	0.00	0.02	0.00	0.65	0.00
430	Mineral Processes	0.00	0.05	8.00	0.00	0.00	10.78	0.91	22.86	0.00
440	Metal Processes	0.00	0.68	5.70	0.00	0.21	0.70	0.70	28.02	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.10	0.00
460	Glass and Related Products	0.00	0.00	3.44	0.00	0.00	12.19	0.00	3.35	0.00
470	Electronics	0.00	0.05	20.23	0.00	0.00	0.00	0.01	0.01	0.00
499	Other	0.19	1.42	1135.98	0.00	0.50	0.01	0.02	0.08	0.00
	Total	**0.86**	**1986.14**	**2803.37**	**0.00**	**58.26**	**23.70**	**2.16**	**55.26**	**0.00**
	Solvent Evaporation									
510	Consumer Products	0.24	13.31	9865.16	657.72	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	0.00	44.11	1924.07	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	14.48	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.24**	**57.43**	**11803.93**	**657.72**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	0.00	297.02	0.00	0.00	0.15	0.07	0.11	0.00
620	Farming Operations	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.41	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	4.59	5.67	60.43	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	7.36	1.70	9.62	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.52	0.45	0.59	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.11	0.16	1.58	0.00
660	Fires	0.00	0.00	55.11	0.00	0.00	0.00	0.02	0.01	0.00
670	Waste Burning and Disposal	0.00	0.00	0.75	0.00	0.00	0.24	0.03	0.01	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	518.26	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**871.14**	**0.00**	**0.00**	**12.99**	**8.13**	**72.75**	**0.00**

Table B-5: 2020 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	0.00	50.55	3810.69	0.00	0.00	0.06	0.00	10.51	14.48
722	Light Duty Trucks 1	0.00	8.80	788.71	0.00	0.00	0.01	0.00	1.67	32.08
723	Light Duty Trucks 2	0.00	36.44	2967.15	0.00	0.00	0.03	0.00	7.17	4.31
724	Medium Duty Trucks	0.00	25.43	1692.44	0.00	0.00	0.01	0.00	3.32	4.90
732	Light Heavy Duty Gas Trucks 1	0.00	14.86	840.34	0.00	0.00	0.00	0.00	0.34	0.00
733	Light Heavy Duty Gas Trucks 2	0.00	2.44	137.21	0.00	0.00	0.00	0.00	0.07	0.00
734	Medium Heavy Duty Gas Trucks	0.00	4.75	192.74	0.00	0.00	0.00	0.00	0.05	0.00
736	Heavy Heavy Duty Gas Trucks	0.00	2.85	106.85	0.00	0.00	0.00	0.00	0.02	0.00
742	Light Heavy Duty Diesel Trucks 1	0.00	0.26	11.53	0.00	0.00	0.00	0.01	0.06	93.69
743	Light Heavy Duty Diesel Trucks 2	0.00	0.19	8.75	0.00	0.00	0.00	0.00	0.04	66.31
744	Medium Heavy Duty Diesel Truck	0.00	0.98	43.91	0.00	0.00	0.01	0.11	0.20	1661.62
746	Heavy Heavy Duty Diesel Trucks	0.00	8.01	359.48	0.00	0.00	0.03	0.37	0.93	5487.56
750	Motorcycles	0.00	27.11	1419.79	0.00	0.00	0.00	0.00	0.12	0.00
760	Diesel Urban Buses	0.00	0.42	18.69	0.00	0.00	0.00	0.02	0.02	293.99
762	Gas Urban Buses	0.00	1.26	59.04	0.00	0.00	0.00	0.00	0.02	0.00
770	School Buses	0.00	0.49	23.04	0.00	0.00	0.00	0.02	0.02	331.16
776	Other Bus	0.00	0.80	33.33	0.00	0.00	0.00	0.01	0.02	78.83
780	Motor Homes	0.00	0.27	14.52	0.00	0.00	0.00	0.00	0.05	26.02
	Total	**0.00**	**185.89**	**12528.20**	**0.00**	**0.00**	**0.15**	**0.54**	**24.62**	**8094.94**
	Other Mobile Sources									
810	Aircraft	0.00	118.50	318.90	0.00	0.00	5.45	0.51	6.15	0.00
820	Trains	0.00	3.55	168.11	0.00	0.00	0.01	0.12	0.02	1756.43
830	Ships and Commercial Boats	0.00	2.12	196.20	0.00	0.00	0.00	0.00	0.00	10601.41
840	Recreational Boats	0.00	52.92	3332.49	0.00	0.00	0.00	0.00	5.75	69.40
850	Off-Road Recreational Vehicles	0.00	15.03	932.97	0.00	0.00	0.00	0.00	0.08	0.00
860	Off-Road Equipment	0.00	91.47	5173.33	0.00	0.00	0.03	0.42	1.99	6310.84
870	Farm Equipment	0.00	0.75	37.98	0.00	0.00	0.00	0.02	0.01	258.37
890	Fuel Storage and Handling	0.00	0.00	183.55	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**284.33**	**10343.53**	**0.00**	**0.00**	**5.48**	**1.08**	**14.00**	**18996.45**
	Total Stationary and Area Sources	**2.56**	**2049.20**	**32385.80**	**1383.85**	**61.07**	**38.67**	**12.19**	**149.83**	**774.48**
	Total On-Road Vehicles	**0.00**	**185.89**	**12528.20**	**0.00**	**0.00**	**0.15**	**0.54**	**24.62**	**8094.94**
	Total Other Mobile	**0.00**	**284.33**	**10343.53**	**0.00**	**0.00**	**5.48**	**1.08**	**14.00**	**18996.45**
	Total Anthropogenic	**2.56**	**2519.42**	**55257.53**	**1383.85**	**61.07**	**44.31**	**13.81**	**188.46**	**27865.88**

Table B-5: 2020 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	Fuel Combustion									
10	Electric Utilities	179.40	1069.41	1067.48	0.01	0.00	0.10	17.23	0.01	1.25
20	Cogeneration	0.00	18.52	18.37	0.00	0.00	0.05	0.00	0.00	0.00
30	Oil and Gas Production	14.51	46.56	45.33	0.05	1.13	0.27	0.00	0.25	0.08
40	Petroleum Refining	0.00	432.90	418.33	0.01	1.44	15.95	0.00	15.80	0.00
50	Manufacturing and Industrial	136.04	975.09	971.40	0.02	0.28	3.14	0.00	2.86	0.77
52	Food and Agricultural Processing	33.02	62.59	62.32	0.00	0.02	0.19	0.00	0.19	0.19
60	Service and Commercial	191.24	1264.75	1263.90	0.01	0.04	0.24	0.00	0.09	1.09
99	Other	185.67	23.00	21.94	0.00	0.04	0.42	0.00	0.40	1.10
	Total	**739.88**	**3892.82**	**3869.07**	**0.10**	**2.95**	**20.36**	**17.23**	**19.60**	**4.49**
	Waste Disposal									
110	Sewage Treatment	0.00	3.32	3.32	0.00	0.00	0.00	0.00	0.00	0.00
120	Landfills	0.00	341.62	318.79	0.00	0.15	0.07	82.55	0.00	0.00
130	Incineration	0.00	103.63	103.63	0.00	0.00	10.68	0.00	0.00	10.68
199	Other	0.00	8.74	8.44	0.02	0.32	0.03	0.12	0.03	0.53
	Total	**0.00**	**457.30**	**434.18**	**0.02**	**0.47**	**10.78**	**82.67**	**0.03**	**11.21**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	0.10	0.09	0.00	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.00	1023.32	947.57	0.00	0.00	0.00	0.00	0.00	0.00
240	Printing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	62.56	57.87	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**1085.98**	**1005.53**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	3.74	3.74	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	113.85	109.85	0.00	0.54	0.54	0.00	0.00	106.78
330	Petroleum Marketing	0.00	16.50	15.27	0.00	0.00	0.00	0.00	0.00	0.00
399	Other	0.00	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**134.19**	**128.95**	**0.00**	**0.54**	**0.54**	**0.00**	**0.00**	**106.78**

Table B-5: 2020 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	Industrial Processes									
410	Chemical	0.00	176.66	157.61	0.01	0.21	0.54	66.51	0.00	3.42
420	Food and Agriculture	0.00	335.87	3.29	0.00	0.00	0.38	0.00	0.00	183.32
430	Mineral Processes	0.00	403.93	94.67	0.21	0.91	7.47	19.34	1.73	1551.97
440	Metal Processes	0.00	312.94	176.78	0.28	7.84	7.75	96.83	0.00	0.00
450	Wood and Paper	0.00	92.51	28.19	0.00	0.14	0.14	114.40	0.00	0.80
460	Glass and Related Products	0.00	69.50	70.45	0.17	3.35	0.32	0.00	23.17	14.04
470	Electronics	0.00	1.89	0.45	0.00	0.03	0.01	6.56	0.01	1.81
499	Other	0.00	260.92	178.21	0.00	0.29	0.17	46.28	0.11	32.73
	Total	**0.00**	**1654.22**	**709.65**	**0.67**	**12.76**	**16.78**	**349.92**	**25.01**	**1788.10**
	Solvent Evaporation									
510	Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	31.52	29.15	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**31.52**	**29.15**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	5676.79	4709.29	0.01	0.28	0.01	7980.19	0.03	0.24
620	Farming Operations	0.00	8.63	0.70	0.00	0.12	0.10	52.67	0.00	368.85
630	Construction and Demolition	0.00	1247.49	81.67	0.00	150.27	15.92	11858.40	0.54	51316.34
640	Paved Road Dust	0.00	4366.83	301.31	0.51	70.16	6.79	33801.91	1.13	171817.61
645	Unpaved Road Dust	0.00	40.27	2.36	0.00	4.50	1.28	1165.28	0.10	11237.60
650	Fugitive Windblown Dust	0.00	19.37	1.20	0.00	3.20	0.39	199.38	0.01	1347.68
660	Fires	0.00	219.29	193.06	0.00	0.05	0.00	215.66	0.00	37.27
670	Waste Burning and Disposal	0.00	2225.13	1853.68	0.00	0.46	0.01	5814.48	0.03	15.69
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	16701.75	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**13803.80**	**7143.27**	**0.51**	**229.04**	**24.49**	**77789.73**	**1.85**	**236141.28**

Table B-5: 2020 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	13.32	2299.95	1469.96	0.52	0.88	7.40	2375.61	0.19	404.16
722	Light Duty Trucks 1	29.51	388.89	259.62	0.08	0.13	1.20	379.73	0.03	61.18
723	Light Duty Trucks 2	3.97	2000.48	1526.91	0.36	0.40	5.76	1081.29	0.09	184.23
724	Medium Duty Trucks	4.51	926.06	706.18	0.16	0.19	2.66	504.67	0.04	85.65
732	Light Heavy Duty Gas Trucks 1	0.00	83.81	45.41	0.02	0.04	0.24	112.44	0.01	14.13
733	Light Heavy Duty Gas Trucks 2	0.00	17.14	9.20	0.00	0.01	0.05	23.32	0.00	2.94
734	Medium Heavy Duty Gas Trucks	0.00	13.74	7.77	0.00	0.01	0.04	17.20	0.00	2.15
736	Heavy Heavy Duty Gas Trucks	0.00	2.74	1.70	0.00	0.00	0.01	3.23	0.00	0.74
742	Light Heavy Duty Diesel Trucks 1	86.20	35.39	25.83	0.00	0.01	0.04	91.08	0.00	3.62
743	Light Heavy Duty Diesel Trucks 2	61.00	24.39	18.10	0.00	0.01	0.02	62.90	0.00	2.37
744	Medium Heavy Duty Diesel Truck	1528.69	461.75	413.41	0.01	0.08	0.13	1223.23	0.01	15.00
746	Heavy Heavy Duty Diesel Trucks	5048.55	1623.63	1390.93	0.06	0.34	0.60	4262.24	0.06	64.70
750	Motorcycles	0.00	35.93	22.56	0.01	0.01	0.10	14.58	0.00	2.51
760	Diesel Urban Buses	270.47	77.79	72.11	0.00	0.01	0.01	207.40	0.00	1.76
762	Gas Urban Buses	0.00	4.19	2.68	0.00	0.00	0.01	4.08	0.00	0.50
770	School Buses	304.66	88.11	81.56	0.00	0.01	0.01	233.69	0.00	1.69
776	Other Bus	72.53	23.92	20.67	0.00	0.00	0.01	60.87	0.00	1.08
780	Motor Homes	23.94	15.98	9.59	0.00	0.01	0.03	36.97	0.00	2.48
	Total	**7447.35**	**8123.90**	**6084.20**	**1.24**	**2.15**	**18.33**	**10694.51**	**0.44**	**850.89**
	Other Mobile Sources									
810	Aircraft	0.00	436.14	396.09	0.31	5.66	1.22	0.00	0.51	0.00
820	Trains	1600.21	451.64	423.04	0.01	0.05	0.03	1206.86	0.01	5.04
830	Ships and Commercial Boats	9913.51	424.06	396.54	0.03	0.00	0.00	0.00	0.00	58.31
840	Recreational Boats	63.85	2315.92	1579.58	0.29	0.00	5.75	47.68	0.00	0.20
850	Off-Road Recreational Vehicles	0.00	33.12	22.52	0.00	0.00	0.08	0.00	0.00	0.00
860	Off-Road Equipment	5806.14	2394.08	2074.99	0.12	0.19	2.03	4336.23	0.03	18.11
870	Farm Equipment	237.71	70.55	65.65	0.00	0.01	0.01	177.53	0.00	0.74
890	Fuel Storage and Handling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**17621.42**	**6125.52**	**4958.41**	**0.75**	**5.91**	**9.12**	**5768.31**	**0.56**	**82.39**
	Total Stationary and Area Sources	**739.88**	**21059.83**	**13319.81**	**1.30**	**245.75**	**72.96**	**78239.55**	**46.49**	**238051.86**
	Total On-Road Vehicles	**7447.35**	**8123.90**	**6084.20**	**1.24**	**2.15**	**18.33**	**10694.51**	**0.44**	**850.89**
	Total Other Mobile	**17621.42**	**6125.52**	**4958.41**	**0.75**	**5.91**	**9.12**	**5768.31**	**0.56**	**82.39**
	Total Anthropogenic	**25808.65**	**35309.25**	**24362.42**	**3.29**	**253.81**	**100.41**	**94702.36**	**47.49**	**238985.14**

Table B-6: 2020 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	Fuel Combustion									
10	Electric Utilities	22.90	20.72	188.72	0.53	0.00	0.00	0.00	0.00	0.00
20	Cogeneration	0.38	0.00	1.41	0.00	0.00	0.00	0.00	0.00	0.00
30	Oil and Gas Production	1.78	0.88	15.67	0.03	0.00	0.00	0.00	0.00	0.00
40	Petroleum Refining	0.91	0.08	10.61	0.14	0.00	0.00	0.00	0.00	0.00
50	Manufacturing and Industrial	21.40	14.79	126.36	1.26	0.00	0.00	0.00	0.00	0.00
52	Food and Agricultural Processing	3.24	3.30	10.38	0.10	0.00	0.00	0.00	0.00	0.00
60	Service and Commercial	29.56	22.77	121.81	2.57	0.00	0.00	0.00	0.00	0.00
99	Other	9.45	6.35	21.78	5.06	0.00	0.00	0.00	0.00	0.00
	Total	**89.62**	**68.90**	**496.74**	**9.69**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Waste Disposal									
110	Sewage Treatment	4.55	5.04	13.85	0.00	2.03	225.06	0.00	0.89	0.68
120	Landfills	0.00	1.03	2.18	0.00	0.00	0.00	0.59	0.00	0.00
130	Incineration	0.00	0.00	71.48	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.34	2529.37	0.99	0.00	0.15	17.12	0.00	0.07	0.05
	Total	**4.89**	**2535.44**	**88.51**	**0.00**	**2.19**	**242.18**	**0.59**	**0.96**	**0.73**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	3203.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.01	980.55	11.03	0.01	0.00	0.00	0.00	0.00	0.00
240	Printing	0.00	1.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	1253.42	1.86	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.01**	**5439.19**	**12.90**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	23.83	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	35.75	0.00	0.00	0.00	0.00	0.00	0.00
330	Petroleum Marketing	1.34	0.00	196.03	0.00	1.34	1.34	0.00	0.00	1.34
399	Other	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**1.34**	**0.00**	**255.69**	**0.00**	**1.34**	**1.34**	**0.00**	**0.00**	**1.34**

Table B-6: 2020 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	Industrial Processes									
410	Chemical	41.20	60.69	298.73	597.67	6.67	0.92	0.00	0.00	0.03
420	Food and Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
430	Mineral Processes	0.00	0.00	9.56	0.05	0.00	0.00	0.00	0.00	0.00
440	Metal Processes	0.24	0.36	1.76	0.12	0.04	0.01	0.00	0.00	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
460	Glass and Related Products	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.00	0.00	7.32	0.00	0.00	0.00	0.00	0.00	0.00
499	Other	0.70	1.32	11.77	0.35	0.22	0.14	0.00	0.00	0.13
	Total	**42.15**	**62.37**	**329.14**	**598.18**	**6.93**	**1.07**	**0.00**	**0.00**	**0.16**
	Solvent Evaporation									
510	Consumer Products	0.00	15420.80	0.93	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	4.81	953.98	14.93	0.00	0.00	0.00	0.00	0.49	0.00
530	Pesticides/Fertilizers	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	6.10	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**4.81**	**16374.98**	**21.96**	**0.00**	**0.00**	**0.00**	**0.00**	**0.49**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	535.05	394.82	256.40	0.00	0.00	0.00	0.00	0.00	0.00
620	Farming Operations	0.00	1500.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660	Fires	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670	Waste Burning and Disposal	0.00	0.00	0.00	96.19	0.00	0.00	0.00	0.00	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**535.05**	**1895.07**	**256.40**	**96.19**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table B-6: 2020 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	97.91	62.89	933.05	149.93	0.00	0.00	0.00	0.00	0.00
722	Light Duty Trucks 1	20.45	14.28	186.65	26.76	0.00	0.00	0.00	0.00	0.00
723	Light Duty Trucks 2	70.34	44.72	719.07	110.36	0.00	0.00	0.00	0.00	0.00
724	Medium Duty Trucks	54.57	33.77	443.36	79.24	0.00	0.00	0.00	0.00	0.00
732	Light Heavy Duty Gas Trucks 1	25.73	16.73	196.50	37.82	0.00	0.00	0.00	0.00	0.00
733	Light Heavy Duty Gas Trucks 2	4.57	3.00	33.99	6.53	0.00	0.00	0.00	0.00	0.00
734	Medium Heavy Duty Gas Trucks	9.85	6.49	58.70	14.00	0.00	0.00	0.00	0.00	0.00
736	Heavy Heavy Duty Gas Trucks	6.02	3.85	37.60	9.27	0.00	0.00	0.00	0.00	0.00
742	Light Heavy Duty Diesel Trucks 1	25.21	25.74	6.86	0.65	0.00	0.00	0.00	0.00	0.00
743	Light Heavy Duty Diesel Trucks 2	22.50	22.97	6.12	0.58	0.00	0.00	0.00	0.00	0.00
744	Medium Heavy Duty Diesel Truck	74.05	75.60	20.15	1.91	0.00	0.00	0.00	0.00	0.00
746	Heavy Heavy Duty Diesel Trucks	606.31	619.00	164.99	15.67	0.00	0.00	0.00	0.00	0.00
750	Motorcycles	87.10	45.39	424.81	97.37	0.00	0.00	0.00	0.00	0.00
760	Diesel Urban Buses	52.81	53.91	14.37	1.36	0.00	0.00	0.00	0.00	0.00
762	Gas Urban Buses	2.83	1.67	23.81	5.24	0.00	0.00	0.00	0.00	0.00
770	School Buses	25.32	25.57	12.14	1.81	0.00	0.00	0.00	0.00	0.00
776	Other Bus	7.29	6.88	10.95	2.35	0.00	0.00	0.00	0.00	0.00
780	Motor Homes	2.07	1.83	5.82	1.16	0.00	0.00	0.00	0.00	0.00
	Total	**1194.92**	**1064.30**	**3298.93**	**562.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Other Mobile Sources									
810	Aircraft	1322.30	5.57	630.14	515.01	0.00	0.00	0.00	0.00	0.00
820	Trains	133.85	136.65	36.42	3.46	0.00	0.00	0.00	0.00	0.00
830	Ships and Commercial Boats	268.16	273.77	174.73	6.93	0.00	0.00	0.00	0.00	0.00
840	Recreational Boats	160.15	113.86	418.14	80.47	0.00	0.00	0.00	0.00	0.00
850	Off-Road Recreational Vehicles	50.70	24.47	195.29	43.27	0.00	0.00	0.00	0.00	0.00
860	Off-Road Equipment	1904.97	1649.18	2364.77	502.81	0.00	0.00	0.00	0.00	0.00
870	Farm Equipment	65.76	66.18	24.08	3.17	0.00	0.00	0.00	0.00	0.00
890	Fuel Storage and Handling	0.00	0.00	36.64	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**3905.89**	**2269.68**	**3880.22**	**1155.11**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Stationary and Area Sources	**677.87**	**26375.95**	**1461.33**	**704.07**	**10.46**	**244.58**	**0.59**	**1.45**	**2.23**
	Total On-Road Vehicles	**1194.92**	**1064.30**	**3298.93**	**562.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Other Mobile	**3905.89**	**2269.68**	**3880.22**	**1155.11**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Anthropogenic	**5778.69**	**29709.92**	**8640.48**	**2421.19**	**10.46**	**244.58**	**0.59**	**1.45**	**2.23**

Table B-6: 2020 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	Fuel Combustion									
10	Electric Utilities	0.00	0.00	464.19	4.08	0.00	0.00	0.24	0.00	0.00
20	Cogeneration	0.00	0.00	10.39	0.00	0.00	0.00	0.00	0.00	0.00
30	Oil and Gas Production	0.00	0.00	50.42	0.17	0.00	0.00	0.01	0.00	0.00
40	Petroleum Refining	0.00	0.00	197.43	0.01	0.00	0.00	0.02	0.00	0.00
50	Manufacturing and Industrial	0.00	0.00	413.33	2.88	0.00	0.00	0.31	0.00	0.00
52	Food and Agricultural Processing	0.00	0.00	25.38	0.65	0.00	0.00	0.04	0.00	0.00
60	Service and Commercial	0.00	0.00	361.51	4.45	0.00	0.00	0.66	0.00	0.00
99	Other	0.00	0.00	29.26	1.06	0.00	0.00	0.83	0.00	0.00
	Total	**0.00**	**0.00**	**1551.92**	**13.30**	**0.00**	**0.00**	**2.11**	**0.00**	**0.00**
	Waste Disposal									
110	Sewage Treatment	1.24	0.39	24.30	0.00	345.82	0.00	0.00	34.25	281.76
120	Landfills	0.10	0.00	53.83	1.28	3.07	0.00	0.00	0.00	1.56
130	Incineration	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.09	0.00	1.80	0.00	26.31	0.00	0.00	2.61	21.44
	Total	**1.43**	**0.39**	**80.54**	**1.28**	**375.20**	**0.00**	**0.00**	**36.85**	**304.76**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	876.73
220	Degreasing	0.00	0.00	0.00	1299.78	6511.59	0.00	30.73	0.00	749.63
230	Coatings and Related Processes	0.01	0.00	0.02	2034.46	9.04	0.00	5.13	0.02	167.00
240	Printing	0.00	0.00	0.00	436.38	0.00	0.00	12.81	0.00	1.82
250	Adhesives and Sealants	0.00	0.00	0.00	1053.95	34.14	0.00	0.00	0.00	0.00
299	Other	0.00	19.76	0.00	0.01	0.00	0.00	0.00	0.00	0.00
	Total	**0.01**	**19.76**	**0.02**	**4824.59**	**6554.77**	**0.00**	**48.67**	**0.02**	**1795.17**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	2.71	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	109.56	0.00	0.00	0.00	0.00	0.00	0.00
330	Petroleum Marketing	0.00	0.00	1.34	0.00	0.00	1.34	2.83	0.00	0.00
399	Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**113.61**	**0.00**	**0.00**	**1.34**	**2.83**	**0.00**	**0.00**

Table B-6: 2020 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	Industrial Processes									
410	Chemical	55.78	1.55	1.15	46.87	0.00	37.52	0.28	71.28	0.00
420	Food and Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
430	Mineral Processes	0.00	0.00	12.87	0.00	0.00	0.00	3.10	0.00	0.00
440	Metal Processes	0.33	0.01	0.36	0.25	0.00	0.00	0.02	0.42	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
460	Glass and Related Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.00	0.00	0.15	0.00	0.00	0.00	0.02	0.00	0.00
499	Other	0.78	0.02	2.73	0.79	0.00	0.13	0.05	1.00	0.00
	Total	**56.89**	**1.58**	**17.27**	**47.90**	**0.00**	**37.65**	**3.47**	**72.70**	**0.00**
	Solvent Evaporation									
510	Consumer Products	0.00	50.72	8.65	1903.95	6928.82	0.00	372.97	3251.48	4650.38
520	Architectural Coatings & Related Solvent	0.00	0.00	1.07	465.60	204.72	0.00	43.55	0.00	5.15
530	Pesticides/Fertilizers	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	0.00	0.00	0.00	0.00	111.92	0.00	0.00
	Total	**0.00**	**50.72**	**9.72**	**2369.55**	**7133.55**	**0.00**	**528.45**	**3251.48**	**4655.53**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	0.00	1091.30	0.00	0.00	0.00	0.00	0.00	0.00
620	Farming Operations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660	Fires	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670	Waste Burning and Disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**1091.30**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table B-6: 2020 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	0.00	0.00	343.48	9.97	0.00	0.00	57.16	0.00	0.00
722	Light Duty Trucks 1	0.00	0.00	69.26	2.36	0.00	0.00	12.78	0.00	0.00
723	Light Duty Trucks 2	0.00	0.00	257.22	6.95	0.00	0.00	46.20	0.00	0.00
724	Medium Duty Trucks	0.00	0.00	190.36	5.28	0.00	0.00	24.50	0.00	0.00
732	Light Heavy Duty Gas Trucks 1	0.00	0.00	79.08	2.80	0.00	0.00	11.21	0.00	0.00
733	Light Heavy Duty Gas Trucks 2	0.00	0.00	13.00	0.51	0.00	0.00	2.04	0.00	0.00
734	Medium Heavy Duty Gas Trucks	0.00	0.00	27.37	1.14	0.00	0.00	2.49	0.00	0.00
736	Heavy Heavy Duty Gas Trucks	0.00	0.00	20.71	0.62	0.00	0.00	1.10	0.00	0.00
742	Light Heavy Duty Diesel Trucks 1	0.00	0.00	50.44	5.06	0.00	0.00	0.29	0.00	0.00
743	Light Heavy Duty Diesel Trucks 2	0.00	0.00	45.02	4.52	0.00	0.00	0.26	0.00	0.00
744	Medium Heavy Duty Diesel Truck	0.00	0.00	148.19	14.87	0.00	0.00	0.86	0.00	0.00
746	Heavy Heavy Duty Diesel Trucks	0.00	0.00	1213.27	121.78	0.00	0.00	7.01	0.00	0.00
750	Motorcycles	0.00	0.00	300.19	6.63	0.00	0.00	14.65	0.00	0.00
760	Diesel Urban Buses	0.00	0.00	105.67	10.61	0.00	0.00	0.61	0.00	0.00
762	Gas Urban Buses	0.00	0.00	14.56	0.21	0.00	0.00	0.56	0.00	0.00
770	School Buses	0.00	0.00	52.52	5.01	0.00	0.00	0.44	0.00	0.00
776	Other Bus	0.00	0.00	15.76	1.33	0.00	0.00	0.48	0.00	0.00
780	Motor Homes	0.00	0.00	6.13	0.33	0.00	0.00	0.16	0.00	0.00
	Total	**0.00**	**0.00**	**2952.21**	**199.98**	**0.00**	**0.00**	**182.81**	**0.00**	**0.00**
	Other Mobile Sources									
810	Aircraft	0.00	0.00	4256.84	1.56	0.00	5.79	162.33	0.00	0.00
820	Trains	0.00	0.00	267.84	26.88	0.00	0.00	1.55	0.00	0.00
830	Ships and Commercial Boats	0.00	0.00	541.31	53.86	0.00	0.00	6.39	0.00	0.00
840	Recreational Boats	0.00	0.00	419.87	19.41	0.00	0.00	13.35	0.00	0.00
850	Off-Road Recreational Vehicles	0.00	0.00	156.11	3.17	0.00	0.00	6.91	0.00	0.00
860	Off-Road Equipment	0.00	0.00	4418.39	306.67	0.00	0.00	90.36	0.00	0.00
870	Farm Equipment	0.00	0.00	133.49	12.96	0.00	0.00	0.98	0.00	0.00
890	Fuel Storage and Handling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**10193.86**	**424.52**	**0.00**	**5.79**	**281.88**	**0.00**	**0.00**
	Total Stationary and Area Sources	**58.33**	**72.45**	**2864.37**	**7256.62**	**14063.52**	**38.98**	**585.54**	**3361.05**	**6755.46**
	Total On-Road Vehicles	**0.00**	**0.00**	**2952.21**	**199.98**	**0.00**	**0.00**	**182.81**	**0.00**	**0.00**
	Total Other Mobile	**0.00**	**0.00**	**10193.86**	**424.52**	**0.00**	**5.79**	**281.88**	**0.00**	**0.00**
	Total Anthropogenic	**58.33**	**72.45**	**16010.45**	**7881.12**	**14063.52**	**44.78**	**1050.23**	**3361.05**	**6755.46**

Table B-6: 2020 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	Fuel Combustion									
10	Electric Utilities	0.00	0.16	99.23	0.00	0.00	0.00	0.00	0.09	185.53
20	Cogeneration	0.00	0.00	5.44	0.00	0.00	0.00	0.00	0.05	0.00
30	Oil and Gas Production	0.00	0.01	7.60	0.00	0.00	0.75	0.08	0.92	10.54
40	Petroleum Refining	0.00	0.02	5.79	0.00	0.00	0.00	1.16	12.91	0.00
50	Manufacturing and Industrial	0.00	0.25	68.84	0.00	0.00	0.02	0.20	2.46	109.27
52	Food and Agricultural Processing	0.00	0.03	5.99	0.00	0.00	0.00	0.02	0.19	34.98
60	Service and Commercial	0.00	0.49	65.51	0.00	0.00	0.03	0.01	0.22	140.62
99	Other	0.00	0.82	45.80	0.00	0.00	0.00	0.04	0.42	173.96
	Total	**0.00**	**1.79**	**304.20**	**0.00**	**0.00**	**0.81**	**1.52**	**17.25**	**654.90**
	Waste Disposal									
110	Sewage Treatment	0.12	0.88	293.86	34.64	1.51	0.00	0.00	0.00	0.00
120	Landfills	0.00	0.00	38.39	0.93	1.15	0.00	0.00	0.12	0.00
130	Incineration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.00	0.05	67.97	2.64	0.11	0.31	0.03	0.31	0.00
	Total	**0.12**	**0.93**	**400.22**	**38.20**	**2.77**	**0.31**	**0.03**	**0.43**	**0.00**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.76	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	2.42	738.41	590.19	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.00	0.40	12457.88	37.88	0.01	0.00	0.00	0.00	0.00
240	Printing	0.00	0.00	19.03	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	0.00	322.83	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	0.00	91.49	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**2.82**	**13629.64**	**628.82**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	13.69	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	195.21	0.00	0.00	0.45	0.00	0.00	0.00
330	Petroleum Marketing	1.34	0.00	939.66	0.00	0.00	0.00	0.00	0.00	0.00
399	Other	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**1.34**	**0.00**	**1148.94**	**0.00**	**0.00**	**0.45**	**0.00**	**0.00**	**0.00**

Table B-6: 2020 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	Industrial Processes									
410	Chemical	0.47	1606.29	1313.56	0.00	43.56	0.00	0.42	0.18	0.00
420	Food and Agriculture	0.00	0.00	55.90	0.00	0.00	0.02	0.00	0.65	0.00
430	Mineral Processes	0.00	0.05	7.20	0.00	0.00	10.78	0.78	21.77	0.00
440	Metal Processes	0.00	0.68	5.70	0.00	0.21	0.49	0.49	19.74	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.10	0.00
460	Glass and Related Products	0.00	0.00	3.44	0.00	0.00	8.57	0.00	2.36	0.00
470	Electronics	0.00	0.03	13.30	0.00	0.00	0.00	0.01	0.01	0.00
499	Other	0.13	1.40	793.12	0.00	0.50	0.01	0.02	0.08	0.00
	Total	**0.61**	**1608.46**	**2192.21**	**0.00**	**44.26**	**19.87**	**1.76**	**44.89**	**0.00**
	Solvent Evaporation									
510	Consumer Products	0.20	11.14	8257.14	550.51	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	0.00	43.23	1885.59	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	14.48	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.20**	**54.38**	**10157.43**	**550.51**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	0.00	297.02	0.00	0.00	0.13	0.06	0.09	0.00
620	Farming Operations	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.41	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	4.24	5.24	55.90	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	7.36	1.70	9.62	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.52	0.45	0.59	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.11	0.16	1.58	0.00
660	Fires	0.00	0.00	55.11	0.00	0.00	0.00	0.02	0.01	0.00
670	Waste Burning and Disposal	0.00	0.00	0.75	0.00	0.00	0.24	0.03	0.01	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	518.26	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**871.14**	**0.00**	**0.00**	**12.63**	**7.69**	**68.21**	**0.00**

Table B-6: 2020 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	0.00	45.64	3410.22	0.00	0.00	0.06	0.00	10.41	12.72
722	Light Duty Trucks 1	0.00	7.94	704.99	0.00	0.00	0.01	0.00	1.65	28.17
723	Light Duty Trucks 2	0.00	32.91	2654.22	0.00	0.00	0.03	0.00	7.05	3.79
724	Medium Duty Trucks	0.00	22.96	1516.57	0.00	0.00	0.01	0.00	3.27	4.30
732	Light Heavy Duty Gas Trucks 1	0.00	12.33	692.47	0.00	0.00	0.00	0.00	0.34	0.00
733	Light Heavy Duty Gas Trucks 2	0.00	2.22	123.27	0.00	0.00	0.00	0.00	0.07	0.00
734	Medium Heavy Duty Gas Trucks	0.00	4.75	191.45	0.00	0.00	0.00	0.00	0.05	0.00
736	Heavy Heavy Duty Gas Trucks	0.00	2.85	106.60	0.00	0.00	0.00	0.00	0.02	0.00
742	Light Heavy Duty Diesel Trucks 1	0.00	0.20	8.92	0.00	0.00	0.00	0.01	0.06	81.62
743	Light Heavy Duty Diesel Trucks 2	0.00	0.18	7.96	0.00	0.00	0.00	0.00	0.04	59.07
744	Medium Heavy Duty Diesel Truck	0.00	0.58	26.21	0.00	0.00	0.00	0.03	0.19	486.86
746	Heavy Heavy Duty Diesel Trucks	0.00	4.78	214.61	0.00	0.00	0.01	0.10	0.89	1454.21
750	Motorcycles	0.00	19.41	1045.67	0.00	0.00	0.00	0.00	0.12	0.00
760	Diesel Urban Buses	0.00	0.42	18.69	0.00	0.00	0.00	0.02	0.02	264.59
762	Gas Urban Buses	0.00	1.26	58.93	0.00	0.00	0.00	0.00	0.02	0.00
770	School Buses	0.00	0.49	22.99	0.00	0.00	0.00	0.02	0.02	298.04
776	Other Bus	0.00	0.80	33.10	0.00	0.00	0.00	0.00	0.02	70.96
780	Motor Homes	0.00	0.27	14.45	0.00	0.00	0.00	0.00	0.05	23.41
	Total	**0.00**	**159.99**	**10851.32**	**0.00**	**0.00**	**0.13**	**0.19**	**24.27**	**2787.74**
	Other Mobile Sources									
810	Aircraft	0.00	118.50	318.90	0.00	0.00	5.45	0.51	6.15	0.00
820	Trains	0.00	1.06	56.21	0.00	0.00	0.00	0.03	0.00	452.39
830	Ships and Commercial Boats	0.00	2.12	196.20	0.00	0.00	0.00	0.00	0.00	2699.92
840	Recreational Boats	0.00	13.10	1081.60	0.00	0.00	0.00	0.00	0.69	62.45
850	Off-Road Recreational Vehicles	0.00	6.91	459.02	0.00	0.00	0.00	0.00	0.08	0.00
860	Off-Road Equipment	0.00	85.38	4870.93	0.00	0.00	0.01	0.16	1.95	2343.69
870	Farm Equipment	0.00	0.75	37.91	0.00	0.00	0.00	0.02	0.01	232.52
890	Fuel Storage and Handling	0.00	0.00	183.55	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**227.81**	**7204.32**	**0.00**	**0.00**	**5.46**	**0.72**	**8.90**	**5790.98**
	Total Stationary and Area Sources	**2.26**	**1668.36**	**28703.78**	**1217.54**	**47.05**	**34.07**	**10.99**	**130.77**	**654.90**
	Total On-Road Vehicles	**0.00**	**159.99**	**10851.32**	**0.00**	**0.00**	**0.13**	**0.19**	**24.27**	**2787.74**
	Total Other Mobile	**0.00**	**227.81**	**7204.32**	**0.00**	**0.00**	**5.46**	**0.72**	**8.90**	**5790.98**
	Total Anthropogenic	**2.26**	**2056.16**	**46759.42**	**1217.54**	**47.05**	**39.66**	**11.90**	**163.94**	**9233.62**

Table B-6: 2020 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	Fuel Combustion									
10	Electric Utilities	179.40	1068.18	1066.26	0.00	0.00	0.09	17.23	0.01	1.25
20	Cogeneration	0.00	18.52	18.37	0.00	0.00	0.05	0.00	0.00	0.00
30	Oil and Gas Production	10.19	33.81	32.91	0.04	0.80	0.23	0.00	0.22	0.06
40	Petroleum Refining	0.00	348.83	337.05	0.01	1.16	12.91	0.00	12.78	0.00
50	Manufacturing and Industrial	105.66	805.56	802.69	0.01	0.22	2.44	0.00	2.24	0.60
52	Food and Agricultural Processing	32.80	45.81	45.55	0.00	0.02	0.19	0.00	0.19	0.19
60	Service and Commercial	135.92	1216.74	1216.06	0.01	0.04	0.19	0.00	0.07	0.77
99	Other	161.09	20.09	19.10	0.00	0.04	0.42	0.00	0.40	0.96
	Total	**625.07**	**3557.54**	**3537.99**	**0.07**	**2.28**	**16.52**	**17.23**	**15.89**	**3.83**
	Waste Disposal									
110	Sewage Treatment	0.00	3.32	3.32	0.00	0.00	0.00	0.00	0.00	0.00
120	Landfills	0.00	248.81	225.99	0.00	0.15	0.07	82.55	0.00	0.00
130	Incineration	0.00	103.63	103.63	0.00	0.00	10.68	0.00	0.00	10.68
199	Other	0.00	8.74	8.44	0.02	0.32	0.03	0.12	0.03	0.53
	Total	**0.00**	**364.49**	**341.37**	**0.02**	**0.47**	**10.78**	**82.67**	**0.03**	**11.21**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	0.10	0.09	0.00	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.00	743.08	688.33	0.00	0.00	0.00	0.00	0.00	0.00
240	Printing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	62.56	57.87	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**805.74**	**746.29**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	3.74	3.74	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	110.25	105.93	0.00	0.45	0.45	0.00	0.00	89.42
330	Petroleum Marketing	0.00	16.50	15.27	0.00	0.00	0.00	0.00	0.00	0.00
399	Other	0.00	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**130.59**	**125.03**	**0.00**	**0.45**	**0.45**	**0.00**	**0.00**	**89.42**

Table B-6: 2020 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	Industrial Processes									
410	Chemical	0.00	132.51	116.78	0.01	0.20	0.48	66.51	0.00	2.40
420	Food and Agriculture	0.00	335.87	3.29	0.00	0.00	0.38	0.00	0.00	183.32
430	Mineral Processes	0.00	393.57	85.05	0.16	0.80	6.00	19.34	1.50	1433.58
440	Metal Processes	0.00	230.15	127.10	0.20	5.56	5.47	96.83	0.00	0.00
450	Wood and Paper	0.00	92.51	28.19	0.00	0.14	0.14	114.40	0.00	0.80
460	Glass and Related Products	0.00	48.86	49.52	0.12	2.36	0.23	0.00	16.29	14.04
470	Electronics	0.00	1.89	0.45	0.00	0.03	0.01	6.56	0.01	1.81
499	Other	0.00	227.92	147.65	0.00	0.28	0.14	46.28	0.08	32.73
	Total	**0.00**	**1463.28**	**558.05**	**0.48**	**9.36**	**12.85**	**349.92**	**17.87**	**1668.69**
	Solvent Evaporation									
510	Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	31.52	29.15	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**31.52**	**29.15**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	5002.00	4228.95	0.00	0.23	0.01	6376.18	0.02	0.19
620	Farming Operations	0.00	8.63	0.70	0.00	0.12	0.10	52.67	0.00	368.85
630	Construction and Demolition	0.00	1153.92	75.54	0.00	139.00	14.72	10969.02	0.50	47467.61
640	Paved Road Dust	0.00	4366.83	301.31	0.51	70.16	6.79	33801.91	1.13	171817.61
645	Unpaved Road Dust	0.00	40.27	2.36	0.00	4.50	1.28	1165.28	0.10	11237.60
650	Fugitive Windblown Dust	0.00	19.37	1.20	0.00	3.20	0.39	199.38	0.01	1347.68
660	Fires	0.00	219.29	193.06	0.00	0.05	0.00	215.66	0.00	37.27
670	Waste Burning and Disposal	0.00	2225.13	1853.68	0.00	0.46	0.01	5814.48	0.03	15.69
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	15698.04	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**13035.44**	**6656.81**	**0.51**	**217.72**	**23.30**	**74292.63**	**1.81**	**232292.52**

Table B-6: 2020 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	11.70	2258.19	1432.35	0.51	0.88	7.30	2374.40	0.19	404.16
722	Light Duty Trucks 1	25.92	380.60	252.12	0.08	0.13	1.18	377.04	0.03	61.17
723	Light Duty Trucks 2	3.48	1951.98	1483.25	0.35	0.40	5.64	1080.93	0.09	184.22
724	Medium Duty Trucks	3.95	903.57	685.94	0.16	0.19	2.61	504.25	0.04	85.65
732	Light Heavy Duty Gas Trucks 1	0.00	82.36	44.10	0.02	0.04	0.23	112.44	0.01	14.13
733	Light Heavy Duty Gas Trucks 2	0.00	17.07	9.14	0.00	0.01	0.05	23.32	0.00	2.94
734	Medium Heavy Duty Gas Trucks	0.00	13.74	7.77	0.00	0.01	0.04	17.20	0.00	2.15
736	Heavy Heavy Duty Gas Trucks	0.00	2.74	1.70	0.00	0.00	0.01	3.23	0.00	0.74
742	Light Heavy Duty Diesel Trucks 1	75.09	32.29	22.89	0.00	0.01	0.04	82.78	0.00	3.59
743	Light Heavy Duty Diesel Trucks 2	54.35	22.53	16.34	0.00	0.01	0.02	57.93	0.00	2.35
744	Medium Heavy Duty Diesel Truck	447.91	159.68	127.69	0.01	0.04	0.11	416.04	0.01	11.63
746	Heavy Heavy Duty Diesel Trucks	1337.87	586.52	409.97	0.05	0.22	0.53	1490.89	0.04	53.12
750	Motorcycles	0.00	35.93	22.56	0.01	0.01	0.10	14.58	0.00	2.51
760	Diesel Urban Buses	243.42	70.23	64.96	0.00	0.01	0.01	187.20	0.00	1.68
762	Gas Urban Buses	0.00	4.19	2.68	0.00	0.00	0.01	4.08	0.00	0.50
770	School Buses	274.20	79.60	73.50	0.00	0.01	0.01	210.94	0.00	1.60
776	Other Bus	65.28	21.90	18.76	0.00	0.00	0.01	55.46	0.00	1.06
780	Motor Homes	21.54	15.31	8.96	0.00	0.01	0.03	35.18	0.00	2.47
	Total	**2564.72**	**6638.42**	**4684.68**	**1.21**	**1.99**	**17.94**	**7047.88**	**0.42**	**835.66**
	Other Mobile Sources									
810	Aircraft	0.00	436.14	396.09	0.31	5.66	1.22	0.00	0.51	0.00
820	Trains	400.49	116.32	105.88	0.00	0.01	0.01	310.84	0.00	1.30
830	Ships and Commercial Boats	2518.58	108.00	100.74	0.01	0.00	0.00	0.00	0.00	14.85
840	Recreational Boats	57.47	291.88	202.75	0.03	0.00	0.69	42.91	0.00	0.18
850	Off-Road Recreational Vehicles	0.00	33.12	22.52	0.00	0.00	0.08	0.00	0.00	0.00
860	Off-Road Equipment	2156.30	1373.73	1109.93	0.10	0.07	1.97	1610.37	0.01	6.72
870	Farm Equipment	213.92	63.91	59.36	0.00	0.01	0.01	159.76	0.00	0.67
890	Fuel Storage and Handling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**5346.76**	**2423.11**	**1997.27**	**0.46**	**5.75**	**3.98**	**2123.89**	**0.53**	**23.72**
	Total Stationary and Area Sources	**625.07**	**19388.60**	**11994.69**	**1.09**	**230.29**	**63.90**	**74742.45**	**35.60**	**234065.67**
	Total On-Road Vehicles	**2564.72**	**6638.42**	**4684.68**	**1.21**	**1.99**	**17.94**	**7047.88**	**0.42**	**835.66**
	Total Other Mobile	**5346.76**	**2423.11**	**1997.27**	**0.46**	**5.75**	**3.98**	**2123.89**	**0.53**	**23.72**
	Total Anthropogenic	**8536.54**	**28450.13**	**18676.64**	**2.76**	**238.02**	**85.82**	**83914.23**	**36.54**	**234925.05**

Table B-7: 2023 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	Fuel Combustion									
10	Electric Utilities	22.92	20.72	188.79	0.53	0	0	0	0	0
20	Cogeneration	0.48	0	1.75	0	0	0	0	0	0
30	Oil and Gas Production	2.07	0.89	17.41	0.03	0	0	0	0	0
40	Petroleum Refining	1.3	0.11	12.02	0.2	0	0	0	0	0
50	Manufacturing and Industrial	24.76	16.89	145.8	1.38	0	0	0	0	0
52	Food and Agricultural Processing	2.79	2.84	11.92	0.09	0	0	0	0	0
60	Service and Commercial	33.55	26.22	126.01	3.02	0	0	0	0	0
99	Other	9.66	6.55	21.87	5.07	0	0	0	0	0
	Total	**97.52**	**74.22**	**525.56**	**10.3**	**0**	**0**	**0**	**0**	**0**
	Waste Disposal									
110	Sewage Treatment	4.73	5.24	14.38	0	2.11	233.96	0	0.93	0.71
120	Landfills	0	1.06	2.26	0	0	0	0.61	0	0
130	Incineration	0	0	102.23	0	0	0	0	0	0
199	Other	0.37	2599.75	1.07	0	0.17	18.58	0	0.07	0.06
	Total	**5.1**	**2606.05**	**119.95**	**0**	**2.28**	**252.54**	**0.61**	**1**	**0.77**
	Cleaning and Surface Coatings									
210	Laundering	0	0	0	0	0	0	0	0	0
220	Degreasing	0	3314.14	0	0	0	0	0	0	0
230	Coatings and Related Processes	0.01	1064.42	12.26	0.01	0	0	0	0	0
240	Printing	0	1.89	0	0	0	0	0	0	0
250	Adhesives and Sealants	0	1327.63	1.95	0	0	0	0	0	0
299	Other	0	0.02	0	0	0	0	0	0	0
	Total	**0.01**	**5708.1**	**14.2**	**0.01**	**0**	**0**	**0**	**0**	**0**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0	0	24.17	0	0	0	0	0	0
320	Petroleum Refining	0	0	40.8	0	0	0	0	0	0
330	Petroleum Marketing	1.35	0	240.39	0	1.35	1.35	0	0	1.35
399	Other	0	0	0.08	0	0	0	0	0	0
	Total	**1.35**	**0**	**305.43**	**0**	**1.35**	**1.35**	**0**	**0**	**1.35**

Table B-7: 2023 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	Industrial Processes									
410	Chemical	59.12	88.04	460.62	1039.71	9.57	1.32	0	0	0.05
420	Food and Agriculture	0	0	0	0	0	0	0	0	0
430	Mineral Processes	0	0	12.54	0.05	0	0	0	0	0
440	Metal Processes	0.26	0.38	1.86	0.13	0.04	0.01	0	0	0
450	Wood and Paper	0	0	0	0	0	0	0	0	0
460	Glass and Related Products	0	0	0.01	0	0	0	0	0	0
470	Electronics	0	0	7.67	0	0	0	0	0	0
499	Other	0.79	1.37	14.93	0.4	0.29	0.21	0	0	0.19
	Total	**60.17**	**89.8**	**497.63**	**1040.29**	**9.91**	**1.54**	**0**	**0**	**0.24**
	Solvent Evaporation									
510	Consumer Products	0	18683.81	1.13	0	0	0	0	0	0
520	Architectural Coatings & Related Solvent	5.05	1001.46	15.68	0	0	0	0	0.51	0
530	Pesticides/Fertilizers	0	0.19	0	0	0	0	0	0	0
540	Asphalt Paving/Roofing	0	0	6.36	0	0	0	0	0	0
	Total	**5.05**	**19685.46**	**23.17**	**0**	**0**	**0**	**0**	**0.51**	**0**
	Miscellaneous Processes									
610	Residential Fuel Combustion	549.24	405.3	254.55	0	0	0	0	0	0
620	Farming Operations	0	1735.64	0	0	0	0	0	0	0
630	Construction and Demolition	0	0	0	0	0	0	0	0	0
640	Paved Road Dust	0	0	0	0	0	0	0	0	0
645	Unpaved Road Dust	0	0	0	0	0	0	0	0	0
650	Fugitive Windblown Dust	0	0	0	0	0	0	0	0	0
660	Fires	0	0	0	0	0	0	0	0	0
670	Waste Burning and Disposal	0	0	0	96.17	0	0	0	0	0
680	Utility Equipment	0	0	0	0	0	0	0	0	0
690	Cooking	0	0	0	0	0	0	0	0	0
699	Other (Miscellaneous Processes	0	0	0	0	0	0	0	0	0
	Total	**549.24**	**2140.94**	**254.55**	**96.17**	**0**	**0**	**0**	**0**	**0**

Table B-7: 2023 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	84.09	53.81	863.64	130.41	0	0	0	0	0
722	Light Duty Trucks 1	17.78	12.4	178.38	23.59	0	0	0	0	0
723	Light Duty Trucks 2	66.25	42.03	727.74	104.85	0	0	0	0	0
724	Medium Duty Trucks	43.85	28.02	413.61	67.96	0	0	0	0	0
732	Light Heavy Duty Gas Trucks 1	25.46	16.63	203.89	37.16	0	0	0	0	0
733	Light Heavy Duty Gas Trucks 2	4.13	2.72	32.1	5.89	0	0	0	0	0
734	Medium Heavy Duty Gas Trucks	8.02	5.3	48.45	11.28	0	0	0	0	0
736	Heavy Heavy Duty Gas Trucks	4.31	2.77	26.72	6.58	0	0	0	0	0
742	Light Heavy Duty Diesel Trucks 1	31.1	31.75	8.46	0.8	0	0	0	0	0
743	Light Heavy Duty Diesel Trucks 2	22.27	22.74	6.06	0.58	0	0	0	0	0
744	Medium Heavy Duty Diesel Truck	118.03	120.5	32.12	3.05	0	0	0	0	0
746	Heavy Heavy Duty Diesel Trucks	886.1	904.66	241.13	22.9	0	0	0	0	0
750	Motorcycles	115.52	60.44	564.02	130.71	0	0	0	0	0
760	Diesel Urban Buses	51.04	52.11	13.89	1.32	0	0	0	0	0
762	Gas Urban Buses	2.87	1.7	24.36	5.34	0	0	0	0	0
770	School Buses	26.69	27.05	11.14	1.53	0	0	0	0	0
776	Other Bus	7.04	6.75	9.17	1.87	0	0	0	0	0
780	Motor Homes	1.76	1.63	3.93	0.76	0	0	0	0	0
	Total	**1516.32**	**1393.01**	**3408.81**	**556.58**	**0**	**0**	**0**	**0**	**0**
	Other Mobile Sources									
810	Aircraft	1455.96	5.74	688.26	566.26	0	0	0	0	0
820	Trains	461.15	470.81	125.49	11.92	0	0	0	0	0
830	Ships and Commercial Boats	272.81	278.52	191.09	7.05	0	0	0	0	0
840	Recreational Boats	443.2	253.93	1421.44	316.7	0	0	0	0	0
850	Off-Road Recreational Vehicles	121.69	58.72	454.29	103.86	0	0	0	0	0
860	Off-Road Equipment	2524.93	2276.75	2563.37	527.09	0	0	0	0	0
870	Farm Equipment	52.52	52.7	20.25	2.78	0	0	0	0	0
890	Fuel Storage and Handling	0	0	33.25	0	0	0	0	0	0
895	Truck Stops	0	0	0	0	0	0	0	0	0
	Total	**5332.25**	**3397.16**	**5497.43**	**1535.66**	**0**	**0**	**0**	**0**	**0**
	Total Stationary and Area Sources	**718.45**	**30304.57**	**1740.5**	**1146.77**	**13.54**	**255.43**	**0.61**	**1.51**	**2.36**
	Total On-Road Vehicles	**1516.32**	**1393.01**	**3408.81**	**556.58**	**0**	**0**	**0**	**0**	**0**
	Total Other Mobile	**5332.25**	**3397.16**	**5497.43**	**1535.66**	**0**	**0**	**0**	**0**	**0**
	Total Anthropogenic	**7567.03**	**35094.74**	**10646.74**	**3239.01**	**13.54**	**255.43**	**0.61**	**1.51**	**2.36**

Table B-7: 2023 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	Fuel Combustion									
10	Electric Utilities	0	0	464.7	4.08	0	0	0.24	0	0
20	Cogeneration	0	0	12.86	0	0	0	0	0	0
30	Oil and Gas Production	0	0	59.6	0.18	0	0	0.01	0	0
40	Petroleum Refining	0	0	275.68	0.01	0	0	0.03	0	0
50	Manufacturing and Industrial	0	0	481.37	3.29	0	0	0.35	0	0
52	Food and Agricultural Processing	0	0	27.78	0.56	0	0	0.04	0	0
60	Service and Commercial	0	0	379	5.12	0	0	0.76	0	0
99	Other	0	0	29.88	1.1	0	0	0.84	0	0
	Total	**0**	**0**	**1730.87**	**14.33**	**0**	**0**	**2.26**	**0**	**0**
	Waste Disposal									
110	Sewage Treatment	1.29	0.39	25.25	0	359.51	0	0	35.6	292.91
120	Landfills	0.1	0	55.33	1.33	3.17	0	0	0	1.61
130	Incineration	0	0	0.78	0	0	0	0	0	0
199	Other	0.1	0	1.95	0	28.54	0	0	2.83	23.26
	Total	**1.49**	**0.39**	**83.32**	**1.33**	**391.23**	**0**	**0**	**38.43**	**317.79**
	Cleaning and Surface Coatings									
210	Laundering	0	0	0	0	0	0	0	0	0
220	Degreasing	0	0	0	1348.97	6735.83	0	31.84	0	826.83
230	Coatings and Related Processes	0.01	0	0.02	2173.83	15.29	0	5.24	0.02	204.97
240	Printing	0	0	0	584.67	0	0	14.16	0	1.89
250	Adhesives and Sealants	0	0	0	1116.35	35.69	0	0	0	0
299	Other	0	20.98	0	0.01	0	0	0	0	0
	Total	**0.01**	**20.98**	**0.02**	**5223.83**	**6786.81**	**0**	**51.24**	**0.02**	**1033.69**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0	0	2.79	0	0	0	0	0	0
320	Petroleum Refining	0	0	116.4	0	0	0	0	0	0
330	Petroleum Marketing	0	0	1.35	0	0	1.35	3.14	0	0
399	Other	0	0	0	0	0	0	0	0	0
	Total	**0**	**0**	**120.54**	**0**	**0**	**1.35**	**3.15**	**0**	**0**

Table B-7: 2023 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	Industrial Processes									
410	Chemical	80.04	2.22	1.47	67.91	0	63.93	0.31	102.28	0
420	Food and Agriculture	0	0	0	0	0	0	0	0	0
430	Mineral Processes	0	0	14.56	0	0	0	4.46	0	0
440	Metal Processes	0.35	0.01	0.38	0.27	0	0	0.02	0.45	0
450	Wood and Paper	0	0	0	0	0	0	0	0	0
460	Glass and Related Products	0	0	0	0	0	0	0	0	0
470	Electronics	0	0	0.15	0	0	0	0.02	0	0
499	Other	0.81	0.02	2.91	0.81	0	0.19	0.05	1.03	0
	Total	**81.2**	**2.26**	**19.49**	**68.99**	**0**	**64.12**	**4.86**	**103.75**	**0**
	Solvent Evaporation									
510	Consumer Products	0	61.89	10.56	2314.05	8452.99	0	454.94	3967.93	5675.32
520	Architectural Coatings & Related Solvent	0	0	1.13	488.77	214.91	0	45.72	0	5.41
530	Pesticides/Fertilizers	0	0	0	0	0	0	0.01	0	0
540	Asphalt Paving/Roofing	0	0	0	0	0	0	118.37	0	0
	Total	**0**	**61.89**	**11.68**	**2802.82**	**8667.9**	**0**	**619.04**	**3967.93**	**5680.72**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0	0	1102.95	0	0	0	0	0	0
620	Farming Operations	0	0	0	0	0	0	0	0	0
630	Construction and Demolition	0	0	0	0	0	0	0	0	0
640	Paved Road Dust	0	0	0	0	0	0	0	0	0
645	Unpaved Road Dust	0	0	0	0	0	0	0	0	0
650	Fugitive Windblown Dust	0	0	0	0	0	0	0	0	0
660	Fires	0	0	0	0	0	0	0	0	0
670	Waste Burning and Disposal	0	0	0	0	0	0	0	0	0
680	Utility Equipment	0	0	0	0	0	0	0	0	0
690	Cooking	0	0	0	0	0	0	0	0	0
699	Other (Miscellaneous Processes	0	0	0	0	0	0	0	0	0
	Total	**0**	**0**	**1102.95**	**0**	**0**	**0**	**0**	**0**	**0**

Table B-7: 2023 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	0	0	300.55	8.46	0	0	55.91	0	0
722	Light Duty Trucks 1	0	0	61.03	2.04	0	0	12.99	0	0
723	Light Duty Trucks 2	0	0	245.59	6.49	0	0	49.2	0	0
724	Medium Duty Trucks	0	0	157.36	4.39	0	0	24.84	0	0
732	Light Heavy Duty Gas Trucks 1	0	0	76.56	2.78	0	0	12.66	0	0
733	Light Heavy Duty Gas Trucks 2	0	0	11.67	0.46	0	0	2.05	0	0
734	Medium Heavy Duty Gas Trucks	0	0	21.87	0.91	0	0	2.21	0	0
736	Heavy Heavy Duty Gas Trucks	0	0	14.53	0.45	0	0	0.81	0	0
742	Light Heavy Duty Diesel Trucks 1	0	0	62.24	6.25	0	0	0.36	0	0
743	Light Heavy Duty Diesel Trucks 2	0	0	44.57	4.47	0	0	0.26	0	0
744	Medium Heavy Duty Diesel Truck	0	0	236.19	23.71	0	0	1.36	0	0
746	Heavy Heavy Duty Diesel Trucks	0	0	1773.17	177.98	0	0	10.24	0	0
750	Motorcycles	0	0	400.54	8.81	0	0	18.82	0	0
760	Diesel Urban Buses	0	0	102.14	10.25	0	0	0.59	0	0
762	Gas Urban Buses	0	0	14.82	0.21	0	0	0.58	0	0
770	School Buses	0	0	54.73	5.3	0	0	0.43	0	0
776	Other Bus	0	0	14.95	1.31	0	0	0.43	0	0
780	Motor Homes	0	0	4.78	0.3	0	0	0.12	0	0
	Total	**0**	**0**	**3597.28**	**264.6**	**0**	**0**	**193.85**	**0**	**0**
	Other Mobile Sources									
810	Aircraft	0	0	4688.54	1.61	0	5.97	178.66	0	0
820	Trains	0	0	922.8	92.63	0	0	5.33	0	0
830	Ships and Commercial Boats	0	0	551.32	54.79	0	0	6.94	0	0
840	Recreational Boats	0	0	1284.36	37.99	0	0	51.12	0	0
850	Off-Road Recreational Vehicles	0	0	374.65	7.61	0	0	16.58	0	0
860	Off-Road Equipment	0	0	5669.54	429.81	0	0	98.77	0	0
870	Farm Equipment	0	0	106.95	10.31	0	0	0.82	0	0
890	Fuel Storage and Handling	0	0	0	0	0	0	0	0	0
895	Truck Stops	0	0	0	0	0	0	0	0	0
	Total	**0**	**0**	**13598.16**	**634.75**	**0**	**5.97**	**358.22**	**0**	**0**
	Total Stationary and Area Sources	**82.7**	**85.52**	**3068.87**	**8111.31**	**15845.94**	**65.47**	**680.55**	**4110.13**	**7032.2**
	Total On-Road Vehicles	**0**	**0**	**3597.28**	**264.6**	**0**	**0**	**193.85**	**0**	**0**
	Total Other Mobile	**0**	**0**	**13598.16**	**634.75**	**0**	**5.97**	**358.22**	**0**	**0**
	Total Anthropogenic	**82.7**	**85.52**	**20264.3**	**9010.65**	**15845.94**	**71.44**	**1232.62**	**4110.13**	**7032.2**

Table B-7: 2023 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	Fuel Combustion									
10	Electric Utilities	0	0.16	99.25	0	0	0	0	0.1	185.53
20	Cogeneration	0	0	5.56	0	0	0	0	0.05	0
30	Oil and Gas Production	0	0.01	8.33	0	0	1.07	0.11	1.24	15.01
40	Petroleum Refining	0	0.03	6.71	0	0	0	1.44	15.95	0
50	Manufacturing and Industrial	0	0.28	78.77	0	0	0.02	0.28	3.35	146.22
52	Food and Agricultural Processing	0	0.03	6.69	0	0	0	0.02	0.2	29.99
60	Service and Commercial	0	0.58	69.89	0	0	0.04	0.01	0.28	204.19
99	Other	0	0.82	45.88	0	0	0	0.04	0.42	201.27
	Total	**0**	**1.9**	**321.08**	**0**	**0**	**1.13**	**1.9**	**21.59**	**782.21**
	Waste Disposal									
110	Sewage Treatment	0.12	0.91	305.48	36.01	1.57	0	0	0	0
120	Landfills	0	0	39.72	0.96	1.19	0	0	0.12	0
130	Incineration	0	0	0	0	0	0	0	0	0
199	Other	0	0.05	95.94	2.86	0.12	0.32	0.03	0.32	0
	Total	**0.12**	**0.96**	**441.15**	**39.83**	**2.88**	**0.32**	**0.03**	**0.44**	**0**
	Cleaning and Surface Coatings									
210	Laundering	0	0	0	0	0	0	0	0	0
220	Degreasing	0	2.51	764.08	661.71	0	0	0	0	0
230	Coatings and Related Processes	0	0.4	14121.4	52.71	0.01	0	0	0	0
240	Printing	0	0	20.98	0	0	0	0	0	0
250	Adhesives and Sealants	0	0	341.94	0	0	0	0	0	0
299	Other	0	0	94.98	0	0	0	0	0	0
	Total	**0**	**2.91**	**15343.38**	**714.42**	**0.01**	**0**	**0**	**0**	**0**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0	0	13.84	0	0	0	0	0	0
320	Petroleum Refining	0	0	273.78	0	0	0.54	0	0	0
330	Petroleum Marketing	1.35	0	1137.79	0	0	0	0	0	0
399	Other	0	0	0.4	0	0	0	0	0	0
	Total	**1.35**	**0**	**1425.81**	**0**	**0**	**0.54**	**0**	**0**	**0**

Table B-7: 2023 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	Industrial Processes									
410	Chemical	0.68	2095.51	1620.09	0	59.38	0	0.5	0.2	0
420	Food and Agriculture	0	0	89	0	0	0.02	0	0.67	0
430	Mineral Processes	0	0.05	8.28	0	0	10.78	0.95	23.04	0
440	Metal Processes	0	0.73	5.76	0	0.22	0.73	0.73	29.13	0
450	Wood and Paper	0	0	0	0	0	0	0.04	0.1	0
460	Glass and Related Products	0	0	3.44	0	0	12.65	0	3.48	0
470	Electronics	0	0.05	21.16	0	0	0	0.01	0.01	0
499	Other	0.2	1.44	1160.86	0	0.51	0.01	0.02	0.08	0
	Total	**0.88**	**2097.78**	**2908.59**	**0**	**60.12**	**24.19**	**2.25**	**56.72**	**0**
	Solvent Evaporation									
510	Consumer Products	0.24	13.59	10022.29	671.82	0	0	0	0	0
520	Architectural Coatings & Related Solvent	0	45.38	1979.44	0	0	0	0	0	0
530	Pesticides/Fertilizers	0	0	0.22	0	0	0	0	0	0
540	Asphalt Paving/Roofing	0	0	15.09	0	0	0	0	0	0
	Total	**0.24**	**58.97**	**12017.05**	**671.82**	**0**	**0**	**0**	**0**	**0**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0	0	300.58	0	0	0.16	0.07	0.11	0
620	Farming Operations	0	0	0	0	0	0.03	0.04	0.38	0
630	Construction and Demolition	0	0	0	0	0	4.85	5.99	63.9	0
640	Paved Road Dust	0	0	0	0	0	7.46	1.72	9.75	0
645	Unpaved Road Dust	0	0	0	0	0	0.52	0.45	0.59	0
650	Fugitive Windblown Dust	0	0	0	0	0	0.1	0.15	1.5	0
660	Fires	0	0	55.11	0	0	0	0.02	0.01	0
670	Waste Burning and Disposal	0	0	0.75	0	0	0.24	0.03	0.01	0
680	Utility Equipment	0	0	0	0	0	0	0	0	0
690	Cooking	0	0	532.99	0	0	0	0	0	0
699	Other (Miscellaneous Processes	0	0	0	0	0	0	0	0	0
	Total	**0**	**0**	**889.42**	**0**	**0**	**13.35**	**8.46**	**76.24**	**0**

Table B-7: 2023 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	0	39.39	3227.85	0	0	0.06	0	10.66	7.61
722	Light Duty Trucks 1	0	6.98	693.33	0	0	0.01	0	1.73	23.01
723	Light Duty Trucks 2	0	31.08	2748.86	0	0	0.03	0	7.47	2.73
724	Medium Duty Trucks	0	20.44	1487.37	0	0	0.01	0	3.47	3.7
732	Light Heavy Duty Gas Trucks 1	0	12.32	743.6	0	0	0	0	0.36	0
733	Light Heavy Duty Gas Trucks 2	0	2.01	119.18	0	0	0	0	0.07	0
734	Medium Heavy Duty Gas Trucks	0	3.92	161.57	0	0	0	0	0.06	0
736	Heavy Heavy Duty Gas Trucks	0	2.06	76.76	0	0	0	0	0.02	0
742	Light Heavy Duty Diesel Trucks 1	0	0.25	11.01	0	0	0	0.01	0.06	91.65
743	Light Heavy Duty Diesel Trucks 2	0	0.18	7.88	0	0	0	0	0.04	61.4
744	Medium Heavy Duty Diesel Truck	0	0.93	41.78	0	0	0.01	0.11	0.2	1576.38
746	Heavy Heavy Duty Diesel Trucks	0	6.99	313.65	0	0	0.03	0.3	0.99	4446.39
750	Motorcycles	0	26.39	1374.27	0	0	0	0	0.11	0
760	Diesel Urban Buses	0	0.4	18.07	0	0	0	0.02	0.02	285.49
762	Gas Urban Buses	0	1.29	60.56	0	0	0	0	0.02	0
770	School Buses	0	0.42	20.11	0	0	0	0.02	0.02	341.06
776	Other Bus	0	0.64	27.87	0	0	0	0.01	0.02	78.38
780	Motor Homes	0	0.18	9.91	0	0	0	0	0.05	24.37
	Total	**0**	**155.88**	**11143.63**	**0**	**0**	**0.15**	**0.47**	**25.35**	**6942.18**
	Other Mobile Sources									
810	Aircraft	0	130.11	339.04	0	0	5.85	0.55	6.58	0
820	Trains	0	3.64	171.76	0	0	0.01	0.12	0.02	1792.59
830	Ships and Commercial Boats	0	2.15	212.87	0	0	0	0	0	11875.54
840	Recreational Boats	0	50.85	3268.53	0	0	0	0.01	6.69	76.79
850	Off-Road Recreational Vehicles	0	16.58	1029.55	0	0	0	0	0.09	0
860	Off-Road Equipment	0	91.55	5159.1	0	0	0.02	0.31	2.03	4581.97
870	Farm Equipment	0	0.63	32.58	0	0	0	0.01	0.01	174.38
890	Fuel Storage and Handling	0	0	166.54	0	0	0	0	0	0
895	Truck Stops	0	0	0	0	0	0	0	0	0
	Total	**0**	**295.52**	**10379.96**	**0**	**0**	**5.88**	**1**	**15.42**	**18501.27**
	Total Stationary and Area Sources	**2.6**	**2162.53**	**33346.48**	**1426.07**	**63.01**	**39.53**	**12.64**	**154.99**	**782.21**
	Total On-Road Vehicles	**0**	**155.88**	**11143.63**	**0**	**0**	**0.15**	**0.47**	**25.35**	**6942.18**
	Total Other Mobile	**0**	**295.52**	**10379.96**	**0**	**0**	**5.88**	**1**	**15.42**	**18501.27**
	Total Anthropogenic	**2.6**	**2613.93**	**54870.07**	**1426.07**	**63.01**	**45.56**	**14.11**	**195.76**	**26225.66**

Table B-7: 2023 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	Fuel Combustion									
10	Electric Utilities	179.4	1069.67	1067.74	0.01	0	0.1	17.23	0.01	1.25
20	Cogeneration	0	18.56	18.41	0	0	0.05	0	0	0
30	Oil and Gas Production	14.51	46.56	45.33	0.05	1.13	0.27	0	0.25	0.08
40	Petroleum Refining	0	432.9	418.33	0.01	1.44	15.95	0	15.8	0
50	Manufacturing and Industrial	141.4	1003.07	999.19	0.02	0.3	3.33	0	3.05	0.8
52	Food and Agricultural Processing	28.13	64.07	63.82	0	0.02	0.2	0	0.2	0.16
60	Service and Commercial	197.37	1260.84	1259.96	0.01	0.04	0.25	0	0.1	1.12
99	Other	186.71	23.33	22.26	0	0.04	0.42	0	0.4	1.11
	Total	**747.52**	**3919.01**	**3895.04**	**0.1**	**2.97**	**20.57**	**17.23**	**19.79**	**4.53**
	Waste Disposal									
110	Sewage Treatment	0	3.37	3.37	0	0	0	0	0	0
120	Landfills	0	347.87	324.54	0	0.15	0.07	84.4	0	0
130	Incineration	0	107.59	107.59	0	0	10.77	0	0	10.77
199	Other	0	9.03	8.72	0.02	0.33	0.03	0.12	0.03	0.54
	Total	**0**	**467.87**	**444.23**	**0.02**	**0.48**	**10.88**	**84.52**	**0.03**	**11.31**
	Cleaning and Surface Coatings									
210	Laundering	0	0	0	0	0	0	0	0	0
220	Degreasing	0	0.1	0.09	0	0	0	0	0	0
230	Coatings and Related Processes	0	1076.11	996.46	0	0	0	0	0	0
240	Printing	0	0	0	0	0	0	0	0	0
250	Adhesives and Sealants	0	0	0	0	0	0	0	0	0
299	Other	0	64.71	59.86	0	0	0	0	0	0
	Total	**0**	**1140.91**	**1056.41**	**0**	**0**	**0**	**0**	**0**	**0**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0	3.74	3.74	0	0	0	0	0	0
320	Petroleum Refining	0	113.9	109.9	0	0.54	0.54	0	0	106.78
330	Petroleum Marketing	0	16.83	15.57	0	0	0	0	0	0
399	Other	0	0.11	0.1	0	0	0	0	0	0
	Total	**0**	**134.58**	**129.32**	**0**	**0.54**	**0.54**	**0**	**0**	**106.78**

Table B-7: 2023 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	Industrial Processes									
410	Chemical	0	179.2	159.54	0.01	0.23	0.56	71.4	0	3.56
420	Food and Agriculture	0	346.46	3.4	0	0	0.39	0	0	189.1
430	Mineral Processes	0	416.43	96.59	0.22	0.95	7.73	19.87	1.76	1625.99
440	Metal Processes	0	325.47	183.81	0.29	8.15	8.06	101.02	0	0
450	Wood and Paper	0	97.55	29.63	0	0.14	0.14	115.38	0	0.81
460	Glass and Related Products	0	72.11	73.1	0.17	3.48	0.33	0	24.04	14.64
470	Electronics	0	1.98	0.48	0	0.03	0.01	6.88	0.01	1.89
499	Other	0	264.74	179.49	0	0.29	0.18	46.95	0.12	33.94
	Total	**0**	**1703.94**	**726.02**	**0.7**	**13.26**	**17.41**	**361.5**	**25.92**	**1869.93**
	Solvent Evaporation									
510	Consumer Products	0	0	0	0	0	0	0	0	0
520	Architectural Coatings & Related Solvent	0	0	0	0	0	0	0	0	0
530	Pesticides/Fertilizers	0	0	0	0	0	0	0	0	0
540	Asphalt Paving/Roofing	0	32.73	30.28	0	0	0	0	0	0
	Total	**0**	**32.73**	**30.28**	**0**	**0**	**0**	**0**	**0**	**0**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0	5752.68	4758.63	0.01	0.28	0.01	8199.1	0.03	0.25
620	Farming Operations	0	7.93	0.64	0	0.11	0.09	48.37	0	338.68
630	Construction and Demolition	0	1319.02	86.35	0	158.89	16.83	12538.38	0.57	54258.9
640	Paved Road Dust	0	4427.15	305.47	0.52	71.13	6.88	34268.86	1.15	174191.16
645	Unpaved Road Dust	0	40.2	2.36	0	4.49	1.28	1163.31	0.1	11218.64
650	Fugitive Windblown Dust	0	17.76	1.11	0	3.18	0.37	189.58	0.01	1279
660	Fires	0	219.29	193.06	0	0.05	0	215.66	0	37.27
670	Waste Burning and Disposal	0	2224.75	1853.39	0	0.46	0.01	5813.85	0.03	15.69
680	Utility Equipment	0	0	0	0	0	0	0	0	0
690	Cooking	0	0	0	0	0	0	17170.47	0	0
699	Other (Miscellaneous Processes	0	0	0	0	0	0	0	0	0
	Total	**0**	**14008.79**	**7201.02**	**0.52**	**238.59**	**25.47**	**79607.57**	**1.9**	**241339.59**

Table B-7: 2023 Baseline Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	7	2341.31	1502.27	0.53	0.89	7.52	2389.99	0.19	407.38
722	Light Duty Trucks 1	21.17	400.35	267.55	0.09	0.14	1.24	382.54	0.03	62.72
723	Light Duty Trucks 2	2.51	2092.84	1602.17	0.37	0.41	6.01	1111.2	0.09	189.52
724	Medium Duty Trucks	3.41	971.88	743.61	0.17	0.19	2.79	519.39	0.04	88.29
732	Light Heavy Duty Gas Trucks 1	0	88.06	48.01	0.02	0.04	0.25	117.04	0.01	14.72
733	Light Heavy Duty Gas Trucks 2	0	18.01	9.67	0	0.01	0.05	24.5	0	3.09
734	Medium Heavy Duty Gas Trucks	0	14.42	8.16	0	0.01	0.04	18.03	0	2.26
736	Heavy Heavy Duty Gas Trucks	0	2.55	1.57	0	0	0.01	3.05	0	0.68
742	Light Heavy Duty Diesel Trucks 1	84.32	35.26	25.44	0	0.01	0.04	90.61	0	3.73
743	Light Heavy Duty Diesel Trucks 2	56.49	23.46	17	0	0.01	0.02	60.32	0	2.44
744	Medium Heavy Duty Diesel Truck	1450.27	440.99	392.99	0.01	0.08	0.13	1167.39	0.01	15.12
746	Heavy Heavy Duty Diesel Trucks	4090.68	1372.2	1142.02	0.06	0.32	0.62	3584.51	0.06	65.47
750	Motorcycles	0	34.08	21.32	0.01	0.01	0.1	14.56	0	2.5
760	Diesel Urban Buses	262.65	75.71	70.07	0	0.01	0.01	201.79	0	1.77
762	Gas Urban Buses	0	4.45	2.87	0	0	0.01	4.25	0	0.55
770	School Buses	313.77	90.69	83.95	0	0.01	0.01	240.69	0	1.79
776	Other Bus	72.11	23.72	20.46	0	0	0.01	60.61	0	1.05
780	Motor Homes	22.42	16.55	9.56	0	0.01	0.03	37.83	0	2.72
	Total	**6386.8**	**8046.53**	**5968.69**	**1.27**	**2.16**	**18.91**	**10028.29**	**0.45**	**865.8**
	Other Mobile Sources									
810	Aircraft	0	456.02	414.71	0.33	6.08	1.28	0	0.55	0
820	Trains	1634.18	460.93	432.02	0.01	0.05	0.03	1231.7	0.01	5.14
830	Ships and Commercial Boats	11106.59	475.02	444.26	0.04	0	0	0	0	65.32
840	Recreational Boats	70.66	2695.46	1838.17	0.33	0	6.69	52.77	0	0.22
850	Off-Road Recreational Vehicles	0	36.48	24.81	0	0	0.09	0	0	0
860	Off-Road Equipment	4215.55	1970.58	1669.29	0.11	0.14	2.05	3148.31	0.02	13.15
870	Farm Equipment	160.43	49.2	45.39	0	0.01	0.01	119.82	0	0.5
890	Fuel Storage and Handling	0	0	0	0	0	0	0	0	0
895	Truck Stops	0	0	0	0	0	0	0	0	0
	Total	**17187.41**	**6143.7**	**4868.65**	**0.82**	**6.27**	**10.16**	**4552.6**	**0.59**	**84.32**
	Total Stationary and Area Sources	**747.52**	**21407.84**	**13482.32**	**1.34**	**255.85**	**74.87**	**80070.83**	**47.63**	**243332.14**
	Total On-Road Vehicles	**6386.8**	**8046.53**	**5968.69**	**1.27**	**2.16**	**18.91**	**10028.29**	**0.45**	**865.8**
	Total Other Mobile	**17187.41**	**6143.7**	**4868.65**	**0.82**	**6.27**	**10.16**	**4552.6**	**0.59**	**84.32**
	Total Anthropogenic	**24321.73**	**35598.08**	**24319.66**	**3.43**	**264.28**	**103.94**	**94651.72**	**48.67**	**244282.27**

Table B-8: 2023 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	Fuel Combustion									
10	Electric Utilities	22.90	20.72	188.73	0.53	0.00	0.00	0.00	0.00	0.00
20	Cogeneration	0.37	0.00	1.36	0.00	0.00	0.00	0.00	0.00	0.00
30	Oil and Gas Production	1.71	0.88	15.28	0.03	0.00	0.00	0.00	0.00	0.00
40	Petroleum Refining	0.91	0.08	10.61	0.14	0.00	0.00	0.00	0.00	0.00
50	Manufacturing and Industrial	21.74	15.31	126.49	1.30	0.00	0.00	0.00	0.00	0.00
52	Food and Agricultural Processing	2.75	2.80	10.20	0.09	0.00	0.00	0.00	0.00	0.00
60	Service and Commercial	29.86	22.82	121.98	2.61	0.00	0.00	0.00	0.00	0.00
99	Other	9.56	6.45	21.84	5.07	0.00	0.00	0.00	0.00	0.00
	Total	**89.80**	**69.07**	**496.49**	**9.76**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Waste Disposal									
110	Sewage Treatment	4.65	5.15	14.15	0.00	2.08	229.93	0.00	0.91	0.70
120	Landfills	0.00	1.05	2.24	0.00	0.00	0.00	0.60	0.00	0.00
130	Incineration	0.00	0.00	67.41	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.36	2599.74	1.05	0.00	0.16	18.10	0.00	0.07	0.05
	Total	**5.01**	**2605.95**	**84.85**	**0.00**	**2.24**	**248.02**	**0.60**	**0.98**	**0.75**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	3314.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.01	999.69	11.61	0.01	0.00	0.00	0.00	0.00	0.00
240	Printing	0.00	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	1306.33	1.95	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.01**	**5622.08**	**13.55**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	23.75	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	35.77	0.00	0.00	0.00	0.00	0.00	0.00
330	Petroleum Marketing	1.34	0.00	199.72	0.00	1.34	1.34	0.00	0.00	1.34
399	Other	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**1.34**	**0.00**	**259.31**	**0.00**	**1.34**	**1.34**	**0.00**	**0.00**	**1.34**

Table B-8: 2023 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	Industrial Processes									
410	Chemical	39.92	58.51	284.93	553.28	6.46	0.89	0.00	0.00	0.03
420	Food and Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
430	Mineral Processes	0.00	0.00	9.05	0.05	0.00	0.00	0.00	0.00	0.00
440	Metal Processes	0.26	0.38	1.86	0.13	0.04	0.01	0.00	0.00	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
460	Glass and Related Products	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.00	0.00	7.53	0.00	0.00	0.00	0.00	0.00	0.00
499	Other	0.70	1.36	11.28	0.34	0.21	0.13	0.00	0.00	0.12
	Total	**40.88**	**60.25**	**314.66**	**553.80**	**6.72**	**1.03**	**0.00**	**0.00**	**0.15**
	Solvent Evaporation									
510	Consumer Products	0.00	15657.04	0.95	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	4.95	981.43	15.36	0.00	0.00	0.00	0.00	0.50	0.00
530	Pesticides/Fertilizers	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	6.36	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**4.95**	**16638.65**	**22.67**	**0.00**	**0.00**	**0.00**	**0.00**	**0.50**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	549.24	405.30	254.55	0.00	0.00	0.00	0.00	0.00	0.00
620	Farming Operations	0.00	1432.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660	Fires	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670	Waste Burning and Disposal	0.00	0.00	0.00	96.17	0.00	0.00	0.00	0.00	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**549.24**	**1837.66**	**254.55**	**96.17**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table B-8: 2023 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Acetalde-hyde	Acetone	Benzene	1,3 Butadiene	Carbon tetrachloride	Chloroform	1,1 Dichloro-ethane	1,4 dioxane	Ethylene dibromide
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	77.14	49.34	786.51	119.71	0.00	0.00	0.00	0.00	0.00
722	Light Duty Trucks 1	16.13	11.18	162.19	21.65	0.00	0.00	0.00	0.00	0.00
723	Light Duty Trucks 2	60.80	38.56	662.48	96.25	0.00	0.00	0.00	0.00	0.00
724	Medium Duty Trucks	40.22	25.69	377.07	62.38	0.00	0.00	0.00	0.00	0.00
732	Light Heavy Duty Gas Trucks 1	21.49	14.03	170.96	31.36	0.00	0.00	0.00	0.00	0.00
733	Light Heavy Duty Gas Trucks 2	3.76	2.48	28.98	5.36	0.00	0.00	0.00	0.00	0.00
734	Medium Heavy Duty Gas Trucks	8.02	5.30	48.26	11.28	0.00	0.00	0.00	0.00	0.00
736	Heavy Heavy Duty Gas Trucks	4.31	2.77	26.69	6.58	0.00	0.00	0.00	0.00	0.00
742	Light Heavy Duty Diesel Trucks 1	24.38	24.89	6.64	0.63	0.00	0.00	0.00	0.00	0.00
743	Light Heavy Duty Diesel Trucks 2	20.27	20.69	5.52	0.52	0.00	0.00	0.00	0.00	0.00
744	Medium Heavy Duty Diesel Truck	82.86	84.59	22.55	2.14	0.00	0.00	0.00	0.00	0.00
746	Heavy Heavy Duty Diesel Trucks	622.04	635.07	169.27	16.07	0.00	0.00	0.00	0.00	0.00
750	Motorcycles	85.02	44.48	420.28	96.20	0.00	0.00	0.00	0.00	0.00
760	Diesel Urban Buses	51.04	52.11	13.89	1.32	0.00	0.00	0.00	0.00	0.00
762	Gas Urban Buses	2.87	1.70	24.34	5.34	0.00	0.00	0.00	0.00	0.00
770	School Buses	26.69	27.05	11.14	1.53	0.00	0.00	0.00	0.00	0.00
776	Other Bus	7.04	6.75	9.14	1.87	0.00	0.00	0.00	0.00	0.00
780	Motor Homes	1.76	1.63	3.92	0.76	0.00	0.00	0.00	0.00	0.00
	Total	**1155.83**	**1048.32**	**2949.82**	**480.98**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Other Mobile Sources									
810	Aircraft	1455.96	5.74	688.26	566.26	0.00	0.00	0.00	0.00	0.00
820	Trains	128.12	130.80	34.86	3.31	0.00	0.00	0.00	0.00	0.00
830	Ships and Commercial Boats	272.81	278.52	191.09	7.05	0.00	0.00	0.00	0.00	0.00
840	Recreational Boats	151.97	113.38	364.07	68.14	0.00	0.00	0.00	0.00	0.00
850	Off-Road Recreational Vehicles	62.91	30.36	234.48	53.69	0.00	0.00	0.00	0.00	0.00
860	Off-Road Equipment	1966.09	1706.20	2409.10	512.65	0.00	0.00	0.00	0.00	0.00
870	Farm Equipment	52.52	52.70	20.24	2.78	0.00	0.00	0.00	0.00	0.00
890	Fuel Storage and Handling	0.00	0.00	33.25	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**4090.38**	**2317.70**	**3975.35**	**1213.89**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Stationary and Area Sources	**691.23**	**26833.65**	**1446.07**	**659.73**	**10.30**	**250.39**	**0.60**	**1.48**	**2.24**
	Total On-Road Vehicles	**1155.83**	**1048.32**	**2949.82**	**480.98**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Other Mobile	**4090.38**	**2317.70**	**3975.35**	**1213.89**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Total Anthropogenic	**5937.45**	**30199.67**	**8371.24**	**2354.61**	**10.30**	**250.39**	**0.60**	**1.48**	**2.24**

Table B-8: 2023 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	Fuel Combustion									
10	Electric Utilities	0.00	0.00	464.24	4.08	0.00	0.00	0.24	0.00	0.00
20	Cogeneration	0.00	0.00	10.05	0.00	0.00	0.00	0.00	0.00	0.00
30	Oil and Gas Production	0.00	0.00	48.36	0.17	0.00	0.00	0.01	0.00	0.00
40	Petroleum Refining	0.00	0.00	197.43	0.01	0.00	0.00	0.02	0.00	0.00
50	Manufacturing and Industrial	0.00	0.00	410.99	2.98	0.00	0.00	0.32	0.00	0.00
52	Food and Agricultural Processing	0.00	0.00	24.32	0.55	0.00	0.00	0.03	0.00	0.00
60	Service and Commercial	0.00	0.00	364.58	4.46	0.00	0.00	0.67	0.00	0.00
99	Other	0.00	0.00	29.68	1.08	0.00	0.00	0.84	0.00	0.00
	Total	**0.00**	**0.00**	**1549.64**	**13.33**	**0.00**	**0.00**	**2.13**	**0.00**	**0.00**
	Waste Disposal									
110	Sewage Treatment	1.27	0.39	24.83	0.00	353.31	0.00	0.00	34.99	287.87
120	Landfills	0.10	0.00	55.33	1.32	3.15	0.00	0.00	0.00	1.60
130	Incineration	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.10	0.00	1.90	0.00	27.81	0.00	0.00	2.75	22.65
	Total	**1.46**	**0.39**	**82.66**	**1.32**	**384.27**	**0.00**	**0.00**	**37.74**	**312.12**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	0.00	0.00	1344.21	6735.83	0.00	31.82	0.00	768.03
230	Coatings and Related Processes	0.01	0.00	0.02	2067.08	8.42	0.00	5.24	0.02	167.78
240	Printing	0.00	0.00	0.00	419.45	0.00	0.00	12.99	0.00	1.89
250	Adhesives and Sealants	0.00	0.00	0.00	1098.44	35.69	0.00	0.00	0.00	0.00
299	Other	0.00	20.98	0.00	0.01	0.00	0.00	0.00	0.00	0.00
	Total	**0.01**	**20.98**	**0.02**	**4929.19**	**6779.94**	**0.00**	**50.06**	**0.02**	**937.70**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	2.69	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	109.56	0.00	0.00	0.00	0.00	0.00	0.00
330	Petroleum Marketing	0.00	0.00	1.34	0.00	0.00	1.34	2.91	0.00	0.00
399	Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**113.59**	**0.00**	**0.00**	**1.34**	**2.91**	**0.00**	**0.00**

Table B-8: 2023 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	Industrial Processes									
410	Chemical	54.05	1.50	1.15	45.22	0.00	32.62	0.30	69.06	0.00
420	Food and Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
430	Mineral Processes	0.00	0.00	12.60	0.00	0.00	0.00	2.86	0.00	0.00
440	Metal Processes	0.35	0.01	0.38	0.27	0.00	0.00	0.02	0.45	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
460	Glass and Related Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.00	0.00	0.15	0.00	0.00	0.00	0.02	0.00	0.00
499	Other	0.79	0.02	2.83	0.80	0.00	0.12	0.05	1.01	0.00
	Total	**55.19**	**1.54**	**17.11**	**46.29**	**0.00**	**32.74**	**3.24**	**70.52**	**0.00**
	Solvent Evaporation									
510	Consumer Products	0.00	51.86	8.85	1939.17	7083.60	0.00	381.24	3325.12	4755.91
520	Architectural Coatings & Related Solvent	0.00	0.00	1.10	479.00	210.61	0.00	44.80	0.00	5.30
530	Pesticides/Fertilizers	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	0.00	0.00	0.00	0.00	118.37	0.00	0.00
	Total	**0.00**	**51.86**	**9.95**	**2418.17**	**7294.21**	**0.00**	**544.43**	**3325.12**	**4761.21**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	0.00	1102.95	0.00	0.00	0.00	0.00	0.00	0.00
620	Farming Operations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660	Fires	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670	Waste Burning and Disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**1102.95**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table B-8: 2023 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Ethylene dichloride	Ethylene oxide	Formalde-hyde	Methyl ethyl ketone	Methylene chloride	MTBE	Naphthalene	p-Dichloro-benzene	Perchloro-ethylene
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	0.00	0.00	275.79	7.75	0.00	0.00	50.54	0.00	0.00
722	Light Duty Trucks 1	0.00	0.00	55.63	1.83	0.00	0.00	11.73	0.00	0.00
723	Light Duty Trucks 2	0.00	0.00	225.41	5.96	0.00	0.00	44.46	0.00	0.00
724	Medium Duty Trucks	0.00	0.00	144.39	4.03	0.00	0.00	22.47	0.00	0.00
732	Light Heavy Duty Gas Trucks 1	0.00	0.00	64.62	2.35	0.00	0.00	10.53	0.00	0.00
733	Light Heavy Duty Gas Trucks 2	0.00	0.00	10.62	0.42	0.00	0.00	1.83	0.00	0.00
734	Medium Heavy Duty Gas Trucks	0.00	0.00	21.87	0.91	0.00	0.00	2.18	0.00	0.00
736	Heavy Heavy Duty Gas Trucks	0.00	0.00	14.53	0.45	0.00	0.00	0.81	0.00	0.00
742	Light Heavy Duty Diesel Trucks 1	0.00	0.00	48.79	4.90	0.00	0.00	0.28	0.00	0.00
743	Light Heavy Duty Diesel Trucks 2	0.00	0.00	40.56	4.07	0.00	0.00	0.23	0.00	0.00
744	Medium Heavy Duty Diesel Truck	0.00	0.00	165.81	16.64	0.00	0.00	0.96	0.00	0.00
746	Heavy Heavy Duty Diesel Trucks	0.00	0.00	1244.76	124.94	0.00	0.00	7.19	0.00	0.00
750	Motorcycles	0.00	0.00	294.80	6.49	0.00	0.00	14.37	0.00	0.00
760	Diesel Urban Buses	0.00	0.00	102.14	10.25	0.00	0.00	0.59	0.00	0.00
762	Gas Urban Buses	0.00	0.00	14.82	0.21	0.00	0.00	0.57	0.00	0.00
770	School Buses	0.00	0.00	54.73	5.30	0.00	0.00	0.43	0.00	0.00
776	Other Bus	0.00	0.00	14.95	1.31	0.00	0.00	0.43	0.00	0.00
780	Motor Homes	0.00	0.00	4.78	0.30	0.00	0.00	0.11	0.00	0.00
	Total	**0.00**	**0.00**	**2798.98**	**198.12**	**0.00**	**0.00**	**169.72**	**0.00**	**0.00**
	Other Mobile Sources									
810	Aircraft	0.00	0.00	4688.54	1.61	0.00	5.97	178.66	0.00	0.00
820	Trains	0.00	0.00	256.38	25.73	0.00	0.00	1.48	0.00	0.00
830	Ships and Commercial Boats	0.00	0.00	551.32	54.79	0.00	0.00	6.94	0.00	0.00
840	Recreational Boats	0.00	0.00	387.73	19.79	0.00	0.00	11.43	0.00	0.00
850	Off-Road Recreational Vehicles	0.00	0.00	193.69	3.93	0.00	0.00	8.57	0.00	0.00
860	Off-Road Equipment	0.00	0.00	4551.25	317.57	0.00	0.00	92.31	0.00	0.00
870	Farm Equipment	0.00	0.00	106.95	10.31	0.00	0.00	0.82	0.00	0.00
890	Fuel Storage and Handling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**10735.86**	**433.74**	**0.00**	**5.97**	**300.22**	**0.00**	**0.00**
	Total Stationary and Area Sources	**56.67**	**74.77**	**2875.92**	**7408.30**	**14458.42**	**34.07**	**602.78**	**3433.40**	**6011.03**
	Total On-Road Vehicles	**0.00**	**0.00**	**2798.98**	**198.12**	**0.00**	**0.00**	**169.72**	**0.00**	**0.00**
	Total Other Mobile	**0.00**	**0.00**	**10735.86**	**433.74**	**0.00**	**5.97**	**300.22**	**0.00**	**0.00**
	Total Anthropogenic	**56.67**	**74.77**	**16410.77**	**8040.16**	**14458.42**	**40.04**	**1072.71**	**3433.40**	**6011.03**

Table B-8: 2023 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	Fuel Combustion									
10	Electric Utilities	0.00	0.16	99.23	0.00	0.00	0.00	0.00	0.09	185.53
20	Cogeneration	0.00	0.00	5.43	0.00	0.00	0.00	0.00	0.05	0.00
30	Oil and Gas Production	0.00	0.01	7.44	0.00	0.00	0.65	0.07	0.81	9.07
40	Petroleum Refining	0.00	0.02	5.79	0.00	0.00	0.00	1.16	12.91	0.00
50	Manufacturing and Industrial	0.00	0.26	69.30	0.00	0.00	0.02	0.20	2.36	104.74
52	Food and Agricultural Processing	0.00	0.02	5.79	0.00	0.00	0.00	0.02	0.19	29.67
60	Service and Commercial	0.00	0.50	65.23	0.00	0.00	0.03	0.01	0.21	125.34
99	Other	0.00	0.82	45.84	0.00	0.00	0.00	0.04	0.42	171.48
	Total	**0.00**	**1.80**	**304.05**	**0.00**	**0.00**	**0.70**	**1.50**	**17.03**	**625.83**
	Waste Disposal									
110	Sewage Treatment	0.12	0.90	300.22	35.39	1.54	0.00	0.00	0.00	0.00
120	Landfills	0.00	0.00	39.45	0.96	1.19	0.00	0.00	0.12	0.00
130	Incineration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
199	Other	0.00	0.05	64.92	2.79	0.12	0.32	0.03	0.32	0.00
	Total	**0.12**	**0.95**	**404.59**	**39.13**	**2.84**	**0.32**	**0.03**	**0.44**	**0.00**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	2.51	763.96	602.91	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.00	0.40	12670.44	36.75	0.01	0.00	0.00	0.00	0.00
240	Printing	0.00	0.00	19.32	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	0.00	336.45	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	0.00	94.98	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**2.91**	**13885.15**	**639.65**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	0.00	13.65	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	0.00	195.21	0.00	0.00	0.45	0.00	0.00	0.00
330	Petroleum Marketing	1.34	0.00	962.20	0.00	0.00	0.00	0.00	0.00	0.00
399	Other	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**1.34**	**0.00**	**1171.46**	**0.00**	**0.00**	**0.45**	**0.00**	**0.00**	**0.00**

Table B-8: 2023 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	Industrial Processes									
410	Chemical	0.46	1603.55	1327.84	0.00	42.77	0.00	0.42	0.19	0.00
420	Food and Agriculture	0.00	0.00	50.40	0.00	0.00	0.02	0.00	0.67	0.00
430	Mineral Processes	0.00	0.05	7.30	0.00	0.00	10.78	0.77	21.56	0.00
440	Metal Processes	0.00	0.73	5.76	0.00	0.22	0.44	0.44	17.65	0.00
450	Wood and Paper	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.10	0.00
460	Glass and Related Products	0.00	0.00	3.44	0.00	0.00	7.64	0.00	2.10	0.00
470	Electronics	0.00	0.03	12.27	0.00	0.00	0.00	0.01	0.01	0.00
499	Other	0.12	1.42	809.02	0.00	0.51	0.01	0.01	0.08	0.00
	Total	**0.58**	**1605.78**	**2216.01**	**0.00**	**43.50**	**18.89**	**1.70**	**42.37**	**0.00**
	Solvent Evaporation									
510	Consumer Products	0.20	11.39	8398.69	562.99	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	0.00	44.48	1939.85	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	0.00	15.09	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.20**	**55.86**	**10353.85**	**562.99**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	0.00	300.58	0.00	0.00	0.13	0.06	0.10	0.00
620	Farming Operations	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.38	0.00
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	4.49	5.54	59.10	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	7.46	1.72	9.75	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.52	0.45	0.59	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.10	0.15	1.50	0.00
660	Fires	0.00	0.00	55.11	0.00	0.00	0.00	0.02	0.01	0.00
670	Waste Burning and Disposal	0.00	0.00	0.75	0.00	0.00	0.24	0.03	0.01	0.00
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	532.99	0.00	0.00	0.00	0.00	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**889.42**	**0.00**	**0.00**	**12.97**	**8.00**	**71.44**	**0.00**

Table B-8: 2023 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	Propylene oxide	Styrene	Toluene	Trichloro-ethylene	Vinyl chloride	Arsenic	Cadmium	Chromium	Diesel PM (DPM)
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	0.00	36.16	2929.91	0.00	0.00	0.06	0.00	10.56	6.70
722	Light Duty Trucks 1	0.00	6.41	628.43	0.00	0.00	0.01	0.00	1.71	20.25
723	Light Duty Trucks 2	0.00	28.53	2493.95	0.00	0.00	0.03	0.00	7.35	2.39
724	Medium Duty Trucks	0.00	18.77	1351.57	0.00	0.00	0.01	0.00	3.41	3.25
732	Light Heavy Duty Gas Trucks 1	0.00	10.40	621.65	0.00	0.00	0.00	0.00	0.35	0.00
733	Light Heavy Duty Gas Trucks 2	0.00	1.83	107.21	0.00	0.00	0.00	0.00	0.07	0.00
734	Medium Heavy Duty Gas Trucks	0.00	3.92	160.57	0.00	0.00	0.00	0.00	0.06	0.00
736	Heavy Heavy Duty Gas Trucks	0.00	2.06	76.59	0.00	0.00	0.00	0.00	0.02	0.00
742	Light Heavy Duty Diesel Trucks 1	0.00	0.19	8.63	0.00	0.00	0.00	0.01	0.06	79.92
743	Light Heavy Duty Diesel Trucks 2	0.00	0.16	7.17	0.00	0.00	0.00	0.00	0.04	54.71
744	Medium Heavy Duty Diesel Truck	0.00	0.65	29.33	0.00	0.00	0.00	0.05	0.20	775.58
746	Heavy Heavy Duty Diesel Trucks	0.00	4.91	220.18	0.00	0.00	0.01	0.12	0.96	1742.98
750	Motorcycles	0.00	19.42	1038.46	0.00	0.00	0.00	0.00	0.11	0.00
760	Diesel Urban Buses	0.00	0.40	18.07	0.00	0.00	0.00	0.02	0.02	256.94
762	Gas Urban Buses	0.00	1.29	60.47	0.00	0.00	0.00	0.00	0.02	0.00
770	School Buses	0.00	0.42	20.07	0.00	0.00	0.00	0.02	0.02	306.94
776	Other Bus	0.00	0.64	27.69	0.00	0.00	0.00	0.00	0.02	70.54
780	Motor Homes	0.00	0.18	9.87	0.00	0.00	0.00	0.00	0.05	21.93
	Total	**0.00**	**136.35**	**9809.82**	**0.00**	**0.00**	**0.14**	**0.22**	**25.02**	**3342.13**
	Other Mobile Sources									
810	Aircraft	0.00	130.11	339.04	0.00	0.00	5.85	0.55	6.58	0.00
820	Trains	0.00	1.01	53.88	0.00	0.00	0.00	0.04	0.01	572.73
830	Ships and Commercial Boats	0.00	2.15	212.87	0.00	0.00	0.00	0.00	0.00	2487.98
840	Recreational Boats	0.00	11.16	954.09	0.00	0.00	0.00	0.00	0.79	69.11
850	Off-Road Recreational Vehicles	0.00	8.57	530.33	0.00	0.00	0.00	0.00	0.09	0.00
860	Off-Road Equipment	0.00	87.15	4939.24	0.00	0.00	0.01	0.11	2.00	1569.28
870	Farm Equipment	0.00	0.63	32.52	0.00	0.00	0.00	0.01	0.01	156.91
890	Fuel Storage and Handling	0.00	0.00	166.54	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**240.79**	**7228.51**	**0.00**	**0.00**	**5.86**	**0.71**	**9.48**	**4856.01**
	Total Stationary and Area Sources	**2.24**	**1667.30**	**29224.54**	**1241.77**	**46.36**	**33.34**	**11.23**	**131.28**	**625.83**
	Total On-Road Vehicles	**0.00**	**136.35**	**9809.82**	**0.00**	**0.00**	**0.14**	**0.22**	**25.02**	**3342.13**
	Total Other Mobile	**0.00**	**240.79**	**7228.51**	**0.00**	**0.00**	**5.86**	**0.71**	**9.48**	**4856.01**
	Total Anthropogenic	**2.24**	**2044.44**	**46262.86**	**1241.77**	**46.36**	**39.34**	**12.16**	**165.78**	**8823.97**

Table B-8: 2023 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	Fuel Combustion									
10	Electric Utilities	179.40	1067.97	1066.06	0.00	0.00	0.09	17.23	0.01	1.25
20	Cogeneration	0.00	18.56	18.41	0.00	0.00	0.05	0.00	0.00	0.00
30	Oil and Gas Production	8.77	29.56	28.77	0.03	0.69	0.22	0.00	0.21	0.05
40	Petroleum Refining	0.00	348.83	337.05	0.01	1.16	12.91	0.00	12.78	0.00
50	Manufacturing and Industrial	101.28	767.79	765.07	0.01	0.22	2.34	0.00	2.15	0.58
52	Food and Agricultural Processing	27.82	41.07	40.82	0.00	0.02	0.19	0.00	0.19	0.16
60	Service and Commercial	121.16	1195.70	1195.06	0.01	0.04	0.18	0.00	0.06	0.69
99	Other	158.70	19.62	18.64	0.00	0.04	0.42	0.00	0.40	0.94
	Total	**597.12**	**3489.10**	**3469.86**	**0.07**	**2.16**	**16.39**	**17.23**	**15.79**	**3.67**
	Waste Disposal									
110	Sewage Treatment	0.00	3.37	3.37	0.00	0.00	0.00	0.00	0.00	0.00
120	Landfills	0.00	221.91	198.57	0.00	0.15	0.07	84.40	0.00	0.00
130	Incineration	0.00	107.59	107.59	0.00	0.00	10.77	0.00	0.00	10.77
199	Other	0.00	9.03	8.72	0.02	0.33	0.03	0.12	0.03	0.54
	Total	**0.00**	**341.91**	**318.26**	**0.02**	**0.48**	**10.88**	**84.52**	**0.03**	**11.31**
	Cleaning and Surface Coatings									
210	Laundering	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	0.00	0.10	0.09	0.00	0.00	0.00	0.00	0.00	0.00
230	Coatings and Related Processes	0.00	683.15	632.95	0.00	0.00	0.00	0.00	0.00	0.00
240	Printing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250	Adhesives and Sealants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
299	Other	0.00	64.71	59.86	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**747.96**	**692.90**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Petroleum Production and Marketing									
310	Oil and Gas Production	0.00	3.74	3.74	0.00	0.00	0.00	0.00	0.00	0.00
320	Petroleum Refining	0.00	110.30	105.98	0.00	0.45	0.45	0.00	0.00	89.42
330	Petroleum Marketing	0.00	16.83	15.57	0.00	0.00	0.00	0.00	0.00	0.00
399	Other	0.00	0.11	0.10	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**130.98**	**125.40**	**0.00**	**0.45**	**0.45**	**0.00**	**0.00**	**89.42**

Table B-8: 2023 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	Industrial Processes									
410	Chemical	0.00	120.05	104.83	0.01	0.21	0.49	71.40	0.00	2.15
420	Food and Agriculture	0.00	346.46	3.40	0.00	0.00	0.39	0.00	0.00	189.10
430	Mineral Processes	0.00	402.56	83.71	0.15	0.80	5.74	19.87	1.45	1463.61
440	Metal Processes	0.00	210.69	114.94	0.18	4.99	4.90	101.02	0.00	0.00
450	Wood and Paper	0.00	97.55	29.63	0.00	0.14	0.14	115.38	0.00	0.81
460	Glass and Related Products	0.00	43.55	44.15	0.11	2.10	0.21	0.00	14.52	14.64
470	Electronics	0.00	1.98	0.48	0.00	0.03	0.01	6.88	0.01	1.89
499	Other	0.00	228.57	146.00	0.00	0.29	0.13	46.95	0.07	33.94
	Total	**0.00**	**1451.43**	**527.13**	**0.44**	**8.56**	**12.01**	**361.50**	**16.04**	**1706.14**
	Solvent Evaporation									
510	Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings & Related Solvent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
540	Asphalt Paving/Roofing	0.00	32.73	30.28	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**32.73**	**30.28**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Miscellaneous Processes									
610	Residential Fuel Combustion	0.00	4980.07	4208.68	0.00	0.24	0.01	6362.50	0.02	0.19
620	Farming Operations	0.00	7.93	0.64	0.00	0.11	0.09	48.37	0.00	338.68
630	Construction and Demolition	0.00	1220.09	79.88	0.00	146.97	15.57	11598.00	0.53	50189.49
640	Paved Road Dust	0.00	4427.15	305.47	0.52	71.13	6.88	34268.86	1.15	174191.16
645	Unpaved Road Dust	0.00	40.20	2.36	0.00	4.49	1.28	1163.31	0.10	11218.64
650	Fugitive Windblown Dust	0.00	17.76	1.11	0.00	3.18	0.37	189.58	0.01	1279.00
660	Fires	0.00	219.29	193.06	0.00	0.05	0.00	215.66	0.00	37.27
670	Waste Burning and Disposal	0.00	2224.75	1853.39	0.00	0.46	0.01	5813.85	0.03	15.69
680	Utility Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690	Cooking	0.00	0.00	0.00	0.00	0.00	0.00	16138.64	0.00	0.00
699	Other (Miscellaneous Processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**13137.25**	**6644.59**	**0.52**	**226.62**	**24.21**	**75798.77**	**1.85**	**237270.11**

Table B-8: 2023 Controlled Emissions (lbs/day) by Major Source Category for the South Coast Air Basin

Code	Source Category	DPM2.5	Elemental carbon (EC)	EC2.5	Hexavalent chromium	Lead	Nickel	Organic carbon	Selenium	Silicon
	On-Road Motor Vehicles									
710	Light Duty Passenger Auto	6.16	2301.40	1466.35	0.52	0.89	7.42	2389.36	0.19	407.38
722	Light Duty Trucks 1	18.63	392.54	260.49	0.08	0.14	1.23	380.64	0.03	62.71
723	Light Duty Trucks 2	2.20	2045.19	1559.27	0.36	0.41	5.89	1110.97	0.09	189.52
724	Medium Duty Trucks	2.99	949.71	723.65	0.17	0.19	2.74	519.08	0.04	88.29
732	Light Heavy Duty Gas Trucks 1	0.00	86.59	46.69	0.02	0.04	0.24	117.04	0.01	14.72
733	Light Heavy Duty Gas Trucks 2	0.00	17.94	9.60	0.00	0.01	0.05	24.50	0.00	3.09
734	Medium Heavy Duty Gas Trucks	0.00	14.42	8.16	0.00	0.01	0.04	18.03	0.00	2.26
736	Heavy Heavy Duty Gas Trucks	0.00	2.55	1.57	0.00	0.00	0.01	3.05	0.00	0.68
742	Light Heavy Duty Diesel Trucks 1	73.53	32.25	22.59	0.00	0.01	0.04	82.54	0.00	3.69
743	Light Heavy Duty Diesel Trucks 2	50.34	21.74	15.37	0.00	0.01	0.02	55.72	0.00	2.42
744	Medium Heavy Duty Diesel Truck	713.53	235.07	198.22	0.01	0.05	0.12	617.15	0.01	12.82
746	Heavy Heavy Duty Diesel Trucks	1603.54	677.06	484.51	0.05	0.24	0.58	1726.97	0.04	57.71
750	Motorcycles	0.00	34.08	21.32	0.01	0.01	0.10	14.56	0.00	2.50
760	Diesel Urban Buses	236.38	68.36	63.13	0.00	0.01	0.01	182.17	0.00	1.68
762	Gas Urban Buses	0.00	4.45	2.87	0.00	0.00	0.01	4.25	0.00	0.55
770	School Buses	282.39	81.92	75.65	0.00	0.01	0.01	217.25	0.00	1.69
776	Other Bus	64.90	21.70	18.56	0.00	0.00	0.01	55.22	0.00	1.03
780	Motor Homes	20.17	15.93	8.96	0.00	0.01	0.03	36.15	0.00	2.71
	Total	**3074.76**	**7002.90**	**4986.96**	**1.25**	**2.05**	**18.56**	**7554.67**	**0.43**	**855.47**
	Other Mobile Sources									
810	Aircraft	0.00	456.02	414.71	0.33	6.08	1.28	0.00	0.55	0.00
820	Trains	511.91	147.27	135.33	0.00	0.02	0.01	393.53	0.00	1.64
830	Ships and Commercial Boats	2322.78	99.52	92.91	0.01	0.00	0.00	0.00	0.00	13.68
840	Recreational Boats	63.59	334.88	232.45	0.04	0.00	0.79	47.49	0.00	0.20
850	Off-Road Recreational Vehicles	0.00	36.48	24.81	0.00	0.00	0.09	0.00	0.00	0.00
860	Off-Road Equipment	1443.83	1195.62	936.35	0.10	0.05	2.01	1078.26	0.01	4.50
870	Farm Equipment	144.36	44.71	41.14	0.00	0.00	0.01	107.81	0.00	0.45
890	Fuel Storage and Handling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
895	Truck Stops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**4486.46**	**2314.50**	**1877.69**	**0.49**	**6.15**	**4.19**	**1627.09**	**0.56**	**20.48**
	Total Stationary and Area Sources	**597.12**	**19331.36**	**11808.43**	**1.05**	**238.28**	**63.94**	**76262.03**	**33.72**	**239080.66**
	Total On-Road Vehicles	**3074.76**	**7002.90**	**4986.96**	**1.25**	**2.05**	**18.56**	**7554.67**	**0.43**	**855.47**
	Total Other Mobile	**4486.46**	**2314.50**	**1877.69**	**0.49**	**6.15**	**4.19**	**1627.09**	**0.56**	**20.48**
	Total Anthropogenic	**8158.35**	**28648.76**	**18673.08**	**2.78**	**246.48**	**86.69**	**85443.79**	**34.71**	**239956.61**

APPENDIX C

AQMD PUBLIC NUISANCE INVESTIGATION POLICIES & PROCEDURES

South Coast Air Quality Management District Policies & Procedures

Subject: Public Nuisance Investigation
Date: May 1, 1989
No. C-1

1.0 POLICY

The District will investigate public nuisance complaints and issue Notices of Violation for public nuisances. This document identifies the District's authority in these areas and provides guidelines for gathering evidence to substantiate public nuisance complaints.

2.0 GENERAL

An inspector usually conducts a public nuisance investigation in response to complaints from the public. To prosecute a public nuisance violation successfully, the chief prosecutor's office needs documented evidence that the activity or condition is in violation of Health and Safety Code Section 41700. The District is both the investigative and enforcement agency for public nuisance complaints.

3.0 HEALTH AND SAFETY CODE SECTIONS 41700 AND 41705

The complete texts of Sections 41700 and 41705 are given below. In substance, the text of Rule 402 is a restatement of Sections 41700 and 41705.

> 41700. Except as otherwise provided in Section 41705, no person shall discharge from any source whatsoever such quantities of air contaminants or other material which can cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.
>
> 41705. Section 41700 shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

4.0 PUBLIC NUISANCE INVESTIAGATION GUIDELINES

The inspector will conduct a public nuisance complaint investigation in accordance with the following guidelines:

a. The inspector will check the complainants' premises or adjacent areas for the emissions

complained of (examples: odors, dust fallout, paint overspray). This may require driving around in the area surrounding the source. The inspector will write in the Violation Notice Report that this was done. Additionally, the inspector will note in the report whether or not another potential source of the emission was found.

1. If evidence of emissions is found, the inspector will track the emissions upwind from the complainants by visual or olfactory observations.
2. If no evidence of emissions is found, the inspector will ask the complainants for a description of the emissions and for other information which may help to determine their source.

b. After identifying the emissions and source, the inspector, using the process of elimination, will check all possible areas surrounding the alleged or known source to exclude any other potential source.

   The inspector will inspect the source premises and establish the specific equipment or process responsible for the emissions. This involves inspecting all vents, stacks, and openings where the emissions occur or may occur, obtaining samples of emissions if possible, and checking for Permits Operate.

c. The inspector will list all persons contacted at the source premises by full name and title (Mr., Mrs., Ms.), and will also include phone number, responsibility in the incident, and information to which each person can testify if called by the prosecutor as a witness.

   The inspector may ask the complainants whether they know of other persons in the neighborhood who have complained of the emissions. If so, the inspector will request the complainants to tell these other persons to contact the District.

d. After establishing the source, the inspector will contact all complainants and, if possible, obtain samples of emissions from the complainants; premises. In more complex cases, the inspector may require a source test, air monitoring, and perhaps assistance from local health officials to establish health endangerment or natural tendency to cause injury or damage to business or property.

e. If a violation is indicated, the inspector will obtain the completed complaint forms from the complainants.

5.0 DISTRIBUTING AND COLLECTING COMPLAINT FORMS

a. Whenever possible, the investigating inspector will personally distribute a complaint form to each complainant. The inspector's report must include the time, place, and date such forms were distributed and collected.

b. The inspector will interview each complainant either at the time of the complaint or when the declaration form is collected.

c. Inspectors who assist the investigating inspection to distribute or collect nuisance complaint forms must comply with the requirements of steps a and b above.

6.0 COMPLETING THE COMPLAINT FORM

a. The complainant must list a residence location on the complaint form (attached), not a post office box number. The business address and telephone number should indicate where the complainant can be contacted from 8:00 a.m. to 4:30 p.m. Monday through Friday.

b. The complainant must complete items 1 through 8 on the form. If the information is not known or is not applicable, the complainant will indicate "not known" or "not applicable" in the space provided.

c. The inspector will check that the signature is the complainant's legal name. If the answer to item 8 is "No," the complainant must complete the declaration on the reverse side, using printing rather than hand writing.

d. The inspector will review the form and complete the "APCD USE ONLY" block.

7.0 REQUIREMENTS FOR ISSUING A PUBLIC NUISANCE VIOLATION NOTICE

a. Before a public nuisance violation notice is issued, the investigating inspector must observe, identify, or otherwise establish evidence of the emissions complained of at or near the complainants' location.

b. The investigating inspector must establish the source of the emissions and eliminate other potential sources.

c. A multiple complaint condition must be documented. As a rule, District Legal Counsel prefers that it be based on a minimum of six (6) to ten (10) complainants from separate households. However, special circumstances

may dictate that a Notice of Violation be issued if supported by fewer complainants. For example, if property damage or a potential health hazard exists, a husband and wife living at the same residence may be considered as separate complainants. A Notice should not be issued only on the basis of complaints from members of a single family living at one location.

d. The investigating inspector should complete the Notice of Violation form. In some instances another inspector may serve the notice.

e. The inspector who establishes the public nuisance violation will write all of the supporting documentation, clearly demonstrating that each element of the violation has been met. Any inspectors who assist in gathering evidence or interviewing witnesses will prepare separate reports, coordinated by the lead inspector on the violation.

APPENDIX D

RESPONSE TO COMMENTS

2010 Clean Communities Plan
Response to Comments

Several comment letters were received from members of the CCP Working Group following the initial meeting of the working group on July 16, 2008. The comments were discussed by the working group at its August 26, 2008 meeting and the draft document was revised in response to the comments. Many of the comments and suggestions are incorporated in the 2010 Draft CCP. The following paragraph summarizes the major issues. Full text of the comment letters submitted by Working Group members are attached for reference at the end of Appendix E.

A letter from two environmental groups suggested ways to better address cumulative impacts through public participation, enhanced enforcement practices, permitting practices to consider cumulative impacts, revisions to existing source-specific toxics rules, and umbrella rules to address cumulative impacts. This letter also expressed support for measures which would promote better land use decisions and allow more community participation in air quality decisions. Many of these ideas have been incorporated in the document. Regarding the issue of addressing cumulative impacts through permitting, the AQMD staff still believes the larger issue is the air toxics and emissions from existing sources. Community-03 is designed to address retrofitting and replacing older, higher emitting equipment in impacted areas. Regarding new sources, the AQMD staff will continue to evaluate tools to more directly address permitting new and modified sources in addition to be more health protective.

Three letters from sanitation and water districts focused primarily on three issues. The first concern was the subjective nature of odor and public nuisance issues and whether that fits with a toxics plan. The comments were taken into consideration and two nuisance measures are part of the 2010 Draft CCP. The AQMD staff has included these measures in the Clean Communities Plan as they are air related "community" issues. The second concern was with a measure addressing accidental exposures to hazardous substances, in that it might overlap with existing accidental release regulation of several state and federal agencies. At the time of this comment, the AQMD had proposed a measure that would require replacement of acutely hazardous materials with less hazardous materials. The AQMD has since revised its proposal to recommend evaluation of use of acutely hazardous materials on a case-by-case basis. This may be done during the CEQA process or during permitting of storage or handling of acutely hazardous materials. The third was a request to coordinate the CCP efforts with the OEHHA Cumulative Impacts and Precautionary Approach Working Group. The AQMD staff has closely followed the meetings of the OEHHA Working Group to coordinate and not duplicate efforts. The fifth letter, from the Western States Petroleum Association, urged the AQMD staff to develop the CCP within the current regulatory framework using good science and fact-based initiatives.

Responses to comments received following release of the 2010 Draft Clean Communities Plan at the April 2, 2010 Governing Board meeting are provided below. Several comments were received that suggested additions or changes in wording to clarify the meaning of the document. Changes have been made throughout the document to address these comments. Comment letters can be found in Appendix E.

General

1. **Comment:** A guidance document shouldn't be the end goal of the pilot program because it would not go far enough to address cumulative and disproportionate impacts. A guidance document may be a start but it will likely take new rules, enforcement practices, permitting processes, etc., to deal with the issue properly. An open mind should be kept as to the remedies that we may identify during the pilot projects and creation of the exposure reduction plans.

   Response: The AQMD staff agrees that a guidance document will be the start. As the AQMD staff implements the pilot program and develops the guidance document for other communities it is expected that there will be enhancements to the AQMD's existing programs. The AQMD staff will use the pilot program to identify programs that can be improved.

2. **Comment:** Add an appendix listing the status of federal NESHAPs that includes the NESHAP, the applicable district source and rule, and whether our sources already comply or are exempt from the NESHAP.

   Response: For brevity, an internet link to the EPA list of NESHAPs has been included for reference in Appendix A. The AQMD Engineering and Compliance staff enforces applicable NESHAPs through permit conditions and inspections.

3. **Comment:** In Chapter 2, please add an explanation of the other limitations of the MATES III data, including limits of our knowledge about the toxicological impacts of TACs and other chemicals, especially when it comes to susceptible and vulnerable populations, and cumulative and synergistic impacts.

   and

   The draft CCP lacks adequate discussion of the uncertainties associated with the cancer risk estimation technique. We do not believe it is sufficient to merely reference the uncertainties section of the MATES III document

   Response: A discussion of the uncertainties related to risk estimation has been added to Chapter 2. A more detailed discussion of the uncertainties and limitations of the MATES III can be found in the Executive Summary and Chapter 1 of the MATES III Final Report (September 2008).

4. **Comment:** We request revision of the statement in Chapter 2 that the Mates III Study shows the highest cancer risks from air toxics in the vicinity of the port areas, with the highest grid cell risk of about 3,700 in a million. The cited risk levels are misleading, as they refer to risk estimates that are either over water or on Port property. It

is not appropriate to use or otherwise communicate these values as being representative of residential risks.

Response: This section has been revised to indicate that the highest residential risk near the ports is 2,900 in a million.

5. **Comment:** When referring to risk reduction, the plan should be clear in stating that reductions are in estimated cancer risk from ***air toxics***, (page ES-2). We also suggest describing the regional background or total cancer risk to put the contribution from air toxics into context.

   Response: The words "air toxics" have been added on page ES-2 as suggested. The overall regional population weighted total cancer risk is discussed on Page ES-2.

6. **Comment:** The measures are conceptual and leave many potential approaches for reducing TACs on the table. The measures should be further defined before taking it to the Board for approval. Without further definition, it is difficult for stakeholders to understand what they are being asked to support. In addition, the AQMD has not analyzed its authority to adopt the measures and conduct the studies it outlines in the plan. If the District chooses to proceed without analysis of its authority to adopt the measures outlined in the plan, it should be revised to include the same disclaimer included in the 2000 ATCP that staff is seeking Board approval of the plan as a planning document for possible future actions. As a result, the Board's action is not binding and does not commit the AQMD to a definitive course of action.

   and

   We remain concerned that some measures are moving forward quickly, without the full transparency of stakeholder engagement, and without sufficient detail.

   Response: The CCP is a planning document and the measures and implementation approaches are staff's initial concept. As measures are developed staff may identify additional implementation approaches or implementation approaches identified will become more refined. If a regulatory approach is selected for implementation, the AQMD staff will analyze its authority. In addition, actual implementation approaches will be determined and fully assessed and analyzed at the time each measure is implemented. Clarifications have been made in the measures to provide more specificity, where appropriate. The suggested disclaimer has been added to the Public Process paragraph on page ES-1. The AQMD remains committed to fostering an inclusive and open dialogue among affected stakeholders in order to ensure transparency throughout the development of this plan. As the measures are further developed, staff will continue to collaborate with stakeholders to analyze and refine the measures and implementation approaches.

7. **Comment:** Pursuant to Health and Safety Code § 40922, have you analyzed any of the measures for cost effectiveness and ranked the proposed measures? If so, what method was used for the analysis and where are the results? If not, when will that analysis take place?

   Response: Health and Safety Code 40922 applies to attainment plans. The Draft 2010 CCP is not an attainment plan.

8. **Comment:** The CCP should include a discussion of how the measures will avoid conflicting with the Senate Bill 375 Vehicle Miles Traveled (VMT) reduction goals.

   Response: California's SB375 is the nation's first law aimed at controlling greenhouse gas emissions through land use, by curbing urban sprawl. Proposed measures or implementation approaches will be fully analyzed during development to ensure that they do not conflict or overlap with any existing regulations.

9. **Comment:** We would appreciate staff developing a timeline or work plan for further development of the plan and in particular of the individual measures as they begin to be implemented, especially the CERPs.

   and

   Please provide clarification on the CCP implementation process as many measures are shown as being implemented simultaneously. We recommend that SCAQMD considers phasing the implementation with a focus on the highest priorities, rather than trying to implement too many measures at one time.

   Response: An implementation schedule has been added in Chapter 4. Personnel from various parts of the AQMD will be responsible for implementation of the different measures, so simultaneous implementation is feasible. Additionally, many of the measures are interconnected. Also, many of the measures require a long lead time or have a fairly lengthy development period. Staff believes the current implementation schedule optimizes staff resources and facilitates the development of a complete, comprehensive program to address community-level air quality issues.

10. **Comment:** Please include the MATES III modeled cancer risk for the interim years of 2014 and 2020 to illustrate improvements between 2005 and 2023 in Chapter 2 in addition to Figures 2-8 through 2-10.

    Response: The maps in Figures 2-8 through 2-10 demonstrate the decrease in modeled risk from 2005 through 2023. The bar graph in Figure 2-7 shows that decrease in risk in 2014 and 2020 is primarily due to the decrease in risk from diesel PM. A graphic representation of the modeled risk for the two interim years would look similar to map for 2023 in Figure 2-10 2023. Therefore, they have not been included.

11. **Comment:** The Draft CCP would benefit from a brief description of the Ports Clean Air Action Plan (CAAP) as a recent local example of industry, air agencies, and community stakeholders effectively working together on a voluntary program. Implementation of the CAAP and the forthcoming 2010 CAAP Update represent an effective and ongoing effort to achieve real reductions in air toxics and health impacts. This discussion would provide a useful template and background to CCP Working Group members and the public.

    Response: AQMD staff agrees that the CAAP and its process is an example of agency coordination and stakeholder coordination. The AQMD acknowledges that there are aspects of the CAAP that may be useful.

12. **Comment:** A number of CCP measures addressing localized effects and cumulative impacts are similar to efforts already being implemented by the Ports through the San Pedro Bay Ports Clean Air Action Plan (CAAP), Port (CEQA) projects, and other Port initiatives.

    Response: The Ports have made progress with implementation of the CAAP. Ports of Los Angeles & Long Beach should be commended on these accomplishments. The AQMD staff agrees that there are similarities.

    The CAAP is a good community exposure risk reduction plan, however, the Draft 2010 CCP will complement the CAAP and in some areas further enhance. For example, through measures such as Community-02, additional programs beyond the CAAP can be implemented to reduce exposure to toxic air contaminants. In addition, implementation of Community-03 may identify sources in and around the port where retrofitting or replacing equipment can further reduce health risks near port communities.

13. **Comment:** The plan provides little or no background on existing measures that are already in place and which are under the jurisdiction of other regulatory agencies.

    Response: The document describes the progress made so far with federal, state, and local regulations. It also discusses regulations which result in reductions in diesel PM emissions because this is such a large part of the risk in the Basin. In addition, Appendix A provides lists of some of the key regulations. Unlike previous versions of the Air Toxics Control Plan, the 2010 CCP focuses less on traditional source-specific regulatory approaches and more on addressing cumulative impacts in communities and neighborhoods.

14. **Comment:** Please provide a definition of the term "precautionary measures", found on page 3-1.

    Response: The term "precautionary measures" was used to emphasize the District's intent to proactively address and, where possible, prevent exposures to air toxics, in addition to mitigating existing exposures. For example, early participation in land-use projects to prevent siting of incompatible land uses and outreach to educators and youth sports organizations when it is unhealthful for children to play outdoors would prevent or reduce exposure.

15. **Comment:** Please clarify why GHG offsets are to be included in the CCP, since the plan is meant to address impacts that are highly localized in nature. We do not think the CCP is the appropriate vehicle for such action, and suggest that CEQA guidelines may be a better place to deal with CEQA review of GHG emission impacts.

    Response: Greenhouse gas emissions are mentioned in the introduction to Chapter 3 only in the context that impacts to GHG emissions will be analyzed as part of the CEQA analysis during rulemaking if a regulatory approach is selected as an implementation approach for any of the CCP measures.

Community Exposure Reduction Measures

16. **Comment:** Please describe the degree of granularity that is being proposed for "micro-scale" monitoring. Also, given that there is no scientific certainty regarding causal effects for many associated health outcomes, please describe how the District intends to use qualitative data appropriately and how such data will be reconciled with quantitative data. While there is evidence to support that air pollution can have adverse health effects, a survey of existing health issues in a community cannot establish causality of those health outcomes with emissions sources in the community.

    Response: Health surveys are only one of many tools that may be used to get an initial perspective on the air quality issues in a community. The details of how they will be used will be developed during implementation of the measure.

17. **Comment:** We support the District's decision to include all sources of toxics in the CERPs and hope the District will apply the principle of "fair share" to ensure that each source category is responsible for its own contribution to the cumulative emissions impacting burdened communities.

    Response: To the extent feasible, the AQMD staff will continue to use creative mechanisms to reduce emissions from sources traditionally not regulated by the AQMD, so that they are responsible for their share of emissions.

18. **Comment:** Please provide a more detailed explanation of the criteria used to choose the pilot locations for Community-01 and how they are representative of other highly impacted communities in the Basin. Please also consider adding Wilmington as a third pilot project.

    Response: Selecting the two communities was difficult, because there are other communities in the district that can benefit from development of a Community Exposure Reduction Plan. The AQMD staff used broad-based criteria in selecting the two pilot communities to develop Community Exposure Reduction Plans. The selection of these two communities was based on health risk data from MATES III, emissions data from the AQMP, demographics, particulate matter emissions, areas with high concentrations of toxic-emitting facilities or odor nuisances in close proximity to residential or sensitive receptors, history of complaints, known air pollution sources, and community-identified air quality issues. Also, the AQMD staff considered the willingness of the community to participate in the process.

    After the two pilot programs are completed, Community-02 will be developed. Community-02 will establish a template that other cities such as Wilmington can use. Any other city that is prepared to begin at that time can start developing their Community Exposure Reduction Plan.

19. **Comment:** Please clarify the zone of influence outside of community boundaries that would be affected when developing a CERP. Could this involve facilities beyond the specific boundaries of the selected community?

    Response: A CERP could involve entities beyond the boundaries of the community. The boundaries for the CERP depend on the businesses, air quality issues, and

proximity to the community. The intent is to include an area which encompasses air-related issues affecting the community, but is not so broad that the area is not manageable.

20. **Comment:** Community stakeholders should be reflective of the entire community, including committed local businesses, non-profit organizations, local government agencies, and residents. A solutions-oriented process will address air toxics issues while allowing business to continue to serve Southern California.

    Response: The stakeholder group will include representatives from all affected entities in order to provide balance throughout the process of developing a Community Exposure Reduction Plan. Community-01 has been clarified to specify that businesses will be included in the stakeholders and a new measure, Outreach-06 was added to address outreach to businesses.

21. **Comment:** The District agreed in the CCP working group meetings to incorporate a Task Force to guide the development of each CERP. The District should clearly describe and formalize the roles of the District, the Technical Advisory Group, and any known stakeholder processes for each pilot and include this information in the next Draft Plan. To avoid duplicative efforts, staff should identify concurrent or recent activities by other agencies specific to the pilot communities and summarize the reductions.

    Response: During the development of the Community Exposure Reduction Plan, the AQMD staff will work with a stakeholder group that will include community members, elected officials, other agencies, business representatives, etc. The specific representatives and their roles will be established during the development of the Community Exposure Reduction Plan.

22. **Comment:** Several comments were received asking for more detail and more specifics on the entire CERP process and suggesting potential implementation approaches for various stages of the CERP process.

    Response: The specifics of the CERP process will be developed during the pilot program. The pilot programs will allow all stakeholders to participate in formulating the process and developing the details. Clarifications have been made to the measure where appropriate.

23. **Comment:** What is the timeline and who will be responsible for the development of the immediate action items and exposure reduction plans in Community-01?

    Response: The specific implementation schedule for Community Exposure Reduction Plans will be developed through the pilot program. In addition, the implementation schedule for "immediate action" items depends on the type of immediate action items identified, if any. The implementation timeline and responsible implementation source or agency is dependent on the issues and solutions identified in the Community Exposure Reduction Plan.

24. **Comment:** We are concerned about the methods of information gathering outlined in the Community-01 measure, particularly the "neighborhood walks" and Investigation and Data Validation phase. Please clarify the

community input and neighborhood walk processes, with details regarding the logistics and intent of the processes.

Response: The "neighborhood walks" outlined in the CERP implementation approach will not be used for compliance audit purposes. The intent of the neighborhood walks is to allow AQMD staff to witness firsthand the neighborhood's air quality-related issues and better understand the issues raised during the community input stage. Some stakeholders may join AQMD staff during the neighborhood walks, however, AQMD will be sensitive to residents and local businesses to ensure that the size and composition of the group is not intimidating. Details and logistics of the neighborhood walks will be coordinated with all affected community members, community leaders, and businesses prior to implementation of this phase. For the neighborhood walks, AQMD staff will not enter a business unannounced. The neighborhood walks are not intended to create a hostile environment, but a positive partnership with the community, businesses, and agencies to work together and develop solutions.

In the next phase, Investigation and Data Validation, air quality-related issues brought forth by community members will be evaluated, sorted and prioritized for follow up, if necessary.

25. **Comment:** How will communities with high cumulative impacts be identified for Community-02? We are concerned that the CCP lacks a rigorous method to prioritize "at-risk" communities.

Response: The concept for Community-02 is to develop guidelines to guide other communities and local governments through the process of identifying air quality issues, gathering data, working with stakeholders, and developing a community-specific Community Exposure Reduction Plan. Implementation of this measure is not limited to communities with "high cumulative impacts." This measure is applicable to any community that is interested in developing a Community Exposure Reduction Plan.

26. **Comment:** Community-02 requires a collaborative approach to address concerns from the community, business and regulators and should forge an equitable forum for all stakeholder views and limit the potential for bias. Even with SCAQMD guidance, independent actors may abandon the rigorous approach outlined in Community-01. An independent special board, created with SCAQMD input, could referee the process to ensure that all voices are heard equally and minimize the potential for stakeholder disputes.

Response: The AQMD staff agrees that a collaborative approach is needed to address concerns from the community, business, and regulators. Through implementation of the pilot study, the AQMD will explore options to ensure that stakeholders can participate equally. The guidelines developed under Community-02 can include a section that addresses the "ground rules" of participation to ensure that the environment is non-confrontational. In addition, the communities can engage the AQMD as well as other agencies to participate to help develop elements of the Community Exposure Reduction Plan.

27. **Comment**: Further define "immediate action" and what constitutes "significant health impacts" that would trigger immediate action. Provide criteria and examples.

    Response: The AQMD staff does not have a specific definition for "immediate action" and "significant health impacts." The main idea behind this phase of the process of the pilot study is to recognize that issues may be identified that require resolution before the Community Exposure Reduction Plan is completed.

28. **Comment:** The District should not take a one size fits all approach when translating the information from the pilot projects into CERP guidelines for Community-02. This affects not just differing issues in communities, but also resources available to the community, its businesses, and local government.

    Response: Staff recognizes that each community has unique air quality issues and differing resources. Therefore, the guidelines for Community-02 will simply provide guidance and a process to follow, rather than solutions, for communities wishing to develop their own CERPs. This will allow the communities to benefit from lessons learned during the pilot program.

29. **Comment:** We support the District's approach of assisting communities that choose to engage the District in a CERP, rather than the District selection of additional communities.

    Response: Thank you for your comment.

30. **Comment:** For Community-03 we should consider initiating a process whereby community members could identify highly valued projects that may have direct or indirect impacts on air pollution but remain a priority (e.g., schools, hospitals, grocery stores, etc.). We should also consider additional permit review and mitigation measures for existing and new facilities in highly impacted communities.

    Response: If the stakeholders participating in developing the Community Exposure Reduction Plan decide to identify certain types of projects that may have indirect or direct impacts on air pollution, this can be incorporated into the Community Exposure Reduction Plan. Communities have flexibility regarding the scope of the Community Exposure Reduction Plan. These Plans can cover existing and new facilities. Land use decisions and CEQA review for land use decisions reside with the cities and counties. Regarding air quality permitting, the AQMD does have permitting authority for stationary air pollution sources. The AQMD staff will continue to evaluate tools to more directly address permitting new and modified sources to ensure adequate health protection. The AQMD staff believes that implementation of Community-03 will help to reduce emissions and exposure to air toxics from existing sources.

31. **Comment:** What would be the regulatory mechanism to assure success of the proposed implementation plans in Community-03?

    and

    What requirements will be imposed on "older" toxic emitting sources? Many "older" toxic emitting sources may be completely legal and operating in compliance with

applicable rules and regulations. This should be reflected in the Plan.

Response: Community-03 presents several implementation approaches. During the development of this measure, the AQMD staff will explore implementation approaches to ensure the success of this measure. If funding is available, sources should apply for retrofits or replacements. A regulatory approach may be used if it is determined to be necessary and appropriate. In order to achieve the greatest emission reductions, this measure seeks to focus on all existing, high emitting air toxics sources. The implementation approach of the measure has been revised to include existing permitted sources which may be in compliance with applicable regulations.

32. **Comment:** The Ports have appreciated the many opportunities they have had to partner with AQMD to fund air quality improvement projects and welcomes AQMD's funding assistance in retrofitting, repowering and replacing older, higher emitting equipment as is suggested by Community-03. Partnering and combining financial resources allows successful achievement of air quality improvement projects.

    Response: Staff agrees that partnering and combining resources is beneficial and appreciates the support of the Ports for this measure.

33. **Comment:** An overly simplified cumulative impacts approach may overstate the risks to a community if it ignores the powerful impact of distance on declining risk, inflates perceived risks and exaggerates health impacts. We caution against any approach that exaggerates risks that are already conservative and suggest that, until the methodology is fully matured, any cumulative impact assessment be paired with community level ambient monitoring as verification.

    Response: Staff agrees that quantitatively assessing cumulative impacts should be done with care to ensure that impacts are accurately assessed. The AQMD staff has not committed to any specific methodology for quantifying cumulative impacts at this point. The AQMD staff agrees that if a methodology is developed, that there are many factors that should be considered including distance, exposure duration, concentration, potency of the toxic air contaminant, etc. In addition, the AQMD staff does agree that ambient monitoring data is a useful tool to measure pollutants and can be used to verify ambient air quality in communities.

Community Participation Measures

34. **Comment:** The implementation approach under Participation-01 should explicitly include the creation of best practices guidance documents and the hosting of best practices workshops, or the training of community members to conduct best practices workshops, such as those done by the Pacoima Beautiful CARE II Team while working with auto dismantlers.

    Response: The 2010 Draft CCP includes a variety of measures to address outreach and improve communication. Through the CCP, the AQMD staff has identified several brochures for compliance and permitting for businesses and training and outreach for local governments and schools for implementation of CEQA that seem to fit the

concept of a best practices guidance document. A new measure, Business Outreach and Assistance (Outreach-06) has been added to the document and includes the best practices guidance document as one of the proposed implementation approaches.

35. **Comment:** In Participation-03 the CARE program has very limited funding and we can expect EPA to fund only one or two CARE projects within the district.

    Response: The AQMD staff understands that funding may be challenging. The AQMD staff is committed to investigate state and federal funding opportunities to help implement this measure as well as Community-03. There may be other types of programs such as Carl Moyer and the SOON program where specific funding is available and sources can qualify for.

Communication and Outreach Measures

36. **Comment**: We suggest including a risk communication element in the Clean Air Toolbox in Outreach-01.

    Response: A risk communication document has been added as one of the elements for the Clean Air Toolbox.

37. **Comment:** We respectfully suggest that the AQMD creates or improves programs that highlight the changes that businesses are implementing in order to reduce air pollutants and decrease exposures.

    Response: A new measure, Business Outreach and Assistance (Outreach-06) has been added that proposes development of a forum on the AQMD website where business owners can discuss and share solutions to compliance issues based on experience, and provide opportunities to showcase technologies or best practices that can help facilities achieve compliance and reduce air toxic emissions.

38. **Comment:** Outreach-01 should acknowledge the limitations of the ARB Land Use Guidance (e.g., it only deals with proposals to site residents near sources and not sources near residents) and try to fill the gaps (e.g., no proposal for a minimum buffer zone between refineries and communities).

    Response: CARB's Land Use document is an excellent start at highlighting incompatible land uses and recommending siting distances for specific land uses. The AQMD staff agrees that there are areas of CARB's Land Use document that can be enhanced. The 2010 Draft CCP discusses in Agency-01 the development of a new document titled "Proximity Matters" that will go beyond CARB's Land Use document to identify land uses that were not identified. In addition this measure discusses the use of "Reverse" CEQA analysis for sensitive land uses.

39. **Comment:** In Outreach-01 the implementation approach should include the conveyance of compelling and well told success stories.

    Response: The AQMD staff agrees that there is value in sharing air quality success stories. The 2010 Draft CCP has a couple of measures that will encourage communication of air quality success stories. Outreach-02 includes the "Ask AQMD" forum to address public inquiries and concerns. Through this forum, the AQMD

staff anticipates that compelling air quality success stories will develop that can be shared with the public. Partcipation-01 and -02 will encourage local agencies and schools that take the clean air pledge to share their air quality success stories also. As discussed in these measures, the AQMD staff envisions that these stories can be posted on the AQMD's website for other organizations. In addition, the AQMD staff has added a measure Outreach-06 which encourages businesses to communicate their success stories. The idea is to encourage other businesses and agencies to be pro-active on air quality issues.

Agency Coordination Measures

40. **Comment:** Agency-01 should include submitting detailed CEQA comments upon proposed incompatible land use decisions being made by other agencies.

    Response: Through the AQMD's CEQA Inter-Governmental Review (IGR) section, the AQMD staff currently provides comments to lead agencies regarding incompatible land uses. The AQMD staff references the CARB land use document as well as other studies regarding health effects of living near freeways and busy highways. The AQMD staff intends to continue commenting on CEQA projects as well as conducting outreach to local government regarding compatible land uses.

41. **Comment:** Agency-01 should conduct a formal study of agencies and schools with projects in EJ areas that do not send us their CEQA documents. We should send them formal request letters and take legal action if necessary to assure that we have timely notification and a meaningful opportunity to comment on their CEQA documents.

    Response: The AQMD staff is aware that not all lead agencies are sending their CEQA documents to the AQMD. AQMD staff estimates that the agency is not receiving 30 to 50 percent of CEQA documents for projects within the district. As discussed in Agency-01 the AQMD staff is proposing additional outreach and training to agencies and schools. The AQMD staff is considering issuing participation certificate to local cities, counties, and other government agencies to encourage participating in training and outreach activities.

42. **Comment:** Will AQMD be forming an agency stakeholder group for collaboration and input into the development of these measures? We believe that an agency stakeholder group needs to be involved now as AQMD develops the measures.

    Response: The AQMD staff has not yet defined the public process for implementing these measures. The public process may include a variety of different approaches such as a stakeholder working group, public workshop, or a more informal public process of meeting with stakeholders and interested parties.

43. **Comment:** How does AQMD define "sensitive land use? The Ports support the "reverse CEQA analysis" for school siting but would like to better understand AQMD's intention in expanding this for other "sensitive land use projects."

Response: During the development of this measure the AQMD staff will better define "sensitive land use." It is expected that "sensitive land use" would be similar to how this term is used under CEQA which includes residential and other sensitive land uses such as schools, hospitals, etc.

Monitoring and Compliance Measures

44. **Comment:** We understand that the facility "Hot List" is an informal and internal reference and suggest removing it as an implementation approach from Compliance-01.

    Response: The "Hot List" is an internal document and has been removed as an implementation approach. It is mentioned in the background of the measure only.

45. **Comment:** Please add the following items to Table 3-1 in Compliance-01:
    - Issue a study on how other agencies resolve complaints to see if we can learn from others.
    - Provide each complainant with a complaint identification number, a pamphlet with information about the SCAQMD's complaint response process and applicable rules, and an opportunity to appeal any decision to a higher level of authority within the agency.
    - Provide complainants an opportunity for feedback regarding level of satisfaction with resolution to complaints and suggestions for improvements.
    - Track complaint trends and provide regular update reports to the Stationary Source Committee and Governing Board on trends and issues.

    Response: Compliance-01 has been modified to indicate that the AQMD staff will contact other agencies that receive complaints to discuss how they track complaints and their complaint resolution process. The AQMD staff will determine if these other agencies manage complaints in a manner that can enhance our program.

    As discussed in Compliance-01, the AQMD staff will be investigating the development of an enhanced compliance and feedback system, including assigning a tracking or case number that the public can track their complaint.
    The AQMD currently has a compliance brochure that is readily distributed to the public and businesses. In addition during townhall meetings and other public outreach activities the AQMD staff generally distributes these to brochures to the public.

    The AQMD staff is always open to feedback from the public and businesses regarding suggestions to improve its compliance programs. The AQMD will periodically work with complainants to seek feedback.

    The AQMD staff currently keeps records of all complaints and tracks overall trends. In the past, when compliance issues arise surrounding a specific source or industry the AQMD staff has reported to the Stationary Source Committee. The AQMD staff will continue to produce compliance data for the Stationary Source Committee as specific issues arise. The AQMD staff will consider more frequent compliance reports, if needed and as resources permit.

46. **Comment:** Compliance-01 - AQMD staff ~~may also enter into~~ *will propose* agreements with other agencies and

organizations for enforcement, such as the California Highway Patrol and code enforcement, to optimize the resources devoted to enforcement of air regulations.

Response: Compliance-01 will be revised to state that the, "AQMD staff will propose where appropriate, agreements with other agencies and organizations for enforcement..."

47. **Comment:** Text in the Compliance-02 measure suggests that the AQMD is implementing at least a portion of the agenda of advocacy groups. This should be implemented using a public exchange where the targeted facilities have an opportunity to rebut the claims of community members.

    Response: The Compliance-02 measure does not intend to alter the District's existing complaint response protocols, policies, or compliance procedures. This measure aims to improve public awareness of air quality issues and encourage engagement in the compliance process. As allowed under existing policies and when warranted, sources targeted by complainants will be informed of the nature of any complaints against them and will be afforded the opportunity to communicate with AQMD enforcement staff during the complaint investigation process. Enforcement staff may take statements from facility representatives and complainants, document observations of facility and environmental conditions, and use factual information to determine the validity of any complaints against the facility. This measure, along with the remainder of the CCP measures, will be further refined using a public process with input from a diverse stakeholder group.

48. **Comment:** The "one-click" complaint provision should be carefully designed so as not to become a "click it and ticket" feature.

    Response: The "one-click" complaint tool is one of several potential tools that AQMD staff will evaluate for development, and would be utilized in coordination with and as a supplement to the District's existing air quality complaint reporting procedures (i.e., 1-800-CUT-SMOG hotline). Complaint response protocols will continue to ensure efficient, timely, and equitable response actions. As required by existing policies, enforcement staff must verify the validity of complaints received based on an objective evaluation of the circumstances surrounding the complaint. Any violation notices or "tickets" issued would also be dependent upon staff's objective confirmation of a violating act or condition.

Source Specific Measures

49. **Comment:** A number of aerospace and electronics manufacturers employ lead soldering as part of normal operations and the emissions are extremely low. Staff should consider this when amending Rule 1420 in order to avoid unnecessary administrative burdens on facilities that use lead but have no or *di minimis* emissions.

    Response: The purpose of amending Rule 1420 is to ensure AQMD compliance with the 2008 NAAQS for lead. Based on this goal, the AQMD staff will consider all facilities that process lead and develop appropriate requirements during rule development.

50. **Comment:** Use of hazardous materials is currently regulated by several state and federal agencies. How does the proposed CEQA review in Stationary-04 interact with existing programs and requirements? Does it apply to a specific project or the entire facility? Please provide a more detailed discussion of District authority under CEQA, especially since hazardous material use is more traditionally managed through other statutes and direct regulation.

    and

    Table 2-2 should include toxics control regulations that cover storage, handling, and risk management of hazardous materials such as federal EPA's and Cal-EMA's Risk Management Plan rules. We recommend that the District seek comments from Cal-EMA and regional Certified Unified Program Agencies (CUPAs).

    Response: The district does not intend to regulate the storage, handling, and risk management of hazardous materials. The intent of the measure is not to duplicate or conflict with the authority or programs of other agencies. References to the other agencies have been added to the measure and, if appropriate, the AQMD will work with the other agencies during the implementation of the measure. The most likely approach will be to use the CEQA review process to evaluate new and modified sources utilizing acutely hazardous materials. The goal of the evaluations will be to reduce or eliminate the exposure to an acutely hazardous material during an accidental release. This has been clarified in the measure and a commitment to work with the other agencies has been added.

51. **Comment:** An analysis of substitutions for acutely hazardous materials (Stationary-04) may be appropriate as part of CEQA analysis, however there is nothing in the California Health and Safety Code that authorizes the SCAQMD to impose a requirement on permitting to determine if less hazardous materials can be substituted into a proposed process. We do not believe that requiring process modifications during permitting is appropriate and believe there should be some objective standards specified and there should be a presumption that an existing process that has worked and not created problems at a facility should be allowed to continue.

    Response: Implementation approaches for the measures are conceptual and the AQMD's authority will be assessed if an approach is chosen for implementation. The measure has been reworded to say that staff will perform an evaluation of new uses of acutely hazardous materials to identify where less hazardous materials can be substituted. The most likely approach will be to use the CEQA process to evaluate new and modified permits that will be using acutely hazardous material and alternatives, if needed, to reduce or eliminate the exposure to an acutely hazardous material during an accidental release. The evaluations will assess new uses of acutely hazardous materials and will consider potential trade-offs and other potential adverse impacts from alternatives while ensuring that no other environmental impacts are introduced. If this implementation approach is chosen for development, public input would be part of the development process.

52. **Comment:** CCP's Risk Reduction Goals May Be Substantially Achieved with CARB's Programs (DRRP) - Stationary-05 could achieve DPM reductions beyond those

already anticipated. These mandates were developed weighing the economic and practical feasibility of early retirements, and still relied on considerable saturation with Tier IV engines by 2020. Even with delays in rule implementation because of the economy, the recession has resulted in substantial emissions reductions consistent with the 2007 AQMP.

The Sanitation Districts have already committed to extensive engine replacements at the highest tier available. In many cases the engines are used in specialized equipment like compacters, crawlers, grinders, excavators, etc. Replacement or repowering cannot take advantage of economies of scale. Hence requirements for further controls from this niche equipment will not go as far in reducing emissions as if the monies were spent on other alternatives.

Response: The AQMD staff agrees that CARB's diesel risk reduction program will reduce diesel emissions. Some diesel reduction measures require retrofits or rely on natural turnover. Depending on the useful life, the turnover rate may be up to 10 years and on the outset 30 to 40 years. The objective of this measure is to reduce exposure to diesel particulate through a variety of measures. Heavily impacted communities cannot wait 10 to 30 years for fleets or equipment to turnover.

53. **Comment:** The Sanitation Districts have committed more than $18 million since 1998 on clean fuels, engine replacements or repowering projects (including $3.8 million for a CNG/LNG station) and in one solid waste management facility under construction (Puente Hills Intermodal Facility), have:

- Committed to using low emitting or alternative fuels for equipment;
- Implemented design features to improve traffic flow to reduce traffic and idling emissions;
- Extracting a commitment from Union Pacific Railroad to use locomotives with the newest emissions control, use no more than two locomotives at a time, and other effective design measures;
- Investigated innovative technologies (with SCAQMD staff) in preparation for this and other heavy-duty uses throughout the Sanitation Districts.

Response: These types of measures that you will be implementing at the Puente Hills Facility are the types of measure that are needed from all diesel facilities. The AQMD staff agrees that measures to reduce exposure to diesel particulate should be built into the design of implementation of new projects.

54. **Comment:** Many of these commitments are above and beyond measures called for in existing state programs. Expecting further emissions reductions would be extremely burdensome and potentially infeasible for facilities already at BACT levels or are operating equipment at the latest tier. Any indirect source measure like Stationary-05 should consider investments already made, especially for essential public services that cannot reduce emissions by attrition, down-sizing or relocation.

Response: The implementation approach for this measure has not been established yet. One approach discussed in the CCP is to develop a menu of options where facilities can develop a Diesel Reduction Plan. The AQMD staff understands that there are facilities that are proactive and

they may have measures that they are currently implementing, similar to those that may go into a Diesel Reduction Plan. The concept of this measure is to provide a wide range of strategies and options that will reduce the exposure to diesel PM. Some of these measures may require capital investments, while other measures address operational changes to reduce idling, improve traffic flow, location of diesel sources away from residents and sensitive receptors, scheduling of deliveries, etc.

55. **Comment:** What is the AQMD's statutory authority for the regulatory options outlined in the Stationary-05 measure, which seeks to regulate mobile sources?

    and

    Some of the options discussed in Stationary-05 are pre-empted under federal law. For example, potential approaches such as "vehicular scheduling and operating changes," fall under the purview of the ICC Termination Act of 1995.

    Response: The AQMD staff presented a general concept for Stationary-05. The applicability, implementation approach and specific requirements have not yet been established. As this measure is developed, the AQMD will do a legal analysis regarding the agency's legal authority to implement such a measure.

56. **Comment:** What level of CEQA analysis is the AQMD proposing for the rulemaking effort outlined in Stationary-05?

    Response: If this measure is developed as a rule, the AQMD staff will prepare the appropriate CEQA document. Regardless of the implementation approach, this measure will be developed with public input.

57. **Comment:** When will a draft proposed indirect source rule and preliminary draft staff report be ready for review?

    Response: Please refer to Chapter 4 for the proposed implementation schedule for development and implementation of proposed measures.

58. **Comment:** How will the terms in Stationary-05 be defined and what is the scope of "facility" and "businesses that rely on diesel mobile sources?" Will the ultimate definition include the Ports? What is the basis of the applicability and the specific options in the "menu of options?"

    Response: The purpose of identifying measures is to present initial concepts for control approaches. Specifics of the measure such as applicability, definitions, requirements, exemptions etc. will be established during development of the control measures. The AQMD staff will seek public input from a wide variety of stakeholders, including the ports, during this public process. It is too early in the development of this measure to provide specifics about the measure and the implementation approach.

59. **Comment:** Stationary-05 - Pursuant to Health and Safety Code § 40727, where are the findings of Necessity, Authority, Clarity, Consistency, Non-Duplication, and Reference? When and how will these be developed?

Response: If this measure is developed through a regulatory approach, the AQMD staff is required to make findings pursuant to the Health and Safety Code. These findings will be included in the Draft Staff Report.

60. **Comment:** Under Stationary-05 who would conduct and pay for proposed traffic studies to improve the flow of traffic and vehicle scheduling? When would these need to be completed; what triggers the need to conduct one? Would any part of the proposed rule affect a truck's ability to leave truck routes to deliver/pick up goods?

    Response: It was not intended that this measure require formal traffic studies, but that one option may be for the operator to assess the traffic flow into, out of, and within the facility to reduce idling and queuing of trucks. The concept of this measure is to develop a menu of options that affected facilities can select. No compliance dates have been established yet, as this is too specific at this time. As this measure is developed, the applicability, specific requirements, compliance dates, etc. will be developed.

61. **Comment:** Under Stationary-05 what changes to CARB's guidelines in reference to AB 2588 is the AQMD seeking? Please clarify the process through which the District plans to work with CARB to modify AB2588 guidelines to address mobile sources. Will the public receive notice of any action in this regard?

    Response: The AQMD staff currently uses CARB's Health Risk Assessment (HRA) guidelines for estimating health risks for AB2588 (Rule 1402) facilities. It may be necessary to pursue modifications to the AB2588 HRA Guidelines to include these mobile sources that enter the facility. If CARB modifies its HRA Guidelines, it is the AQMD staff's understanding that CARB would implement those changes through a public process.

62. **Comment:** Under Stationary-05 the Draft 2010 CCP says the District will initiate development of an indirect source rule containing an applicability criteria that will account for diesel PM emissions, exposure, and proximity to residential/sensitive receptors. If, as staff has indicated verbally, this is intended for new and existing facilities, and the facility operator will be the targeted party that should be included in the next draft. If the District takes this approach, implementation options should only include things over which the operator has control. Also, since offsite emissions are to be included, geographic limits should be given for what would be attributed to the facility.

    Response: Further clarification to the measure has been made. The measure applies to new, existing, and modified facilities. As outlined in the measure, the initial concept would be a menu of options that a facility can select from to provide flexibility to the operator. Whether this means a new program, rule, or guidance document will be determined when the measure is developed and input from all stakeholders will be considered at that time. Specifics regarding the applicability, definitions, the specific options, approach, requirements, etc. will be established during development of this measure. Regardless of the approach, this measure will be developed through a public process.

63. **Comment:** In Stationary-05, please remove the reference to rail yards and the San Bernardino health risk assessment or revise the measure to reflect improvements since 2005.

Omitting the progress to date leaves the impression nothing has been done.

Response: A sentence has been added to Stationary-05 to state that, "Risks at the rail yards have decreased and are expected to decrease further over time due to adopted regulations and fleet turnover; however, the residual health risk still remains elevated."

64. **Comment:** Despite considerable investment in clean air technologies and a proven track record of innovation and success in reducing emissions and nuisance impacts, often voluntarily, many of our facilities may be unfairly impacted by components of the CCP, particularly the diesel magnet measure and odor/public nuisance provisions.

    Response: As those measures are developed and implemented the AQMD staff will work with all stakeholders to identify additional approaches to minimize potential impacts and to acknowledge facilities that have implemented measures voluntarily. Since the programs for these measures have not yet been developed, it is too early to determine what, if any, impact will occur on a those facilities that have voluntarily implemented proactive measures.

Public Nuisance Measures

65. **Comment:** Capital and resources have been devoted to odor related nuisances, often voluntarily. This proactive approach to address community concerns may not be acknowledged by the CCP. Proactive businesses should be rewarded for reaching out to communities instead of subjected to new costly requirements. Permitting analysis should recognize these efforts rather than placing onerous requirements on voluntarily installed odor control equipment.

    Response: The AQMD acknowledges and commends businesses, including the County Sanitation Districts of LA County, who have been proactive to reduce emissions and/or odors generated from their facilities.

66. **Comment:** We support the Public Nuisance Investigation Policy in Appendix C, including requirements for a minimum of six unique complaints and verification by an inspector before an NOV is issued. An unbiased approach is needed due to the episodic and subjective nature of odors which makes it difficult to trace to a confirmed source. Relaxing the standard for confirming and issuing an NOV may lead to installation of unwarranted controls. Any potential change to this policy should make the procedure less arbitrary, and seek to solidify a factual, documentable and impartial basis for complaints. Furthermore, we would not support any change to Section 41700 of the H&SC.

    Response: The AQMD staff understands your concern. As the AQMD staff further investigates options to address odor nuisances, the AQMD staff will work with stakeholders.

67. **Comment:** We are concerned with the statement in Nuisance-01 that amendments to Rule 402 or Health and Safety Code Section 41700 may be necessary.

    Response: This is one of the proposed implementation approaches for the measure. If amending Rule 402 is chosen as an implementation approach, rule development

will follow the normal process with full public participation and analysis of all impacts.

68. **Comment:** We believe source-specific odor nuisance rules proposed under Nuisance-02 will punish the many for the sins of the few and that the District's resources should be concentrated on sources causing problems. We also question the District's statutory authority for adopting rules purporting to prevent a public nuisance that would affect a facility that is not causing a public nuisance.

    Response: Developing source-specific odor nuisance rules is one of the proposed implementation approaches for this measure. If this approach is chosen, such rules may be similar to Rule 410 – Odors from Transfer Stations and Material Recovery Facilities (MRFs) which was adopted in 2006 and addresses an industry with inherent odor issues. If a regulatory approach is chosen, legal authority will be assessed at that time and rule development will follow the normal process, including conducting any necessary environmental and economic analyses.

69. **Comment:** Staff should consider how SB 1224 (Wright) might affect its nuisance rules.

    Response: SB 1224 authorizes local air pollution control districts to adopt regulations, consistent with protecting the public's health, and safety, and quality of life, that ensures district staff and resources are not used to investigate complaints determined to be repeated and unsubstantiated, alleging a nuisance odor violation. The law sunsets January 1, 2014. The AQMD staff will consider SB1224 when, and if, it begins evaluating and considering amendments to Rule 402 in early 2011.

APPENDIX E

COMMENT LETTERS

Comment Letters Received after April 2, 2010 Release of the 2010 Draft CCP

Comment Letters Received after July 16, 2008 Initial Working Group Meeting

THE CALIFORNIA RAILROAD INDUSTRY

October 8, 2010

Elaine Chang, Deputy Executive Officer
Susan Nakamura, Planning and Rules Manager
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, CA 91765

Re: Revised 2010 Draft Clean Communities Plan (CCP)

Dear Dr. Chang and Ms. Nakamura:

The California Railroad Industry, the Class I railroads operating in California (the Railroads), appreciates the opportunity to comment on the South Coast Air Quality Management District's (the District) Revised Draft Clean Communities Plan (Revised Draft) distributed to the Working Group members on September 16th. We understand that the CCP is a plan, and therefore many of the measures remain at the conceptual level, and there will be additional opportunities for stakeholders to participate in the development and implementation of each measure. However, we remain concerned that some measures are moving forward more quickly, such as the Community Exposure Reduction Plans (CERPs), with an insufficient level of detail and without full transparency for stakeholder engagement.

Additionally, we would like to reiterate and expand upon two main concerns that were raised previously in an industry coalition comment letter.[1] First, we believe that District staff should further define the measures before taking the plan to the Governing Board for approval. Second, the District has not analyzed its authority to adopt the measures it outlines in the plan.

Without further definition of the measures, it will be difficult for stakeholders to understand exactly what we are being asked to support. We recognize the collaborative approach the District is taking in the CCP, and note that there are multiple measures that focus on partnering with other agencies. Given that specific measures, such as Stationary-05, duplicate efforts by CARB and EPA that are already underway, we think that details regarding the implementation approach and potential areas of overlap with other agencies should be identified before plan adoption, and reflected in the final draft of the CCP. The collaborative nature of the CCP makes it all the more important for the District to incorporate a greater level of detail before the CCP is approved, so

[1] The California Supply Chain Jobs Alliance comments on the 2010 Draft Clean Communities Plan, July 7, 2010.

- **BNSF Railway Company**
- **Union Pacific Railroad Company**

that the Board can evaluate the best use of Staff resources in developing measures, given parallel activities by other agencies in the same areas. We look forward to continuing to work with the District and other stakeholders on developing plans and strategies that address community concerns while avoiding a burdensome patchwork of regulations and requirements.

Community 01- Community Exposure Reduction Plan (CERP)

Community Selection Criteria

The District should clearly describe its evaluation criteria for selecting the Pilot Communities for the CERPs, and provide further detail about why San Bernardino and "Boyle Heights and surrounding areas" were selected over other communities the District evaluated. Additionally, we note that the District selected these two communities without discussion or participation by stakeholders, and although the Board has not yet approved the CCP, the Revised Draft implementation schedule lists "Phase I: Select Two Pilot Communities" as "completed".[2] Additionally, The District has indicated in working group meetings that it is already taking action to direct resources to and to conduct further research on these communities through initiatives such as the Memorandum of Agreement (MOA) between CARB, US EPA, SJVAPCD, and SCAQMD[3], and has implied that the work under the MOA influenced the selection of the communities, but this information is not provided in the Revised Draft.

While the District lists several factors considered when selecting the Pilot Communities, many communities could qualify to be selected as a Pilot Community given the below listed criteria:

> *The selection of these two communities was based on health risk data from MATES III, emissions data from the AQMP, demographics, particulate matter (PM) emissions, areas with high concentrations of toxic-emitting facilities in close proximity to residential or sensitive receptors, history of complaints, known air pollution sources, and community-identified air quality issues.*[4]

The District should provide more detail regarding how these communities compare to the remainder of the South Coast Air Basin (SCAB), and which other specific communities the District considered. Given that a goal of the pilot projects is to test new strategies that can be considered for use in other communities, the District should also outline how these communities are representative of other highly impacted communities in the SCAB.

[2] Revised 2010 Draft Clean Communities Plan, Appendix D, p. D-3
[3] U.S. EPA, Cal/EPA, CARB, SCAQMD, SJVAPCD, *Memorandum of Agreement for Coordination and Collaboration on Research Projects Related to New Clean Air Technologies*, July 9, 2008
[4] Revised 2010 Draft Clean Communities Plan, p. 3-9

Community Input

Information gathered by the neighborhood walks, individual conversations with the community, and other informal information gathering, should be followed up by one or more noticed CERP working group meetings before the Investigation and Data Validation stage. Neighborhood walks and websites are both good approaches to understanding a community and its issues, but they don't facilitate dialogue or increase understanding of all stakeholders. Engaging in dialogue before moving on to investigation can help close incomplete feedback loops, facilitate early troubleshooting, and clear the path to solutions.

Include potential elements and scope limitations of the CERPs

It would be helpful if the District would provide further information regarding their expectations for scope and primary components that will be in each CERP. The response to comments acknowledges that the District received several requests for more detail on the CERPs, and we continue to believe it is reasonable for the District to add more structure to the scope of the CERPs in advance of approving the CCP. We understand the specific strategies in the CERPs will be developed with the community, but there should be an underlying structure that the District has in mind given its expertise in air quality issues. For example, since these are called Exposure Reduction Plans "tailored to address air-related issues in specific communities"[5], we assume the ultimate goal is to reduce exposure within the community by some measurable amount. How will the District set the goal or goals of the plan? How will the plan's success be measured? Will the scope of potential actions be limited to those that are feasible and directly result in exposure reductions? Will proposed measures include those that only measure TACs in the community (e.g. air monitors)? Additionally, staff has verbally indicated there will be educational and economic development components to the plan (e.g. training for green jobs). The CCP needs to clearly identify the plan elements and scope before it goes to the Board for approval in order to minimize confusion, clarify expectations early in the process, and avoid misdirecting time and resources on work that is outside the scope of the primary goals of this exercise.

Investigation and Data Validation

We support the step of investigation and data validation; however, we have strong reservations regarding the use of health surveys to verify air quality issues. Although there is evidence to support that air pollution can have adverse health effects, a survey of existing health issues in a community cannot establish causality of those health outcomes with emissions sources in the community. Many diseases and health conditions have multiple causes and are not exclusively caused by environmental exposures.

[5] Revised 2010 Draft Clean Communities Plan, p. 3-8

Community-03: Greening Communities through Accelerated Toxic Emission Reduction Projects for Existing Sources

We agree that seeking incentive funds is the best means to encourage retrofitting equipment at existing facilities. Additionally, we agree with the District's conclusion that prohibiting permits in specific communities that are identified as cumulatively impacted will unnecessarily inhibit newer, cleaner facilities from replacing older facilities.

Identifying disproportionately impacted communities

Under the implementation approach for Community-03, the Revised Draft has added "Identify disproportionately-impacted communities and assess cumulative impacts."[6] We also understand that the District is following OEHHA's "Cumulative Impacts" methodology. The California Council for Economic and Environmental Balance (CCEEB) has submitted significant comments on the shortcomings of the Cumulative Impacts methodology, and shared these comments with the District. We support the comments provided by CCEEB.

Stationary-05: Indirect Sources

The California Railroad Industry commented on the CCP previously as part of a coalition, and we reiterate our statement that the measure remains conceptual and lacks sufficient detail in the key areas of implementation approach, scope, and statutory authority.

We also requested that the District provide information regarding their statutory authority to pursue the implementation approaches under indirect sources. The District replied in their response to comments:

> *The applicability, implementation approach and specific requirements have [not] yet been established. As this measure is developed, the AQMD will do a legal analysis regarding the agency's legal authority to implement such a measure.*[7]

We reiterate that the District should not wait until it begins to develop the measure or program to provide this analysis. Instead it should provide the Board and public stakeholders with this information before approving the CCP. The 2000 AQCP contained a brief section on legal authority that recognized the limitations of the District's authority over mobile sources, and after summarizing ARB and EPA mobile source programs, stated "these programs combined have

[6] Revised 2010 Draft Clean Communities Plan, p. 3-15
[7] Revised 2010 Draft Clean Communities Plan, Appendix D, p. 11

produced and will continue to produce significant toxic reductions."[8] It would be reasonable for the District to include the same basic legal analysis for the CCP, since it has effectively replaced the ATCP.

Completing the legal analysis now will provide the Working Group members, and the Governing Board Members with critical information regarding the feasibility of pursuing the approaches suggested in the measure, and avoid setting unrealistic expectations.

Broadening language to include rail traffic

The Railroads note that the District has revised Stationary-05 to broaden the scope from addressing diesel truck traffic emissions, to "diesel mobile source emissions" and in one line has been clarified to specifically mention rail traffic:

> *The purpose of this measure is to reduce exposure of diesel PM emissions from new, existing, and modified facilities with diesel mobile source ~~truck~~ emissions including, but not limited to, large warehousing facilities, distribution facilities, delivery facilities, and rail facilities. Additionally, facilities whose business is not primarily associated with ~~truck traffic~~ diesel mobile sources, such as manufacturing facilities, may be included due to increased diesel PM emissions from truck or rail traffic for deliveries of raw materials and distribution of finished products.*[9]

As the District is well aware, some of the options discussed in Stationary-05 are preempted under federal law. The Railroads have submitted comments on multiple occasions to the District, the Ports, and the ARB regarding preemption by the ICC Termination Act of 1995 (ICCTA), and note that some of the potential approaches the District considers in Stationary-05, including "vehicular scheduling and operating changes", fall under the purview of ICCTA.

Although the District has revised the CCP to clarify that they intend the Stationary-05 measure to address "new, existing, and modified facilities with diesel mobile source emissions,"[10] the list of potential implementation options should only consider actions over which the facility operator has control. Additionally, the measure currently includes offsite emissions, but does not provide any further qualifying information. This information should be included in the CCP goes to the Board.

The CCP lists several steps and potential approaches to addressing indirect sources under Stationary-05, many of which are resource intensive. For example:

[8] SCAQMD Air Toxic's Control Plan Final Draft, 2000, p.18
[9] Revised 2010 Draft Clean Communities Plan, p. 3-56
[10] Revised 2010 Draft Clean Communities Plan, p. 3-56

> *...use of accelerated fleet turnover, minimization of truck routes in or near neighborhoods, truck idling requirements, automated truck gates, and pre-scheduling of deliveries.... Strategies to reduce diesel PM emissions may include developing an indirect source rule for diesel or requiring health risk assessments similar to the ones CARB required for the rail yards. Other possible approaches would include ways to reduce idling, traffic studies to improve the flow of truck diesel vehicle traffic and vehicular scheduling and operating changes.*[11]

CARB did not require health risk assessments (HRAs) for the rail yards. The HRAs were completed as an element of the voluntary but enforceable 2005 Memorandum of Understanding (MOU) between Union Pacific Railroad, BNSF Railway, and CARB. The emission inventories and modeling were extremely resource intensive for the Railroads and the HRAs were completed by the ARB. The entire HRA process completed under the MOU took several years to complete. The District should consider how its limited resources would impact a decision to pursue this approach. Similarly, the Railroads have completed traffic evaluation studies for some of their yards to evaluate operational changes suggested by community members, such as truck gate relocation. These studies were also very expensive, but provided important information regarding cost effectiveness of emission reductions and highlighted potential operational interruptions, and other operational concerns including safety issues.

Legal Analysis

The District has not analyzed its authority to adopt the measures it outlines in the plan. The District's response to comments in the Revised Draft, indicates that staff intends to postpone analysis of authority until it begins developing each separate measure, and identifies possible implementation approaches,

> *As measures are developed staff may identify additional implementation approaches or implementation approaches identified will become more refined. If a regulatory approach is selected for implementation, the AQMD staff will analyze its authority.*[12]

We continue to believe that such an analysis should be conducted before the plan is approved, and should be included with the plan when it is circulated to the public. Our comments are submitted while awaiting the District's analysis of its authority to pursue these matters and the submittal of these comments is not concurrence as to District authority. If the District chooses to proceed without this analysis, we suggest the CCP at least be revised to include the same disclaimer that was part of the 2000 Air Toxics Control Plan:

[11] Revised 2010 Draft Clean Communities Plan, p. 3-56
[12] Revised 2010 Draft Clean Communities Plan, Appendix D, p. D-3

Staff is seeking the Board's approval of the plan as a planning document for possible future actions. As a result, the Board's action is not binding and does not commit the AQMD to a definitive course of action.[13]

We also note that the analysis of District authority set forth in the 2000 Air Toxics Control Plan should not itself be relied upon nor does the authority cited support the CCP. For example, the 2000 Air Toxics Control Plan states, at page 9, that:

...the AQMD has historically affected emissions through trip reduction programs. The AQMD has authority for certain trip reduction programs, fleet-type rules, and diesel fuel combustion rules through H&SC Sections 40447.5 and 40447.6.

These sections, however, provide extremely narrowly defined authority that does not include any power to regulate rail activity. Given the clear lack of statutory authority, and preemption under ICCTA, we believe it is even more important to examine legal authority before embarking on a program that purports to be directed at developing measures that would be unlawful.

Thank you for the opportunity to express our views. If you have any questions or concerns, please call me at 415-421-4213 x 12 or Sarah Weldon at 415-421-4213 x 34.

Sincerely,

Kirk Marckwald
Principal, California Environmental Associates
On behalf of the California Railroad Industry

[13] SCAQMD Air Toxics Control Plan, Final Draft, March 2000, p. 9.

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

STEPHEN R. MAGUIN
Chief Engineer and General Manager

October 8, 2010
File No.: 31-380.10B

Ms. Cheryl Marshall
Program Supervisor
Planning Rule Development and Area Sources
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Dear Ms Marshall:

Comments on the 2010 Draft Clean Communities Plan

The Sanitation Districts of Los Angeles County (Sanitation Districts) appreciate this opportunity to comment on the 2010 Draft Clean Communities Plan (draft CCP). The Sanitation Districts are a consortium of 23 special districts that provide environmentally sound, cost effective management of wastewater and solid wastes for about 5.7 million people in Los Angeles County and, in the process, convert these wastes into resources such as reclaimed water, energy and recycled materials. Although, the Draft CCP is largely a collection of conceptual programs at this point, its design as an "action plan" that will "continue to build on and strengthen existing source-specific rules" such as Rule 402 and/or those in Regulation XIV is still of concern to us as explained below.

The Draft CCP Needs More Specificity

For example, despite participating and commenting in working group meetings and the public workshop, we are still concerned that the draft CCP lacks a rigorous method to prioritize "at-risk" communities. Without a strong scientific underpinning, the draft CCP has no mechanism to avoid triggering a rush for relief by regulators from alarmed communities swayed by perceived risk. *As proposed, risk reduction efforts will arguably be made in communities most capable of expressing the greatest alarm, instead of communities actually disproportionably impacted by air pollution.* If our goal is to protect communities in greatest need, the process cannot be derailed by subjective perceptions of risk.

DM # 1696023-v2

Recycled Paper

Similarly, we are concerned that the *scope* of the Community Exposure Reduction Plans (CERP) will be guided by factors not directly influencing risk (see: Community-01, and Response to Comment 21). Such an arbitrary scoping approach only addresses *perceived* risk drivers. Without a science-based approach grounded in emissions and exposures to prioritize sources, SCAQMD may have difficulty resisting pressures to act based on public perceptions. We question, for example, if the pressures to further regulate stationary sources will be lessened by the draft CCP despite the fact that 92% of the weighted risks in the Basin per MATES III are from mobile sources. We believe that a defendable scientific approach to tackle cumulative impacts must assess all sources to identify appropriate and meaningful risk reduction measures, even those under the jurisdiction of other regulatory agencies.

SB 375 Nexus

The net effect of community-specific risk or nuisance reduction measures could be a further distancing of businesses from communities and their employee base. This seems to run counter to the goals of SB 375. Compliant businesses may find it easier to shut-down, relocate or avoid certain communities altogether than to endure the increased oversight and uncertainty resulting from this program. The draft CCP measures could inadvertently disperse our manufacturing industry which would exacerbate mobile source emissions as VMT increases. The SB 375 regional VMT targets will only be achieved if businesses are in close proximity to the communities they serve and the employees they hire. The draft CCP should include a discussion of how the measures will avoid conflicting with the SB 375 VMT reduction goals.

Voluntary Acts Should Not Be Excessively Burdened

We appreciate your effort to respond to our comments from our letter of June 30, 2010. However, we feel that SCAQMD has missed the point behind our concern that, despite our considerable investment in clean technologies (acknowledged in the Response to Comments 35, 36, 47 and 48 in Appendix D), we still face considerable regulatory and permitting challenges that often frustrate our abilities to be a good neighbor. For example, SCAQMD did not address nor offer any remedy in the revised draft to burdensome permit conditions that caused us to shut down three, voluntarily-installed odor control units. We feel the draft CCP should provide a mechanism to reward such voluntary acts.

Specific Comments on the CCP

- On Page 3-1, please provide a definition of "precautionary measures."
- Table 3-1 (Page 3-3): "older" toxic emitting sources may be completely legal and in compliance with all applicable rules and regulations of all regulatory agencies. This possibility should be reflected in the Plan.
- Page 3-12, Phase 5 Development of CERP: Please clarify the legal basis behind limiting a facility's operating hours during certain times of the day if it is operating in compliance with all of its permits.
- OUTREACH-06 is helpful and constructive.
- A "hot list" (p. 3-44) is one step away from an "enemies list." Maybe this list should be posted on the SCAQMD website once the mechanics as to how to be removed from the listing are explicitly stated.
- COMPLIANCE-02: The last paragraph on page 3-45 whereby "well-informed advocates will help to identify air quality issues in the community" suggests that SCAQMD is directly implementing at least a portion of the agenda of advocacy groups. At the very least, this should be done during a public exchange where the targeted facilities have an opportunity to rebut the claims.
- COMPLIANCE-02, page 3-47: The "one-click complaint" provision should be designed so as not to become a "click it and ticket" feature.

We look forward to future revisions of this work, and we anticipate providing more comments as we track the progress of the CERPs for Boyle Heights and San Bernardino. If you have any questions regarding these comments, please do not hesitate to contact me at (562) 908-4288, extension 2113.

Very truly yours,

Stephen R. Maguin

Gregory M. Adams

Gregory M. Adams
Assistant Departmental Engineer
Air Quality Engineering
Technical Services Department

GMA:DLR:PG:bb

cc: Susan Nakamura, SCAQMD
Dr. Elaine Chang, SCAQMD

FUTUREPORTS
Elizabeth Warren
Executive Director
Berth 77, P 7-A, Ports O' Call
San Pedro, CA 90731
www.FuturePorts.org

October 6, 2010

Elaine Chang, Deputy Executive Officer
Susan Nakamura, Planning and Rules Manager
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, CA 91765

RE: Comments on Revised 2010 Draft Clean Communities Plan

Dear Dr. Chang and Ms. Nakamura:

We are writing to submit our concerns to the South Coast Air Quality Management District (District) regarding the Revised 2010 Draft Clean Communities Plan (CCP).

FuturePorts is an advocacy organization representing the entire goods movement supply chain, and tens of thousands of workers in California. The organization was founded on the principle of balance between our economy and our environment. Our efforts are focused on finding solutions to challenges facing the maritime industry, and to ensure the continued economic contribution to the Southern California region, and to the nation made by the goods movement industry.

We hope that our comments can help support successful design and implementation of the objectives in the CCP, and provide the District Staff (Staf) further insight into industry's concerns with this program. We look forward to continued engagement in the CCP and its measures they are implemented.

We understand that the CCP represents Staff's initial concepts and therefore much of the detail typically covered in a rulemaking or incentive program is absent. We further understand that there will be additional opportunities for stakeholder engagement as each measure is developed and implemented. However, we remain concerned that some measures are moving forward more quickly, without the full transparency of stakeholder engagement, and without sufficient detail.

We look forward to continuing to work with the District and other stakeholders on developing plans and strategies that address air quality issues within a community while avoiding a fragmented patchwork of requirements and regulations. To help facilitate this process, the Staff should further define measures to address the issues outlined below before taking the plan to the Board for approval.

Community 01- Community Exposure Reduction Plans

Selected Pilot Communities

We remain concerned that the District has not clearly communicated its evaluation criteria for selecting the Pilot communities for the CERPs.

The CCP lists several categories the District evaluated when considering Pilot selection, without providing any detail about how the District compared the selected Pilot communities – the city of San Bernardino and the broadly defined "Boyle Heights and surrounding areas" – to other communities that could face similar circumstances. The District should provide more detail on their selection of these communities, how they compared to the remainder of the South Coast and which other locations the District considered. Given that the one of the goals of the pilot projects is to test new strategies that can be used for other community plans, we ask staff for more details on how these communities are representative of other impacted communities in the region.

Community Input

Neighborhood walks and informational websites are helpful tools that can foster increased communication between the community and air quality regulators, but on their own they are insufficient to facilitate dialogue to share understanding between all stakeholders. Information gathered in the neighborhood walks, individual conversations with the community, and other informal gatherings should be followed up by one or more notified meetings of a CERP Working Group before the Investigation and Data Validation stage. Engaging in dialogue before moving onto the investigation stage can help close incomplete feedback loops, facilitate early troubleshooting, and expedite a pathway to solutions.

Investigation and Data Validation

> *Efforts will be focused on identifying and quantifying specific air contaminants affecting the community, and where necessary, health surveys or risk assessments may be conducted to evaluate risks to public health.*[1]

We support the step of investigation and data validation, and we appreciate that quantitative data is not always available; however, we have reservations regarding the use of health surveys verify air quality issues. Many diseases and health conditions have multiple causes and cannot be exclusively attributed to environmental exposure. While there is evidence to support that air pollution can have adverse health effects, a survey of existing health issues in a community cannot establish causality of those health outcomes with emissions sources in the community

Overall approach in measures Community 01-03

We support the District's general approach of using voluntary incentive programs to identify and pursue the cost effective emission reductions from existing facilities. New equipment and facilities are more efficient and emit fewer pollutants, and existing sources hold the greatest potential for maximizing additional emissions reductions in a cost-effective manner.

Stationary-05: Indirect Sources

Implementation Approach

Before the CCP is approved by the District Board, it should be revised to include a clearer outline of potential options and clarify which options will be concurrently pursued.

[1] *Revised Clean Communities Plan, September 2010, p. 3-11*

Identifying multiple options will provide greater clarity on the intent of this measure and will enable the working group to discuss it more effectively. FuturePorts commented on the CCP previously as part of an industry coalition, and requested the District provide information regarding their statutory authority to pursue the implementation approaches under the indirect sources. The District responded in appendix D of the CCP,

> *The applicability, implementation approach and specific requirements have yet been established. As this measure is developed, the AQMD will do a legal analysis regarding the agency's legal authority to implement such a measure.*[2]

The District should identify potential implementation options and provide legal analysis for each implementation option before taking the CCP to the Board for approval. Completing the legal analysis now will provide the Working Group members, and the District's Board Members with valuable information regarding the feasibility of pursuing the approaches suggested in the measure, and avoids setting unrealistic expectations.

Applicability Criteria

Given that the District has revised the CCP to clarify that they intend the Stationary-05 measure to address "new, existing, and modified facilities with diesel mobile source emissions,"[3] the list of potential implementation options should only consider actions over which the facility operator controls. Additionally, the measure currently includes offsite emissions, but does not provide any indications of the geographic limits of the offsite emissions that could be attributed to a facility. This information should be included in the next Draft Plan.

Approaches that Support a Healthy Economy

Part of maintaining a healthy community is sustaining a strong economy. Therefore, community stakeholders should be reflective of the entire community, including committed local businesses, non-profit organizations, local government agencies, and residents. A solutions-oriented process will address the identified air toxics related issues through actions while allowing business to continue to serve Southern California.

We look forward to participating in the working group, and any task force created to work on the CERPs, to further develop and implement the Clean Communities Plan. Should you have any questions, please do not hesitate to contact me at ewarren@futureports.org or 310.982.1323, or Sarah Weldon at sarah@ceaconsulting.com or 415.421.4213 x 34.

Sincerely,

Elizabeth Warren
Executive Director
FuturePorts

[2] *Revised Clean Communities Plan, September 2010* Appendix D, p. 11
[3] *Revised Clean Communities Plan, September 2010* Page 3-56

CALIFORNIA CLEANERS ASSOCIATION

of Dry Cleaners & Launderers

Ms. Susan Nakamura
Planning and Rules Manager
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Subject: Comments on the Draft 2010 Clean Communities Plan

Dear Ms. Nakamura:

The California Cleaners Association (CCA) is the leading statewide association for dry cleaners and industry professionals. CCA is also affiliated with the national association, DryCleaning and Laundry Institute (DLI). Together we represent more than 4,000 dry cleaning professionals.

CCA is also a member of the Small Business Alliance. CCA and the Small Business Alliance share similar concerns about the Community Exposure Reduction Plan (CCP). We have strong concerns about the CCP plan. Specifically we are concerned about the method of Investigation and also Neighborhood Walks.

Unwarranted and unnecessary harassment of small businesses that are operating within the limits and conditions of their valid permits will not serve to improve relations in any community. Dry cleaners in California reported horrible July sales figures, with an average 3.3% decline from 2009. The recession and increased regulation of the industry is causing many dry cleaners to close their doors.

We would respectfully suggest that AQMD creates or improves programs that highlight the changes that small businesses are doing to decrease exposures.

Thank you for considering our request. We are available to answer any questions or provide additional information if desired.

Bobby Patel, CCA President

2520 Venture Oaks Way, Suite 150 • Sacramento, CA 95833
(916) 239-4070 • Fax (916) 924-7323
www.calcleaners.com E-Mail: cca@camgmt.com

CALIFORNIA Small Business Alliance

Dedicated to Environmental Progress and Economic Growth

California Autobody Association
California Cleaners Association
California Film Extruders & Converters Association
California Furniture Manufacturers Association
California Independent Petroleum Association
Construction Industry Air Quality Coalition
Korean Drycleaners-Laundry Association of Southern California
Metal Finishing Association of Southern California
Printing Industries of California
Screenprinting & Graphic Imaging Association International
Southern California Rock Products Association

October 8, 2010

Ms. Susan Nakamura
Planning and Rules Manager
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Subject: Comments on the Draft 2010 Clean Communities Plan

Dear Ms. Nakamura:

The California Small Business Alliance appreciates the opportunity to provide comments on the draft Clean Communities Plan (CCP).

As you may be aware, the Alliance is a coalition of California trade associations committed to protecting small business interests. Alliance members play an active part on relevant committees, task forces, policy forums and working groups advising agencies about the processes, costs, and compliance challenges that small businesses face and assist them in identifying cost-effective and least economically debilitating measures to regulate this vital segment of our state's economy.

We were pleased to be invited to participate in the South Coast Air Quality Management District's (District) CCP Working Group. Over the past two years we listened attentively to the discussion and points made by the Staff and other stakeholders. We also shared our recommendations and reservations to the other working group members.

We share the District's concern about the harm that toxic air contaminants can pose for all people who reside in the South Coast Air Basin. Further, we support the District's hypothesis that public awareness and education can play a vital role in helping to reduce exposure to toxic air contaminants. Yet, while we believe that certain elements of the draft CCP do have merit and would serve this purpose, we have grave concerns about other elements of the CCP that, if left unchanged, could have a devastating impact on many small businesses.

273 North Spruce Drive • Anaheim, CA 92805-3447
Telephone: (714) 778-0763 • Fax: (714) 778-0763
Website: *http://www.calsmallbusinessalliance.org*

Ms. Susan Nakamura, Planning and Rules Manager October 8, 2010
South Coast Air Quality Management District / Comments on Draft 2010 Clean Communities Plan

Community-01: Community Exposure Reduction Plan (Multiple TACs, other pollutants)

Background

We generally agree with Staff's statement that: *"Toxic emissions throughout the District have been reduced through implementation of AQMD's air toxics regulatory program for source and industry categories such as chrome plating, dry cleaning, and gasoline dispensing, as well as more stringent state and federal fuel and tail pipe emission standards to reduce air toxic emissions from on- and off-road mobile sources." Reducing toxic air contaminants from these individual source categories has benefits to all communities. Some communities, however, may have a disproportionate number of toxic sources that are clustered together resulting in a higher concentration of toxic emissions. The combined effect or cumulative effect of toxic emissions on these communities can result in an elevated exposure to toxic air contaminants. Data from the AQMD's MATES III shows that in some communities the toxic emissions are more concentrated."* These data were compiled, analyzed, reviewed and validated over time employing a number of accepted scientific protocols. The implementation approach that is described in the draft CCP, however, is a striking and deeply disturbing departure from the rigid discipline used in earlier studies (i.e., *MATES II and III, Cumulative Impacts Reduction Strategy, AQMP, accumulation of air monitoring data, etc.)* in that it appears from a reading of the CCP that any criticism or accusation made by a member of the public against a small business - substantiated or not - will rise to the level of an "air-related issue," and be put on the agenda for a "Neighborhood Walk."

One would think - even expect - that the District's years of success in presenting Town Hall meetings in conjunction with its Complaint Response Program, Air Quality Complaint Line, Clean Air Connections Program, regular inspections, and being able to boast of having the most open and inclusive system for rule development of any air quality management agency in the nation would have yielded a bounty of grievances from every community in its jurisdiction, and an impressive number of follow-up opportunities by the Staff. In these very difficult economic times when agencies in all levels of government are under extreme pressure from voters to cut spending and balance their budgets, and small businesses are struggling just to keep their doors open, it seems uncaring and unnecessary to add another program to accomplish the same purpose. Moreover, when we read that the implementation of the CCP "will (not 'may') be more resource-intensive" than these other programs this only adds to our frustration.

Neighborhood Walks

A reading of this section of the CCP raised considerably more questions than it answered. It also caused the greatest amount of concern among our small business members.

Much like the paragraph in the CCP, entitled *Community Input*, this section suggests that Staff will convene some number of meetings within the targeted communities for the purpose of eliciting complaints from people attending these meetings, including elected officials.

Once this has been done, it appears that this group or crowd of indeterminate size, including some number of District staff, will then walk through the community to whatever businesses have been singled out by the complainants at the community meeting. Upon arriving at a targeted business our reading of this section of the CCP suggests that the members of this group or crowd

Ms. Susan Nakamura, Planning and Rules Manager October 8, 2010
South Coast Air Quality Management District / Comments on Draft 2010 Clean Communities Plan

will stop at a point near a targeted business and again listen to individual issues about air quality. It is not at all clear exactly where this group or crowd will assemble in proximity to a targeted business, only that it will be "near." We observed when reading Chapter 3: Agency - 01, "Promoting Better Land Use Decisions," that Staff recognizes the significance of "proximity" when it pertains to land use decisions, as referenced in the draft CCP under the heading of *"Proximity Matters - Advisory to Planner."* Clearly, the same degree of awareness and sensitivity does not extend to the feelings and concerns of small business owners who are dreading the thought of having groups of dissidents descending on their businesses or in close proximity thereto.

A number of additional questions were raised when Alliance members discussed this particular point. For example: "Does the term "near" mean the group or crowd might assemble in front of the loading dock of the business? In front of the main entrance? Will the size of the group or crowd impede customer ingress and egress? Since the CCP calls for elected officials to be a part of the group or crowd, it is likely - even preferred by some- to have the media present? How long will these assemblies remain near a targeted business? What is the expected size of a typical group or crowd?

It is also unclear if someone in the group or crowd will invite or require the business owner to come outside and talk to the assembly. A small drycleaner with only one employee may not have the time to engage in conversation with visitors. The same might be said of the owners of a body shop or gasoline dispensing station who may have the same difficulty. This also raises concerns about the expectations of the group or crowd. Will they expect to be able to enter the premises and look around? To what extent will a small business owner's operations be disrupted or has this even been considered?

In this section of the CCP, the Staff has written: *"This hands-on approach will allow the AQMD staff to gather valuable information about the community's air quality issues while providing an opportunity for local residents and businesses to voice their concerns directly to the AQMD in a more familiar and informal setting."* We have no other choice but to conclude from this statement that absolutely no consideration has been given to the needs and concerns of the small business owner.

Investigation and Data Validation

In the last meeting of the CCP Working Group, the Staff was unambiguously clear that the intended use for the CCP was to be a guidance document for future rule making, and that it would not have the force of a rule and would not be used for compliance audit purposes. A reading of Phase 3: *Investigation and Data Validation*, and Phase 4: *Implementation of Immediate Actions*, however, only succeeded in adding to our confusion and concern in that it is clear that whatever "air quality-related issues" are discovered during these Neighborhood Walks they will all be sorted and prioritized for immediate or non-immediate attention. What is less obvious to us is what the word "attention" means and how these issues will be remedied and what punishment, if any, will befall a business owner who was not expecting to be inspected.

OCT-08-2010 03:43 PM Bill La Marr 714 778 0763 P.05

Ms. Susan Nakamura, Planning and Rules Manager October 8, 2010
South Coast Air Quality Management District / Comments on Draft 2010 Clean Communities Plan

In summary, we believe that the current draft CCP is dangerously deficient in the way it describes certain key elements of the plan. In these distressful times small businesses have little more than their reputation and good will to sustain them. Unwarranted and unnecessary harassment of small businesses that are operating within the limits and conditions of their valid permits will not serve to improve relations in any community.

We appreciate your consideration of our comments on the Draft CCP, and look forward to working with the Staff to develop a plan that furthers air quality goals. We also ask that when the final CCP is written and released it does not disregard the dire financial condition of this state nor unnecessarily complicate the formidable task that our elected officials have asked of small business owners; that being to help grow our economy back to prosperity.

Sincerely,

Bill La Marr
Executive Director

4

JOHN E. DEWITT, JR.
1903 NORTH DURFEE AVENUE
SOUTH EL MONTE, CA 91733

RECEIVED
OCT 12 2010
By 10-7-2010

Ms Susan Nakamura
Planning & Rules Manager
S. C. A. Q. M. D.

Subject: Clean Communities Act
Comments - Questions
Section "Neighborhood Hazards"

Dear Ms Nakamura,

This year we reduced our employees from 92 to 70. As a direct consequence of current regulations. They are terrific people.

Do you believe unrestricted violations by the businesses still operating in the District, will improve the situation?

October 6, 2010

SENT VIA E-MAIL

Ms.Cheryl Marshall
Program Supervisor
South Coast Air Quality
Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Comments on Revised Draft Clean Communities Plan

Dear Ms. Marshall:

On behalf of the Southern California Air Quality Alliance (SCAQA) I hereby submit comments on the above referenced matter. SCAQA is a non-profit corporation with members whose operations in the South Coast Air Quality Management District will likely be affected by the SCAQMD's implementation of the Clean Communities Plan (CCP).

In general, we support the approach taken by District staff in looking at all potential sources of adverse impacts on communities and developing a holistic approach to addressing impacts in cooperation with other government agencies, community representatives (both elected and non-elected) and local businesses. We especially appreciate the District's recognition that there are limits on its authority that require it to defer to other levels of government with authority to act, and in those circumstances to provide expertise and advice regarding air quality impacts and potential mitigation measures.

Having said that, we also have significant concerns regarding several specific provisions of the revised draft CCP, most notably the measures identified as Stationary-04, Nuisance-01 and Nuisance-02. These proposed measures have the potential for the District to assert authority which it has not been granted pursuant to either federal or state law, or to "rewrite" the public nuisance law (Health and Safety Code Section 41700) to make it easier for the District to prosecute alleged nuisances.

Stationary-04

Stationary-04 as described in the draft CCP calls for an alternatives analysis to be done to determine if "less hazardous materials" can be substituted into a proposed process. I would like to note that there is nothing in the California Health and Safety Code that authorizes the SCAQMD to impose such a requirement in the permit process. Arguably this can be done as part of a CEQA analysis, where alternatives must be analyzed if a significant impact is identified. However, I have been advised that some of our members have already experienced situations where permitting engineers, in the absence of a specific rule requirement or CEQA analysis, are refusing to issue a permit unless the

6601 Center Drive West
Suite 500
Los Angeles, CA 90045
Attn: Curtis L. Coleman
(310) 348-8186 Ph
(310) 861-1484 Fax

permit applicant agrees to process modifications. We do not believe that such an *ad hoc* and potentially arbitrary process is appropriate. We believe that there should be some objective standards specified and that there should be a presumption that an existing process that has worked and has not created problems at a facility should be allowed to continue.

Nuisance-01

With respect to Nuisance-01 we are concerned with the statement in the draft CCP that amendments to Rule 402 or Health and Safety Code Section 41700 may be necessary. These provisions have been in place for many years and there is no evidence that I can see that they are inadequate. We do agree that it makes sense to conduct a full review of the SCAQMD's process of investigating and enforcing alleged odor nuisance, and that there may be merit in reviewing orders for abatement involving odor nuisances to see if there are common requirements that have resulted in resolution of the alleged problems. We will be watching this measure closely as it is developed further, and will provide additional comments as the need arises.

Nuisance-02

In our view, Nuisance-02 will punish the many for the sins of the few. We believe that the District's resources are best concentrated on sources that are causing problems, rather than heaping additional regulatory requirements on sources that are not causing problems. We are also concerned about the lack of statutory authority for adopting these types of regulations. The District has authority to adopt regulations to achieve ambient air quality standards and to limit emissions of air toxics. I can find no statutory provision authorizing the District to adopt rules purporting to prevent a public nuisance that would affect a facility that is NOT causing a public nuisance. The closest provision would appear to be Health and Safety Code Section 42310.7, which provides limited authority to prevent a release of a toxic air contaminant from a facility located within 1,000 feet of a school, but this again deals with an imminent threat and provides for a response on a case-by-case basis.

Thank you for the opportunity to comment on the revised draft CCP, and feel free to contact the undersigned if you have questions regarding these comments.

Very truly yours

Curtis L. Coleman, Esq.
Executive Director
Southern California Air Quality Alliance

California Council for Environmental and Economic Balance
100 Spear Street, Suite 805, San Francisco, California 94105
415-512-7890 phone, 415-512-7897 fax, www.cceeb.org

October 8, 2010

Elaine Chang, Ph.D., Deputy Executive Officer
Susan Nakamura, Planning and Rules Manager
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, CA 91765

RE: Comments on Draft Clean Communities Plan (September 2010 revised draft)

Dear Dr. Chang and Ms. Nakamura,

The California Council for Environmental and Economic Balance (CCEEB) is a coalition of business, labor, and public leaders that advances strategies for a strong economy and a healthy environment. Thank you for allowing us another opportunity to comment on the draft Clean Communities Plan (CCP or "the Plan").

CCEEB supports the Plan in concept, and appreciates the hard work and dedication of staff at the South Coast Air Quality Management District (SCAQMD) in putting this draft forward. However, we continue to have questions regarding how the Plan will be implemented, as described in our letter to the SCAQMD on July 2, 2010. (Attached) This letter was omitted from Appendix E in the September 2010 revised draft Plan, and many of our questions were left unanswered in staff responses to comments in Appendix D.

CCEEB also has concerns regarding the way that the draft Plan portrays the current air toxics situation in the South Coast Air Basin. First, the draft Plan lacks adequate discussion of the uncertainties associated with the cancer risk estimation technique. SCAQMD staff may be familiar with risk estimates and the uncertainties associated with them, but many members of the public who read this document may not be. We do not believe it is sufficient to merely reference the uncertainties section of the MATES III document (as has been done on page 2-6). This information is important enough to be presented in this document, and should be presented up front before risk estimates and their interpretation are presented. At a minimum, qualifying language from the MATES III Final Report should be repeated on pages 2-6 and 2-7 of the draft Plan in the section on *Limitations of Data Results*, and readers should be referred to this material in the executive summary of the report. For example, the MATES III final report explains that:

> *"The estimates of health risks are based on the state of current knowledge, and the process has undergone extensive scientific and public review. However, there is uncertainty associated with the processes of risk assessment. This uncertainty stems from the lack of data in many areas necessitating the use of assumptions. The assumptions are consistent with current scientific knowledge, but are often designed to be conservative and on the side of health protection in order to avoid underestimation of public health risks.*
>
> *"As noted in the OEHHA risk assessment guidelines, sources of uncertainty, which may either overestimate or underestimate risk, include: (1) extrapolation of toxicity data in animals to humans, (2) uncertainty in the estimation of emissions, (3) uncertainty in the air dispersion models, and (4) uncertainty in the exposure estimates. Uncertainty may be defined as what is not known and may be reduced with further scientific studies. In addition to uncertainty, there is a natural range or variability in the human population in such properties as height, weight, and susceptibility to chemical toxicants.*
>
> *"Thus, the risk estimates should not be interpreted as actual rates of disease in the exposed population, but rather as estimates of potential risk, based on current knowledge and a number of assumptions. However, a consistent approach to risk assessment is useful to compare different sources and different substances to prioritize public health concerns."*[1]

When referring to risk reduction, the Plan should be clear in stating that reductions are in estimated cancer risk from ***air toxics***. For example, on page ES-2, the draft should state: "…overall regional *estimated* risk *from air toxics* is expected to be reduced by 75 percent by 2023. Regionally, the 2023 population weighted *estimated* cancer risk *from air toxics* is expected to be approximately 210-in-a-million." [Added language shown in italics] CCEEB also suggests describing the regional background or total cancer risk to put the contribution from air toxics into context. The MATES III final report includes a useful section on *Perspectives of Risk* that is worth repeating in the draft Plan.[2]

Second, the Plan provides little to no background on existing measures that are already in place and which are under the jurisdiction of other regulatory agencies. The Plan does not sufficiently recognize these in-place measures and regulations, the concomitant benefits that have accrued as a result of these measures, and the reductions already achieved by many companies and public agencies. This information is essential to provide an accurate picture of the current situation.

In light of the above, CCEEB reiterates and amplifies comments made at the September 21, 2010 CCP Working Group meeting by CCEEB and several of its members. Specifically:

- **Stationary-02 and -04, authority**: Please explain in greater detail the basis for the SCAQMD's authority to implement these measures given that the SCAQMD does not have delegated authority to enforce environmental standards for lead paint or the storage and use of hazardous materials, nor to mandate the assessment of alternatives and subsequent changes in use of process chemicals. The SCAQMD should review current rules and regulatory programs

[1] SCAQMD, *Multiple Air Toxics Exposure Study in the South Coast Air Basin, MATES III, Final Report*, September 2008, page ES-6 and ES-7.
[2] ibid., pages 1-3 and 1-4.

to determine whether a gap exists before identifying a need for these control measures. For example, the background provided for Stationary-04 on page 3-53 should clearly identify why current Process Hazard Analysis and Risk Management Plans are insufficient. We note that the 2000 SCAQMD Air Toxics Control Plan included a brief section on SCAQMD's legal authority and the complementary authorities of other agencies. CCEEB suggests that a similar discussion be included in the current draft Plan, particularly for new control strategies under consideration.

- **Stationary-04, Table 2-2**: The table on page 2-4 should include toxics control regulations that cover the storage, handling, and risk management of hazardous materials, such as federal EPA's and Cal-EMA's Risk Management Plan rules.

- **Stationary-04, outreach to CUPAs**: CCEEB recommends that the SCAQMD seek comments from Cal-EMA and regional Certified Unified Program Agencies (CUPAs) on Stationary-04 before finalizing the Plan. While CCEEB agrees with the SCAQMD that it is important to coordinate with the CUPAs on implementation, it is equally important to have the CUPAs engaged in the design and development of this measure to minimize agency overlap and to prevent inconsistencies that might arise between programs. For example, rather than including a separate measure for SCAQMD implementation in the CCP, it might be more efficient and effective to develop a coordinated approach with Cal-EMA.

- **Community-01, business outreach**: Please include a section on outreach to local businesses under *Phase 2: Community Input.* Partnering with the local business community early in the process helps to foster cooperation and to ensure that measures are tailored to the specific needs of each community.

- **Community-03, Table 4-1, assessing cumulative impacts**: it is unclear by what method or process the SCAQMD plans to (1) identify disproportionately impacted communities and (2) assess cumulative impacts in prioritized communities. Please expand on this section. CCEEB notes that quantitative assessments are time and resource intensive, whereas qualitative assessments can result in uncertain and potentially biased findings. We also caution that the screening methodology proposed by Cal/EPA and the Office of Environmental Health Hazard Assessment is in the very early stages of development, and guidance on how to apply this method will probably not be finalized by mid-2011, the time when the SCAQMD hopes to implement this work.

- **Table 4-1, Measures Implementation Schedule**: It is not clear how the dates for implementation were identified and many measures are shown as being implemented simultaneously. CCEEB recommends that SCAQMD consider phasing the implementation with a focus on the highest priorities, rather than trying to implement too many measures at the same time.

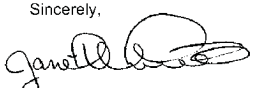
We thank the SCAQMD and its staff for their leadership in exploring innovative new strategies that reflect the active participation of a diverse range of public stakeholders. CCEEB believes that such collaborative approaches are necessary to address the full range of factors that contribute to cumulative and disproportionate

impacts from exposure to toxic air contaminants. We hope that our comments support the successful adoption and implementation of the Plan.

Sincerely,

Bill Quinn
CCEEB Chief Operating Officer

Sincerely,



Janet Whittick
CCEEB Policy Director

cc: Barry Wallerstein, Executive Officer, SCAQMD

California Council for Environmental and Economic Balance
100 Spear Street, Suite 805, San Francisco, California 94105
415-512-7890 phone, 415-512-7897 fax, www.cceeb.org

July 2, 2010

Elaine Chang, Deputy Executive Officer
Susan Nakamura, Planning and Rules Manager
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, CA 91765

RE: Comments on Draft Clean Communities Plan

Dear Elaine and Susan,

The California Council for Environmental and Economic Balance (CCEEB) is a coalition of business, labor and public leaders, which advances strategies for a strong economy and a healthy environment. Our members operate numerous permitted facilities in the South Coast Air Basin. We thank you for allowing us to comment on the draft Clean Communities Plan ("CCP") and for the ongoing opportunity to participate in the CCP Working Group.

CCEEB commends the South Coast Air Quality Management District ("District") and its staff for work on the draft Plan and the attention given to effectively reducing emissions of air toxics and cumulative impacts in already burdened communities. We hope that our comments can help support successful design and implementation of its objectives.

The holistic approach embodied in the Plan is of great interest, since it might be able to capture the wide range of emission sources and source categories—and the several agencies that regulate these—that collectively contribute to cumulative emissions. The Plan also incorporates land use decision-making in a meaningful way. Because so many proposed measures are still conceptual, and because the Plan relies a great deal on collaborative solutions, CCEEB asks staff to develop a more detailed timeline or workplan for further development and implementation of the measures and a schedule for the advisory and working group(s) so that stakeholders can plan their participation based on which issues are agendized for each meeting.

Given that the sole focus of the Plan is on localized exposure to air toxic emissions (with the exception of odor nuisances), CCEEB was surprised to learn of the language contained in the errata sheet that the Governing Board approved as part of the Resolution adopting Regulation XXVII (Climate Change).

> *"BE IT FURTHER RESOLVED, that the AQMD Board directs staff when developing the Clean Communities Plan, to add a component to help ensure that Board-approved greenhouse gas offset policies are implemented properly in CEQA review, so that potential impacts of foregone criteria pollutant or toxic air contaminant emissions are minimized."*

CCEEB asks the District to explain why GHG offsets are to be included in the CCP, since the Plan is meant to address impacts that are highly localized in nature. We do not think the Plan is the appropriate vehicle for such action, and suggest that CEQA guidelines may be a better place to deal with CEQA review of GHG emission impacts. As we come to understand the background and implications of the Resolution language, we hope to provide further comments.

What follows are more detailed comments on the draft CCP, organized around the main sections.

Community Plans and Accelerated Toxics Reductions (C-01, C-02 and C-03)

Based on the draft Plan and discussion at the CCP Working Group[1], it is our understanding that the two pilot projects in the City of San Bernardino and the community of Boyle Heights are meant to test new strategies to reduce exposure to air toxics. Lessons learned from the pilots will then be used to develop a guidebook for other communities and local governments so that they, too, may develop tailored Community Exposure Reduction Plans (CERPs). Finally, lessons learned from the pilots will influence Community-03, in which the District will implement voluntary and incentive-based strategies to achieve additional reductions of air toxic emissions in key communities, after first identifying and prioritizing communities based on the level of cumulative impacts.

Selecting and Prioritizing Communities and Geographic Boundaries

Given that the goal of the pilot projects is to test new strategies that can be applied to other communities, CCEEB asks staff for more details on the criteria used to select San Bernardino and Boyle Heights, and how these communities are representative of highly impacted communities in the air basin. We also ask the District to establish clear and transparent criteria and a methodology for identifying and prioritizing communities (Communities-03), including a definition of what is considered "highly impacted", and recommend that this work be reviewed by the CCP Working Group or other stakeholder advisory before finalizing any results.

In terms of Community-01 and the pilot projects, we are still unclear whether the selection of San Bernardino and Boyle Heights has been finalized, and what actions have been taken so far to develop CERPs for these communities. It would be good to provide these details to the CCP Working group along with the selection criteria.

With respect to the actual geographic boundaries of the CERPs, CCEEB asks staff to clarify whether there is a zone of influence outside of community boundaries that would be affected. For example, would sources outside of the communities ever be included in CERP measures? What if these sources are in another jurisdiction? This information is important to ensure that the right

[1] April 15, 2010 meeting

stakeholders and jurisdictions are involved in development of the CERPs from the very beginning.

Public Participation
CCEEB thanks the District for considering our recommendation that it convene a stakeholder technical advisory group to help guide the design and development of the pilot projects and the guidebook. We hope that CCEEB and its members may be able to assist with this effort.

When establishing the advisory group, we suggest that the District lay out ground rules for dialogue to help stakeholders representing diverse interests more readily collaborate on effective solutions and reach consensus to the maximum extent possible. Such ground rules could also describe how District staff will resolve conflict among stakeholders. These rules should also apply to any working group working on development of each CERP.

Investigation and Data Verification
CCEEB appreciates steps to prioritize community air quality issues and to sort issues based on agency responsibility. We particularly support efforts to engage and coordinate with other agencies to support multi-agency solutions.

In terms of additional data collection and "micro-scale monitoring", we ask staff to describe the degree of granularity that is being proposed. We also ask staff to consider adding a risk communication element to this phase so that all stakeholders can come to a shared understanding of the analytic results. This, in turn, would support collaboration during the CERP development stage to follow.

CCEEB appreciates that quantitative data is not always available, and that qualitative data could be used to fill in gaps in the quantitative analysis. Given that there is no scientific certainty regarding causal effects for many associated health outcomes, we ask staff to describe how the District intends to use qualitative data appropriately, and how such data will be reconciled with quantitative data. For example, a community health survey cannot draw conclusions regarding air toxic exposures, although it can show correlations. This may be an area where the technical advisory group could provide guidance.

Sources Covered and Control Strategies
CCEEB supports the District's decision to include all sources of air toxics in the CERPs as well as the focus on replacement and retrofit of existing sources. This strategy recognizes the fact that new equipment and facilities are more efficient and emit fewer pollutants, and that existing sources hold the greatest potential for maximizing additional emissions reductions in a cost-effective manner.

We hope that the District will also apply the principle of "fair share" to ensure that each source category is responsible for its own contribution to the cumulative emissions impacting burdened communities.

In terms of Phase 4 of the pilots, we ask staff to clarify what constitutes "significant health impacts" that would trigger "immediate action" by the District. It would be useful to include the criteria used for making such a determination, and to provide examples of the type of "immediate actions" that might result.

Finally, with respect to C-01, C-02 and C-03, we suggest that the CCP and any CERP acknowledge programs and efforts at other agencies that affect air toxics in impacted communities. For example, the ARB manages a Diesel Risk Reduction Program that aims to reduce on-road and off-road mobile source emissions of air toxics by 85% by 2020. These future-year reductions should be included in the plans.

Outreach-01: Clean Air Toolbox

CCEEB appreciates staff's willingness to convene a stakeholder technical advisory group to assist with development and review of materials for the Clean Air Toolbox. We further suggest that this measure include a risk communication element to improve the public's understanding of air quality issues and ways to reduce exposure to air toxics.

To the extent possible, we encourage staff to leverage work being conducted by other agencies. For example, the Department of Toxic Substances Control, as part of its Green Chemistry Initiative, is working to launch a public outreach campaign to educate consumers about toxic chemicals in household products. Similarly, EPA has an extensive education program on indoor air quality.

Compliance-01: Enhancements to Compliance Program

CCEEB understands that the facility "Hot List" was an informal reference used internally by enforcement staff. If the list is to remain an informal and internal reference, then we recommend removing it from the draft Plan. If, on the other hand, the District decides to formalize the "Hot List" as part of the CCP, then we ask that staff make explicit what this list is, how it can be used, and the process by which facilities are added or removed.

Stationary-01: Lead Emissions

CCEEB notes that a number of aerospace and electronic manufacturers employ lead soldering as part of normal operations, and that this soldering has no or extremely low emissions because the low temperatures fail to result in volatilization. We ask staff to consider this distinction and to avoid unnecessary administrative burden on facilities that use lead, but have no or di minimis emissions. As rulemaking proceeds, we hope to be actively engaged in any amendments to Rule 1420.

Stationary-02: Lead Paint, pre-1978 buildings

CCEEB understands that the California Department of Public Health and county public health agencies have delegated authority to enforce the new EPA standard. We ask staff to clarify the breadth of this proposed measure, and how implementation of public outreach and/or rulemaking will complement work begin done by the health agencies.

Stationary-04: Alternative Assessment for Use of Acutely Hazardous Materials

Use of hazardous materials is currently regulated by several state and federal agencies, including but not limited to Cal-OSHA, Cal-EMA and Certified Unified Program Agencies, DTSC, the Department of Transportation, and EPA. As part of compliance, facilities must complete Process Hazard Analyses and Risk Management Plans.

CCEEB is unclear how the proposed CEQA review interacts with existing programs and requirements, and whether review is meant to apply to a specific project or the entire facility. We would appreciate a more detailed discussion in the CCP of District authority under CEQA, especially since hazardous material use is more traditionally managed through other statutes and direct regulation.

In general, CCEEB believes that management of hazardous materials should remain in those agencies with clear authority and direct expertise. We suggest that strategies targeting hazardous materials be moved to Agency-02 to enable multi-agency coordination and to avoid duplicative and overlapping efforts.

Stationary-05: Indirect Sources

CCEEB understands that this measure is meant to complement existing diesel emissions reduction programs at the ARB and EPA. It would be useful if staff could include a more detailed discussion of how the different programs interact in order to show consistency and avoid duplication of efforts. This is particularly important in terms of ARB's Diesel Risk Reduction Program; although this program is mentioned, it is not clear how the indirect source measure might work in concert with it.

Somewhat similarly, the draft Plan mentions the 2006 health risk assessments (HRAs) conducted by the ARB at major rail yards, but fails to describe the significant progress made over the interim. For example, the San Bernardino rail yard has cut diesel PM emissions by roughly 45 percent since 2005. Reductions of this magnitude are significant and should be incorporated into the measure; that, or reference to the rail yard HRAs should be removed as it seems out of context.

Finally, we would appreciate clarification on how "applicability criteria" will be established, especially since the District has indicated that the criteria would be developed mid-2010. As the District moves forward, CCEEB hopes to be actively engaged in any Indirect Source Review rulemaking.

Nuisance Rules (N-01 and N-02)

CCEEB appreciates the District's work to improve the science and practice of odor detection and to enhance Rule 402, and recognizes that odor issues account for the majority of complaints filed with the District. We encourage staff to work closely with both communities and facilities as it develops new approaches.

During the CCP Working Group discussion[2], the term "toxic odors" was used. We are unfamiliar with this term; if staff decides to include this concept as part of the nuisance rules, then we ask the District to establish a precise definition (e.g., concentration level, length of exposure, etc.), as well as explanation of how a toxic odor differs from emissions of air toxics.

Finally, we note that SB 1224 (Wright) is moving through the Legislature with no opposition. Staff should consider how this bill might affect its nuisance rules.

[2] May 20, 2010.

Chapter 2, Figures 2-8 through 2-10

On pages 2-9 and 2-10 of the Draft, the District includes figures for the MATES III model estimated district cancer risk for 1998, 2005, and 2023. Please also include the MATES III modeled cancer risk for the interim years of 2014 and 2020. This data is already in the appendixes, but would be helpful to include here to illustrate the significant improvements expected between 2005 and 2023.

Thank you again for considering our comments. We look forward to working with the District and its staff on the further development and implementation of the Clean Communities Plan. Should you have any questions, please do not hesitate to contact me (billq@cceeb.org or ext. 15) or Janet Whittick (janetw@cceeb.org or ext. 11).

Sincerely,

Bill Quinn
CCEEB Chief Operating Officer

The California Supply Chain Jobs Alliance

July 7, 2010

Elaine Chang, Deputy Executive Officer
Cheryl Marshall, Program Supervisor
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, CA 91765

RE: Comments on Draft Clean Communities Plan

Dear Elaine and Cheryl:

Thank you for taking the time to meet with representatives of our coalition to explain the 2010 Draft Clean Communities Plan (Draft Plan). The California Supply Chain Jobs Alliance (CSCJA), a coalition of Southern California supply chain businesses and trade associations, appreciates the opportunity to comment on the Draft Plan. We hope that our comments can help support successful design of the final plan objectives and provide the staff further insight into industry's concerns with this program. We look forward to continued involvement in any subsequent drafts and stakeholder group meetings and the implementation of the plan measures.

There are two major concerns that CSCJA has with the plan. First, the South Coast Air Quality Management District (District) has not analyzed its authority to adopt the measures and conduct the studies it outlines in the plan. Such an analysis must be conducted before the plan is finalized. Our comments are submitted pending the District analysis of its authority to pursue these matters and the submittal of comments is not concurrence as to District authority. Second, the measures are conceptual and leave many potential approaches for reducing toxic air contaminants (TACs) on the table. We believe that District staff should further define the measures before taking the plan to the District Board for approval. Without further definition of the measures, it will be difficult for all the stakeholders to understand exactly what we are being asked to support. We look forward to continuing to work with the District and other stakeholders on developing plans and strategies that address community concerns while avoiding a burdensome patchwork of regulations and requirements.

Additionally, CSCJA would like to continue to participate in a clear and transparent process. We would appreciate staff developing a timeline or work plan for further development of the plan, and in particular of the individual measures as they begin to be implemented. This will be particularly important in the development of the Community Exposure Reduction Plans (CERPs).

Community-01: Community Exposure Reduction Plans

Community Selection Criteria. In order to fully understand this measure, we would appreciate District staff providing an explanation of the criteria used to choose the pilot locations. Given the goal of the pilot projects is to test new strategies that can be applied to other communities, we

ask staff for more details how these communities are representative of other highly impacted communities in the air basin.

Additionally, the District agreed in the Clean Communities Plan (CCP) working group meetings to incorporate a Technical Advisory Group or Task Force to guide the development of each CERP. The District should clearly describe and formalize the roles of the District, the Technical Advisory Group, and any other known stakeholder processes for each pilot and include this information in the next Draft Plan. Additionally, to avoid duplicate efforts, the staff should identify any concurrent or recent activities by other agencies specific to the pilot communities and summarize the estimated emission reductions.

Please include potential elements and scope limitations of the CERPs. Please provide further information regarding the CERP scope and content. For example, since these are called Exposure Reduction Plans, we assume the ultimate goal is to reduce exposure within the pilot community by some measurable amount. Will the scope of potential actions be limited to those that directly result in exposure reductions? Will proposed measures include those that only measure TACs in the community (e.g. air monitors)? If the District plans to include educational and economic development components, that information should be in the next Draft Plan. How will the District staff develop the geographic boundaries? Without clear guidance as to what the community plan will include, it will be difficult to ensure the right stakeholders are at the table. Clarifying these issues now will help avoid misdirecting time and resources on work that is outside the scope of the primary goals of this exercise.

Investigation and Data Verification. Please provide more detail regarding scope and examples of potential data and analysis. For example, there has been some discussion of including health surveys in the data and analysis. The parameters of the health surveys have not been discussed; however, a community health survey cannot draw conclusions regarding air toxics exposure or derived causes of any health issues. We do not agree with including data collection that lacks a direct nexus to emissions sources.

The Draft Plan also indicates the CERPs will be more qualitative and based on community input, neighborhood walks, and town hall meetings. It also indicates there will be quantitative research such as "go[ing] beyond MATES III findings [to] take a closer look at toxic exposure at the community level." How is the District planning to reconcile the qualitative with the quantitative research in each CERP? Qualitative insights should be informed and supported by quantitative research. The District should clarify to what degree of granularity it can feasibly take the quantitative data at the community level.

It is necessary to further define "immediate action." In Phase 4 of the pilots, we ask staff to clarify what constitutes "significant health impacts" that would trigger "immediate action" by the District. The District should include the criteria used for making such a determination and to provide examples of possible resultant "immediate actions."

How will disagreements be resolved? The District has stated its intent for the development of CERPs to be "a collaborative process among all stakeholders to seek effective solutions."[1]

[1] Page 3-11, April 2010 Draft Clean Communities Plan

Given the variety of interested stakeholders with diverse views, the District should outline a clear protocol for resolving points of conflict in the CERP work plan and include how minority opinions will be included in the final product.

Community-02: Community Guidance for Reducing Air Toxic Exposure

When translating the information learned in the CERPs into guidelines, the District should be careful not to take a one size fits all approach, not just due to differing issues in the community, but also the resources available to the community, its businesses, and local government. We support the District's approach of assisting communities that chose to engage the District in a CERP, rather than the District selecting additional communities with which to implement CERPs.

Stationary-05: Indirect Sources

We understand this is a conceptual measure, but the vague wording makes it difficult to provide constructive and informative comment. For example, the District's "Implementation approach" compiles a menu of options to reduce exposure that could involve 1) modifying AB 2588 guidelines, 2) requiring health risk assessments for all indirect sources, 3) developing an indirect source rule for diesel, 4) various specific operational measures, or 5) developing incentives to voluntarily turnover fleets. The next Draft Plan should include a clearer outline of potential options and clarify which options will be concurrently pursued. Identifying multiple options will provide greater clarity on the intent of this measure and will enable the working group to discuss it more effectively. Also, please provide the statutory authority for each regulatory option the District is considering, including authority and process through which the District plans to work with the California Air Resources Board (ARB) to modify the AB 2588 guidelines to address mobile sources.

Applicability Criteria. The Draft Plan also states the District will "initiate development of an indirect source rule containing an applicability criteria that will account for diesel PM emissions, exposure to diesel PM, and the proximity to residential and sensitive receptors."[2] Staff has verbally indicated this is intended for existing and new facilities, and in most cases the facility operator, which is often the tenant, is the targeted party. If this is the case, this information should be included in the next Draft Plan. If the District takes this approach, the list of potential implementation options should only include actions over which the facility operator controls. Lastly, the measure currently includes offsite emissions, but does not provide any indications of the geographic limits of the offsite emissions that could be attributed to a facility. This should be included in the next Draft Plan.

Update to reflect current rail yard emission reductions. Please either remove the reference to the rail yards and to the San Bernardino rail yard health risk assessment, or revise Stationary-05 to reflect improvements since 2005. BNSF Railway and Union Pacific have made significant improvements at Southern California yards, and particularly at Commerce and San Bernardino rail yards, since 2005. Omitting this progress to date leaves the reader with the incorrect notion that nothing has been done to reduce emissions.

[2] Page 3-53, April 2010 Draft Clean Communities Plan

Approaches that Support a Healthy Economy

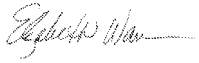
Part of maintaining a healthy community is sustaining a strong economy. Therefore, community stakeholders should be reflective of the entire community, including committed local businesses, non-profit organizations, local government agencies, and residents. A solutions-oriented process will address the identified air toxics related issues through actions while allowing business to continue to serve Southern California.

Figures 2-8 through 2-10 in Chapter 2

On pages 2-9 and 2-10 of the Draft Plan, the District includes figures for the MATES III model estimated District cancer risk for 1998, 2005, and 2023. Please also include the MATES III modeled cancer risk for the interim years of 2014 and 2020 to illustrate the improvements between 2005 and 2023.

We look forward to participating in the working group, and any task force that is created to work on the CERPs, to further develop and implement the Clean Communities Plan. Should you have any questions, please do not hesitate to contact me at ewarren@futureports.org or 310.982.1323, or Sarah Weldon at sarah@ceaconsulting.com or 415.421.4213 x 34.

Sincerely,



Elizabeth Warren
CSCJA Member and
Executive Director
FuturePorts

Cc: Susan Nakamura, Planning and Rules Manager

THE PORT OF LOS ANGELES

Port of LONG BEACH

San Pedro Bay Ports Clean Air Action Plan

June 30, 2010

Ms. Cheryl Marshall
Program Supervisor
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: 2010 Draft Clean Communities Plan

Dear Ms. Marshall:

The Port of Los Angeles and the Port of Long Beach (Ports) appreciate the opportunity to provide comments on the draft 2010 Clean Communities Plan (CCP). The Ports are pleased to see that a number of the CCP measures address localized effects and cumulative impacts to air quality and health risk in communities and neighborhoods, which are similar to efforts already being implemented by the Ports through the San Pedro Bay Ports Clean Air Action Plan (CAAP), our California Environmental Quality Act (CEQA) projects, and other Port initiatives. For example:

- One of the CAAP's foundations is the commitment "to expeditiously and constantly reduce the public health risk associated with port-related mobile sources, and implement programs in the near-term that will achieve this goal."

- The Ports have developed an aggressive risk reduction target for diesel particulate matter (DPM)-related residential cancer risk of 85% by 2020. This DPM risk reduction target is consistent with the Air Resources Board (ARB) statewide 85% risk reduction goal for goods movement.

- The Ports also developed a Draft San Pedro Bay-wide Emission Reduction Standard which is (1) by 2014, reduce emissions of nitrogen oxides (NOx) by 22%, sulfur oxides (SOx) by 93%, and DPM by 72% to support attainment of the federal fine particulate matter (PM) standard in the air basin; and (2) by 2023, reduce emissions of NOx by 59% to support attainment of the federal 8-hour ozone standard in the air basin, with additional reduction targets of 92% for SOx and 77% for DPM.

- These are more than just theoretical goals – the Ports have effected real-life success in actual emissions reductions. The recently-released Ports' 2009 Emissions Inventories show combined emission reductions of 52% diesel particulate matter (DPM), 34%

Port of Los Angeles • Environmental Management
425 S. Palos Verdes Street • San Pedro • CA 90731 • 310-732-3675

Port of Long Beach • Environmental Planning
925 Harbor Plaza • Long Beach • CA 90802 • 562-590-4160

The San Pedro Bay Ports Clean Air Action Plan was developed with the participation and cooperation of the staff of the US Environmental Protection Agency, California Air Resources Board and the South Coast Air Quality Management District.

nitrogen oxides (NOx) and 50% sulfur oxides (SOx) since the 2005 baseline year. At current pace, the Ports have exceeded their interim emission reduction milestones and are on track to meet the Draft CAAP Emission Reduction Standards.

- Through the 2006 CAAP and 2010 CAAP Update, the CEQA process for Port projects and otherwise, the Ports are actively engaged with our neighboring communities, environmental groups, business stakeholders and federal, state and local agencies in a collaborative process. These collaborations result in balancing and addressing issues of human health impact reduction, neighborhood livability, personal livelihood, education, air quality, water quality, social networks, and social equity.

Comments on AQMD'S 2010 Draft Clean Communities Plan (CCP)

We look forward to having the opportunity to continue to comment through the process of further development of and finalizing the CCP. The following represent our initial comments based upon the preliminary information provided in the draft CCP.

CCP Measures Agency-01, Agency-02, Compliance-01 and Compliance-02

As noted in the CAAP Update, the Ports feel it is essential that local municipalities make informed land-use planning decisions in the areas surrounding the ports in order to avoid aggravating potential health risk impacts. Thus, in concept, the Ports support measures such as Agency-01, which promotes better land use decisions. The Ports have had a long history, through the CAAP and otherwise, of cooperative effort with the AQMD, ARB, the United States Environmental Protection Agency (EPA) and other agencies. The Ports strongly believe that such collaboration has aided in the success of the CAAP and the emissions reductions that have been achieved. Thus, in concept, the Ports support measures such as Agency-02, which seeks Multi-Agency Coordinated Response to solve complex environmental issues.

After such a successful strategy of collaboration among agencies, the Ports' first general comment on the CCP is that any CCP measure that intends to regulate or affect other agencies such as the Ports, should use the same collaborative approach and include such agencies in development of such measures. The CCP measures Agency-01, Agency-02, Compliance-01, Compliance-02, and perhaps additional CCP measures (since it is difficult to determine from the draft CCP), appear to intend to involve other governmental agencies in a coordinated effort; however, the description of both the development and implementation of such measures is vague and it is difficult for other agencies to understand exactly the AQMD's intended role and expectations of the agencies. Therefore, at this time, we have the following questions related to CCP Measures Agency-01, Agency-02, Compliance-01 and Compliance-02:

1. Will AQMD be forming an agency stakeholder group for collaboration and input into the development of these measures? While there is mention of establishing an "Interagency Task Force" in the implementation stage of Agency-02 after the CCP

Plan is adopted, we believe that an agency stakeholder group needs to be involved in consultation and input now, as AQMD develops the measures, and not only after adoption.

2. The Ports support the "reverse CEQA analysis" for school siting but would like to better understand AQMD's intention in Agency-01 to expand this requirement for other "sensitive land use projects." How does AQMD define "sensitive land use projects"?

CCP Measure Community-03

The Ports have appreciated the many opportunities they have had to partner with AQMD to fund air quality improvement projects such as the Proposition 1B Alternative Fuel Truck Grant program, the Wilmington/San Pedro school air filtration project and the PHL Tier 2 Modernization. We therefore welcome the AQMD's funding assistance in retrofitting, repowering and replacing older, higher emitting equipment as is suggested by CCP Measure Community-03. We have found that partnering and combining our respective financial resources allows successful achievement of air quality improvement projects to a greater extent than as individual agencies.

CCP Measure Stationary-05

The Ports have concerns, however, with CCP Measure Stationary-05, which develops approaches for reducing DPM exposure by targeting "indirect sources" of air pollution. By attempting to regulate mobile sources, Stationary-05 appears to tread into regulatory areas that are under the authority of ARB or EPA. This measure may also duplicate efforts already underway by such agencies and the Ports, such as our aggressive CAAP measures. We believe that it would be counter-productive and unnecessary to develop potentially contradictory regulatory approaches for the Ports and other agencies that are already successfully implementing collaborative programs to decrease DPM emissions.

The indirect source rule discussed in the CCP has potentially wide reaching effects. However, as the CCP does not contain any draft language of the proposed indirect source rule, it is not possible to comment specifically about it and we reserve the right to do so at a future point in time in response to actual draft rule language. The CCP's discussion of the proposed rule is vague enough that it is possible, but unclear, that it would apply to the Ports, their tenants, and other associated businesses. The Ports are concerned about this potential and would like clarity as to AQMD's intentions and direction. Therefore, the Ports have a series of preliminary questions designed to gain a better understanding of the AQMD's intended rulemaking process for this proposed indirect source rule and the regulatory direction of the CCP:

1. Stationary-05 seeks to regulate mobile sources of air pollution. Upon what authority are you relying in the creation of Stationary-05 and related rules?

2. What level of CEQA analysis is the AQMD proposing for this rulemaking?

3. When will a draft of the proposed indirect source rule and preliminary draft staff report be ready for review?

4. The Ports want to understand how the terms found in Stationary-05 are going to be defined and their intended scope:
   a. How is "facility" to be defined?
   b. What are "businesses that rely on diesel mobile sources"?
   c. Do you intend the ultimate definition to include the Ports? Either as a "facility" or "business that rel[ies] on diesel mobile sources?
   d. Upon what is the applicability criterion going to be based?

5. Pursuant to Health and Safety Code § 40727: Where are the findings of Necessity, Authority, Clarity, Consistency, Non-Duplication, and Reference? When and how will these be developed?

6. Pursuant to Health and Safety Code § 40703:
   a. Have you identified the affected businesses? If so, who are they?
   b. Have you made efforts to determine the direct cost to the affected businesses? If so, what are they?

7. Proposed traffic studies to improve the flow of traffic and vehicle scheduling:
   a. Who would conduct and pay for these?
   b. When would these need to be completed; what triggers the need to conduct one?
   c. Would any part of the proposed rule affect a truck's ability to leave truck routes to deliver/pick up goods?

8. What changes to CARB's guidelines in reference to AB 2588 is the AQMD seeking? Will the public receive notice of any action in this regard?

9. Pursuant to Health and Safety Code § 40922:
   a. Have you analyzed any of the measures for cost effectiveness and ranked the proposed measures?
   b. If so, what method was used for the analysis and where are the results?
   c. If not, when will that analysis take place?

10. Have the socioeconomic impacts of the proposed indirect source rule been addressed?
    a. If so, where are the results?
    b. If not, when will that analysis take place?

Other General Comments on the CCP

Additionally, we would like to ask the District to revise its statement (page 2-5 of the Draft 2010 CCP) that the Mates III Study shows the highest cancer risks from air toxics in the vicinity of the port areas, with the highest grid cell risk of about 3,700 in a million. The cited risk levels are misleading, as they refer to risk estimates that are either over water or on Port

property. It is not appropriate to use or otherwise communicate these values as being representative of residential risks.

We also believe the Draft CCP would benefit from a brief description of the Ports CAAP as it is a recent local example of industry, air agencies, and community stakeholders effectively working together on a voluntary program. Implementation of the CAAP and the forthcoming 2010 CAAP Update represent an effective and ongoing effort to achieve real reductions in air toxics and health impacts. Discussion of the CAAP in the CCP would provide a useful template and background to both CCP Working Group members and the public as the CCP is finalized.

Thank you for this opportunity to provide comments. If you would like to discuss any of the above comments or need further information from us, please contact Heather Tomley, Port of Long Beach, at (562) 590-4160 or Kevin Maggay, Port of Los Angeles, at (310) 732-3975.

Very truly yours,

Richard D. Cameron
Director, Environmental Planning
Port of Long Beach

Christopher L. Patton
Acting Director, Environmental Management
Port of Los Angeles

cc: Richard Steinke, Executive Director, POLB
Geraldine Knatz, Executive Director, POLA
Robert Kanter, Managing Director, POLB
Michael Christensen, Deputy Executive Director, POLA
Dominic Holzhaus, Principal Deputy City Attorney, POLB
Joy Crose, Assistant General Counsel, POLA

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

STEPHEN R. MAGUIN
Chief Engineer and General Manager

June 30, 2010

File No. 31-380.10B

Ms. Susan Nakamura
Planning and Rules Manager
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765

Dear Ms. Nakamura:

Comments on the Draft 2010 Clean Communities Plan

The Sanitation Districts of Los Angeles County (Sanitation Districts) appreciates this opportunity to comment on the Draft 2010 Clean Communities Plan (CCP). As you may be aware, the Sanitation Districts are a consortium of 24 public agencies that provides environmentally sound, cost effective management of wastewater and solid wastes for about 5.7 million people in Los Angeles County and, in the process, convert these wastes into resources such as reclaimed water, energy and recycled materials. The Sanitation Districts' solid waste management system serves a large portion of Los Angeles County, including active sanitary landfills, recycle centers, transfer/materials recovery facilities, refuse-to-energy facilities, and gas-to-energy facilities. Additionally, the Sanitation Districts operate an extensive network of wastewater treatment and reclamation facilities that reduce the dependence of this area on increasingly diminishing allocations of imported water.

Our principal interest in this plan lies in the fact that despite both a considerable investment in clean air technologies and a proven track record of innovation and success in reducing emissions and nuisance impacts, often through voluntary efforts, many of our facilities may nevertheless be unfairly impacted by components of the CCP once implemented. The proposed Diesel magnet measure and additional odor/public nuisance provisions are troublesome to us.

The CCP's Risk Reduction Goals May Be Substantially Achieved Given CARB's Already Aggressive Commitment to Reduce Toxics

The most likely way that the proposed indirect source measure, STATIONARY – 05 can achieve reductions beyond those already anticipated to occur is through an extremely aggressive early retirement program of nearly all Diesel equipment. As shown in the CCP Figures 2-3 through 2-10, the existing slate of state programs, most notably the ARB's Diesel Risk Reduction Plan, will significantly and rapidly reduce emissions and exposure to toxics throughout the Basin. These new mandates were developed weighing the economic and practical feasibility of early retirements, and yet still relied on considerable saturation with Tier IV engines by 2020. Even with delays in rule implementation being contemplated by CARB as a result of the severe economic downturn, the recession has indeed resulted in substantial overall emissions reductions consistent with the 2007 AQMP (with some help from improved modeling assumptions).

Given the considerations the state weighed in forging its plan, there's very little leeway to accomplish much else without causing severe economic and operational disruption. The Sanitation Districts for example, have already committed to extensive engine replacements at the highest tier available. In many cases, these engines are used in specialized equipment like compacters, crawlers, grinders, excavators, etc., and not for mass produced vehicles or equipment like a typical 18 wheeler. Replacement or repowering of this specialized equipment cannot take advantage of economies of scale. Hence requirements to exact further controls from this niche equipment will not go as far in reducing emissions as if those same monies were spent on other alternatives.

The Sanitation Districts have committed over $18 million since 1998 on clean fuels, engine replacements or repowering projects for this kind of equipment (including $3.8 million for a CNG/LNG station). Moreover, in one solid waste management facility currently under construction (the Puente Hills Intermodal Facility), the Sanitation Districts have:

- Committed to using low emitting or alternative fuels for its equipment including its forklifts, yard holsters and a switch locomotive;
- Implemented numerous design features at that facility such as an access road under a major thoroughfare generally improving local traffic flow (thereby reducing traffic and idling emissions created in the project area), extracting a commitment from Union Pacific Railroad to use locomotives with the newest emissions control technology commercially available, and receiving commitments to use no more than two locomotives at one time at the facility, in addition to other effective design measures;

- Investigated innovative technologies in conjunction with SCAQMD staff such as retrofit DPFs with SCR and alternative fuel off-road vehicles in preparation for this and other heavy-duty uses throughout the Sanitation Districts.

Please note that many of these commitments are above and beyond measures called for in the existing state programs. To expect further emissions reductions would be extremely burdensome and potentially infeasible for facilities that have already installed BACT throughout or are operating equipment at the latest tier level. We suggest that any indirect source measure like STATIONARY – 05 consider the clean air investments already made when crafting specific measures from the CCP, especially for financially challenged essential public services that cannot reduce emissions by attrition, down-sizing or relocation.

The Existing Mechanism to Control Odors Is Very Effective

Similar to the extensive commitment that Sanitation Districts has invested in trimming its Diesel emissions, far greater capital and resources have been devoted to combating odor related nuisances. At our largest wastewater treatment facility, the Joint Water Pollution Control Plant (JWPCP) in Carson, the Sanitation Districts have expended $71.5 million on voluntary projects largely designed to address odor concerns in the community since 2000. The extensive scope of this commitment includes:

- Several areas within Primary Treatment, namely the inlet works forebays, grit chambers, interconnecting channels, sedimentation tank batteries, and raw sludge and skimmings wet wells, have been retrofitted with airtight, flat, gasketed, aluminum covers at a cost of approximately $6.5 million to contain odors. Air trapped underneath these covers, excluding the sedimentation tank batteries, is directed to a $10 million state-of-the-art, two-stage treatment process featuring biotrickling scrubbers followed by activated carbon scrubbers.
- Air trapped under the sedimentation tank covers, skimmings trough covers and primary effluent channel covers is directed to another two-stage biotrickling/activated carbon system. Three independent systems, installed at a cost of $32 million, mitigate odors from each of the primary treatment sedimentation tank batteries.
- A $23 million project to control odors from the Solids Processing biosolids storage silos, biosolids conveyors, and truck loading stations

provides for the collection of the foul air and its transport to two independent biofilter treatment systems.

- The Sanitation Districts continues to conduct award-winning odor control research at the JWPCP including the development of the aforementioned biotrickling filter, now an industry standard. A team of consulting engineers, design engineers, operations engineers, research engineers, operators, maintenance workers, electrical and instrumentation technicians, and chemists are continually engaged in the effort to operate, maintain, and upgrade the JWPCP's odor control systems.

- Several facilities have extensive community outreach programs such as the JWPCP's Citizens Advisory Committee, chaired by a member of the community, and a dedicated hotline for residents to call and report potential nuisance occurrences.

Accordingly, we are concerned that our proactive approach to address community concerns may not be acknowledged by the CCP. As discussed during the April 22, 2010 CCP Working Group meeting, stakeholders believe that proactive businesses should be rewarded for reaching-out to communities instead of subjected to new and potentially costly requirements.

We continue to support the Public Nuisance Investigation Policy in Appendix C of the CCP, including the requirements that a minimum of six unique complaints in concert with on-site verification by an SCAQMD inspector be necessary before an NOV is issued. This mechanism to handle these complaints has proven its effectiveness for decades. As the CCP notes, the episodic nature of odors makes it difficult to trace the problems to a confirmed source. Hence, it is imperative that an unbiased process is the foundation for any SCAQMD action. Please note that because of the subjective nature of smell, whether an odor is assigned to a source may be strongly influenced by that person's opinion of that facility, warranted or not. Our experience continues to show that the few odor complaints currently investigated by JWPCP staff, for example, often are attributable to other sources. To relax the standard for confirming the source and issuing an NOV would invite numerous false positives which may require the installation of unwarranted controls. Any potential change to this policy should make the procedure less arbitrary, and seek to solidify a factual, documentable and impartial basis for complaints. Furthermore, we would find it very difficult to support any change to Section 41700 of the H&SC.

Recognition of Voluntary Permit Units Will Advance the Goals of the CCP

We wish to point out that despite our commitment to abating odors, occasionally, through over-regulation, the SCAQMD makes it difficult for us to follow through on that commitment. For example, last year, the Sanitation Districts decommissioned three *voluntarily installed* odor control units and handed back to the SCAQMD the associated permits because of restrictive permit conditions. Specifically, these odor control units were voluntarily installed as a precautionary measure to further reduce the likelihood of an odor complaint, but permit conditions unrelated to odor control effectively required media replacement on a weekly instead of quarterly basis and other monitoring provisions. The economic and operational burden to regularly and rapidly change out the media exceeded the capabilities of our odor control staff, and the units were reluctantly taken off-line.

We respectfully request that SCAQMD recognize and reward such voluntary measures to control potential odors through a permitting process that recognizes voluntary actions. As illustrated above, burdensome requirements will negatively incentivize enterprise and discourage obvious cost-effective solutions.

A Cumulative Impacts Approach May Overstate the Risks

Several of the COMMUNITY proposals require an assessment of the cumulative risks to the community. Although the methodology to perform this analysis has yet to be defined, we caution against using a simplified approach like the one recently adopted by the BAAQMD in their revised CEQA Guidelines. That approach simply and conservatively adds up the MICRs from each of the facilities and other sources such as freeways within a 1000 foot radius of a new source or receptor. This overly simplified approach ignores the powerful impact of distance on declining risk as exemplified by Fig. 3-2 in the CCP.

Such an additive approach would greatly inflate the perceived risks and alarmingly exaggerate the health impacts to the community. In considering methodologies to determine cumulative impacts, we caution against any approach designed from the outset to exaggerate risks that are already conservative. We suggest instead that, until the methodology for assessing cumulative risks is fully matured, any cumulative impact assessment be paired with community level ambient monitoring as a verification tool.

COMMUNITY - 02 Should Foster A Collaborative Approach

As discussed during the CCP Working Group meetings, a collaborative approach is needed to address concerns from the community, business and regulators. If the

CCP is to succeed, no party should act independently. COMMUNITY – 02 should be structured to forge an equitable forum for all stakeholder views and limit the potential for a biased approach.

Independent actors, even with SCAQMD guidance, may abandon the rigorous approach outlined in COMMUNITY – 01. Without a neutral party to resolve disputes and ensure that all stakeholder views are weighed dispassionately, the proposed process may not be successful. To minimize the potential for disputes, perhaps an independent special board created with SCAQMD input could referee the process and ensure that all voices are heard equally.

We appreciate your consideration of our comments on the Draft CCP, and look forward to working with staff to develop a plan that furthers air quality goals. If you have any questions regarding these comments, please do not hesitate to contact me at (562) 908-4288, extension 2113.

Very truly yours,

Stephen R. Maguin

Gregory M. Adams

Gregory M. Adams
Assistant Departmental Engineer
Air Quality Engineering
Technical Services Department

PG:bb

cc: Dr. Elaine Chang - SCAQMD
Cheryl Marshall - SCAQMD

WSPA
Western States Petroleum Association
Credible Solutions • Responsive Service • Since 1907

Michael D. Wang
Senior Advisor, Southern California, Legal Issues, Budget Planning and Analysis

August 5, 2008

Via Email

Dr. Elaine Chang
Ms. Susan Nakamura
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

RE: Clean Communities Plan

Dear Dr. Chang and Ms. Nakamura:

Thank you for the invitation to attend the 2008 Clean Communities Plan Working Group (CCPWG) meeting on July 16. As you know, the Western States Petroleum Association (WSPA) has been an active participant on working groups and projects such as these since the mid-1980's. We, along with the South Coast Air Quality Management District (SCAQMD), the California Air Resources Board (CARB), and the US Environmental Protection Agency (USEPA), have been involved in numerous legislative and regulatory projects to document exposure, reduce risk, and improve overall communication with the community.

Specifically, in addition to the 18 rules the District cited as part of their air toxics program, WSPA and agencies have worked on and actively participated in:

- AB377 (California Chemical Risk Management)
- AB2588 (Toxic Hot Spots)
- USEPA TRI requirements
- USEPA and OES release requirements
- SCAQMD and CARB Community outreach efforts
- CARB Gasoline and diesel reformulation
- CARB Barrio Logan Project
- CARB Harbor Communities Monitoring Project
- CARB CHAPIS (emissions mapping)
- RWQCB GIS mapping
- Certified Unified Program Agency (CUPA)

These activities have resulted in reduced emissions, reduced exposure, and documented reductions in risk. While we understand and accept the need to be vigilant in finding new ways to reduce our footprint on the environment, risks from petroleum facilities are well within regulatory criteria/limits.

Thus, we were pleased to be invited to attend the Clean Communities Plan Working Group because of the many efforts described above. We listened attentively to the discussion and the points made by Staff and the other participants. In response to your request, attached are our thoughts.

Programmatic Design

Perhaps our foremost concern is that the CCPWG efforts must take place within the current regulatory context. As indicated above, the State of California has a rigorous and robust program to regulate emissions to manage and control risks. Any effort proposed by CCPWG must take place within this regulatory framework.

Also, the SCAQMD should embark on this project with an understanding that the State of California has designed its regulatory strategy to reduce risks to residents. In other words, rather than concentrating on emissions – which may or may not have an impact on health risk to human receptors, the State has rightly concentrated on reducing risks associated with air pollutants. This approach has been successful and any program developed by the SCAQMD should be consistent with and incorporate risk-based elements.

Hazard Identification

Also we noted that in your presentation at the CCPWG, you mentioned possible activities with regard to hazards from accidental releases. It appeared you were contemplating material substitution programs for chlorine, ammonia and perhaps other materials. As was noted at the meeting, there are several programs already in place to deal with these possible hazards. Any proposed actions for material substitutions need to consider all impacts (e.g. energy and resource use) before recommendations are made on the most appropriate technology.

Fact-Based Objectives

We notes that the Objectives of the CCPWG were to reduce exposure, address cumulative exposure from multiple sources, increase agency communication, improve communication to the public and emphasize community-based solutions. These goals need to be accomplished within the current regulatory framework and under the aegis of good science and fact-based initiatives. Specifically, the CCPWG should concentrate on reducing exposure where such reductions result in reductions in risk. Absent that linkage, the benefit of any emission reduction would be undefined and un-definable. The need for fact-based objectives will also ensure that consensus reached by the group will result in real and quantifiable improvements in the environment.

Exposure Reduction Programs

As stated earlier, exposure reduction programs certainly would be beneficial if those reductions resulted in reduced risk. Potential Emission Reduction Programs should be viewed in light of current risk reduction requirements of the State and the SCAQMD. We recognize there may be unique opportunities that occur at facilities from time to time where a facility could voluntarily reduce emissions due to changes in equipment or processes. However, the unique situations where such reductions are possible should not be construed as the norm or as the basis for further regulation. Rather, any such examples should be recognized as the efforts of a company going beyond what is required, as a demonstration of their commitment to the environment.

We urge the SCAQMD to be very careful when defining specific compounds or facilities as needing special focus. While all need to be vigilant to ensure that facilities are indeed permitted and operating under the correct emission limits. WSPA would be concerned if the CCPWG somehow highlighted a specific facility or groups of facilities for focused review or enforcement. No area or facility or groups of facilities should be identified as needing enhanced regulatory attention without specific and fact-based criteria. Public sentiment is not a basis for enhanced regulatory action.

Program Priorities

At the meeting, the District noted that some regions or areas would be highlighted for additional study such as those conducted for Mira Loma. Bearing in mind the comments noted above, any highlighting of a region for study should be based on accurate and reliable indicators of risk. While we certainly appreciate recent efforts to document the current environment, for example the MATES3 study, we would reiterate the need for ground-truthing to establish a firm and consistent baseline that facilitates a reliable risk assessment and risk management. Areas for study in this Working Group should not be defined simply by anecdotal or one-off measurements. The Wilmington HCM study has been a good example of how difficult it is to consistently measure localized exposure, convert exposure to risk, and identify risk reduction measures. Even more difficult is deciding whether any specific receptor site might be actually affected by air pollutants or which source might have actually released the emission.

Once again, we look forward to participating on this project and to continuing dialogue.

Sincerely,

970 W. 190th Street, Suite 770, Torrance, California 90502
(310) 808-2149 • Fax: (310) 324-9063 • Cell: (626) 590-4905 • mike@wspa.org • www.wspa.org

Los Angeles County Sanitation Districts
August 6, 2008

Dear Susan/Cheryl:

We appreciate your letting us submit these comments after your deadline.

1. We do not understand how a "new source review" approach to odors would work.

a) Establish an odor compound list: What would this accomplish? Any compound or collection of compounds, depending upon its concentration, can eventually become obnoxious to the perceiver. Potentially this would be a long list as every industry would have its own, possibly unique, inventory of compounds.

b) Rule 410-type OMPs and performance requirements don't seem compatible with NSR-type rules.

2. Accidental exposures has been a highly regulated area ever since Bhopal and Section 112 (r) of the 1990 federal CAA Amendments. For years we have had to comply with Cal OSHA PSM (Process Safety Management) requirements and RMPPs (Risk Management and Prevention Plans) and finally the Cal ARP (California Accidental Release Program). CalARP contains three different program levels with varying requirements depending upon past history of accidental releases, the type of industry or specific determinations made by the AA (Administrative Agency). Program 3 constitutes the most restrictive program. Additional requirements are being considered at the national level.This year Congressional committees have debated the merits of H.R. 5577 (principal issue is that Department of Homeland Security has jurisdiction over chemical plant security) versus H.R. 5533 (EPA has jurisdiction). It is our guess that one of these will probably work its way through the 111th Congress.

Potential federal legislation aside, our principal concern with switching from chlorine gas to sodium hypochlorite is the additional salt concentration that would result in the tertiary water we discharge and the impact of that salt on our groundwater recharge operations. The recharge basins are marginal in their ability to accept any more salts. Someone within LACSD much more erudite than me can explain this to you in much greater detail if you would like.

Please conside that the wastewater industry's safety record as a whole with gaseous chlorine has been outstanding. We also have a very great need for the $$$ otherwise spent on switching for the sake of switching to improve other parts of our infrastructure (like crumbling sewers).

The efficacy of gaseous chlorine versus 12% hypochlorite solution would cause delivery truck traffic to increase between three and four times what it is now. Also, instead of truck deliveries from production facitilites in Santa Fe Springs across the 605 Fwy from here, hypochlorite would have to come over from Sparks, Nevada.

Gregory M. Adams

Eastern Municipal Water District
August 7, 2008

Susan/Cheryl,

Unfortunately, I did not know about the July 16 meeting where the 2008 Clean Communities Plan concepts were presented, but I have obtained a copy of the presentation (thank you Cheryl) and have the following comments:

1. Based upon my review of the first couple of slides that discuss the approach and principal objectives, it appears that the plan is focused on continuing the efforts of the past air toxics control plans in furthering reductions of toxics, reducing the public's exposure to toxics and also to introduce mitigation or strategies to address the cumulative risk from toxics exposure. In fact, the first two thirds of the presentation are focused on toxics, better intergovernmental coordination and a better community presence/coordination. Hence, I am a little perplexed as to why issues such as odors (e.g. public nuisance) have been brought into this plan. Especially since issues such as odors were not brought up in earlier meetings/discussions of the toxics working gorup that had been meeting in late 2007 and early 2008 (that has subsequently been subsumed by this new workging group). First, you can never eliminate all complaints or perceived public nuisance issues. Second, the District already has programs in place to address public nuisance issues (Rule 402 & SCAQMD internal policies and practices, NSR for Toxics - Rules 1401, 1402). Maybe before we include strategies like developing an odor new source review program, we should evaluate SCAQMD internal program policies and practices to see if there are areas that might be improved or modified that could provide more benefit in reducing odor complaints and public nuisance cases that a new regulatory program. It also seems like the list of potential compounds could be endless. Also, what is an odor to one person could be an aroma to another and all odors are not harmful to a person's health. Anyway, it seems that there needs to be a lot more discussion of this issue.

2. Under the slide titled "Accidental Exposures" the concept of requiring the wastewater treatment industry to replace chlorine gas as a disinfectant with a "safer alternative" seems to be overreaching. Our industry is already heavily regulated by CAL-OHSA (e.g. safety), CAL-ARP and EPA regulations. And switching from chlorine gas to sodium hypochlorite would require an immense investment in captial infrastructure and costs, including higher O&M costs. Many sewage plants may not have the available space to store the equivalent amount of solution as can currently be stored in liquid chlorine storage vessels. As our industry has an incredible safety record regarding the use of chlorine gas, and since I have not heard of any public concerns regarding this use, I am again caught off-guard as to how this became an issue. Hazardous material regulations heavily regulate the transport of chlorine and other hazardous material regulations along with EPA/State of California RMP and PSM regulations regulate our use of the chlorine. This proposal (to replace with an alternative) would be adding more, unnecessary regulation upon what already exists.

Thank you for the opportunity to provide comment on this. I look forward to working with you on this plan.

Daniel McGivney

Metropolitan Water District of Southern California
August 8, 2008

Hello Cheryl and Susan,

First, thank you for the opportunity to comment and to participate in this working group. I would like to offer a few comments that reiterate some of the issues discussed at the first meeting on July 16th.

1. **Nuisance Program** – It is unclear why this element would be included in the Clean Communities Plan, which is mostly geared towards air toxics. I understand that SCAQMD already implements various internal policies and procedures that address public nuisance odors. I am not aware of gaps in these existing programs that would need to be addressed with a new program. In trying to make the plan more comprehensive to include odors, the air toxics focus of the plan may be somewhat diluted. Additionally, the science of investigating odors is quite different from air toxics; e.g. people have different odor perceptions and although some odor thresholds may be low, it doesn't necessarily mean that a chemical may be present at levels hazardous to health. As somewhat of a coincidence, on July 24th, I attended an Odor Awareness Workshop (presented by GEI Consultants) that our Water Quality group sponsored. The workshop included some discussion of this last point, as well as discussion of odors of importance, investigating odors, and odor intensity, among other topics.
2. **Accidental Exposures** – Another proposed element of the Clean Communities Plan looks to reduce and prevent exposures to toxics from accidental releases from such chemicals, as ammonia and chlorine. Employee safety, public safety, and accidental releases of these chemicals and many others are already heavily regulated under existing federal and state regulations, such as Cal-OSHA "Process Safety Management", Cal-ARP "Risk Management Plans and "Accidental Release Program", DOT for transportation, and EPA for water sector vulnerability assessments. There are also Federal legislative proposals pending that propose to capture water and wastewater chemicals under DHS chemical facility security regulations. It would be beneficial to review these existing and upcoming regulatory requirements before incorporating this element into the plan with potentially new (and overlapping) sets of regulations. The Process Hazard Analysis (PHA) component and other elements of these current regulations should already meet the objective of reducing and preventing accidental releases/exposures that is in the Clean Communities plan.
3. **Alignment with OEHHA Efforts** – As we discussed at the July meeting, OEHHA recently formed a cumulative impacts group which is slated to come up with recommendations (risk-based) in Summer 2009. It is important that the Clean Communities Plan is aligned with these OEHHA efforts and recommendations, so they can be integrated into the plan, as applicable. I understand that SCAQMD is represented on this OEHHA group.

Please call me if you have any questions. I look forward to the next meeting on August 26th.

Janet

Communities For a Better Environment/
East Yard Communities for Environmental Justice
August 12, 2008

Dear Elaine:

We are writing these comments in response to the staff presentation and discussion on July 16th during the stakeholder meeting for the *2008 Clean Communities Plan (CCP)*. We appreciate the opportunity to share with staff the expectation of our community members who are increasingly vulnerable to cumulative impact of pollution in their neighborhoods. We recognize that AQMD has come a long way in acknowledging the severity of the problems in disproportionately impacted communities throughout the Basin since we first started this dialogue about cumulative impact about 10 years ago. In July of 1998 Communities for a Better Environment published its report, *Holding Our Breath,* assessing the cumulative impact issues in the Southeast Los Angeles communities and making recommendations, many of which apply even to this day. We hope that the *2008 CCP* will offer effective regulatory solutions to addressing the issues that environmental justice groups have identified over the past decade.

Based on the staff presentation, it appears that the CCP process lacks a much needed focus on cumulative impact, and we believe that a specific cumulative impact sub-category needs to be added to the items forming the umbrella of CCP. We believe there are four broad areas to consider in addressing cumulative impact in environmental justice communities: Promoting meaningful public participation, engagement and access; significantly ratcheting up enforcement practices; improving the permitting process by including cumulative impact analysis in the criteria for the new and existing facilities; revising appropriate source specific rules and umbrella rules as well as designing new ones.

AQMD staff have correctly underlined the issue of public participation, community outreach, and enhanced community engagement as one of the central issues to addressing any environmental justice and cumulative impact problems. We strongly support the staff recommendation to increase AQMD¢s efforts in enhancing the capacity of communities to participate in air quality decisions that impact their quality of life. We believe investing in community dialogue based on respect for the community (experience), who has the first hand knowledge of impacts, will greatly benefit the residents, AQMD and the business community. We will provide staff with a list of best practices on this topic in our future comments. We also believe that AQMD can learn from evaluating its past experiences of interacting with community and draw important lessons when it has fallen short.

Another area that AQMD staff emphasized in its presentation is enforcement. We have seen many improvements in this area over the past years, and we appreciate the effort of AQMD enforcement staff in responding to community complaints and following up with appropriate disciplinary actions as warranted. However, AQMD has not been proactive in its enforcement, and we believe there are many additional measures that AQMD could adopt in enhancing its enforcement regime in disproportionately impacted communities. Allocation of necessary resources, enhanced monitoring, building the capacity of community to interact with enforcement staff, offering appropriate trainings to community members, increasing the understanding/sensitivity of enforcement staff of environmental justice issues, and a number of other measures would greatly benefit our communities. Again, we will provide AQMD with a list of necessary changes in this area in our future comments and discussions.

The next and one of the most significant policy areas that AQMD needs to reexamine pertains to its source specific rules, umbrella rules and permitting practices. Improving permitting practices for new facilities and affecting the behavior of existing facilities based on revising current rules are central to any serious attempts to address cumulative impact. As it currently stands, the regulatory model of AQMD regulates facilities without much consideration to other facilities in a neighborhood. If a new polluting facility applies for a new permit (or permit to expand), AQMD permitting staff look at the existing rules and the final permitting decision offers no consideration to the cumulative level of pollution in the neighborhood. Whether there are five other highly pollution sources in the neighborhood or none does not have any bearing on the District¢s decision to issue the permit. In other words, cumulative impact currently is not a consideration for issuing permits, and we strongly believe it should be.

This issue is closely related to the way source specific rules and umbrella rule such as 1401 and 1402 are designed. The rules currently fail to account for cumulative impact criteria. At the heart of addressing cumulative impact is fixing this great regulatory flaw. Source specific rules and umbrella rules should be revised to take into account the whole picture. The health protective approach requires placing the community at the center and looking at the impacts from the perspective of the impacted community.

We also would strongly support AQMD in expanding its effort to reach out to planners and educating them about the air quality impacts of their decisions. AQMD expertise can provide much needed guidance for cities in designing better plans, assessing impacts of different projects as well developing criteria to account for cumulative impact throughout the CEQA process. We also believe that AQMD, as a responsible agency, should assume a more aggressive posture in commenting on proposed projects in disproportionately impacted communities.

We understand that all this is a great undertaking, and it will influence many operational aspects of AQMD in rule-making, permitting, enforcement and other areas. However, we believe the negative health impacts borne by vulnerable communities throughout the years warrants commitment to action on this issue, and it is in fact long overdue. We are interested in engaging with AQMD staff and other interested stakeholders to suggest practical and effective approaches to arrive at a health protective regulatory structures with a focus on addressing cumulative impacts.

Sincerely,

Bahram Fazeli
Research & Policy Analyst
Communities for a Better Environment

Angelo Logan
Executive Director
East Yard Communities for Environmental Justice

California Council for Environmental and Economic Balance

100 Spear Street, Suite 805, San Francisco, CA 94105 • (415) 512-7890 • FAX (415) 512-7897

November 10, 2008

Susan Nakamura
Cheryl Marshall
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765

RE: SCAQMD Clean Communities Plan

Dear Ms. Nakamura and Ms. Marshall,

CCEEB commends the South Coast Air Quality Management District ("the District") for its commitment to issues of environmental justice. The proposed 2008 Clean Communities Plan ("the Plan") is an ambitious undertaking and, as far as we are aware, one of the first attempts to directly address cumulative impacts by an environmental regulatory agency in California. We understand that this document and framework are proposed in lieu of the air toxics control plan update anticipated based on the MATES II results. We trust that the District's effort will be informed by other contemporary work efforts, such as the Cumulative Impacts and Precautionary Approaches project at Cal/EPA's Office of Environmental Health Hazard Assessment (OEHHA).

At this time CCEEB wishes to bring to your attention two overarching concerns along with additional specifics.

In general, CCEEB notes that the Plan goes well beyond control of air toxics, which has been the subject of past air toxics control plans. For example, the Plan includes sections on nuisance and hazardous material bans. On the other hand, the Plan fails to adequately address mobile sources, which account for 94% of the risk from air toxics in the basin based on the MATES III study. Staff should consider the scope and focus to ensure that proposed measures are within the District's purview and result in quantifiable and measureable reduction in risk to public health.

The Plan, as currently proposed, sets up a program that results in "redlining," that is, the limitation or prohibition of stationary sources solely based on location and regardless of actual emissions, on-site control technologies, or relative contribution to the risk measured and/or modeled by MATES III. CCEEB has long opposed redlining in any form, but particularly in cases where mobile sources play such a significant role. Besides the inequity problem, misdirected focus diverts resources while failing to address real public health problems.

CCEEB very much thanks the District for the opportunity to comment and to participate in the work group. We look forward to discussing our viewpoints with staff and other stakeholders. Our more specific observations on the plan are organized below, according to the organization of the Plan.

Future Year Modeled Estimated Risk

We want to confirm the District's commitment to prepare, as part of both the draft and final plans, an emission inventory of toxic air contaminants for future years - including the years 2010, 2015, and 2020. CCEEB believes that the inventory should be based on all measures that have been approved by the ARB and the SCAQMD, as well as measures that are proposed in the AQMP and the SIP. The inventories should also be based on the best available source emission inventories, and not limited to the inventories prepared as part of the AQMP. In conjunction with the future year toxic air contaminant inventories, CCEEB believes that the District should also prepare maps showing basin-wide modeled estimated risk (similar to MATES III Figure ES-4), as well as charts which illustrate the change in air toxic risks (similar to MATES III Figure ES-5).

Community-Based Solutions

Community Exposure Study (COMMUNITY-01)

Phase 1: Community Screenings

Currently, there is no commonly accepted methodology to "screen" communities of concern. The District should carefully consider its work in this area, as it will set precedent. We encourage staff to coordinate with the state's effort (Office of Environmental Health Hazard Assessment) in this regard.

Regarding the proposed criteria, the relative weighting of each screening criterion should be transparent and clearly articulated in advance. As much as possible, prioritization should be based on fact-based risk assessment, not simply the perception of risk. First, this directs resources to the most at-risk communities, so that even in its pilot stage, the Plan will deliver real and near-term results where they are needed most. Second, this guarantees the protection of all communities, even those in which civic engagement may be low. The District might consider adding a capacity-building element to the Plan to ensure that all communities have the resources and education they need to engage in the process.

The screening process should be open for periodic review and adjustment. In some cases, the District may wish to correct program design flaws based on lessons learned during the implementation phase. In other cases, actual emissions and/or risk levels may change over time, whether for good or bad. Given the scientific and political uncertainty, it makes sense to allow for later course corrections.

Phase 2: Community Input

Environmental policy issues are frequently scientifically-complex and contentious. Because of the complexity of the issues, before a dialogue can begin in earnest, all stakeholders must be in agreement on what the issues, assumptions and facts—what is known as a "shared understanding" of a problem. In the absence of clearly identified

issues, assumptions and facts up front, it becomes difficult to engage in productive and meaningful dialogue, let alone reach consensus. Mutually agreed-to clarification can only save time and reduce conflict later in process.

Because of the diversity of interests and various levels of trust among stakeholders, an objective third-party facilitator can play an important role in maintaining the credibility of the process. A neutral facilitator can assist with probing questions when the dialogue is stalled, help explore differences, and help to ensure that areas of agreement become the principle guide posts for moving the dialogue forward.

Other agencies, local government, planners, and other experts must be brought into the process as appropriate. For example, if a community identifies problems associated with the impact of new development, land use planners and decision-makers should be at the table. Transportation planners, public health officials, and education groups are other examples.

Phase 3: Community-Based Solutions

The process for developing an exposure reduction plan should be closely tied to the actual emissions burden faced by a community. Thus, the common understanding of the issues, assumptions and facts, held by all stakeholders, is a critical outcome of phase two above.

In the third phase, the District might consider organizing the community plans around general categories based on the nature and type of impact, even where these overlap (for example, mobile sources, existing permitted sources, new sources, land use planning and siting issues, communities subject to intensive goods movement activities, and cross media). First, this helps establish a close problem-cause connection to proposed solutions. Second, classification helps the study and translation of lessons learned to other areas facing similar issues.

If permitted facilities are likely to be affected, bring business and industry representatives into the process at the earliest point possible. Too often stakeholders meet late in the process when interests are already vested and positions entrenched. Moreover, stakeholders often have divergent understandings of the project or proposal being addressed; eliminating misconceptions early on facilitates collaborative solutions.

Likewise, if the focus of concern falls partially or largely outside of the District's jurisdiction, ensure that the appropriate agency, authority, or decision-maker is part of the process at the earliest point possible. Whenever possible, the District should attempt to leverage existing programs and funding sources.

All parties should work together to develop consensus criteria by which proposed measures will be evaluated. District staff should provide detailed analysis of each measure, generally based on these criteria, and not wait until rulemaking proceedings.

Useful analysis might include, but is certainly not limited, to:

- Net benefit, expressed primarily in terms of reduced risk
- Ancillary or "co-benefits"

- Direct costs, both in terms of compliance costs and program costs
- Indirect or external costs, e.g., grid reliability, energy affordability, economic activity
- Funding mechanisms, including potential funding sources (e.g., existing funding sources or new?) and funding responsibility (e.g., emission sources or the general public)
- Role of other agencies and entities; coordination with other efforts
- Impact of anticipated benefits from regulations and legislation, including AB 32, AB 118, and ARB on-road and off-road diesel rules

Options to Address Cumulative Impacts

> *"Cumulative impacts means the exposures, public health or environmental effects from the combined emissions and discharges in a geographic area, including environmental pollution from all sources, whether single or multi-media, routinely, accidentally, or otherwise released. Impacts will take into account sensitive populations and socio-economic factors, where applicable and to the extent data are available."*
>
> *–Cal/EPA working definition*

CCEEB agrees that the importance of cumulative impacts warrants special consideration and CCEEB supports a comprehensive approach to assessing the causes and solutions of cumulative impacts. However, CCEEB is concerned that the approach proposed by staff is unnecessarily narrow. Focusing on one piece of the puzzle—in this case, only permitted sources—fails to address the "cumulative" part of cumulative impacts. Instead, this narrow focus risks the prospect of penalizing those permitted that have already contributed their fair share of emission reductions for the benefit of air quality in the basin. As the District knows, permitted sources account for 2%-6% of the risk from air toxics, so even eliminating all stationary sources would achieve only a marginal benefit to public health.

The underlying challenge is how to address problems like cumulative impacts within the confines of our existing regulatory system—that is, fixing gaps in decision-making processes. While it is tempting to simply make current and new rules more stringent, this ignores the broader systemic failures that got us here in the first place, and may not even result in improved public health outcomes.

At the very least, all air emission source categories must be considered: stationary, mobile, and indirect. To the fullest extent possible, each source category should be responsible for its "fair share" of emission reductions, based on sound scientific analysis. For sources that lie outside of the District's jurisdiction, responsible agencies should be brought into the process and made partners in this work. Land-use planning and transportation planners must be part of the discussion, too, for surely they play a role in addressing cumulative impacts.

Differential Toxic Fees

If additional funding or a new funding source is needed, the District should evaluate all funding mechanisms including existing fee and tax revenues. Any funding mechanism that is predicated on the "polluter pays" principle should ensure that each source category pays its fair share and that no source category is expected to subsidize reductions in another. Since mobile sources are 94% of the risk from air toxics, we are troubled that staff only proposes fees for permitted sources (2%-6% of risk). Notwithstanding the extraordinary demands on existing mobile source revenues, the existence of these revenue mechanisms should not be overlooked when discussing solutions to cumulative impacts, the principle cause of which are mobile sources.

With regard for any potential stationary source fee mechanism, the District should not invent another fee system. Rather, the District should utilize its existing fee structure, directing fees as needed to the most cost-effective measures for reducing cumulative impacts. This results in greater uniformity across the entire basin. As new communities are added to the program, fees will not need to be restructured block-by-block or facility-by-facility, resulting in a confusing patchwork of tiered fees.

The District should evaluate how a cumulative-impact-based toxic fee interacts with CEQA mitigation fees and local government authority. For example, the District could inadvertently discourage development in areas in which local government is trying to encourage economic growth. Coordination between the District and local land use authorities may also be necessary to ensure that permitted sources are not assessed duplicate fees used ostensibly for the same purpose.

Differential Requirements through Source-Specific Alternative Assessments

(See comments under Source-Specific Programs)

Monitoring and Enforcement

Enhanced Enforcement Program (ENFORCEMENT-01)

CCEEB supports this section as we currently understand it, but note a lack of detail. Improving district communication with and response to communities is an important foundation to the Plan, without which, other measures will surely fail.

Enhanced Community Response (ENFORCEMENT-02)

Accurately verifying and responding to community complaints is of utmost importance. For the greatest effectiveness, the geographic area for each hot list area should be finely drawn in order to maximize limited resources. For example, if a "hot" spot covered multiple point sources or multiple source categories, then resources become diffused and enhanced enforcement may not be effective. Likewise, CCEEB would be concerned if facilities would arbitrarily fall under enhanced enforcement because of their type of operations rather than their complaint record or actual emissions history.

We are concerned with the proposal to recognize clean facilities. Past efforts to do this have failed to devise commonly acceptable criteria by which to define what is "clean". Criteria must recognize differences in size and complexity from site-to-site. CCEEB opposes any criteria based on overall emissions.

Source-Specific Programs

Facilities Using Acutely Hazardous Materials (STATIONARY-04)

Several other stakeholders have commented regarding their specific concerns to this section. CCEEB supports the argument that other programs and agencies already regulate the use of hazardous materials and that new oversight by the District seems duplicative. The District should first identify what regulatory gaps it is trying to fill and then coordinate with responsible agencies, should a need arise.

More generally, CCEEB believes that regulations should be based on risk management and not outright chemical bans. Chemicals are not inherently risky. Rather, risks result from a combination of several factors including a chemical's potential hazard, potential routes of exposure, and dose-response relationships.

If the District does move in favor of chemical-by-chemical bans, then CCEEB strongly encourages staff to employ full life-cycle analysis that takes into account the concepts of "sustainable chemistry". Sustainable chemistry focuses on the end application or service delivered, comparing all of the potential options (materials and processes) across the full life-cycle. However, we believe that this full scope of evaluation falls well outside of the District's primary mission; the objectives of this section can better be met through enhancing inter-agency coordination and partnership.

Agency Coordination

In general, CCEEB strongly supports measures that improve district coordination with local government and other agencies. Whenever possible, the District should attempt to leverage existing programs and funding sources by building partnerships with other authorities.

Staff could include greater specificity as to which local government entities (e.g., MTA, planning commissions, etc.) and which agencies (e.g., Air Resources Board, Department of Toxic Substances Control, Office of Environmental Health Hazard Assessment, etc.) might be included and at which point in its processes.

Nuisance

CCEEB recognizes that odors contribute to the "cumulative impact" borne by a community and, as such, should be a consideration. We are interested to learn more about what direction staff might take, especially given the highly subjective nature of nuisance complaints and the potential for abuse. We note that nuisance is defined in California Civil Code § 3479 and regulated under Health and Safety Code § 41700 and expect that any district rule will be consistent with State law.

CCEEB is interested to learn more about how the District might copy the nuisance rule employed by the Bay Area air district and what changes this would make to existing practices. An important aspect of the Bay Area approach is that inspectors attempt to verify odors immediately following complaints. Sufficient safeguards should be built into any nuisance rule so that it cannot be abused.

We would disagree, however, with rules that presume a problem exists based on a given category of sources or facilities, especially if this results in increased stringency even in circumstances where no nuisance has been reported.

Education and Outreach

Whenever practical, the District should partner with outside organizations or programs dedicated to environmental and public health information and education. Partnerships greatly increase both the quality and reach of public education and outreach. Community groups and associations are another good conduit for information to the public and can certainly play a significant advisory role.

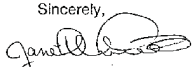
Review Procedure

CCEEB believes it is important that there continue to be open discussion and ample opportunity for review and comment. The District's process for the development of the CCP should ensure that the following principles are adhered to:

- Continued monthly meetings with the CCP Working Group.
- District to release the draft CCP.
- District to hold a public CCP Working Group meeting no earlier than seven days after releasing the draft plan.
- District to provide 21-day comment period starting the day after the public meeting of the CCP Working Group.
- The District will place all comments on the CCP website.
- The final staff report should contain a "response to comments" section.

We look forward to ongoing discussions with the District, its staff, and other interested stakeholders as the Plan is developed. We hope these comments are productive and constructive. Thank you.

Sincerely,



Janet Whittick
CCEEB

cc: Dr. Elaine Chang, SCAQMD

APPENDIX F

GLOSSARY

2010 Clean Communities Plan
Glossary

Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly) is an Assembly Bill which was enacted in 1987, and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels.

California Environmental Quality Act (CEQA) is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. CEQA was adopted in 1970 and intended to: inform governmental decision-makers and the public about potential environmental effects of a project; identify ways to reduce adverse impacts; offer alternatives to the project; and disclose to the public why a project was approved.

Cancer Risk is the increased probability that an individual exposed to an average air concentration of a chemical will develop cancer when exposed over 70 years. Cancer risks are often expressed on a per-million basis for comparative purposes. As an example, a cancer risk of 100 in a million at a location means that the individuals staying at that location for 70 years have a 100 in a million chance of contracting cancer. (Multiple Air Toxics Exposure Study [MATES-II], Final Report, SCAQMD, March 2000)

Cumulative Air Pollution Impact is an adverse health effect, risk or nuisance from exposure to pollutants released into the air from multiple air pollution sources. (White Paper on Potential Control Strategies to Address Cumulative Impacts From Air Pollution, SCAQMD, August 2003)

Environmental Justice means the equitable environmental policymaking and enforcement to protect the health of all persons who live or work in the AQMD, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution. (White Paper on Potential Control Strategies to Address Cumulative Impacts From Air Pollution, SCAQMD, August 2003)

Health Risk Assessment means a detailed comprehensive analysis prepared to evaluate and predict the dispersion of hazardous substances in the environment and the potential for exposure of human populations and to assess and quantify both the individual and population wide health risks associated with those levels of exposure. (Air Toxics "Hot Spots" Information and Assessment Act of 1987, CA Health and Safety Code, Part 6, Division 26, Section 44306)

Multiple Air Toxics Exposure Study (MATES) is a series of three studies conducted to quantify the magnitude of

population exposure risk from existing sources of selected toxic air contaminants in the South Coast Air Quality Management District.

Sensitive Receptor locations include schools, hospitals, convalescent homes, day-care centers, and other locations where children, chronically ill individuals, or other sensitive persons could be exposed. (Risk Assessment Procedures for Rules 1401 and 212, Version 7.0, SCAQMD, July 2005)

Toxic Air Contaminant (TAC, or "Air Toxic") is an air pollutant which may cause or contribute to an increase in mortality or serious illness, or which may pose a present or potential hazard to human health. (Rule 1401 – New Source Review of Toxic Air Contaminants, SCAQMD, September 2010)

ATTACHMENT C

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

SUBJECT: **NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT**

PROJECT TITLE: **2010 CLEAN COMMUNITIES PLAN**

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, the South Coast Air Quality Management District (SCAQMD) is the Lead Agency and will prepare a Notice of Exemption for the project identified above.

The SCAQMD has reviewed the proposed project pursuant to the CEQA Guidelines §15002(k)(1), the first step of a three-step process for deciding which document to prepare for a project subject to CEQA. This review indicates that the plan is not a project under CEQA. The basis for this conclusion is as follows. The SCAQMD Board has made a preliminary decision to accept the draft proposal. That preliminary decision does not commit the agency to a definite course of action and, therefore, does not constitute an approval under CEQA. As a result, the acceptance of this plan will not have a legally binding effect on later activities.

Even if the acceptance of the plan may be considered a project, review of the proposed project indicates it is also statutorily exempt from CEQA pursuant to state CEQA Guidelines §15262. The project involves a planning study for possible future actions, which the agency or Board has not approved, adopted or funded. The intent of the plan is to provide guidance for potential future actions anticipated to result in environmental benefits by reducing toxic emissions and improving human health. Possible future actions proposed in the plan, if determined to be feasible and within the authority of the SCAQMD, will be brought back to the Board for approval and will be assessed for potential environmental impacts at that time.

A Notice of Exemption has been prepared pursuant to CEQA Guidelines §15062 – Notice of Exemption. The Notice of Exemption will be filed with the county clerks of Los Angeles, Orange, Riverside and San Bernardino counties immediately following adoption.

Any questions regarding this Notice of Exemption should be sent to Jeff Inabinet (c/o Planning, Rule Development & Area Sources) at the above address. Mr. Inabinet can also be reached at (909) 396-2453.

Date: November 5, 2010 **Signature**:

Steve Smith, Ph.D.
Program Supervisor
CEQA Unit
Planning, Rule Development &
Area Sources

Reference: California Code of Regulations, Title 14

NOTICE OF EXEMPTION

To:	County Clerks of Los Angeles, Orange, Riverside, San Bernardino	**From:**	South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765

Project Title:

2010 Clean Communities Plan (CCP, formerly the Air Toxics Control Plan)

Project Location:

South Coast Air Quality Management District (SCAQMD) area of jurisdiction consisting of the four-county South Coast Air Basin (Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties), and the Riverside County portions of the Salton Sea Air Basin and the Mojave Desert Air Basin.

Description of Nature, Purpose, and Beneficiaries of Project:

The 2010 CCP is a planning document that outlines the overall control strategy for the SCAQMD's Air Toxics Control Program (ATCP). The CCP is the continuing effort to update the ATCP developed in 2000 and the subsequent addendum in 2004. The objective of the 2010 CCP is to reduce exposure to toxic air contaminants beyond that which would be accomplished through the implementation of current programs including local, state and federal efforts. The 2010 CCP utilizes a variety of implementation approaches and tools to address exposure to air toxics at the community level and develop solutions. The CCP is an action plan which identifies activities for the public, community representatives, agencies, elected officials and regulated industries to help identify air quality issues in their neighborhoods and work together to develop solutions.

Public Agency Approving Project:	**Agency Carrying Out Project:**
South Coast Air Quality Management District	South Coast Air Quality Management District

Exempt Status:

Three Step Process [CEQA Guidelines §15002(k)(1)]

Statutory Exemption – Feasibility and Planning Studies [CEQA Guidelines §15262]

Reasons why project is exempt:

The CCP contains air toxic control strategies that are not required by law or any other public agencies. The action taken by the Governing Board will be to accept the plan, which does not constitute adoption, approval or funding. Consequently, the plan will not have a legally binding effect on later activities. Therefore, the plan does not constitute a "project" and thus, no CEQA analysis is required. Further, the control strategies in the plan are, in effect, planning studies for possible future actions. As a result, the 2010 CCP is statutorily exempt from CEQA pursuant to CEQA Guidelines §15262. Individual CEQA analyses would be required for individual measures at the time of their development.

Certification Date:

SCAQMD Governing Board Hearing: November 5, 2010, 9:00 a.m.; SCAQMD Headquarters

CEQA Contact Person:	**Phone Number:**	**Fax Number:**	**Email:**
Mr. Jeff Inabinet	(909) 396-2453	(909) 396-3324	<jinabinet@aqmd.gov>
Rule Contact Person:	**Phone Number:**	**Fax Number:**	**Email:**
Ms. Cheryl Marshall	(909) 396-2567	(909) 396-3324	<cmarshall@aqmd.gov>

Date Received for Filing_____

Signature *Signed upon certification*

Steve Smith, Ph.D.
Program Supervisor - CEQA
Planning, Rule Development and Area Sources

Back to Agenda

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 36

PROPOSAL: Adopt Proposed Rule 1714 - Prevention of Significant Deterioration for Greenhouse Gases, and Amend Regulation XXX –Title V Permits

SYNOPSIS: On June 3, 2010, U.S. EPA promulgated a "tailoring rule" establishing BACT and permitting requirements for greenhouse gas (GHG) emissions under Prevention of Significant Deterioration (PSD), and Title V programs. U.S. EPA proposed a phased approach to the regulation and permitting of GHG sources. Staff is proposing a new rule for PSD for GHGs (PR 1714), and amendments to Title V (Regulation XXX) programs to implement the federal provisions.

COMMITTEE: Stationary Source, September 24, 2010, and October 15, 2010, Reviewed

RECOMMENDED ACTION:
Adopt the attached resolution:

1) Certifying the Notice of Exemption for Proposed Rule 1714 – Prevention of Significant Deterioration for Greenhouse Gases, and Proposed Amended Regulation XXX – Title V Permits; and
2) Adopting Rule 1714 – Prevention of Significant Deterioration for Greenhouse Gases, and Amending Regulation XXX – Title V Permits.

Barry R. Wallerstein, D.Env.
Executive Officer

LT:JW:RP:PP

Background

The District staff is proposing to amend Regulations XVII – Prevention of Significant Deterioration (PSD), and XXX – Title V Permits, to implement federally mandated requirements for greenhouse gases (GHG) for the PSD and Title V programs. These

federal programs are implemented by the District through the enforcement of these two regulations. Regulation XVII amendments will incorporate federal requirements for GHGs by reference into a new rule, Rule 1714 – PSD for GHGs. Regulation XXX amendments would add federal GHG requirements into the current District rules.

U.S. EPA promulgated regulations regarding stationary source permitting and BACT requirements for GHGs which was necessary because of EPA's action in response to *Massachusetts vs. EPA 549 U.S. 497 (2007).* On April 2, 2007, the U.S. Supreme Court found that GHGs are air pollutants under CAA section 302(g). As a result, the Supreme Court found that EPA was required to determine, under CAA section 202(a) whether (1) GHGs from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or (2) the science is too uncertain to make a reasoned decision. After issuing a proposal and receiving public comment, the EPA Administrator signed two distinct findings regarding GHGs under CAA section 202(a) on December 7, 2009: Endangerment Finding and Cause or Contribute Findings. Because these findings were made under the Clean Air Act, stationary sources are then subject to regulation for GHGs as air pollutants. U.S. EPA published a GHG tailoring rule on June 3, 2010 (75 FR31514) to establish reasonable thresholds for Title V and PSD for GHGs.

The PSD program is a federal preconstruction review and permitting program (40 CFR Part 52) for attainment and unclassified air contaminants applicable to major stationary sources and major modifications. The District currently has partial delegation to implement this program through Regulation XVII – PSD.
Title V is a federal operating permit program, 40 CFR Part 70, implemented by state and local agencies. The District implements federal Title V requirements through Regulation XXX – Title V Permits, which has been approved by U.S. EPA but is not in the SIP.

Regulation Proposal
The proposed adoption of PR 1714 – PSD for GHGs, and amendments to XXX - Title V Permits, are necessary to implement federal changes published June 3, 2010 and effective August 2, 2010. The first phase-in date for implementation of requirements is January 2, 2011, followed by a second step implementation date of July 1, 2011. The proposed amended rules reflect these time-frames.

Regulation XVII – Prevention of Significant Deterioration
There is one new rule proposed for adoption in Regulation XVII - PSD, PR 1714 – PSD for GHGs. This rule adopts by reference 40 CFR Part 52.21, the federal requirements for the PSD program, and specifically exempts those sections of the federal regulation that are not applicable to GHGs. Thus, PSD will include BACT for GHGs, once it is developed by the U.S. EPA, or as determined by AQMD on a case-by-case basis, and public notification and participation.

The thresholds are as follows:

Step 1, as of January 2, 2011 – source already subject to the PSD regulation for new construction or a modification for any attainment pollutant, and having an increase in GHG emissions on a carbon dioxide equivalent (CO_2e) basis (Global Warming Potential [GWP] applied) $\geq$75,000 tpy CO_2e **and** with a net emission increase greater than zero of GHG emissions on a mass basis (no GWP applied), will be required to undergo assessment of BACT for GHG emissions.

Step 2, as of July 1, 2011 - all sources subject to the regulation through Step 1 will continue to be subject to the rules and additionally, sources with a potential to emit (PTE) GHGs $\geq$100,000 tpy CO_2e and emitting GHGs or an NSR pollutant above the 100/250 tpy (mass based) statutory thresholds, will be subject to the regulation. Furthermore, on or after the July 1, 2011 date, modifications of a "major source", including those determined to be a major source solely on the basis of GHG emissions, with a net emissions increase of GHGs of $\geq$75,000 CO_2e (GWP applied), and a net increase in GHGs calculated on a mass basis (no GWP applied) equal to or exceeding 0 tpy, will be subject to the regulation. These facilities will be subject to BACT for GHGs. The U.S. EPA regulation also states that sources emitting <50,000 tpy CO_2e would not be subject to the regulation until at least April 30, 2016. Additional federal rulemaking would be necessary to regulate such sources.

Regulation XXX – Title V Permits

Amendments to Regulation XXX are proposed for seven of the nine rules in the regulation. PAR 3000 – General, is proposed for amendment by adding three definitions. PAR 3001 – Applicability, is proposed to be amended by adding the January 2, 2011 and July 1, 2011 dates for including GHGs in Title V permits. PAR 3002 – Requirements, is proposed to be amended by adding the phase-in dates and threshold levels. PAR 3003 – Applications, PAR3005 – Permit Revisions, and PAR3006 – Public Participation, are proposed for amendment only due to references in those rules to definitions in PAR 3000 – General, and the proposed changes in the numbering sequence in that rule. Proposed Amended Rule 3008 – Potential to Emit Limitations, authorizes sources to cap their PTE to avoid applicability of Title V based solely on GHG emissions.

Currently, the District has issued approximately 500 active Title V permits. Staff has identified 55 existing facilities which may potentially be impacted by the Title V federal regulations. These facilities are primarily classified in the following industries: cement, cogeneration units, electric power generation, hydrogen plant, inorganic chemical manufacturing, and petroleum refineries. This information is based on GHG emissions reported to CARB for 2008. Staff is not able to estimate the number of facilities that may be subject to PSD.

Public Process
A public workshop was held on September 9, 2010. Comments received through the close of comments September 17, 2010 are addressed in the draft Staff Report (See Response to Comments). A public consultation meeting was held October 12, 2010. EPA and ARB staff reviewed the draft rules and provided informal comments.

CEQA and Socioeconomic Impacts
SCAQMD staff has reviewed the Proposed Rule 1714 – PSD for Greenhouse Gases, and the proposed amendments to Regulation XXX – Title V Permits, and determined them to be exempt from CEQA requirements pursuant to State CEQA Guidelines §15268 – Ministerial Projects. A Notice of Exemption will be filed with the county clerks immediately following adoption of the proposed project.

AQMP and Legal Mandates
The District is adopting PR 1714 – PSD for GHGs, and amending PAReg XXX – Title V Permits, to implement the federal requirements for GHGs. These federal requirements are not included in the AQMP, but are federal requirements under the Clean Air Act, and upon adoption will be forwarded to CARB and U.S. EPA for approval, and in the case of Rule 1714, for inclusion in the SIP.

Implementation Plan
The proposed amendments do not materially affect the structure or function of existing programs associated with the implementation of Regulations XVII – Prevention of Significant Deterioration, and XXX – Title V Permits, or any other AQMD rules. Staff is available to assist facilities covered by the proposed amendments.

Resource Impacts
Current AQMD resources are expected to be sufficient to implement and enforce Proposed Rule 1714 – Prevention of Significant Deterioration for Greenhouse Gases, and Proposed Amended Regulation XXX – Title V Permits.

Attachments
A. Summary of Proposal
B. Key Issues and Responses
C. Rule Development Process
D. Key Contacts List
E. Resolution
F. Proposed Amended Rule Language
G. Final Staff Report
H. NOE

ATTACHMENT A

SUMMARY OF PROPOSAL

Proposed Rule 1714 – Prevention of Significant Deterioration for Greenhouse Gases; and Proposed Amended Regulation XXX – Title V Permits

- PR 1714 – adopts by reference 40 CFR Part 52.21 (PSD) and excludes those portions not applicable to GHGs.

- PAR 3000 – General – Adds GHGs to the regulation's purpose; adds definitions for carbon dioxide equivalent, global warming potential, and greenhouse gas; amends definition of minor permit revision to include sources with $\leq$ 75,000 tpy CO_2e.

- PAR 3001 – Applicability – Adds applicability of GHG requirements to the Title V program.

- PAR 3002 – Requirements – Adds compliance dates and thresholds for GHGs for Title V program.

- PAR 3003 – Applications; PAR 3005 – Permit Revisions; PAR 3006 – Public Participation – Updates numbering due to changes in other rules.

- PAR 3008 – Potential to Emit Limitations – Adds applicability for PTE limitations; adds de minimis facility threshold for GHG; adds emission limitation threshold for GHGs.

ATTACHMENT B

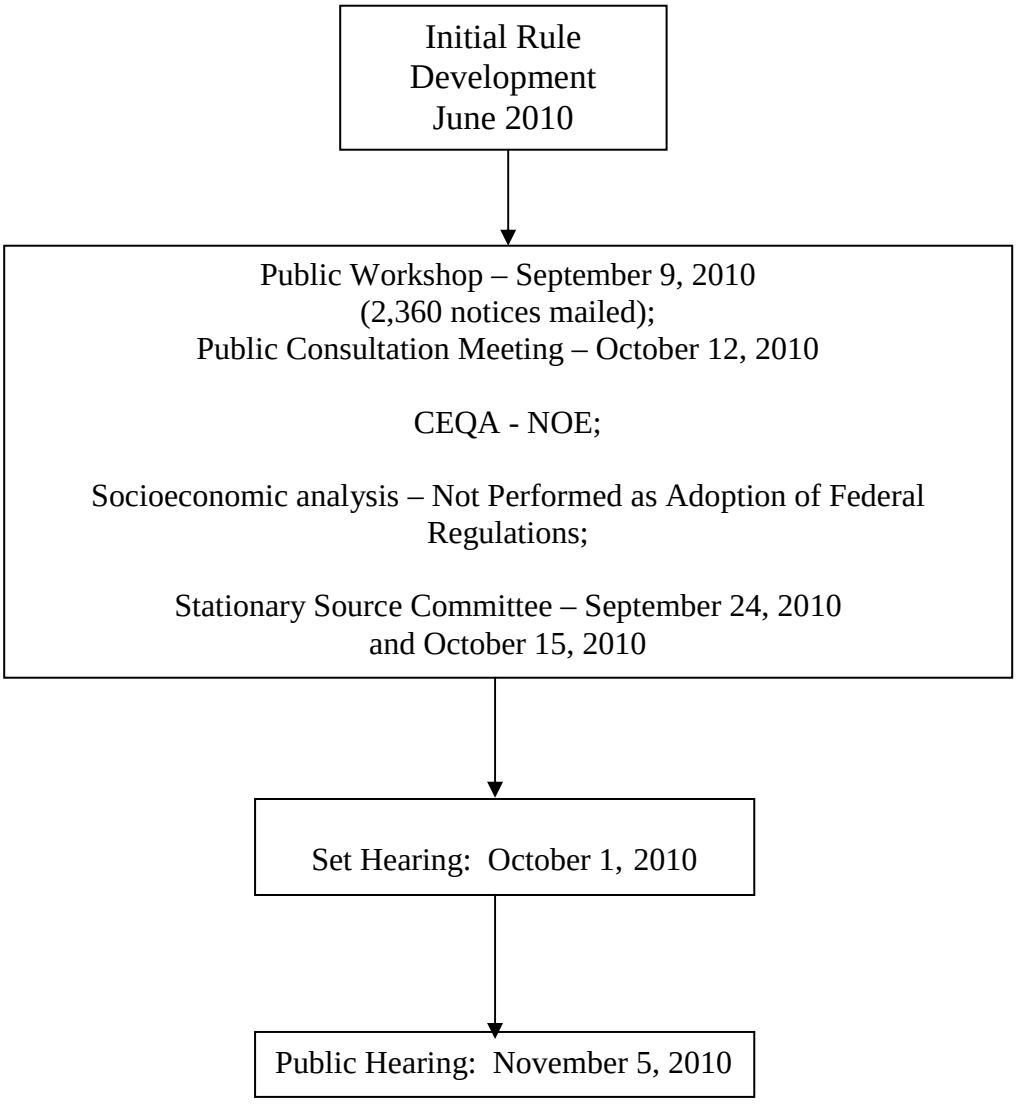
KEY ISSUES AND RESPONSES

Proposed Rule 1714 –PSD for GHGs, and Proposed Amended Regulation XXX – Title V Permits	
These amendments and adoption of a proposed rule will implement Federal requirements for GHGs for the Federal Prevention of Significant Deterioration, and Title V programs.	
• BACT for GHGs not well defined	Only BACT and public notice/participation will be required; no modeling will be required. Federal BACT currently being developed and will be applied to sources of GHG emissions; where AQMD must make case-by-case BACT determinations staff will work closely with affected facilties.
• CEQA and Socioeconomic Analyses should be done	Adopting federal requirements; these analyses are not required. The project is exempt from CEQA because implementation is ministerial. A socioeconomic assessment is not required because sources must comply, whether through AQMD's program or U.S. EPA's program.

ATTACHMENT C

RULE DEVELOPMENT PROCESS

Proposed Rule 1714 – Prevention of Significant Deterioration for Greenhouse Gases, and Proposed Amended Regulation XXX – Title V Permits



Five (5) months spent in rule development.

ATTACHMENT D

KEY CONTACTS LIST

CARB
California Council for Environmental and Economic Balance
Los Angeles County Sanitation District
Public Solar Power Coalition
Rentech (developer of proposed Rialto Renewable Energy Center)
RRI Energy West
U.S EPA

RESOLUTION NO. 2010-

A Resolution of the South Coast Air Quality Management District Board certifying the Notice of Exemption for Proposed Rule 1714 – Prevention of Significant Deterioration for Greenhouse Gases, and the proposed amendments to Regulation XXX – Title V Permits.

A Resolution of the South Coast Air Quality Management District Board adopting PR 1714 - Prevention of Significant Deterioration for Greenhouse Gases, and amending Regulation XXX – Title V Permits.

WHEREAS, the AQMD has reviewed the proposed project pursuant to California Environmental Quality Act (CEQA) Guidelines Section 15002(k)(1) and has determined that the project is exempt from the requirements of CEQA as a ministerial project pursuant to state CEQA Guidelines Section 15268; and

WHEREAS, the proposed amendments are categorically exempt pursuant to CEQA Guidelines Section 15308 – Class 8 Categorical Exemption because the adoption by reference of 40 CFR Part 52.21 and implementation of federal requirements through amendments to Regulation XXX, are considered an action by a regulatory agency to enhance and protect the environment; and

WHEREAS, the AQMD staff has prepared, pursuant to CEQA Guidelines Section 15062, a Notice of Exemption for Proposed Rule 1714 – Prevention of Significant Deterioration for Greenhouse Gases and Proposed Amended Regulation XXX – Title V Permits; and

WHEREAS, the South Coast Air Quality Management District Board obtains its authority to adopt, amend, or repeal rules and regulations from Sections 40000, 40001, 40440, 40725-40728, 42300 *et seq*., of the California Health and Safety Code; and

WHEREAS, the South Coast Air Quality Management District Board has determined that a need exists to adopt Proposed Rule 1714 – Prevention of Significant Deterioration for Greenhouse Gases, and amend Regulation XXX –

Title V Permits, to provide for the local enforcement of these federal standards and as required under EPA regulations; and

WHEREAS, the South Coast Air Quality Management District Board has determined that Rule 1714 – Prevention of Significant Deterioration for Greenhouse Gases, as proposed, and Regulation XXX – Title V Permits, as proposed to be amended, are written or displayed so that their meaning can be easily understood by the persons directly affected by them; and

WHEREAS, the South Coast Air Quality Management District Board has determined that, Rule 1714 – Prevention of Significant Deterioration for Greenhouse Gases, as proposed, and Regulation XXX – Title V Permits as proposed to be amended, are in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations; and

WHEREAS, the Health and Safety Code Section 40727.2 requires that the South Coast Air Quality Management District prepare a written analysis of existing federal air pollution control requirements whenever it adopts or amends a rule imposing new control requirements. However, if the rule is a verbatim adoption or incorporation by reference of a federal standard, the District may comply with this requirement by making a finding that the proposed rule falls within subsection Health and Safety Code 40727.2(g). The District finds that this rule is an adoption by reference of the federal GHG requirements, and that this rule falls within Health and Safety Code Section 40727.2(g); and

WHEREAS, a public hearing has been properly noticed in accordance with the provisions of Health and Safety Code Section 40725; and

WHEREAS, the South Coast Air Quality Management District Board has held a public hearing in accordance with all provisions of law; and

WHEREAS, the South Coast Air Quality Management District Board, in amending and adopting these regulations, references the following statutes which the District hereby implements, interprets, or makes specific: Clean Air Act §§160 *et seq.* (42 U.S.C. §7470 *et seq.*), (Prevention of Significant Deterioration), §§ 501 *et seq.* (42 U.S.C. §7661 *et seq.* (Permits);

WHEREAS, the South Coast Air Quality Management District Board finds that Proposed Rule 1714 – Prevention of Significant Deterioration for Greenhouse Gases, and the proposed amendments to Regulation XXX – Title V Permits, do not impose the same requirements as an existing state or federal

regulations, and are necessary and proper to execute the powers and duties granted to, and imposed upon, the district; and

WHEREAS, the Governing Board of the South Coast Air Quality Management District finds that Proposed Rule 1714 – Prevention of Significant Deterioration for Greenhouse Gases, and the proposed amendments to Regulation XXX – Title V Permits , are proposed to implement and enforce federally adopted regulations, which protect the environment; and

WHEREAS, the Governing Board of the South Coast Air Quality Management District has determined that the U.S. EPA has already amended 40 CFR Parts 52 and 70 so that these federal regulations are currently in effect and that the adoption of the proposed amendments would merely update District Regulations to reflect current U.S. EPA requirements, and therefore will not affect air quality or emission limitations; and

WHEREAS, the AQMD Governing Board specifies the Director for Proposed Rule 1714 – Prevention of Significant Deterioration for Greenhouse Gases, and Proposed Amended Regulation XXX – Title V Permits, as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of this proposed amendment is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

NOW, THEREFORE, BE IT RESOLVED, that the South Coast Air Quality Management District Board does hereby certify the Notice of Exemption for Rule 1714 – Prevention of Significant Deterioration for Greenhouse Gases, as proposed, and Regulation XXX – Title V Permits, as proposed to be amended, completed in compliance with CEQA Guidelines Sections 15002(k)(1) - Three Step Process, 15268 - Ministerial Projects and §15308 - Class 8 Categorical Exemption. This information was presented to the Governing Board, whose members reviewed, considered, and approved the information therein prior to acting on Proposed Rule 1714 and Proposed Amended Regulation XXX; and

BE IT FURTHER RESOLVED, that the South Coast Air Quality Management District Board finds that Rule 1714 – Prevention of Significant Deterioration for Greenhouse Gases, as proposed, incorporates by reference federal requirements for including GHG emissions in PSD program and Regulation XXX – Title V Permits, as proposed to be amended, incorporates federal requirements for GHGs into rule language for the Title V program; and

BE IT FURTHER RESOLVED, that the South Coast Air Quality Management District Board does hereby amend and adopt, pursuant to the authority granted by law, Rule 1714 – Prevention of Significant Deterioration for Greenhouse Gases, and Regulation XXX – Title V Permits, as set forth in the attached.

DATE:_____

_____
CLERK OF THE BOARDS

PROPOSED RULE 1714 Prevention of Significant Deterioration for Greenhouse Gases

(a) Purpose

This rule sets forth preconstruction review requirements for greenhouse gases (GHG). The provisions of this rule apply only to GHGs as defined by EPA to mean the air pollutant as an aggregate group of six GHGs: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. All other attainment air contaminants, as defined in Rule 1702 subdivision (a), shall be regulated for the purpose of Prevention of Significant Deterioration (PSD) requirements pursuant to Regulation XVII, excluding Rule 1714.

(b) Applicability

The provisions of this rule shall apply to any source and the owner or operator of any source subject to any GHG requirements under 40 Code of Federal Regulations Part 52.21 as incorporated into this rule.

(c) Incorporation by Reference

Except as provided below, the provisions of Title 40 of the Code of Federal Regulations (CFR) Part 52.21, are incorporated herein by reference and made part of the Rules and Regulations of the South Coast Air Quality Management District.

(1) The following subsections of 40 CFR Part 52.21 are excluded: (a)(1), (b)(13), (b)(14), (b)(15), (b)(55-58), (c), (d), (e), (f), (g), (h), (i)(1)((i-v) and (ix-xi), (i)(6-8), (k), (l), (m), (o), (p), (q), (s), (t), (u), (v), (w), (x), (y), (z), (aa), and (cc).

(2) The following term found in 40 CFR Part 52.21(b) is revised as follows:

(A) The term "administrator" means:

(i) "federal administrator" in 40 C.F.R. 52.21(b)(17), (b)(37)(i), (b)(43), (b)(48)(ii)(c), (b)(50)(i), and (b)(51); and

(ii) Executive Officer elsewhere, as defined in Rule 102.

(d) Requirements

(1) An owner or operator must obtain a PSD permit pursuant to this rule before beginning actual construction, as defined in 40 CFR 52.21 (b)(11), of a new major stationary source or major modification to an existing major source as defined in 40 CFR 52.21 (b)(1) and (b)(2), respectively.

(2) Not withstanding the provisions of any other District Rule or Regulation, the Executive Officer shall require compliance with this rule, if applicable, prior to issuing a PSD permit for GHG emissions as required by CAA Section 165.

(e) Public Participation

For major stationary sources subject to Rule 1714, after receipt of a complete application, the Executive Officer shall:

(1) Make a preliminary determination whether construction shall be approved, approved with conditions, or disapproved;

(2) Make available for public review a copy of materials the applicant submitted, a copy of the preliminary determination, a copy of the proposed permit, and a copy or summary of other materials, if any, considered in making the preliminary determination. The confidentiality of trade secrets shall be considered in accordance with Section 6254.7 of the Government Code;

(3) Notify the public, by advertisement in a newspaper of general circulation in the District, of the application, the preliminary determination, the degree of increment consumption that is expected from the source or modification, whether an alternative to an EPA approved model was used, and of the opportunity for written public comment. The applicant shall be responsible for the distribution of the public notice to each address within a 1/4-mile radius of the project or such other greater area as determined appropriate by the Executive Officer. The applicant shall provide verification to the Executive Officer that the public notice has been distributed as required by this Section. The notice shall provide 30 days from date of publication for the public to submit written comments;

(4) Send a copy of the notice of public comment to the applicant, the EPA Administrator, and to officials and agencies having cognizance over the location where the proposed construction would occur as follows: any other state or local air pollution control agencies, the chief executives of the city and county where the source would be located, any comprehensive regional land use planning agency, and any State or Federal Land Manager, or Indian Governing body whose lands may be affected by emissions from the source or modification;

(5) Provide opportunity for a public hearing for interested persons to appear and submit written or oral comments on the air quality impact of the source, alternatives to it, the control technology required, and other appropriate considerations;

(6) Consider all written comments submitted within a time specified in the notice of public comment and all comments received at any public hearing(s) in making a final decision on the approvability of the application. The Executive Officer shall make all comments available for public inspection in the same locations where the Executive Officer made available preconstruction information relating to the proposed source or modification.

(7) Make a final determination whether construction should be approved, approved with conditions, or disapproved; and

(8) Notify the applicant in writing of the final determination and make such notification available for public inspection at the same location where the Executive Officer made available preconstruction information and public comments relating to the source.

PROPOSED AMENDED RULE 3000 GENERAL

(a) Purpose

The Title V Permit system is the air pollution control permit system required to implement the federal Operating Permit Program as required by Title V of the federal Clean Air Act as amended in 1990 and to implement requirements for greenhouse gases pursuant to 40 CFR Parts 70. This regulation defines permit application and issuance procedures as well as compliance requirements associated with the program.

(b) Definitions

(1) ADMINISTRATIVE PERMIT REVISION means any Title V permit revision to:

(A) correct typographical errors;

(B) record facility ownership and information changes which:

(i) identify changes in the name, address, or phone number of any person identified in the permit, or provide a similar minor administrative change at the source; or,

(ii) change ownership or operational control of a source where the District determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new holder of the Title V permit has been submitted to the District;

(C) impose requirements for more frequent monitoring, recordkeeping, or reporting by the permittee;

(D) issue a final permit to operate for equipment previously issued a Title V permit to construct, with no change in permit terms and conditions except for the:

(i) removal of permit to construct terms or conditions which are no longer applicable; or,

(ii) inclusion of changes consistent with subparagraphs (b)(1)(A), (b)(1)(B), (b)(1)(C), (b)(1)(E), (b)(1)(F), and (b)(1)(G) of this rule;

(E) annually record revised annual Allocations for each remaining year of the permit term for facilities subject to RECLAIM as a result of the trade, sale, or purchase of RECLAIM Trading Credits (RTC) in compliance with Rule 2007 - Trading Requirements, provided New Source Review is not triggered pursuant to Rule 2005 - RECLAIM New Source Review;

(F) remove equipment, provided that equipment removal does not result in an increase in emissions; or,

(G) move equipment within a facility provided that there is no change to permit conditions and that such a move does not require an evaluation of regulatory requirements.

(2) AFFECTED SOURCE means a facility as defined under the acid rain provisions of Title IV of the federal Clean Air Act and Title 40, Part 70 of the Code of Federal Regulations (40 CFR Part 70), Section 70.2.

(3) AFFECTED STATES means all States:

(A) whose air quality may be affected and that are contiguous to the State in which a Title V permit, permit revision or permit renewal is being proposed; or

(B) that are within 50 miles of the permitted facility.

(4) APPLICABLE REQUIREMENTS means all requirements as defined in 40 CFR Part 70, Section 70.2.

(5) CARBON DIOXIDE EQUIVALENT (CO_2e) means the amount of carbon dioxide (CO_2) that would have the same global warming potential (see Table 2 of this rule) as a given amount of another greenhouse gas.

(~~5~~6) COMPLIANCE DOCUMENTS means all permits, compliance plans, schedules of compliance, approved variances, alternative operating conditions, orders for abatement, and all monitoring and compliance reports required by the Title V permit, except for information entitled to confidential treatment pursuant to Section 114(c) of the federal Clean Air Act. The contents of a facility permit shall not be entitled to confidential treatment.

(~~6~~7) DE MINIMIS SIGNIFICANT PERMIT REVISION means any Title V permit revision where the cumulative emission increases of non-RECLAIM pollutants or hazardous air pollutants (HAP) from these permit revisions during the term of the permit are not greater than any of the emission threshold levels in Table 1.

Table 1
De Minimis Emission Threshold Level

Air Contaminant	Daily Maximum in Pounds Per Day
HAP	30
VOC	30
NO_x	40
PM-10	30
SO_x	60
CO	220

For the purposes of this paragraph, the de minimis levels for HAP and volatile organic compounds (VOC) are not additive if the HAP is a VOC. The de minimis levels for HAP and particulate matter with an aerodynamic diameter smaller than or equal to 10 microns (PM-10)are not additive if the HAP is a PM-10. The HAP de minimis level in this section shall be superseded by any lower HAP de minimis level promulgated by the United States Environmental Protection Agency (EPA) Administrator. De minimis significant permit revisions shall also meet the requirements of clauses (b)(~~12~~15)(A)(i), (ii), (iii), (iv), (vii), (viii) and (ix) of this rule.

(~~7~~8) EFFECTIVE DATE means the date upon which the EPA Administrator deems the District Title V program approved on a full, partial or interim basis, whichever is earlier.

(~~8~~9) EMERGENCY means any situation arising from sudden and reasonably unforeseeable events beyond the control of the facility, including acts of God, which:

(A) requires immediate corrective action to restore normal operation; and

(B) causes the facility to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency; and

(C) is not caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

(~~9~~10) FACILITY means any permit unit or source, or grouping of permit units or sources, or other air contaminant-emitting activities which are located on

one or more contiguous properties within the District, in actual physical contact or separated solely by a public roadway or other public right-of-way, and are owned or operated by the same person (or by persons under common control) or an outer continental shelf (OCS) source as defined in 40 CFR Part 55, Section 55.2. Such above-described groupings, if on noncontiguous properties, but connected only by land carrying a pipeline, shall not be considered one facility. Equipment or installations involved in crude oil and gas production in Southern California coastal or OCS waters, and transport of such crude oil and gas in Southern California coastal or OCS waters, shall be included in the same facility which is under the same ownership or use entitlement as the crude oil and gas facility on-shore.

(~~10~~11) FUGITIVE EMISSIONS means those emissions which cannot reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

(12) GLOBAL WARMING POTENTIAL means the capacity to heat the atmosphere, calculated as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram (kg) of a substance relative to that of 1 kg of CO_2. Global warming potential shall be calculated according to the factors for a 100-year time horizon, as listed in Table 2 of this rule.

(13) GREENHOUSE GAS (GHG) means carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), or perfluorocarbons (PFCs).

(~~11~~14) HAZARDOUS AIR POLLUTANT (HAP) means any pollutant on a list maintained by EPA pursuant to Section 112(b) of the federal Clean Air Act.

(~~12~~15) MINOR PERMIT REVISION means any Title V permit revision that:

(A) (i) does not require or change a case-by-case evaluation of: reasonably available control technology (RACT) pursuant to Title I of the federal Clean Air Act; or maximum achievable control technology (MACT) pursuant to 40 CFR Part 63, Subpart B;

(ii) does not violate a regulatory requirement;

(iii) does not require any significant change in monitoring terms or conditions in the permit;

(iv) does not require relaxation of any recordkeeping, or reporting requirement, or term, or condition in the permit;

(v) does not result in an emission increase of RECLAIM pollutants over the facility starting Allocation plus nontradeable Allocations, or higher Allocation amount which has previously undergone a significant permit revision process;

(vi) does not result in an increase in emissions of a pollutant subject to Regulation XIII - New Source Review or a hazardous air pollutant;

(vii) does not result in an increase in GHG emissions of >75,000 tpy CO_2e;

(viii) does not establish or change a permit condition that the facility has assumed to avoid an applicable requirement;

(~~viii~~ix) is not an installation of a new permit unit subject to a New Source Performance Standard (NSPS) pursuant to 40 CFR Part 60, or a National Emission Standard for Hazardous Air Pollutants (NESHAP) pursuant to 40 CFR Part 61 or 40 CFR Part 63; and,

(~~i~~x) is not a modification or reconstruction of an existing permit unit, resulting in new or additional NSPS requirements pursuant to 40 CFR Part 60, or new or additional NESHAP requirements pursuant to 40 CFR Part 61 or 40 CFR Part 63; or,

(B) incorporates an existing general permit, as defined in subdivision (e) of Rule 3004, and its associated requirements, into another Title V permit.

(~~13~~16) MOJAVE DESERT AIR BASIN means the region as defined in Section 60109 of Title 17 of the California Code of Regulations.

(~~14~~17) MODIFICATION means any physical change or change in the method of operation of any equipment. The following shall not be considered a modification:

(A) routine maintenance and repair;

(B) any change in operator or ownership of the facility;

(C) use of an alternative fuel as required by District rule or federal or State statute, regulation or law;

(D) an increase in the hours of operation or in the production rate, unless a unit specific permit condition limiting hours of operation, throughput or mass emissions would be exceeded; and

(E) for RECLAIM facilities, changes in material selection or formulation, if allowed without a permit revision under Regulation XX - RECLAIM.

(~~15~~18) MONITORING means any of the following: emission testing, continuous emissions monitoring, material testing, and instrumental and non-instrumental monitoring of process conditions.

(~~16~~19) OFF-ROAD MOBILE SOURCES means non-stationary devices powered by an internal combustion engine or motor rated at 50 horsepower or greater, used off public roads and solely at the facility to propel, move, or draw persons or property. Such devices include, but are not limited to: forklifts, motor graders, backhoes, excavators, dozers, trenchers, and tractors.

(~~17~~20) POTENTIAL TO EMIT means the maximum capacity of a facility to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a facility to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation is enforceable by the EPA Administrator. The potential to emit limit for the equipment or emission types described by subparagraphs (b)(~~25~~28)(A) through (b)(~~25~~28)(E) of this rule shall not be included in a facility's potential to emit.

(~~18~~21) PROPOSED PERMIT means a permit prepared after evaluation by the District staff, for review by the EPA Administrator, the public, or affected States for an initial permit, permit renewal or permit revision.

(~~19~~22) RECLAIM FACILITY means any facility that is subject to the requirements of Regulation XX - Regional Clean Air Incentives Market (RECLAIM).

(~~20~~23) RECLAIM POLLUTANT means any pollutant that is subject to the requirements of Regulation XX - Regional Clean Air Incentives Market (RECLAIM), and that is emitted from a facility subject to RECLAIM for that pollutant.

(~~21~~24) REGULATED AIR POLLUTANT means any air pollutant as defined in 40 CFR Part 70, Section 70.2.

(~~22~~25) REGULATORY REQUIREMENTS means all applicable requirements, District Rules and Regulations, and all State requirements pertaining to the regulation of air contaminants.

(~~23~~26) RELOCATION means the removal of an existing equipment or source from one parcel of land in the South Coast Air Quality Management District and installation on another parcel of land where the two parcels are not in actual physical contact and are not separated solely by a public roadway or public right-of-way.

(~~24~~27) RENEWAL means the required updating of an existing Title V permit at the end of its term pursuant to Rule 3003 and subdivision (f) of Rule 3004 for the purpose of assuring that the issuance of such updated permit contains current regulatory requirements. Upon approval, a renewed permit will be granted for an additional permit term and may contain new regulatory requirements.

(~~25~~28) REPORTED EMISSIONS, for the purpose of applicability pursuant to Rule 3001 - Applicability, means the emissions data provided by the facility representative, pursuant to Rule 301 - Permit Fees, to the District and validated by the Executive Officer. The following types of reported emissions shall not be considered in determining whether a facility is required to obtain a Title V permit:

(A) Fugitive emissions of VOC, oxides of nitrogen (NO_x), oxides of sulfur (SO_x), carbon monoxide (CO) or PM-10 unless the source belongs to one of the categories listed in paragraph 2 of the definition of major source in 40 CFR Part 70, Section 70.2. Fugitive emissions of HAPs shall not be excluded from reported HAP emissions.

(B) Emissions from on-road and off-road mobile equipment, as defined in Rule 219 - Equipment Not Requiring A Written Permit Pursuant to Regulation II.

(C) Off-site emissions from portable equipment permitted to operate at various locations.

(D) Emissions from non-road engines, as defined by 40 CFR Part 89, Section 89.2, manufactured on or after November 15, 1990 or another date subsequently determined by EPA.

(E) Emissions from military tactical support equipment registered to operate state-wide pursuant to Article 5 - Portable Engine and Equipment Registration, Title 13 of the California Code of Regulations.

(~~26~~29) RESPONSIBLE OFFICIAL means:

(A) for a corporation: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or a person who performs similar policy-making functions for the corporation, or a duly authorized representative provided the representative is responsible for the overall operational control of the facility, and either:

(i) the Executive Officer has approved a petition from the original responsible official to delegate this authority; or,

(ii) the facility employs more than 250 persons or has a gross annual sales or expenditures exceeding $25 million in second quarter 1980 dollars.

(B) for a partnership or sole proprietorship: general partner or proprietor, respectively.

(C) for a municipality, State, federal, or other public agency: a principal executive officer or ranking elected official.

(D) for Phase II Acid Rain facilities that do not meet the criteria in subparagraphs (b)(~~26~~29)(A) or (C) of this rule: the designated representative responsible pursuant to Title IV of the federal Clean Air Act.

(~~27~~30) SALTON SEA AIR BASIN means the region as defined in Section 60114 of Title 17 of the California Code of Regulations.

(~~28~~31) SIGNIFICANT PERMIT REVISION means any facility permit revision that is not eligible for administrative permit revision, minor permit revision, or de minimis significant permit revision procedures. Such revisions include any of the following:

(A) relaxation of any monitoring, recordkeeping, or reporting requirement, term, or condition in the Title V permit;

(B) the addition of equipment or modification to existing equipment or processes that result in an emission increase of non-RECLAIM pollutants or hazardous air pollutants (HAP) in excess of any of the emission threshold levels in Table 1 of paragraph (b)(~~6~~7) of this rule;

(C) cumulative emission increases of non-RECLAIM pollutants or hazardous air pollutants from de minimis significant permit revisions during the term of the permit, in excess of any of the emission threshold levels in Table 1 of paragraph (b)(~~6~~7) of this rule.

For the purposes of this subparagraph, the de minimis levels for HAP and VOC are not additive if the HAP is a VOC. The de minimis levels for HAP and PM-10 are not additive if the HAP is a PM-10. The HAP de minimis level in this section shall be superseded by any lower HAP de minimis level promulgated by the EPA Administrator, or;

(D) any modification at a RECLAIM facility that results in an emission increase of RECLAIM pollutants over the facility's starting Allocation plus the nontradeable Allocations;

(E) requests for a permit shield when such requests are made outside applications for initial permit or permit renewal issuance;

(F) any revision that requires or changes a case-by-case evaluation of: reasonably available control technology (RACT) pursuant to Title I of the federal Clean Air Act; or maximum achievable control technology (MACT) pursuant to 40 CFR Part 63, Subpart B;

(G) any revision that results in a violation of regulatory requirements;

(H) any revision that establishes or changes a permit condition that the facility assumes to avoid an applicable requirement;

(I) installation of new equipment subject to a New Source Performance Standard (NSPS) pursuant to 40 CFR Part 60, or a National Emission Standard for Hazardous Air Pollutants (NESHAP) pursuant to 40 CFR Part 61 or 40 CFR Part 63; or,

(J) modification or reconstruction of existing equipment, resulting in an emission increase subject to new or additional NSPS requirements pursuant to 40 CFR Part 60, or to new or additional NESHAP requirements pursuant to 40 CFR Part 61 or 40 CFR Part 63.

(~~29~~32) SOUTH COAST AIR BASIN means the region as defined in Section 60104 of Title 17 of the California Code of Regulations.

(~~30~~33) TEMPORARY SOURCE means equipment or a facility that operates at multiple temporary locations.

(~~31~~34) TITLE V means Title V of the federal Clean Air Act as amended in 1990 and the 40 CFR Part 70 EPA regulations promulgated to implement the Act.

(~~32~~35) TITLE V PERMIT means a facility operating permit issued pursuant to Regulation XXX.

(~~33~~36) TITLE V FACILITY means any facility that meets the criteria set forth in Rule 3001 - Applicability.

Table 2
Global Warming Potentials (GWP) (100-Year Time Horizon)

Name	Global Warming Potential	Name	Global Warming Potential
CO_2	1	HFE-43-10pccc (H-Galden 1040x)	1,870
CH_4	21	HFE-125	14,900
N_2O	310	HFE-134	6,320
HFC-23	11,700	HFE-143a	756
HFC-32	650	HFE-227ea	1,540
HFC-41	150	HFE-236ca12 (HG-10)	2,800
HFC-125	2,800	HFE-236ea2 (Desflurane)	989
HFC-134	1,000	HFE-236fa	487
HFC-134a	1,300	HFE-245cb2	708
HFC-143	300	HFE-245fa1	286
HFC-143a	3,800	HFE-245fa2	659
HFC-152	53	HFE-254cb2	359
HFC-152a	140	HFE-263fb2	11
HFC-161	12	HFE-329mcc2	919
HFC-227ea	2,900	HFE-338mcf2	552
HFC-236cb	1,340	HFE-338pcc13 (HG-01)	1,500
HFC-236ea	1,370	HFE-338mmz1	380
HFC-236fa	6,300	HFE-347mcc3	575
HFC-245ca	560	HFE-347mcf2	374
HFC-245fa	1,030	HFE-347pcf2	580
HFC-365mfc	794	HFE-347mmy1	343
HFC-4310mee	1,300	HFE-356mec3	101
Nitrogen trifluoride	17,200	HFE-356pcc3	110
Sulfur hexafluoride	23,900	HFE-356pcf2	265
Trifluoromethyl sulphur pentafluoride	17,700	HFE-356pcf3	502
PFC-14 (Perfluoromethane)	6,500	HFE-356mm1	27
PFC-116 (Perfluoroethane)	9,200	HFE-365mcf3	11
PFC-218 (Perfluoropropane)	7,000	HFE-374pc2	557
PFC-3-1-10 (Perfluorobutane)	7,000	HFE-449sl (HFE-7100) Chemical Blend	297
PFC-4-1-12 (Perfluoropentane)	7,500	HFE-569sf2 (HFE-7200) Chemical Blend	59
PFC-5-1-14 (Perfluorohexane)	7,400	Sevoflurane	345
Perfluorocyclopropane	17,340	(Octafluorotetramethylene) hydroxymethyl group	73
Perfluorocyclobutane	8,700	Bis(trifluoromethyl)-methanol	195
PFC-9-1-18	7,500	2,2,3,3,3-pentafluoropropanol	42
HCFE-235da2 (Isoflurane)	350	PFPMIE	10,300

Source: Table A-1 to Subpart A of Part 98,
Global Warming Potentials (Federal Register/Vol. 74, No. 209 (October 30, 2009)

(Adopted October 8, 1993)(Amended August 11, 1995)
(Amended November 14, 1997)
PAR 3001E
November 5, 2010

PROPOSED AMENDED RULE 3001 APPLICABILITY

(a) Phase One Title V Permits

Operators of facilities that have, in 1992 or later, reported annual emissions equal to or greater than any of the threshold amounts shown in Table 1 shall submit initial Title V applications to the Executive Officer and obtain Title V permits in accordance with the timelines specified in Rule 3003 - Applications.

TABLE 1

Emission Threshold Levels for Facilities During Phase One

Based on Actual Reported Emissions in tons per year (tpy) per Facility Location

Pollutant	Actual Reported Emission Threshold Levels Per Facility Location		
	South Coast Air Basin(SOCAB) (tpy)	Riverside County Portion of Salton Sea Air Basin (SSAB) and Los Angeles County Portion of Mojave Desert Air Basin (MDAB) (tpy)	Riverside County Portion of Mojave Desert Air Basin (MDAB) (tpy)
VOC	8	20	80
NO_x	8	20	80
SO_x	80	80	80
CO	40	80	80
PM-10	56	56	80
Single HAP	8	8	8
Combination of HAPs	20	20	20

(b) Phase Two Title V Permits

(1) Operators of facilities, not subject to the provisions of subdivision (a) of this rule, with the potential to emit any regulated air pollutant at, or greater than, any of the threshold amounts shown in Table 2 shall submit to the Executive Officer applications for initial Title V permits in accordance with the timelines specified in Rule 3003 - Applications, and obtain Title

V permits within five years after the effective date, as defined in paragraph (b)(~~7~~8) of Rule 3000.

(2) For the purpose of this subdivision, the potential to emit for a RECLAIM pollutant from a RECLAIM facility is the higher of:

(A) the starting allocation plus nontradeable credits; or

(B) RECLAIM Trading Credits (RTC) held in the allocation account after any trading.

RTCs held in the certificate account are not part of the allocation.

TABLE 2

Emission Threshold Levels for Facilities During Phase Two

Based on Potential to Emit in tons per year (tpy) per Facility Location

Pollutant	Potential to Emit Emission Threshold Levels Per Facility Location		
	South Coast Air Basin(SOCAB) (tpy)	Riverside County Portion of Salton Sea Air Basin (SSAB) and Los Angeles County Portion of Mojave Desert Air Basin (MDAB) (tpy)	Riverside County Portion of Mojave Desert Air Basin (MDAB) (tpy)
VOC	10	25	100
NO_x	10	25	100
SO_x	100	100	100
CO	50	100	100
PM-10	70	70	100
Single HAP	10	10	10
Combination of HAPs	25	25	25

(c) Additional Facilities Requiring Title V Permits

In addition to subdivisions (a) and (b) of this rule, operators of the following facilities shall submit applications to the Executive Officer to obtain Title V permits in accordance with the timelines specified in Rule 3003 - Applications, or with federal regulations:

(1) All new facilities that have a potential to emit any regulated air pollutant at, or greater than, any of the levels specified in Table 2 of subdivision (b)

of this rule, and for which applications for permits to construct and permits to operate are deemed complete after March 31, 2000;

(2) All facilities initially not subject to Title V requirements, that after installation or modification of equipment would have a potential to emit any regulated air pollutant at, or greater than, any of the levels specified in Table 2 of subdivision (b) of this rule, and for which applications for permits to construct or permits to operate are deemed complete after March 31, 2000;

(3) All "affected sources" as defined under the acid rain provisions of Title IV of the federal Clean Air Act and 40 CFR Part 70, Section 70.2;

(4) Solid waste incineration units required to obtain a permit pursuant to Section 129(e) of the federal Clean Air Act;

(5) All facilities subject to a standard, limitation, or other requirement of the New Source Performance Standards in 40 CFR Part 60 or National Emission Standards for Hazardous Air Pollutants in 40 CFR Part 61 or Part 63 that are specifically required by federal regulation to obtain a Title V permit; and,

(6) All other facilities so designated by the EPA by future amendments to 40 CFR Part 70, Section 70.3.

(7) All facilities that have obtained a District facility permit with a condition limiting facility emissions for the purpose of being exempt from Title V permit requirements pursuant to paragraph (d)(2) of this rule, and that have reported annual emissions, calculated in accordance with permit terms and conditions under normal operating conditions, equal to or greater than any of the threshold amounts specified in Table 2 of subdivision (b) of this rule.

(8) On and after January 2, 2011, applicable requirements for greenhouse gases shall be included in Title V permits for any facility that is otherwise required, after that date, to obtain a new, renewed, or revised Title V permit pursuant to subdivision (a) of this rule.

(9) On and after July 1, 2011, any facility with a potential to emit ≥ 100,000 tpy CO_2e, on a CO_2e basis (Global Warming Potential applied) and a Potential to Emit GHGs > 100 tpy GHGs on a mass basis (no Global Warming Potential applied) shall apply for a Title V permit within 180 days after July 1, 2011, unless a Title V permit has already been applied for.

(d) Exemptions

(1) Notwithstanding subdivision (c) of this rule, facilities that would be required to obtain a Title V permit solely because they are subject to one or more of the following regulations are exempt from Title V permit requirements:

(A) 40 CFR Part 60, subpart AAA - Standards of Performance for New Residential Wood Heaters;

(B) 40 CFR Part 61, subpart M - National Emission Standard for Hazardous Air Pollutants for Asbestos, Section 61.145 - Standard for Demolition and Renovation.

(2) Facilities subject to the requirements of subdivision (a) ~~or~~ (b) or (c) of this rule, that demonstrate to the satisfaction of the Executive Officer that the facility's potential to emit has been reduced, either through a facility modification or by accepting an enforceable condition in the District facility permit, to less than the levels for all air contaminants specified in Table 2 of subdivision (b) of this rule, and the PTE is less than 100,000 tpy CO_2e GHGs, are exempt from Title V permit requirements.

(e) Phase One Exclusions

(1) Except in the case of an affected source under the acid rain program, an applicant may request, and the Executive Officer may grant an exclusion from subdivision (a) of this rule, Phase One Title V Permits, provided that the facility can demonstrate to the satisfaction of the Executive Officer that:

(A) the most recent, validated, reported emissions are less than the thresholds in subdivision (a); and

(B) a permanent change has occurred at the facility to explain the reduction in reported emissions.

(2) All requests for exclusion shall be in a form specified by the Executive Officer, shall include copies of reported emissions data and are subject to approval by the Executive Officer.

(Adopted October 8, 1993)(Amended August 11, 1995)
(Amended November 14, 1997)
PAR 3002D
November 5, 2010

PROPOSED AMENDED RULE 3002 REQUIREMENTS

(a) Requirement for Title V Permit

(1) A person shall not construct, modify, relocate, or operate a Title V facility, or equipment located at a Title V facility, without first obtaining a Title V permit or permit revision that allows such construction, modification, relocation or operation, except for:

(~~1~~A) Equipment exempted from permitting requirements pursuant to Rule 219 - Equipment Not Requiring a Written Permit Pursuant to Regulation II;

(~~2~~B) Operation of equipment or a facility pursuant to the application shield provisions of subdivision (b) of this rule; and,

(~~3~~C) Construction, modification, relocation and operation of equipment or a facility authorized by a non-Title V permit issued by the Executive Officer. The Executive Officer may issue a non-Title V permit to existing Phase One or Phase Two facilities that apply for a non-Title V permit prior to the issuance of their initial Title V permit.

(2) On and after January 2, 2011, applicable requirements for greenhouse gases shall be included in Title V permits for any facility that is otherwise required, after that date, to obtain a new, renewed, or revised Title V permit pursuant to paragraph (a)(1) of this rule.

(3) On and after July 1, 2011, any facility with a potential to emit ≥ 100,000 tpy CO_2e, on a CO_2e basis (Global Warming Potential applied) and a Potential to Emit GHGs > 100 tpy GHGs on a mass basis (no Global Warming Potential applied) shall apply for a Title V permit within 180 days after July 1, 2011, unless a Title V permit has already been applied for, and all GHG requirements that are applicable requirements (as defined in Rule 3000 (b)(4)) shall be included in the permit.

(4) On and after July 1, 2011, any new or modified facility with a Potential to Emit increase of > 100,000 tpy CO_2e shall be subject to the requirements specified in paragraph (a)(1) of this rule.

(b) Application Shield

Notwithstanding subdivision (a) of this rule, it is not a violation of this rule to operate a Title V facility or equipment located at a Title V facility without a Title V permit, provided that:

(1) A timely and complete application for initial Title V permit issuance or Title V permit renewal for such facility or equipment has been filed with the Executive Officer; and,

(2) The Executive Officer has not taken final action on the application.

For the purpose of an application shield, a timely and complete application is one that has been submitted in accordance with subdivisions (a) and (c) of Rule 3003. The application shield shall not apply if the permit applicant has failed to submit information required pursuant to subdivision (d) of this rule.

(c) Duty to Comply

(1) A person shall construct and operate a Title V facility and all equipment located at a Title V facility in compliance with all terms, requirements, and conditions specified in the Title V permit at all times.

(2) Any non-compliance with a Title V facility permit term, requirement, or condition is a violation of Regulation XXX and is a violation of the federal Clean Air Act if the permit term, requirement or condition is federally enforceable. Each day during any portion of which a violation occurs is a separate offense. Any non-compliance shall be grounds for:

(A) enforcement action (under the California Health & Safety Code and the federal Clean Air Act);

(B) permit termination;

(C) permit revocation and reissuance;

(D) permit revision; and

(E) denial of a permit renewal or revision application.

(3) It shall not be a defense for a person in any of the actions listed in paragraph (c)(2) of this rule that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit, except as provided for in subdivision (g) of Rule 3002.

(4) A permit may be revised, revoked, reopened and reissued, or terminated for cause as provided in Rule 3004 - Permit Types and Content, and Rule 3005 - Permit Revisions. The filing of a request by the holder of a Title V

permit, for a permit revision, revocation and reissuance, or termination, or of a notification of planned changes or anticipated non-compliance does not stay any permit condition.

(d) Duty to Provide Timely Information

An applicant for, or holder of, a Title V permit shall furnish to the Executive Officer within a reasonable time, as specified by the Executive Officer in writing, any information that the Executive Officer requests in writing to process a permit application or to determine whether cause exists for revising, revoking and reissuing, or terminating the permit, or to determine compliance with the permit.

(e) Duty to Provide Records

A holder of a Title V permit shall furnish to the Executive Officer within a reasonable time, as specified by the Executive Officer in writing, copies of records that are required, by the permit, to be kept. Copies of information claimed to be confidential shall be submitted in a form segregated from other information, conspicuously marked "confidential" on each page, with a concise identification of the basis for the claim.

(f) Duty to Pay Fees

(1) The applicant for, or holder of, a Title V permit shall pay all required fees as specified in Regulation III - Permit Fees.

(2) Failure to pay fees in compliance with paragraph (f)(1) of this rule shall be grounds for permit expiration or revocation of the subject permit(s).

(g) Emergency Provisions

An emergency shall constitute an affirmative defense to an action brought for non-compliance with a technology-based limitation if all of the following conditions are met:

(1) Properly signed, contemporaneous operating logs or other credible evidence that demonstrates compliance with this subdivision are kept at the facility;

(2) The owner/operator of a Title V facility demonstrates that an emergency occurred and that the permit holder can identify the cause(s) of the emergency;

(3) During the period of the emergency, the facility permit holder took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit;

(4) The owner/operator of a Title V facility submitted a written notice of the emergency to the District within two working days of the time when emission limitations were exceeded due to the emergency. This notice shall contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken;

(5) The permitted facility was being operated properly (i.e., operated and maintained in accordance with the manufacturer's specifications, and in compliance with all regulatory requirements or a compliance plan) before the emergency; and

(6) The facility complies with the breakdown provision of Rule 430 - Breakdown Provisions, or subdivision (i) of Rule 2004 - Requirements, whichever is applicable.

In any enforcement proceeding, the facility permit holder seeking to establish the occurrence of an emergency shall have the burden of proof.

(Adopted October 8, 1993)(Amended August 11, 1995)
(Amended November 14, 1997)(Amended March 16, 2001)
PAR 3003A
November 5, 2010

PROPOSED AMENDED RULE 3003. APPLICATIONS

(a) Application Requirements

The operator of a Title V facility shall submit a timely and complete Title V permit application in accordance with this rule.

(1) Facilities Applying for Initial Title V Permits During Phase One

(A) For facilities required to obtain initial Title V permits pursuant to subdivision (a) of Rule 3001 and that are specifically identified by the District on or before the effective date as defined in paragraph (b)(~~7~~8) of Rule 3000, a timely initial permit application is one submitted to the Executive Officer within 90 days of receipt of the District's notice to the facility with facility-specific application materials, or within one year from the effective date, whichever comes first.

(B) For all other facilities required to obtain initial Title V permits pursuant to subdivision (a) of Rule 3001, a timely initial permit application is one that is submitted within 180 days after the facility becomes subject to the Title V permit program.

(2) Facilities Applying for Initial Title V Permits During Phase Two

(A) For existing facilities required to obtain initial Title V permits pursuant to subdivision (b) of Rule 3001, a timely initial permit application is one submitted to the Executive Officer within 90 days of receipt of the District's notice to the facility with facility-specific application materials, or no later than June 30, 2001, whichever occurs first.

(B) For all other facilities required to obtain initial Title V permits pursuant to subdivision (b) of Rule 3001, a timely initial permit application is one that is submitted within 180 days after the facility becomes subject to the Title V permit program.

(3) Additional Facilities Applying for Initial Title V Permits

Except as set forth elsewhere in this subdivision or in subdivision (c) of this rule, a timely initial permit application is one that is submitted within 180 days after the facility becomes subject to the Title V permit program.

(4) A person who has filed a timely and complete application for an initial Title V permit with the Executive Officer shall be allowed to amend the initial Title V facility permit application if non-Title V Permits to Construct pursuant to Rule 201 or Permits to Operate pursuant to Rule 203 were issued 30 days or more prior to the scheduled issuance of the initial proposed permit for public review.

(5) A person electing to apply for a non-Title V permit, as allowed by paragraph (a)(3) of Rule 3002, that is issued too late to be incorporated into the initial permit application in accordance with paragraph (a)(4) of this rule, shall file an application for a Title V permit revision within 90 days of the issuance of a facility's initial Title V permit.

(6) For purposes of permit renewal, a timely application is one that is submitted at least 180 days, but no more than 545 days, prior to the date of permit expiration.

(7) For facilities which are, or include, major sources (as defined in Section 70.2 of 40 CFR Part 70) in categories or subcategories for which EPA has failed to promulgate a maximum achievable control technology emissions standard by the date established pursuant to subsections (e)(1) and (e)(3) of Section 112 of the federal Clean Air Act, a timely application for a facility permit or permit revision, as appropriate, is one which is submitted within 18 months of such failure, and which complies with Section 112 of the federal Clean Air Act.

(b) Application Content

(1) Initial Permit and Permit Renewal Applications

An applicant shall submit, on forms specified by the Executive Officer and approved by EPA, all information necessary to evaluate the subject facility and the application, to determine the applicability of and to impose all regulatory requirements, and to determine the fee amounts required pursuant to Regulation III - Permit Fees.

(2) Permit Revision Applications

The applicant shall submit the same information as specified in paragraph (b)(1) of this rule, but only to the extent that such information is related to the permit revision. If applicable, information required by paragraphs (c)(2), (d)(2), and (e)(2) of Rule 3005 shall also be provided.

(c) Complete Application

(1) The Executive Officer shall, upon receipt of any application, promptly determine whether the application is complete pursuant to the criteria set forth in the Technical Guidance Document.

(2) Unless the Executive Officer determines that an application is not complete within 60 days of receipt of the application for initial permit issuance or permit renewal, or within 30 days of receipt for permit revisions, such application shall be deemed to be complete.

(3) If the application is determined to be incomplete, the Executive Officer shall notify the applicant in writing what additional information is necessary to make the application complete and shall specify in writing a reasonable deadline for providing such information.

(4) If the applicant does not provide all requested information on or before the deadline specified, the Executive Officer may deny the application. The Executive Officer may extend the initial deadline if requested by the applicant.

(5) To be deemed complete, an application must provide all information required pursuant to subdivision (b) of this rule.

(6) An applicant shall provide application statements and information that are true, accurate, and complete, based on information and belief formed after reasonable inquiry.

(7) The responsible official shall certify all information provided as part of a permit application, a supplement or correction pursuant to subdivision (d) of this rule, or in response to a request for information from the Executive Officer. The certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(d) Duty to Supplement or Correct Application

(1) Any applicant for, or holder of, a Title V permit who fails to submit any relevant information or who has submitted incorrect information in an application for a permit or permit revision shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information.

(2) An applicant shall provide such additional information as necessary to determine compliance with any requirements that became applicable to the

facility after the date a complete application was filed but prior to release of a proposed permit.

(e) Requests for Additional Information

(1) Even after an application is deemed complete, an applicant shall provide such additional information as has been requested in writing by the Executive Officer as necessary to evaluate or take final action on the application, on or before the reasonable deadline specified in the request.

(2) The facility's ability to operate without a permit, as set forth in subdivision (b) of Rule 3002 shall terminate at 5:00 p.m. on the date specified by the Executive Officer unless the applicant has, on or before that time provided all information requested by the Executive Officer pursuant to either paragraph (e)(1) of this rule, or subdivision (d) of Rule 3002.

(f) Confidential Information

Whenever an applicant for, or holder of, a Title V permit submits information to the Executive Officer in connection with a Title V permit application under a claim of confidentiality, such applicant or permit holder may be required, by the Executive Officer, to submit a copy of such information directly to the EPA Administrator, along with a concise statement of the basis of such claim of confidentiality.

(g) Sharing of Information

(1) Except as provided in paragraph (g)(2) of this rule, any information obtained from a facility or used in the administration of the Title V permit program shall be made available without restriction to EPA upon request.

(2) Where the Executive Officer submits information to the EPA under a claim of confidentiality, the Executive Officer shall provide a copy of such claim if made by a third party, or a concise statement of the basis of such claim, if made by the Executive Officer.

(h) Preservation of New Source Review

The submittal of a complete Title V permit application, or application for revision of such permit, shall not relieve any person of the requirements for a pre-construction permit under Title I of the federal Clean Air Act, District Regulation XIII - New Source Review, or District Rule 2005 - New Source Review For RECLAIM.

(i) Action on Applications

(1) The Executive Officer shall deny an application for initial permit, permit revision, or permit renewal if the applicant cannot show that operation under the permit will comply with all regulatory requirements, unless:

(A) the District Hearing Board has issued a valid variance granted pursuant to Rule 515 or Rule 517, order for abatement which has the effect of a variance pursuant to Regulation VIII, or federal alternative operating condition established pursuant to Rule 518.2 for those regulatory requirements for which the facility is not in compliance; and

(B) the facility operator has submitted with the Title V permit application an acceptable compliance plan.

(2) Except during the 3-year, Phase One period for initial permit issuance, following the effective date, and for applications identified in paragraph (i)(3) of this rule, the Executive Officer shall issue a permit or deny a permit application according to the following schedule:

(A) Applications for initial permits, significant permit revisions and permit renewals: within 18 months after receipt of a complete application pursuant to subdivision (c) of this rule;

(B) Applications for administrative permit revisions: within 60 days after receipt of a complete application pursuant to subdivision (c) of this rule; and,

(C) Applications for minor permit revisions: within 90 days after the receipt of a complete application pursuant to subdivision (c) of this rule or within 15 days after the end of EPA's 45-day review period, whichever is later.

(D) Applications for group processing of multiple minor permit revisions: within 180 days after the receipt of the first complete application, in a group of multiple minor permit revision applications, pursuant to subdivision (c) of this rule or within 15 days after the end of EPA's 45-day review period, whichever is later.

(E) Applications for de minimis significant permit revisions: within 180 days after the receipt of a complete application pursuant to subdivision (c) of this rule or within 15 days after the end of EPA's 45-day review period, whichever is later.

(3) For an application for an initial permit for a new facility or a significant permit revision, that includes a request for a Permit to Construct, the Executive Officer shall issue a permit or deny a permit application according to the following schedule:

(A) Applications for which an Environmental Impact Report is not required and where EPA does not object to the proposed Title V permit or revision within the 45-day review period: within 265 days after the application is deemed complete;

(B) Applications containing a demonstration of an early toxic reduction to comply with Section 112(i)(5) of the federal Clean Air Act, for which an Environmental Impact Report is not required and where EPA does not object to the proposed Title V permit or revision within the 45-day review period: within 265 days after the application is deemed complete;

(C) Applications for which an Environmental Impact Report is not required and EPA objects to the proposed permit or revision: within 355 days after the application is deemed complete;

(D) Applications for which an Environmental Impact Report is required: within the timeframes defined in subparagraphs (i)(3)(A) or (B) or (C) of this rule plus 180 days.

(4) A permit, permit revision, or renewal may be issued only if all the following conditions have been met:

(A) The Executive Officer has received a complete application for a permit, permit revision, or, permit renewal.

(B) Except for administrative permit revisions, minor permit revisions, and de minimis significant permit revisions, the Executive Officer and the facility have complied with the requirements for public participation under Rule 3006.

(C) Except for administrative permit revisions the Executive Officer has complied with the requirements for notifying and responding to affected states under subdivision (m) of this rule.

(D) The conditions of the permit provide for compliance with all regulatory requirements.

(E) The EPA Administrator has received a copy of the proposed permit, any notices required under Rules 3003, 3005, and 3006, and any revisions to the proposed permit in response to public or

affected State comments and has not objected to issuance of the permit under 40 CFR Part 70, Section 70.8(c) within the time period specified therein.

(5) If the Executive Officer fails to act within the time required by this rule on an application for permit renewal, the EPA may invoke its authority under Section 505(e) of the federal Clean Air Act to terminate or revoke and reissue the permit.

(6) Initial Phase One Title V permits, which are required to be issued within three years after the effective date, shall be classified by the Executive Officer into Groups A, B, and C, such that each group contains one-third of the Title V sources identified by the District for Phase One, as far as practicable.

(A) The Executive Officer shall issue Title V permits to the groups according to the following schedule, measured from the effective date: Group A within one year; Group B within two years; and Group C within three years, as far as practicable.

(B) A facility assigned to any group may not petition the Executive Officer or the Hearing Board to change their group designation.

(7) The Executive Officer shall, to the extent possible, simultaneously commence any required noticing and review by the public, EPA and affected States.

(j) EPA Review

(1) The Executive Officer shall submit to the EPA Administrator:

(A) each application for initial permit, permit renewal, minor permit revision, de minimis significant permit revision and significant permit revision;

(B) each proposed permit for initial permit, renewal permit, or permit revision, excluding administrative permit revisions;

(C) any revisions to the proposed permit in response to public or affected State comments;

(D) a copy of any notices required by Rules 3003, 3005, or 3006; and,

(E) each final Title V permit, within 5 working days of permit issuance.

(2) To the extent practicable, the information required by paragraph (j)(1) of this rule shall be provided in a computer-readable format compatible with EPA's national database management system.

(3) The Executive Officer shall keep the information required by paragraph (j)(1) of this rule for 5 years following the issuance of a final Title V permit so that the EPA Administrator may ascertain whether the Title V program complies with the requirement of Part 70 and the federal Clean Air Act. Such information shall be made available to EPA within a reasonable time of the request.

(4) At least 10 days prior to the end of EPA's review period of a proposed permit, the Executive Officer shall notify the applicant, the EPA Administrator and any affected State, in writing, of any refusal to accept all recommendations for the proposed permit that any affected State submitted during the public or affected State review periods. The notice shall include the Executive Officer's reasons for not accepting any such recommendations.

(k) EPA Objection

(1) No permit or permit revision for which an application must be transmitted to EPA pursuant to subdivision (j) of this rule may be issued if the EPA objects to its issuance in writing within 45 days of receipt of the proposed permit and all necessary supporting information, or within 90 days if the EPA provides a written request to delay the permit issuance on the basis that an additional 45 days is necessary to review the public and affected State comments made to the proposed permit. The objection shall include a statement of the reasons for the objection and a description of the terms and conditions that the permit must include to respond to the objections.

(2) Within 14 days of receipt of EPA's objection to a proposed permit, the District shall notify the applicant of EPA's objection.

(3) Within 90 days after receipt of timely objection from EPA that meets the requirements of paragraph (k)(1) of this rule, the Executive Officer shall evaluate EPA's objection, negotiate with EPA over any disagreements, and do one of the following:

(A) deny the proposed permit; or

(B) revise and submit to EPA a new proposed permit in response to EPA's objection.

(4) If the Executive Officer fails, within the time specified in paragraph (k)(3) of this rule, to either deny the proposed permit or revise and submit a new proposed permit in response to the objection, EPA may issue or deny the permit in accordance with 40 CFR Part 70, Section 70.8(c).

(l) Public Petitions to the EPA Administrator

(1) If the EPA Administrator does not object in writing pursuant to subdivision (k) of this rule, any person may petition the EPA Administrator within 60 days after the expiration of the EPA Administrator's 45-day review period to make such objection, as provided for in 40 CFR Part 70, Section 70.8(d).

(2) Any petition under this subdivision shall be based only on objections to the proposed permit that were raised with reasonable specificity during the public comment period provided for in Rule 3006, unless the petitioner demonstrates, to the EPA Administrator, that it was impracticable to raise such objections within such period, or unless the grounds for objection arose after such period.

(3) If the EPA Administrator objects to the proposed permit as a result of a petition filed under this subdivision, the Executive Officer shall not issue the permit until EPA's objection has been resolved. If the permit was issued after the end of EPA's 45-day review period and prior to receipt of EPA's objections, a petition under this rule section does not stay the effectiveness of a permit or its requirements.

(4) If the permit has been issued prior to receipt of an EPA objection under this rule, EPA may revise, terminate, or revoke such permit.

(m) Review by Affected States

(1) Except for administrative permit revisions, the Executive Officer shall give notice of each proposed permit to any affected State on or before the notice is provided to the EPA.

(2) Any affected State may provide recommendations in writing, based upon applicable requirements or requirements of 40 CFR Part 70, with respect to the proposed permit, within 30 days of receipt of the notice.

(3) The Executive Officer shall respond to affected State recommendations in accordance with paragraph (j)(4) of this rule.

(n) Prohibition of Default Issuance

(1) Except for administrative permit revisions, no Title V permit may be issued until after EPA and affected States have had an opportunity to review the proposed permit in accordance with this rule, unless EPA has waived such review for EPA and the affected States.

(2) Except for administrative permit revisions, minor permit revisions, and de minimis significant permit revisions, no Title V permit may be issued until after the public has had an opportunity to review the proposed permit in accordance with Rule 3006.

(3) No provision of these rules shall be construed to require that a Title V permit or renewal be issued after a certain time if the Executive Officer fails to take action on the application.

(4) Failure of the Executive Officer to take action on an application within the time specified by these rules shall not constitute final permit action except for purposes of a judicial or authorized administrative proceeding seeking to compel the Executive Officer to take final action on the application.

PROPOSED AMENDED RULE 3005. PERMIT REVISIONS

(a) General Requirements

(1) Procedures

Applications for permit revisions shall be submitted and processed in accordance with Rule 3003, Rule 3006, and the additional requirements of this rule.

(2) Ability of Facilities to Make Changes

Only changes that qualify as an administrative permit revision may be implemented immediately by the facility.

(3) Application Shield

The application shield under subdivision (b) of Rule 3002 shall not apply to permit revisions.

(4) Permit Shield

The permit shield under subdivision (c) of Rule 3004 shall be processed as a significant permit revision.

(b) Administrative Permit Revisions

(1) Applicability

Administrative permit revision procedures may be used only for those permit revisions described in paragraph (b)(1) of Rule 3000.

(2) Procedures

Administrative permit revisions shall be processed in accordance with Rule 3003 and shall include the following:

(A) A description of the change; and,

(B) Certification by a responsible official, consistent with paragraph (c)(7) of Rule 3003, that the requested revision meets the criteria for use of administrative permit revision procedures and a request that such procedures be used.

(c) Minor Permit Revisions

(1) Applicability

Minor permit revision procedures may be used only for those permit revisions described in paragraph (b)(1215) of Rule 3000.

(2) Procedures

(A) An application requesting the use of minor permit revision procedures shall meet the requirements of, and be processed in accordance with Rule 3003 and shall include the following:

(i) A description of the change, the emissions resulting from the change, and any new regulatory requirements that will apply if the change occurs; and

(ii) Certification by a responsible official, consistent with paragraph (c)(7) of Rule 3003, that the requested revision meets the criteria for use of minor permit revision procedures and a request that such procedures be used.

(B) Within 45 days of receipt of a complete application under minor permit revision procedures, the Executive Officer shall:

(i) determine that the requested revision does not meet the minor permit revision criteria and should be reviewed under another revision procedure; or,

(ii) submit a copy of the proposed permit to the EPA Administrator for a 45-day review and submit a notice of the proposed permit to any affected State.

(d) Group Processing Procedures for Multiple Minor Permit Revisions

(1) An applicant may request group processing procedures for multiple, minor permit revision applications provided that the requested revisions meet the following criteria:

(A) All such requested permit revisions qualify as a minor permit revision pursuant to paragraph (c)(1) of this rule;

(B) Emissions resulting from all such requested revisions are collectively below 5 tons per year (tpy) of VOC, 5 tpy of NO_X, 5 tpy of SO_X, 5 tpy of CO, and 5 tpy of PM_{10}; and,

(C) Within 90 days of receipt of the first complete application, all remaining complete applications in the group are also submitted.

(2) Each application requesting group processing shall meet the requirements of, and be processed in accordance with, Rule 3003 and subparagraph (c)(2)(A) of Rule 3005 and shall also include the following:

(A) Certification by a responsible official, consistent with paragraph (c)(7) of Rule 3003, demonstrating the following:

(i) The proposed revision meets the criteria for use of group processing procedures and a request that such procedures be used; and,

(ii) The applicant has notified EPA of the requested revision. Such notification need only contain a brief description of the requested revision.

(B) A list of the facility's other pending applications awaiting group processing, and a determination of whether the requested revisions, equals or exceeds the applicable threshold pursuant to subparagraph (d)(1)(B) of this rule and whether these emissions when aggregated with the emissions from the other applications, equals or exceeds the applicable threshold pursuant to paragraph (b)(67) of Rule 3000; and,

(3) Within 135 days of receipt of the first complete application in a group of applications requesting that group processing procedures be used, the Executive Officer shall:

(A) submit a copy of the proposed permit for all of the applications in the group to the EPA Administrator for a 45-day review period and submit a notice of the proposed permit to any affected State; or

(B) determine that the requested revisions do not meet the criteria for group processing and should be reviewed under another revision procedure.

(e) De Minimis Significant Permit Revisions

(1) Applicability

De minimis significant permit revision procedures may be used only for those permit revisions described in paragraph (b)(67) of Rule 3000.

(2) Procedures

(A) An application requesting the use of de minimis significant permit revision procedures shall meet the requirements of, and be processed in accordance with, Rule 3003 and shall include the following:

(i) A description of the change, the emissions resulting from the change, and any new regulatory requirements that will apply if the change occurs; and,

(ii) Certification by a responsible official, consistent with paragraph (c)(7) of Rule 3003, that the requested revision meets the criteria for use of de minimis significant permit revision procedures and a request that such procedures be used.

(B) Within 135 days of receipt of a complete application under de minimis significant permit revision procedures, the Executive Officer shall determine if the requested revision does not meet the de minimis significant permit revision criteria and should be reviewed under another revision procedure.

(f) Significant Permit Revisions

(1) Applicability

Significant permit revision procedures shall be used for applications requesting permit revisions as described in paragraph (b)(2831) of Rule 3000 and that do not otherwise qualify as de minimis significant permit revisions under paragraph (b)(67) of Rule 3000, minor permit revisions under paragraph (b)(1215) of Rule 3000 or as administrative permit revisions under paragraph (b)(1) of Rule 3000.

(2) Procedures

Significant permit revisions shall meet all the requirements of this regulation, including those requirements pursuant to Rule 3003 and Rule 3006, as they apply to initial permit issuance and permit renewal.

(g) Reopening for Cause

(1) The Executive Officer shall reopen and revise a permit if any of the following circumstances occur:

(A) Additional regulatory requirements become applicable to a Title V facility with a remaining permit term of three or more years. However, no reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to paragraph (f)(4) of Rule 3004;

(B) The Executive Officer or EPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit; or,

(C) The Executive Officer or EPA determines that the permit shall be revised or revoked to assure compliance with the applicable requirements.

(2) Permit reopening and reissuance shall follow the same procedures as apply to initial permit issuance, shall affect only those parts of the permit for which cause to reopen exists and shall be made as soon as possible.

(3) Nothing in this rule limits the authority of the Executive Officer to seek revocation and termination of a permit pursuant to the Health and Safety Code Sections 42307 - 42309 and Health and Safety Code Section 40800 et seq.

(4) Proceedings to reopen a permit shall not be initiated, unless the holder of the Title V permit, the public, and EPA have been notified of the Executive Officer's intent to reopen such permit, at least 30 days in advance of the date the permit is to be reopened.

(5) Notwithstanding paragraph (g)(4) of this rule, the Executive Officer may specify a shorter period of notice upon making a written finding that immediate reopening and revision is necessary to prevent the occurrence of a public nuisance or violation of National Ambient Air Quality Standards due to emissions from the Title V facility, in which case the reopening and revision is effective immediately upon service of the revised permit on the holder of the Title V permit, subject to the permit holder's right to appeal to the Hearing Board pursuant to Health and Safety Code Section 42302.

(6) Permit revocation shall be governed by the procedures set forth in the Health and Safety Code Sections 42307 - 42309 and Health and Safety Code Section 40800 et seq.

(h) Reopenings for Cause by EPA

(1) Within 90 days of receipt of written notice from EPA to reopen a permit for cause, the Executive Officer shall submit a proposed determination, including any proposed new permit, to EPA to terminate, revise, or revoke and reissue a permit, for a 90-day EPA review period. The Executive

Officer may request a 90 day extension of this limit if it is necessary to request a new or revised permit application or additional information from the applicant for, or holder of, a Title V permit.

(2) The Executive Officer shall terminate, revise, or revoke and reissue the permit within 15 days of either the end of EPA's 90-day review period without receiving an EPA objection, or the date EPA notifies the District of agreement with the proposed determination, whichever is sooner.

(3) If the EPA objects to the proposed determination, the Executive Officer shall, within 90 days of receipt of the objection from EPA, attempt to resolve any EPA objection to the proposed determination and terminate, revise or revoke and reissue the permit in accordance with EPA's objection.

(i) Operational Flexibility

An owner/operator of a Title V facility may make certain changes within a permitted facility without a permit revision. This subdivision shall apply to:

(1) Changes that violate an express permit term or condition, provided all of the following conditions are met:

(A) The District and EPA have received a written notice from the owner/operator of the Title V facility at least 7 calendar days before making such change;

(B) The written notice is clearly marked as a request for operational flexibility under this subdivision and includes the following information:

(i) a description of each change within the permitted facility;

(ii) the date on which the change will occur;

(iii) any change in emissions; and

(iv) any permit term or condition that is no longer applicable as a result of the change;

(C) The change is not:

(i) a violation of regulatory requirements or federally enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements;

(ii) construction, modification, or relocation under Regulation XIII - New Source Review, Rule 1401 - New Source

Review of Carcinogenic Air Contaminants, or Regulation XVII - Prevention of Significant Deterioration;

(iii) preconstruction or modification under Rule 2005 - RECLAIM New Source Review;

(iv) subject to decision by the Hearing Board;

(v) resulting in an exceedance of the emissions allowable under the permit, whether expressed therein as a rate of emissions or in terms of total emissions;

(vi) an installation of new equipment, or a modification or reconstruction of existing equipment, subject to a New Source Performance Standard (NSPS) pursuant to 40 CFR Part 60, or a National Emission Standard for Hazardous Air Pollutants (NESHAP) pursuant to 40 CFR Part 61 or 40 CFR Part 63; or,

(vii) subject to any requirement under Title IV of the federal Clean Air Act.

(D) The District and the facility have attached the written notice to their copy of the relevant permit.

(2) Trading of emission increases and decreases within the permitted facility solely for the purpose of complying with a federally enforceable emissions cap that is established in the permit independent of otherwise applicable requirements, if all of the following conditions are met:

(A) The facility complies with all regulatory requirements;

(B) For non-RECLAIM pollutants, trading of emissions within the facility shall comply with all of the following requirements:

(i) Prior to the initiation of trading, the facility permit includes, or has been revised to include, terms and conditions authorizing the trading, including all terms required under Rule 3004(a)(4) and (a)(10) to determine compliance, and replicable procedures and permit terms that ensure that the emissions trades are quantifiable and enforceable;

(ii) The trading includes only equipment for which emissions are quantifiable and for which there are replicable procedures to enforce such trading;

(iii) The District and EPA have received written notice from the holder of the Title V permit at least 30 days before trading is initiated;

(iv) The written notice is clearly marked as a request to initiate trading under this subdivision and includes the date the trading will begin, and a description of the changes in emissions that will result and how these changes will comply with the terms and conditions of the permit; and

(v) The District does not provide the owner or operator a written denial of the request for authorization of trading within 30 days of receipt of the request.

(j) Alternative Operating Scenario

The Executive Officer shall allow the owner/operator of a Title V facility to change from one alternative operating scenario to another without requiring a permit revision, provided that the terms and use of the alternative operating scenario are:

(1) identified by the owner/operator in the permit application

(2) approved by the District;

(3) specified in the permit conditions pursuant to paragraph (a)(8) of Rule 3004; and

(4) in compliance with all regulatory requirements.

(k) Prohibition on Changes Not Specifically Allowed by Permit

A Title V facility shall not, without a permit revision, make any change that is not addressed or prohibited by the Title V permit, if such change is subject to minor permit revision, de minimis significant permit revision, or significant permit revision procedures, except in accordance with subdivision (i) of this rule.

(Adopted October 8, 1993)(Amended August 11, 1995)
(Amended November 14, 1997)
PAR 3006A
November 5, 2010

PROPOSED AMENDED RULE 3006. PUBLIC PARTICIPATION

(a) Public Participation Requirements for Permit Actions

(1) All permit actions for initial permit issuance, significant permit revisions, establishment of general permits and permit renewals shall include the following public participation procedures:

(A) The District shall give notice by publication in a newspaper of general circulation in the county where the source is located, by mail to those who request in writing to be on a list to receive all such notices, and by any other means determined by the Executive Officer to be necessary to assure adequate notice to the affected public.

(B) The notice shall include:

(i) The identity and location of the affected facility;

(ii) The name and mailing address of the facility's contact person;

(iii) The identity and address of the South Coast Air Quality Management District as the permitting authority processing the permit;

(iv) The activity or activities involved in the permit action;

(v) The emissions change involved in any permit revision;

(vi) The name, address, and telephone number of a person who interested persons may contact to review additional information including copies of the proposed permit, the application, all relevant supporting materials, including compliance documents as defined in paragraph (b)(~~5~~6) of Rule 3000, and all other materials available to the Executive Officer that are relevant to the permit decision;

(vii) A brief description of the public comment procedures provided; and,

(viii) The time and place of any proposed permit hearing that may be held or a statement of the procedures to request a

proposed permit hearing if one has not already been requested.

(C) Costs of such notice and public participation process shall be paid, as specified in Regulation III, by the applicant.

(D) The notice shall provide at least 30 days for public comment, and shall give at least 30 days of notice if any proposed permit hearing is scheduled.

(E) The Executive Officer shall keep a record of the commenters and also of the issues raised during the public participation process, for 5 years, so that the EPA Administrator may fulfill the obligation under Section 505(b)(2) of the federal Clean Air Act to determine whether a citizen petition may be granted. Such records shall be available to the public as provided in the California Public Records Act.

(F) Any person may request a proposed permit hearing on an application for initial permit, permit renewal, or significant permit revision, or for establishment of a general permit, by filing with the Executive Officer a complete request for a proposed permit hearing within 15 days of the date of publication of notice. On or before the date the request is filed, the person requesting a proposed permit hearing must also mail by first class mail a copy of the request to the contact person of the Title V facility at the address listed in the notice. A complete request for a proposed permit hearing shall include all of the following information:

(i) Identification of the permit action on which a proposed permit hearing is requested;

(ii) Name, address, and telephone number of the person requesting the proposed permit hearing and of the person to whom further notices should be sent, if different;

(iii) Specific identification of the portion or portions of the proposed permit or revision to which objection is made;

(iv) Specific identification of the regulatory requirement or requirements, or provisions of these rules, with which the proposed permit or revision is inconsistent, and the reasons the inconsistency is believed to exist;

(v) Identification of proposed permit terms or conditions, if any, which would eliminate the inconsistency; and,

(vi) A statement of the reason or reasons the requester believes a public hearing would clarify one or more issues involved in the permit decision.

(G) If a valid request for a proposed permit hearing is received in accordance with subparagraph (a)(1)(F) of this rule, the Executive Officer shall hold a proposed permit hearing noticed at least 30 days prior to the hearing and shall deny or approve the proposed permit, or continue the hearing to a specific announced date on which a revised proposed permit would be available for further public review and comment.

(H) Unless there is an objection made by an affected facility, the Executive Officer may conduct a group permit hearing for facilities identified in the public's requests for permit hearings.

(b) Exemptions

Permit revision applications eligible for processing using administrative permit revision, minor permit revision, or de minimis significant permit revision procedures shall be exempt from the public participation requirements of subdivision (a) of this rule.

PROPOSED AMENDED RULE 3008. POTENTIAL TO EMIT LIMITATIONS

(a) Purpose

The purpose of this rule is to exempt low-emitting facilities with actual emissions below a specific threshold from federal Title V permit requirements by limiting the facility's potential to emit.

(b) Applicability

This rule shall apply to any facility which would, if it did not comply with the limitations set forth in either paragraphs (d)(1) or (d)(2) of this rule, have the potential to emit air contaminants equal to or in excess of the thresholds specified in Table 2, subdivision (b) of Rule 3001 – Applicability, or for GHGs 100,000 or more tpy CO_2e.

(c) Definitions

All terms shall retain the definitions in Rule 3000 - General, unless otherwise defined herein.

(1) 12-MONTH PERIOD means a period of twelve (12) consecutive months determined on a rolling basis with a new 12-month period beginning on the first day of each calendar month.

(2) ACTUAL EMISSIONS means the emissions of regulated air pollutants from a facility on a~~n annual~~ 12-month basis. Valid continuous emission monitoring data or source test data shall be preferentially used to determine actual emissions. In the absence of valid continuous emissions monitoring data or source test data, the basis for determining actual emissions shall be: throughputs of process materials; throughputs of materials stored; usage of materials; data provided in manufacturer's product specifications; material volatile organic compound (VOC) content reports or laboratory analyses; other information required by this rule and applicable District, state, and federal regulations; or information requested by or available to the District. All calculations of actual emissions shall use United States Environmental Protection Agency (EPA), California Air

Resources Board (CARB) or District approved methods, including emission factors and assumptions.

(3) ALTERNATIVE OPERATIONAL LIMIT means a limit on a measurable parameter, such as hours of operation, throughput of materials, use of materials, or quantity of product, as specified in paragraph (d)(2).

(4) DE MINIMIS FACILITY means any facility that emits in every 12-month period quantities of actual emissions as specified in either subparagraph (A) or (B) below:

(A) The facility emits ~~less than or equal to all of the following~~:

(i) less than or equal to ~~F~~four (4) tons per year of each regulated air pollutant (excluding hazardous air pollutants (HAPs)); and

(ii) less than or equal to ~~F~~four (4) tons per year of any single HAP, or twenty (20) percent of any newly adopted major source threshold for a single HAP that EPA may establish by rule, whichever is less; and

(iii) less than or equal to ~~F~~five (5) tons per year of any combination of HAPs~~.~~; and

(iv) less than 25,000 tons per year CO_2e for GHG emission.

(B) At least 90 percent of the facility's emissions are associated with an operation for which the throughput is less than or equal to any of the following quantities specified:

(i) 1,120 gallons of any combination of solvent-containing materials but no more than 440 gallons of any one solvent-containing material, provided that the materials do not contain the following: methyl chloroform (1,1,1-trichloroethane), methylene chloride (dichloromethane), tetrachloroethylene (perchloroethylene), or trichloroethylene;

(ii) 600 gallons of the combination of all solvent-containing materials where the materials contain the following: methyl chloroform (1,1,1-trichloroethane), methylene chloride (dichloromethane), tetrachloroethylene (perchloroethylene), or trichloroethylene, but not more than 240 gallons of any one solvent-containing material;

(iii) 960 gallons of solvent-containing (or VOC containing) material, used at a paint spray unit(s);

(iv) 5,722,667 gallons of gasoline dispensed from equipment with Phase I and II vapor recovery system as defined in Rule 461;

(v) 972,000 gallons of gasoline dispensed from equipment with only Phase I vapor recovery system as defined in Rule 461.

(vi) 376,000 gallons of gasoline dispensed from equipment without Phase I and II vapor recovery system as defined in Rule 461;

(vii) 1,120 gallons of gasoline combusted;

(viii) 13,280 gallons of diesel fuel combusted;

(ix) 56,800,000 cubic feet of natural gas combusted

(x) 19,184 gallons of ultraviolet/electron beam materials not to exceed 50 grams/liter

(5) EMISSION UNIT means any article, machine, equipment, operation, contrivance, or related groupings of such that may produce and/or emit any regulated air pollutant or HAP.

(6) MAJOR SOURCE means any facility with a potential to emit, measured in tons per year per facility location, exceeding the emission threshold levels in Table 2, subdivision (b) of Rule 3001.

(7) POTENTIAL TO EMIT means the maximum capacity of a facility to emit an air pollutant based on its physical and operational design. Any physical or operational limitation on the capacity of the facility to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation is legally and practically enforceable by the EPA and citizens or by the District.

(8) PROCESS STATEMENT means a Declaration of Total Emissions filed pursuant to Rule 301(e)(7) or a~~n annual~~ 12-month report on permitted emission units from an operator of a facility certifying under penalty of perjury the following: throughputs of process materials; throughputs of materials stored; usage of materials; fuel usage; any available continuous emissions monitoring data; hours of operation; and any other information required by this rule or requested by the District.

(d) Requirements

Any facility subject to this rule shall comply with either one of the following requirements:

(1) Emission Limitations

A facility subject to this rule has the following limits on emissions in every 12-month period:

(A) 50 percent of the major source thresholds for regulated air pollutants (excluding HAPs and GHGs);

(B) 5 tons per year of any single HAP, or fifty (50) percent of any newly adopted major source threshold for a single HAP that EPA may establish by rule, whichever is less;

(C) 12.5 tons per year of any combination of HAPs; and

(D) less than 50,000 tons per year CO_2e for GHG emissions.

(2) Alternative Operational Limits

Any facility for which 90 percent of the facility's emissions from the permitted emission units in every 12-month period are associated with one of the operations identified in Table 1 shall comply with the corresponding operational limits in Table 1.

(e) Recordkeeping

(1) The recordkeeping provisions below shall not apply to De Minimis facilities.

(2) On and after May 15, 2001, the operator operating a facility subject to this rule under any one alternative operational limit, shall operate the facility in compliance with the alternative operational limit and comply with the following recordkeeping requirements as applicable:

(A) The operator shall maintain all purchase orders, invoices, and other documents to support information required to be maintained in a monthly log. Records required under this section shall be maintained on site for five years and be made available to the District, CARB, or the EPA upon request.

(B) The operator of a Gasoline Dispensing Facility equipped with Phase I and Phase II Vapor Recovery Systems shall maintain on site a monthly log of gallons of gasoline dispensed in the preceding month with a calculation of the total gallons dispensed in the previous 12 months.

(C) The operator of a Degreasing or Solvent-Using unit shall maintain on site a monthly log of amount and type of solvent used in the preceding month with a calculation of the total gallons used in the previous 12 months.

(D) The operator of a Paint-Spraying Unit shall maintain on site a monthly log of the gallons of VOC-containing materials used in the preceding 12 months with a calculation of the gallons of volatile organic compound-containing materials that also contain hazardous air pollutants used in the previous 12 months, and a calculation of the total gallons of volatile organic compound-containing materials used in the previous 12 months.

(E) The operator of an Emergency Standby Engine with output less than 1,000 brake horsepower shall maintain on site a monthly log of hours of operation, amount of fuel used, and a calculation of the total hours operated and amount of fuel used in the previous 12 months shall be kept on site.

(3) On and after May 15, 2001, the operator of a facility not operating under any alternative operational limit, shall comply with the following applicable recordkeeping requirements. The recordkeeping requirements of this rule shall not replace any recordkeeping requirement contained in an operating permit or in a District, State, or Federal rule or regulation.

(A) The operator of a facility subject to this rule shall keep and maintain records for each permitted emission unit or groups of permitted emission units sufficient to determine actual emissions. Such information shall be summarized in a monthly log, maintained on site for five years and shall be made available to the District, CARB, or EPA staff upon request.

(B) Coating/Solvent Emission unit

The operator of a facility subject to this rule that operates a coating/solvent emission unit or uses a coating, solvent, ink, or adhesive shall keep and maintain the records in accordance with Rule 109.

(C) Organic Liquid Storage Unit

The operator of a facility subject to this rule that contains an organic liquid storage unit shall keep and maintain the following records:

(i) A monthly log identifying the liquid stored and monthly throughput; and

(ii) Information on the tank design and specifications including control equipment.

(D) Combustion Emission Unit

The operator of a facility subject to this rule that contains a combustion emission unit shall keep and maintain the following records:

(i) Information on equipment type, make and model, maximum design process rate or maximum power input/output, minimum operating temperature (for thermal oxidizers) and capacity, control device(s) type and description (if any) and all source test information; and

(ii) A monthly log of hours of operation, fuel type, fuel usage, and fuel heating value.

(E) Emission Control Unit

The operator of a facility subject to this rule that contains an emission control unit shall keep and maintain the following records:

(i) Information on equipment type and description, make and model, and emission units served by the control unit;

(ii) Information on equipment design including where applicable: pollutant(s) controlled; control effectiveness; maximum design or rated capacity; inlet and outlet temperatures, and concentrations for each pollutant controlled; catalyst data (type, material, life, volume, space velocity, ammonia injection rate and temperature); baghouse data (design, cleaning method, fabric material, flow rate, air/cloth ratio); electrostatic precipitator data (number of fields, cleaning method, and power input); scrubber data (type, design, sorbent type, pressure drop); other design data as appropriate; all source test information; and

(iii) A monthly log of hours of operation including notation of any control equipment breakdowns, upsets, repairs,

maintenance and any other deviations from design parameters.

(F) General Emission Unit

The operator of a facility subject to this rule that contains an emission unit not included in subdivision (e) of this rule shall keep and maintain the following records:

(i) Information on the process and equipment including the following: equipment type, description, make and model, maximum design process rate or throughput; control device(s) type and description (if any);

(ii) Any additional information requested in writing by the Executive Officer;

(iii) A monthly log of operating hours, each raw material used and its amount, each product produced and its production rate; and

(iv) Purchase orders, invoices, and other documents to support information in the monthly log.

(f) Reporting

(1) The reporting provisions below shall not apply to De Minimis facilities.

(2) Not withstanding the provisions in paragraph (f)(1), within 30 days of a written request by the District or the EPA, the operator of a facility not maintaining records pursuant to subdivision (e) shall demonstrate that the facility's emissions or throughput are not in excess of the applicable quantities set forth in the definition of De Minimis facility.

(3) The operator of a facility subject to this rule shall provide to the District a process statement or monthly log at the time of ~~annual~~ 12-month renewal for the previous 12 months of operation. The operator shall certify that the monthly log is true, accurate and complete.

(4) Any additional information requested by the Executive Officer shall be submitted to the Executive Officer within 30 days of the date of request.

(5) The operator shall notify the Executive Officer within 7 days of any exceedance of the alternative operational limit.

(6) Notwithstanding the provisions in paragraph (f)(3), a current Declaration of Total Emissions submitted in accordance with paragraph (e)(7)(A) of

Rule 301 - Permitting and Associated Fees shall be deemed to meet the reporting requirements of this rule.

(g) Violations

(1) Failure to comply with any of the applicable provisions of this rule shall constitute a violation of this rule. Each day during which a violation of this rule occurs is a separate offense.

(2) A facility subject to this rule shall be subject to applicable federal requirements for a major source, including all other applicable rules of Regulation XXX, when the conditions specified in either subparagraph (g)(2)(A) or (g)(2)(B) below, occur;

(A) Commencing on the first day following every ~~annual~~ 12-month period in which the facility exceeds a limit specified in paragraph (d)(1) and any applicable alternative operational limit specified in paragraph (d)(2), or

(B) Commencing on the first day following every ~~annual~~ 12-month period in which the operator cannot demonstrate that the facility is in compliance with the limits in paragraph (d)(1) or any applicable alternative operational limit specified in paragraph (d)(2).

(h) Exemptions

This rule shall not apply to the following facilities:

(1) Any facility, whose emissions, throughput, or operation, at any time after March 16, 2001 are greater than the quantities specified in paragraphs (d)(1) and (d)(2) and which meets both of the following conditions:

(A) The operator has notified the District at least 30 days prior to any exceedance that the operator intends to submit an application for a Title V permit, or otherwise obtain permit limits that are legally and practically enforceable by the EPA and citizens or by the District; and

(B) A complete Title V permit application is received by the District, or the permit action to otherwise obtain limits that are legally and practically enforceable by the EPA and citizens, or by the District is completed, within 12 months of the date of notification.

(2) Any facility that has applied for a Title V permit in a timely manner and in conformance with Rule 3003 - Applications, and is awaiting final action by the District and EPA.

(3) Any facility required to obtain an operating permit under Rule 3001 - Applicability for any reason other than being a major source.

(4) Any facility with a valid Title V permit.

(5) Notwithstanding paragraphs (h)(2) and (h)(4) of this rule, nothing in this subdivision shall prevent any facility which has applied for or had a Title V permit from qualifying to comply with this rule in the future in lieu of maintaining an application for a Title V permit, or upon rescission of a Title V permit provided ~~if~~ the operator demonstrates to the satisfaction of the Executive Officer that the facility's emissions have been permanently reduced by accepting an enforceable permit change and is in compliance with the emission limitations in paragraph (d)(1) or an applicable alternative operational limit in paragraph (d)(2).

(6) Any facility which has a valid operating permit with conditions limiting facility emissions that are legally and practically enforceable by the EPA and citizens or the District to below the applicable threshold(s) for a major source as defined in paragraph (c)(6).

Table 1
Alternative Operational Limits

Type of Operation	Usage Limit in Every 12-Month Period
Printing, Publishing, and Packaging	In addition to the individual equipment usage limits listed, all Printing, Publishing, and Packaging operations have usage limits of 1,333 gallons of materials containing any one HAP, and 3,333 gallons of materials containing combination HAPs.
Flexography and Rotogravure (using water-based or UV-cured inks, coatings, and adhesives)	40,000 pounds inks, coatings, adhesives, dilution solvents, & cleaning solvents
Flexography and Rotogravure (using solvent-based inks)	10,000 pounds (before controls) of inks, coatings, adhesives, dilution solvents & cleaning solvents
Heatset Offset Lithography	10,000 pounds (before controls) of ink, cleaning solvent, & fountain solution additives
Non-Heatset Offset Lithography (web- or sheet-fed)	1,425 gallons of cleaning solvent & fountain solution additives
Screen Printers	1,425 gallons of solvent-based inks, cleaning solvents, adhesives, & coatings
Boilers (≤ 100,000,000 Btu/hr)	71,000,000 cubic feet of natural gas consumed
Bulk Gasoline Plants (equipped with vapor-balance system)	20,000 gallons per day of gasoline loaded & unloaded
Degreasers & Other Units if the solvents do not include: 1,1,1-trichloroethane, dichloromethane, tetrachloroethylene, or trichloroethylene	5,400 gallons of any combination of solvent-containing materials 2,200 gallons of any one solvent-containing material
Degreasers & Other Units if the solvents include: 1,1,1-trichloroethane, dichloromethane, tetrachloroethylene, or trichloroethylene	2,900 gallons of any combination of VOC-containing materials 1,200 gallons of any one solvent-containing material
Emergency Standby Engines (< 1,000 brake horsepower)	< 200 hours of operation
Gasoline Dispensing Facilities (Equipped with Phase I and Phase II vapor recovery systems)	7,150,000 gallons of gasoline dispensed
Hot Mix Asphalt Plants	125,000 tons of hot mix asphalt produced
Spray Booths	1,100 gallons of all VOC-containing materials, with no more than 110 gallons of VOC- & HAP-containing materials and the VOC content ≤ 1000 gram/liter, less water and exempt compounds
Ultraviolet/Electron Beam Cured Operations	21,582 gallons of ultraviolet/electron beam materials not to exceed 50 grams/liter.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

FINAL STAFF REPORT:

PROPOSED RULE 1714 – PREVENTION OF SIGNIFICANT DETERIORATION FOR GREENHOUSE GASES, AND PROPOSED AMENDED REGULATIONS XXX – TITLE V PERMITS

October 2010

Planning, Rule Development, and Area Sources

Deputy Executive Officer
Planning, Rule Development and Area Sources
Elaine Chang, DrPH

Assistant Deputy Executive Officer
Planning, Rule Development and Area Sources
Laki Tisopulos, Ph.D., P.E.

Director of Strategic Initiatives
Planning, Rule Development and Area Sources
Jill Whynot

Author: Pamela Perryman, Air Quality Specialist

Reviewed by: Robert Pease, P.E. – Program Supervisor
Barbara Baird – District Counsel
Mohsen Nazemi, P.E. – Deputy Executive Officer, Engineering and Compliance

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Cities of Orange County

EXECUTIVE OFFICER:

BARRY R. WALLERSTEIN, D.Env

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EXECUTIVE SUMMARY

The District staff is proposing to amend Regulations XVII – Prevention of Significant Deterioration (PSD), and XXX – Title V Permits, to implement federally mandated requirements for greenhouse gases (GHG) for the PSD and Title V programs. These federal programs are implemented by the District through the enforcement of these two regulations. Regulation XVII amendments will incorporate federal requirements for GHGs by reference into a new rule, Rule 1714 – PSD for GHGs. Regulation XXX amendments would add federal GHG requirements into the current District rules.

REGULATORY BACKGROUND

On June 3, 2010, U.S. EPA promulgated a "tailoring rule" to describe the applicability criteria that determine which existing or new stationary sources and which modification projects become subject to permitting requirements for GHG emissions under the PSD and Title V programs of the CAA. The District is presently implementing the PSD program under a Partial Delegation from U.S. EPA Region IX. The District implements its Regulation XVII – PSD to address attainment air pollutants. The District's Regulation XVII is presently not approved by U.S. EPA into the SIP. Staff intends to incorporate the GHG provisions for the PSD program by reference by adopting a new rule. The District received approval of Title V as a permitting program for major sources November 21, 2003 (68 FR 65637) and it is implemented through Regulation XXX. The District staff's proposed amendments for Title V (Regulation XXX) retain the basic approach of the regulations and add GHGs to the structure.

Regulation XVII – PSD implements a federally mandated program that provides a pre-construction review and permitting authority for new major stationary sources and major modifications at existing major stationary sources for areas that are designated "attainment" or "unclassifiable" for a National Ambient Air Quality Standard (NAAQS). It works in tandem with "nonattainment" New Source Review (District Regulation XIII) for areas that are not in attainment for a NAAQS.

The South Coast Air Basin is classified "attainment" for carbon monoxide, nitrogen dioxide and sulfur dioxide. It is "nonattainment" for ozone, particulate matter $(PM)_{2.5}$ and PM_{10}. The Salton Sea Air Basin is "unclassified" for carbon monoxide, nitrogen dioxide, sulfur dioxide, and $PM_{2.5}$ and nonattainment for ozone and PM_{10}. Both Basins have requested U.S. EPA to re-designate them as "attainment" for PM_{10} based on recent monitoring.

Title V is a federally enforceable program for permitting large sources in an inclusive format to assist in their compliance with provisions of the CAA.

U.S. EPA has defined GHGs as the following: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydroflurocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). This is consistent with the six gases included in state programs, such as AB 32, and the District's Regulation XXVII – Climate Change. These gases are compared using a term called "Carbon Dioxide Equivalent" (CO_2e), which means the amount of carbon dioxide (CO_2) that would have the same global warming potential as a given amount of another greenhouse gas. Global Warming Potential (GWP) means the capacity to heat the atmosphere, calculated as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram (kg) of a substance relative to that of 1 kg of CO_2. GWPs are calculated according to the factors for a 100-year time horizon.

The U.S. EPA determined that without their rulemaking, PSD and Title V requirements would, as of January 2, 2011, apply to sources of GHGs with emissions of 100 tons per year (tpy), and PSD requirements would apply at levels of 100 tons per year or 250 ton per year, depending on the source category, the threshold levels for criteria attainment pollutants under the CAA. This level of emissions for GHGs is considered extremely low and would greatly increase the number of sources requiring permits, impose undue costs on small sources, overwhelm the resources of permitting authorities, and severely impair the functioning of the PSD and Title V programs. For example, without the GHG tailoring provisions, there would be an estimated six million new Title V permits nationwide, of which, the AQMD's proportionate share could be 300,000 new permits (based on population size). This compares to approximately 500 current Title V permits.

The current U.S. EPA tailoring rule creates a phase-in process starting with the largest GHG emitters covered beginning January 2, 2011, and smaller emitters delayed entry into the programs until at least April 30, 2016.

PUBLIC PROCESS

A Public Workshop/CEQA Scoping Session was held September 9, 2010. Approximately 60 people attended and five comment letters were submitted after the workshop. A Public Consultation Meeting will be held October 12, 2010

PURPOSE AND APPLICABILITY

The purpose of these rule amendments is to implement the federally promulgated requirements for GHG emissions in the PSD and Title V programs. PSD requirements are presently implemented through Regulation XVII and the GHG requirements will be adopted by reference and incorporated into Proposed Rule 1714. Title V requirements are presently implemented through Regulation XXX and the GHG requirements will be incorporated through amendments to Rules 3000, 3001, 3002, 3003, 3005, 3006, and 3008.

LEGAL AUTHORITY

The AQMD obtains authority to adopt, amend, or repeal rules and regulations which control air pollution from Health and Safety Code §§ 40000, 40001, 40440, 40725-40728, 42300 *et seq*.

AQMP AND LEGAL MANDATES

The District is proposing Rule 1714 and amending rules in Regulation XXX – Title V Permits, to implement the federal requirements for GHGs. These rules are not control measures in the AQMP, but are mandatory requirements under the Clean Air Act. Proposed Rule 1714 – PSD for GHGs, will implement the GHG requirements by an adoption by reference of the federal requirements. The GHG requirements for Title V programs will be included in Regulation XXX by amending Rules 3000, 3001, 3002, 3003, 3005, 3006, and 3008 of that regulation.

AFFECTED INDUSTRY

Staff has identified 55 existing facilities which may potentially be impacted by the Title V federal regulations. These facilities are primarily classified in the following industries: cement, cogeneration units, electric power generation, hydrogen plant, inorganic chemical manufacturing, and petroleum refineries. This information is based on GHG emissions reported to CARB for 2008. Please see the discussion below in "summary of proposed rule amendments" for specifics as to what the effective dates are and the threshold levels triggering inclusion. Staff is not able to estimate the facilities that may be subject to PSD.

SUMMARY OF PROPOSED RULE AMENDMENTS

The amendments to Regulations XVII – Prevention of Significant Deterioration, and XXX - Title V Permits, are proposed to implement federal changes to 40 CFR Parts 52 and 70, published June 3, 2010 and effective August 2, 2010. The first step phase-in date is January 2, 2011, followed by a second step implementation date of July 1, 2011.

Regulation XVII – Prevention of Significant Deterioration

One new rule is proposed for Regulation XVII, Proposed Rule 1714 – PSD for GHGs, to adopt by reference the provisions related to GHGs from the federal PSD rule as delineated in 40 CFR Part 52.21. The rule specifies what portions of 40 CFR, Part 52.21 do not apply to GHG emissions. These exclusions are as follows:

(a)(1) Plan disapproval - the provisions of this section are applicable to any SIP which has been disapproved with respect to PSD of air quality in any portion of any State where the existing air quality is better than the national ambient air quality standards. There is no air standard applicable for GHGs.

(b)(13) Definition of Baseline Concentration – pertains to increment consumption which has to do with criteria pollutants.

(b)(14) Major source baseline date – pertains to criteria attainment pollutants.
(b)(15) Definition of Baseline Area –pertains to criteria attainment pollutants.
(b)(55-58) Equipment Replacement Project (ERP) definitions struck down by the DC Circuit Court but not yet removed from the CFR.
(c) Ambient air increments - pertains to criteria attainment pollutants.
(d) Ambient air ceilings - pertains to criteria attainment pollutants.
(e) Restrictions on area classifications –restricts designation of certain Class I areas – pertains to criteria pollutants.
(f) Reserved
(g) Redesignation – pertains to re-designation of areas, which is not applicable to pollutants with no NAAQS.
(h) Stack heights - this has to do with modeling which does not apply to GHGs.
(i)(1)(i-v) Exemptions dealing with construction commenced in the 1977-1980 range.
(i)(1)(ix-xi) Exemptions dealing with construction commenced in 1987.
(i)(6-8) Exemptions dealing with construction commenced in 1988.
(k) Source impact analysis – pertains to NAAQS thus it does not apply to GHGs.
(l) Air quality modeling – there is no NAAQS for GHGs and thus modeling is not applicable to GHGs.
(m) Air quality analysis - pertains to criteria attainment pollutants.
(o) Additional impact analyses – GHG emissions are not a local impact issue.
(p) Sources impacting Federal Class I Areas - pertains to criteria attainment pollutants.
(q) Public participation – Not needed as District Rule 1714 contains public participation requirements.
(s) Environmental impact statements –This pertains to a federal agency preparing NEPA documents.
(t) Disputed permits or redesignations - pertains to criteria attainment pollutants.
(u) Delegation of authority – this applies to the U.S. EPA Administrator; the District is not delegating authority to anyone.
(v) Innovation control technology - this provision is optional, not a required element of a PSD program. Also, this section refers to 40 CFR Part 124.10, which is not the standard for public notice when the rule is incorporated by reference.
(w) Permit rescission – pertains to rescinding permits
(x) Reserved
(y) Reserved
(z) Reserved
(aa) Actual plantwide applicability limitation (PALs) – the District does not have delegation of authority for PALs which are bubble plans (plantwide) for criteria pollutants, not applicable to GHGs. Not adopting this provision for GHGs makes the District's program more stringent than the federal program because bubbles (PALs) add compliance flexibility.

(cc) ERP provisions struck down by DC Circuit Court but not yet removed from the CFR.

In general, the federal rules establish the dates for a phased-in multi-step process. Specifically, beginning January 2, 2011 (Step 1) any source already subject to the PSD regulation for new construction or a modification for any attainment pollutant, and having an increase in GHG emissions on a carbon dioxide equivalent (CO_2e) basis (Global Warming Potential [GWP] applied) $\geq$75,000 tpy CO_2e **and** with a net emission increase greater than zero of GHG emissions on a mass basis (no GWP applied), will be required to undergo assessment of BACT for GHG emissions. To clarify, GHG emissions calculated on a CO_2e basis takes the sum of the six GHG specified above and weights them according to their GWP by multiplying each component by its GWP factor before summing them to make the total GHG emissions. If the calculation is done on a mass basis, no weighting is done and thus no GWP factor is applied. The emissions are the simple summation of all the GHG emissions. As a result, AQMD would begin requiring BACT, as applicable, for GHGs for these sources.

Step 2 of the phased-in implementation for GHG sources has an effective date of July 1, 2011. At this point, all sources subject to the regulation through Step 1 will continue to be subject to the rule and additionally, sources with a potential to emit (PTE) GHGs $\geq$100,000 tpy CO_2e and emitting GHGs or an NSR pollutant above the 100/250 tpy (mass based) statutory thresholds, will be subject to the regulation. Furthermore, on or after the July 1, 2011 date, modifications of a "major source", including those determined to be a major source solely on the basis of GHG emissions, with a net emissions increase of GHGs of $\geq$75,000 CO_2e (GWP applied), and a net increase in GHGs calculated on a mass basis (no GWP applied) equal to or exceeding 0 tpy, will be subject to the regulation. These facilities will be subject to BACT for GHGs. The U.S. EPA regulation also states that sources emitting <50,000 tpy CO_2e would not be subject to the regulation until at least April 30, 2016. Additional federal rulemaking would be necessary to regulate such sources.

The federal rule defines GHGs as the following: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydroflurocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These gases are compared using a term called "Carbon Dioxide Equivalent" (CO_2e), which means the amount of carbon dioxide (CO_2) that would have the same global warming potential as a given amount of another greenhouse gas. Global Warming Potential (GWP) means the capacity to heat the atmosphere, calculated as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram (kg) of a substance relative to that of 1 kg of CO_2. GWPs are calculated according to the factors for a 100-year time horizon.

The regulation grants relief to sources emitting GHG, because the major source definition as it applies to attainment pollutants is either 100 or 250 tpy, depending on the source category. As stated above, if this threshold level was used for GHGs, it would greatly increase the number of sources requiring permits, impose undue costs on small sources, overwhelm the resources of permitting authorities, and severely impair the functioning to

the PSD and Title V programs. To be considered a "major source" based solely on GHG emissions, a GHG source must have the potential to emit GHGs in amounts of, or exceeding, 100 tpy for sources in any of the 28 major emitting facility source categories listed under PSD CFR 40 Part 52; or 250 tpy for any other stationary source, calculated on a GHG mass basis (no GWP applied); **and** with the potential to emit GHGs of 100,000 or more tpy CO_2e.

PR 1714 also contains the same public participation requirements as the District enforces for all other sources regulated under Regulation XVII – PSD by Rule 1710 - Analysis, Notice and Reporting.

Regulation XXX – Title V Permits

Amendments to Regulation XXX are proposed for seven of the nine rules in the regulation. PAR 3000 – General, is proposed for amendment by adding three definitions: carbon dioxide equivalent (CO_2e); global warming potential (GWP); and greenhouse gas (GHG). One definition, Minor Permit Revision is proposed to be amended by adding a threshold value for GHGs. A table is also added listing the GHGs and their GWPs.

PAR 3001 – Applicability, contains language similar to that found in PAR 3002 regarding the inclusion of sources with GHG emissions into the program. The proposal adds an exemption for sources with PTE GHGs less than 100,000 tpy CO_2e and PTE less than the thresholds in Table 2 of this rule for all other air contaminants if the facility takes an enforceable condition in a permit or modifies the facility to such a level.

PAR 3002 – Requirements, is proposed to be amended by adding the January 2, 2011 and July 1, 2011, dates for including GHGs in Title V permits. The first date (Step 1) requires GHGs to be added to any permit that is being obtained or modified under Title V due to an attainment air contaminant. In other words, if a Title V permit is required for any attainment air contaminant, then applicable requirements for GHG emissions must be included in the permit. The July 1, 2011 date (Step 2) includes any source with a potential to emit (PTE) $\geq$ 100,000 tpy CO_2e (on a CO_2e basis with GWPs applied) and a PTE GHGs $\geq$ 100 tpy on a mass basis (no GWP applied). Language was presented in two options in paragraph (a)(3) regarding the GHG requirements to be presented in the Title V permit and whether they are "applicable" requirements and thus only those requirements under the federal CAA and the SIP; or "regulatory" requirements and thus in addition to applicable federal requirements would also include "state only" requirements, meaning requirements promulgated by state action only. Staff sought input on these two options through the public workshop process and after receiving several comments in support of Option 1, the proposed rule language reflects that only the federal or "applicable" requirements are to be included in the Title V permits. At present, there are no federal regulations that constitute "applicable requirements" for GHGs unless the source is subject to BACT for GHGs under PSD. Also, the proposed rule clarifies that on and after July 1, 2011, new or modified facilities with a PTE increase of $\geq$ 100,000 tpy CO_2e will be subject to Title V.

PAR 3003 – Applications, PAR 3005 – Permit Revisions, and PAR 3006 – Public Participation, are proposed for amendment only due to references in those rules to definitions in PAR 3000 – General, and the proposed changes in the numbering sequence in that proposed amended rule.

PAR 3008 – Potential to Emit Limitations, authorizes sources to cap their PTE to avoid applicability of Title V based on GHG emissions. The proposed amended rule reflects a clarification in the use of the term "annual" to reflect the current process of using 12-month rolling basis for determining actual emissions. Also, the definition of De Minimis Facility is proposed for amendment by adding sources emitting less than 25,000 tpy CO_2e of GHGs. This level is chosen to reflect sources at the GHG emission level of 25,000 tpy CO_2E needing to comply with mandatory reporting requirements. Also, PAR 3008 subdivision (d) adds sources with the PTE GHGs less than 50,000 tpy CO_2e level for PTE limitations.

Rule 3008 includes alternative recordkeeping provisions and operational limits for certain types of equipment. Staff believes equipment subject to the alternative limits would not trigger any of the current GHG thresholds. An emergency standby engine with output less than 1,000 brake horsepower (PAR 3008 (e)(2)(E)), and alternative operational limits for boilers ($\leq$100,000,000 Btu/hr) using $\leq$ 71,000,000 cubic feet of natural gas consumed in a 12-month period (PAR 3008, Table 1) would have GHG emissions far below the 50,000 tpy threshold level. For the engines, the amount of diesel combusted would be 1,000 bhp x 0.05gal/bhp-hr x 200 hrs./yr (max operational time) = 10,000 gals/year and with a value of 10.21 kg CO_2/gallon this yields 102 MT CO_2e. For the boilers the 71,000,000 square cubic feet natural gas equivalent is 3,834 MT CO_2e.

EMISSION REDUCTIONS

While requiring BACT for GHGs may result in either smaller future increases or future reductions of GHGs (and/or possibly criteria pollutants) compared to the status quo, it is impossible to quantify such benefits at the present time. In fact, Federal BACT for GHGs has not currently been finalized. There is an U.S. EPA Climate Change Work Group developing recommendations for U.S. EPA regarding guidelines for GHG BACT. It is likely that BACT for GHG will include energy efficiency and combustion fuel efficiency, but the actual measures, as well as the attendant efficacy, is, at this time, speculative.

Further, the District's CEQA process currently considers GHG emissions. This review requires owner and operators to quantify and address GHG emissions. The addition of these amendments to the CEQA process may not yield additional emission reductions.

COMPARATIVE ANALYSIS

Health and Safety Code Section 40727.2 requires a written analysis comparing the proposed amended rule with existing federal, State and District regulations. This analysis must include averaging provisions, operating parameters, work practice requirements,

and recordkeeping, monitoring, and reporting requirements associated with existing applicable rules and proposed regulations.

These rules encompass all sources and thus the statute should not be interpreted to require this agency to list all federal and state rules and regulations affecting these sources.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

SCAQMD staff has reviewed Proposed Rule 1714 and the proposed amendments to Regulation XXX – Title V Permits, and determined them to be exempt from CEQA requirements pursuant to State CEQA Guidelines §15268 – Ministerial Projects. The proposed project is considered to be ministerially exempt because the proposed project is implementing federal requirements and the SCAQMD has not exercised discretion in adopting the proposed project. Upon adoption of the proposed amendments, a Notice of Exemption will be prepared pursuant to CEQA Guidelines §15062 and filed with the county clerks in each county within the SCAQMD's jurisdiction and will be available at AQMD Headquarters, by calling the AQMD Public Information Center at (909) 396-2039, or by accessing AQMD's CEQA website at: www.aqmd.gov/ceqa.

SOCIOECONOMIC ANALYSIS

PARegs XXVII and XXX represent an adoption of the federal Tailoring Rule for PSD by reference and Title V by incorporation of federal requirements in Regulation XXX rules. Since the proposed amendments do not impose requirements beyond the federal rules, Title V and PSD permit holders are not expected to face additional costs or other socioeconomic impacts as a result of the proposed amendments. As such, a socioeconomic assessment is not required.

REFERENCES

1. U.S. EPA 75FR 31514, Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, June 3, 2010.

RESPONSE TO COMMENTS

The following comments were received during the public workshop held September 9, 2010 and the comment period, which ended September 17, 2010. Unless noted, the comments and responses deal with PSD.

U.S. EPA and CARB

1. Comment: U.S. EPA and CARB both commented that there needs to be consistent definitions of CO_2e, GHGs, and GWP for all Districts, EPA, and CARB.

   Response: Comment noted. The District looks forward to receiving further input on this issue. At the time of the publication of this report, this work was not yet completed.

Delegation/Applicability

2. Comment: Currently, the AQMD has delegation for PSD on new sources. After January, will AQMD implement GHG provisions?

   Response: Yes, under the proposed rules, if adopted.

3. Comment: It would be helpful for staff to develop a chart to indicate who has authority (federal vs. District) for what parts of PSD.

   Response: Please see response to comment # 4.

4. Comment: What areas of PSD does the District have delegation over?

   Response: The District currently has delegation for new major sources and for modified major sources if they go through the Regulation XVII calculation procedure and it is determined that PSD applies. The District does not have delegation for modified sources that use the method for calculating emissions increase set forth in the federal PSD regulation. The District does not have delegation for plantwide applicability limitation (PALs) or other modifications using NSR Reform calculation methodology.

5. Comment: Does SB 288 impact the GHG requirements?

   Response: The state requirement, SB 288, prohibits backsliding on NSR programs that were adopted prior to 2002. This amendment will not be impacted by SB 288, as the current program does not apply to GHGs, so adding requirements for GHGs does not make the NSR program less stringent.

6. Comment: The adoption of 40 CFR Part 52.21 Subpart A in total is confusing in that so many paragraphs are not available to District permittees by action of SB 288. It would be helpful for staff to create a table delineating which sections of

Part 52.21 are not applicable to the District by action of SB 288, irrespective of GHGs. In the same table, please delineate which of the remaining sections of Part 52.21 apply to GHGs.

Response: Please see response to comment # 5. SB 288 does not apply to this amendment. Staff has listed the sections of Part 52.21 that do not apply to GHGs in PR 1714 and also in the staff report.

7. Comment: How will the District address Clean Units, PALs, Pollution Control Projects (PCP), and calculation procedures? At the Public Workshop, staff noted that PALs are a current option for some PSD permit applicants. However this option is only available if EPA issues the PSD permit. If a PSD permit applicant wants to use PAL, can the applicant do so if Regulation XVII is made part of the SIP? What about if it is delegated? Or again, is the intention of the amendment to have no effect on pollutants other than GHG?

   Response: The commentor is correct that the intention of the amendments is to have no effect on pollutants other than GHGs. PALs and PCPs will remain an option only if U.S. EPA issues the PSD permit.

8. Comment: There are unintentional consequences of adopting all of Part 52.21, perhaps limiting flexibility down the road. For instance, under section 52.21 (m), the absence of a national ambient air quality standard could cause the Administrator to require air quality monitoring data collected during the year prior to a permit application. This could potentially impact many projects with unclear delays.

   Response: Section 52.21 (m) is excluded for GHG requirements in PR 1714.

9. Comment: Please provide a list of all the GHG applicable requirements known at this time in the staff report.

   Response: Staff has drafted the rule to require 40 CFR Part 52.21 and listed the non-applicable portions. All portions excluded for GHGs are also listed in the staff report.

10. Comment: The language in PR 1714 is confusing. Subdivision (a) says all provisions of Rule XVII still apply to other attainment pollutants and that proposed rule applies only to GHGs. Then subdivision (b) says, "Adopt by reference the Code of Federal Regulations Part 52, Subpart A, section 52.21." The definition of "attainment air contaminant" and "major source" in Rule 1702 effectively require regulation of any new source with GHG emissions greater than either 250 or 100 tpy. The rule is silent as to applicability of modification permitting requirements to unlisted "regulated pollutants" including GHGs. We assume that the District intends to bring its rule into conformity with the applicability thresholds in the EPA Tailoring Rule. However, the language in PR

1714 (b) does not refer to the amended GHG thresholds adopted in the Tailoring Rule but adopts Rule 52.21 in its entirety. This is confusing since section 52.21 covers criteria pollutants and other regulated pollutants besides GHGs. We would appreciate clarification of the action and regulatory language proposed by the District to allow for the application of the EPA Tailoring Rule GHG threshold provisions in PSD permits issued by the District.

Response: Subdivisions (a) and (b) referenced by the commentor are both parts of PR 1714 and thus apply to GHGs and only GHGs. PR 1714 states: "This rule sets forth preconstruction review requirements for greenhouse gases (GHG)." The provisions of this rule apply only to GHGs as defined by U.S. EPA to mean the air pollutant as an aggregate group of six GHGs: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. All other attainment air contaminants, as defined in Rule 1702 subdivision (a), shall be regulated for the purpose of PSD requirements pursuant to Regulation XVII, excluding Rule 1714." Staff believes this language clearly delineates between GHGs which will be regulated under Proposed Rule 1714 and the other pollutants regulated in all other rules in Regulation XVII. PR 1714 does not refer to the GHG threshold because it adopts those by reference in 40 CFR, Part 52.21 which contains the GHG thresholds. As specified in PR 1714, the adoption by reference of the federal language only applies to GHGs. Definitions in Rule 1702 are not applicable to GHGs, as no rule in Regulation XVII other than PR 1714 is applicable to GHGs.

11. Comment: EPA has recently solicited information on biogenic GHG emissions and whether or not a distinction should be made in the Tailoring Rule. Can the door be left open to include these provisions automatically in Regulation XVII (as opposed to undergoing new rulemaking) if EPA chooses to uphold the distinction between anthropogenic and biogenic emissions? This is particularly important with respect to Rule 3008.

    Response: The District is adopting Part 52.21 by reference (excluding sections not pertaining to GHG emissions), so if U.S. EPA makes amendments to 40 CFR Part 52.21 they would automatically be included in Rule 1714 – PSD for GHGs.

12. Comment: GHG emissions from bio-energy facilities should be excluded for purposes of evaluating PSD and Title V emission thresholds. The scientific and policy debate currently occurring over net carbon impact of biomass facilities largely stems from the wide variation in the types of feedstock utilized by such facilities. Urban green waste should be given a default assumption of carbon neutrality and the AQMD rulemaking should specifically incorporate this concept.

    Response: The District is adopting the federal requirements as promulgated. The federal decision to handle bio-energy facilities or biomass differently has not been made at this time.

13. Comment: Outside of relief from the Environmental Appeals Board process, is there any other benefit of having Regulation XVII approved into the SIP? Are there any downsides like losing potential flexibility that comes with a delegated program?

    Response: By adopting the federal requirements, the District becomes the permitting authority, instead of U.S. EPA. This reduces permit review time and improves communication. The commentor is correct that by approving these rules into the SIP the appeals to the Environmental Appeals Board would be avoided.

14. Comment: What options are available to the AQMD to apply the GHG thresholds under EPA's Tailoring Rule to PSD permits? What are the benefits and drawbacks of obtaining full "SIP" approval versus EPA "Delegation"? If the District does not seek a SIP approved PSD program for GHGs, how would that affect PSD permitting for other pollutant.

    Response: If the District does not adopt the federal requirements, permitting reverts to the U.S. EPA and the District may be subject to a SIP call or may apply to administer the U.S. EPA program under a delegation of authority from U.S. EPA. (Please also see response to comment # 13). The decision to incorporate GHGs into Regulation XVII should not impact PSD permitting for criteria pollutants.

15. Comment: Will EPA changes in the referenced CFR section automatically become effective, or will the changes require formal AQMD Board adoption and then EPA approval? Are there other issues associated with SIP approval?

    Response: If the Board approves PR 1714 as proposed, the rule adopts the federal requirements by reference and thus subsequent changes will be implemented.

BACT and LAER

16. Comment: Current District PSD is more stringent than federal requirements with a 1 lb threshold and LAER in place of BACT. Will this impact GHG requirements?

    Response: No, the District's LAER requirement for criteria pollutants will not impact requirements for GHG BACT which will follow the federal definition of BACT and include consideration of cost and energy.

17. Comment: Regulation XVII will now deal with two different BACTs, one being California BACT or LAER, for criteria pollutants, while the other will be

traditional federal BACT for GHGs. This distinction should be made clear in the staff report.

Response: PR 1714 clearly states that rule is for GHGs and the other Regulation XVII rules are for other air contaminants. By adopting GHG provisions by referencing the Code of Federal Regulation, that definition of BACT is incorporated in PR 1714 for GHGs, while BACT is defined for other air contaminants in Rule 1702 – Definitions.

18. Comment: Please describe the difference between BACT and LAER.

    Response: Under federal NSR for attainment and non-attainment air contaminants, Federal BACT or best available control technology generally applies to attainment pollutants and includes the consideration of such factors as energy and cost. LAER or lowest achievable emission rate generally applies to non-attainment air contaminants and is more stringent than BACT, and generally does not consider cost for emission limits that are achieved in practice.

19. Comment: How will federal BACT be determined?

    Response: The District will follow federal guidelines on BACT for GHGs. There is a Climate Change Work Group currently developing recommendations to U.S. EPA regarding guidance on GHG BACT. Staff will closely follow this committee's actions.

20. Comment: Are there any federal BACT requirements for GHGs?

    Response: Currently, no. Please see response to comment # 19. Staff will follow this process and conduct working groups or consultation meeting to brief stakeholders, as appropriate.

21. Comment: With no BACT, LAER, or other method of GHG emission limitation or means of reduction, inclusion of GHGs in a Title V permit might mean virtually nothing except some kind of political statement

    Response: After January 2, 2011, Title V permits may include BACT for GHGs, if applicable, under PSD actions, and may have PTE limitations to keep a facility out of PSD.

22. Comment: We understand that EPA may propose to use a "Top Down" BACT analysis, as currently required in the EPA-District PSD delegation agreement. What will be the role of energy efficiency in the new federal BACT for GHG and how will it be determined? Will a "Top Down" BACT analysis be used to ensure cost-effectiveness and technical feasibility including the assurance that control technologies have been demonstrated in practice are properly evaluated?

Response: The U.S. EPA is currently developing guidelines for BACT determination for GHG. Energy efficiency is one of the topics being considered. (Please see response to comment # 19.) For GHGs, staff has not altered the federal definition of BACT which currently considers cost and technical feasibility.

23. Comment: Traditional federal BACT for GHGs might focus on GHG reductions only and not be sensitive to the possibility of tension between criteria pollutants and GHGs. An example would be tightening up on boiler NO_X emissions which has the effect of lowering boiler efficiency (increasing CO_2) if a combustion modification route is chosen. This is the reason the SCAQMD Board adopted the policy that if a health-based, criteria pollutant measure conflicts with GHG goals, the health-based standard will always trump the latter.

    Response: Both the District and U.S. EPA are aware of this potential conflict and steps will be taken to minimize any impacts.

24. Comments: We have a concern regarding BACT which flows from discussions at the CAAAC BACT subgroup meetings where it was suggested that BACT determinations include a review of an *entire* facility, not just the subject permit unit, to determine efficiency improvements, energy conservation measures, etc. Please state clearly in the staff report, as staff stated at the recent workshop, that the BACT analysis will focus on the permit unit in question only and not the associated facility. Also clarify in the staff report and with EPA that any EPA BACT determinations will be filtered by the SCAQMD to make sure that they are consistent with the Board's policy paraphrased above.

    Response: Federal BACT, as applied in PSD permits, is a case-by-case evaluation based on the new or modified permit unit(s) under consideration. There is a national clearing house for federal BACT.

25. Comment: Will federal BACT include fuel switching?

    Response: The District will follow federal guidelines on BACT for GHGs and this has yet to be determined. Please see response to comments # 19 and # 20.

26. Comment: BACT should be solar energy. The Federal 30% investment tax credit expires in 2016 and along with the Federal Accelerated Cost Recovery System (depreciation in 5 years) makes solar renewable as BACT/LAER cost-effective on a life cycle cost effective basis.

    Response: Federal BACT has yet to be determined for GHGs. U.S. EPA has established a Climate Change Work Group to advise them on developing BACT guidelines for GHGs. The commentor has been given information on how to contact this entity regarding the determination of BACT and using solar energy as a solution.

27. Comment: The District should require LAER and solar conversion for new and retrofit technology.

    Response: The District is adopting the federal requirements for GHGs for PSD and Title V as promulgated in the Federal Register June 3, 2010. The regulation requires BACT assessment for GHG sources, not LAER, which is more stringent (please see response to comment # 18). The District staff believes LAER is not appropriate for GHG emissions in part because of the potential conflict with LAER requirements for criteria pollutants.

28. Comment: How do we (you) ensure that we are not locked into BACT as the means to reduce GHG emissions when down the road Congress may take a different tact or EPA may choose another course? We have concerns with issues of backsliding.

    Response: This is the current regulatory landscape. If requirements change in the future, SCAQMD would evaluate any new approaches.

Requirements

29. Comment: Please clarify your Option 1 and Option 2 in PAR 3001.

    Response: Staff work-shopped the rules with two options, and asked for comments. Option 1 would place only federal and SIP requirements in the Title V permit ("applicable requirements"), and Option 2 would also include "state only" requirements or those implemented by state or local statute, so that all GHG requirements are in one permit.

30. Comment: Option 2 represents more work on the permitting staff than is warranted at this time. The AB 32 Scoping Plan at one time identified 76 potential GHG – related control measures that could be developed by various state agencies. We recommend you revisit this issue in 2-3 years after the impacts of GHGs on PSD and Title V are fully appreciated.

    Response: Option 1 is currently reflected in the proposed amended rules.

31. Comment: Multiple comments were received expressing preference for Option 1. No comments were received in support of Option 2.

    Response: Please see response to comment # 30.

32. Comment: If the District is adopting the rules by reference and then sending them to the state and the state sending them to EPA, what is the projected timing and what happens if you fall short of the January 2, 2011 start date?

Response: The rule will go to the AQMD Governing Board in November and be submitted to the state right away. U.S. EPA should be able to respond quickly, as the proposals are straight forward. The District will enforce the adopted rules regardless of the status of federal approval or work out another arrangement with U. S. EPA to be able to issue permits until U.S, EPA approves the rules into the SIP.

33. Comment: If a source triggers PSD on the basis of GHGs, will that trigger an analysis for criteria pollutants?

    Response: Whether the facility triggers a criteria pollutant analysis when it triggers PSD for GHGs will depend on whether the facility exceeds the threshold for increase in criteria pollutants listed in Regulation XVII, not the entry threshold level of 100 tpy. The significant modification threshold for NO_x, for example is an increase of $\geq$40 tpy. Thus, criteria pollutant analysis may occur where the source is not "major" for that pollutant.

34. Comment: Will other PSD requirements, such as modeling, be required for GHGs?

    Response: The District does not envision implementing any additional requirements for GHG sources other than federal BACT and public notice. As explained in the staff report, many provisions of the PSD rule are inapplicable for GHGs.

35. Comment: The AQMD rulemaking should make clear that the only PSD requirement relevant in the context of GHGs is the BACT requirement.

    Response: Please see response to comment # 34

36. Comment: There are memos regarding PTE for limiting criteria pollutants, are they applicable to GHG emissions?

    Response: There is nothing official at this time, but the GHG thresholds are on the basis of PTE.

37. Comment: Basing requirements on PTE could bring in many facilities.

    Response: PAR 3008 allows a source to take a cap on emissions that will fall below the threshold triggers for inclusion in Title V.

38. Comment: Taking a limit (cap) that would trigger a permit action to include the limit and then the source would incur monitoring/enforcement limits on the open permit.

Response: If a source takes a cap that means it was previously subject to the regulation. There may be monitoring and recordkeeping requirements if a cap is taken.

39. Comment: The GWP number the District uses for methane is 21. I have seen CARB use 25, this is also used by the United Nations group in their second and third assessments, and James Hansen uses 33.

    Response: The GWP number the District uses in the rule (21) comes from the U.S. EPA and is found to be cited in PAR 3000 Table 1 as coming from the Federal Register, Volume 74, No. 209, October 31, 2009.

40. Comment: Is EPA going to open all Title V permits? If the District is considering opening permits with greater than 3-years renewal time, is that 3 years from January 2, July 1, or permit issuance date?

    Response: Beginning January 2nd, staff is required to reopen to add GHG "applicable requirements" to any Title V permit which has more than 3 years left if the life of the permit (since our Title V permits have a life of 5 years, which is usually counted from the date of issuance), based on the expiration date noted in each permit (usually 5 years from the date of issuance). At the Public Workshop staff pointed out that since the only federal requirement for existing GHG sources is the federal Mandatory Reporting Requirements and U.S. EPA has already declared that these are not considered "applicable" requirements, the District does not intend to reopen any Title V permits after January 2nd unless and until some future time when there are applicable requirements for existing GHG sources. However, PSD BACT requirements for GHGs will need to be included in a Title V permit, if applicable.

41. Comment: Where will GHG requirements be placed on the Title V permit?

    Response: This has yet to be determined, but it will generally apply to emission units or devices listed in sections H and D of Title V permits.

42. Comment: Will you re-open Title V permits to incorporate GHG requirements and would it be for the whole facility or only the affect piece of equipment?

    Response: Title V permits will only be revised or issued when PSD is triggered, unless and until U.S. EPA adopts further GHG "applicable requirements". The GHG requirements would be only for the equipment subject to PSD due to a modification, not the entire facility. Please see responses to comments # 24 and #40.

43. Comment: If a permit is currently in the pipeline, but is issued after January 1, 2011, would the new rules apply?

Response: Yes, if the permit is not issued until after January 1, 2011 (for Step 1) and June 30, 2011 (for Step 2), the implementation dates, the new applicable GHG provisions would apply.

44. Comment: PAR 3000 (b)(15)(vi) is not clear. Does it mean that any increase in GHG emissions would disqualify the facility from minor permit revision opportunities?

    Response: No. The language has been re-phrased and re-structured to clarify that only sources emitting greater than 75,000 tpy CO_2e would be disqualified from the minor permit revisions opportunity on the basis of GHG emissions.

45. Comment: PAR 3000 (b)(20) defines Potential to Emit and for GHGs there is no reliable information and data on different GHG emission factors prepared by different organizations. Based on definitions for Compliance Documents and De Minimis Significant Permit Revision, any facility has potential to emit GHG in the amounts exceeding the threshold numbers. Also, the reference to (b)(28) does not apply to GHGs.

    Response: GHG emissions are currently being quantified and reported. Staff does not envision the proposed amendments affecting many sources. Paragraph (b)(28) is a definition regarding coal-fired power plants. GHGs are emitted from such sources.

46. Comment: PAR 3000 (b)(29)(c) definition of "responsible official" should add "or a designee" in the case of a public agency.

    Response: Comment noted. This is existing rule language, so no change was made.

47. Comment: Please explain whether the requirements in PAR 3001 (c)(8) and (9) are applicable to facilities with existing Title V permits or to facilities that would apply for such permits. Who, and based on what data, determines whether the facility should be subject to GHGs triggering Title V? Will the facility be notified by AQMD or should it apply to such permit voluntarily?

    Response: Applicants are responsible to obtain the appropriate permits. PAR 3001 applies to both new and existing faculties.

48. Comment: What would a deviation report be? Would a deviation report be triggered for state requirements if they are listed on a Title V permit?

    Response: Rule 3004 (a)(5) requires the operator to report any non-compliance situation. After considering input, staff is proposing that for GHGs, only "applicable" requirements (federal only) would be listed on Title V permits, so violations of state GHG requirements would not trigger a deviation report.

49. Comment: The uniform emission limitation of 100,000 tpy CO_2e in PAR 3008(d)(1)(D) for emission limitations does not make sense.

    Response: The level has been revised to < 50,000 tpy CO_2e for GHG emissions for the emissions limitation threshold.

50. Comment: The District should do more than the minimum federal requirements.

    Response: The District's proposal to implement the federal requirements for such a new area is a good place to start. Because federal BACT has not yet been determined it would be difficult to go beyond the federal requirements.

51. Comment: Delaying small sources until April 2016 is not acceptable.

    Response: This decision was made by U.S. EPA and the District staff believes this decision is reasonable given the workload associated with lower thresholds compared to the benefits.

52. Comment: The lower level of GHGs that require PSD BACT analysis should be 100 tpy.

    Response: U.S. EPA determined that lowering the GHG threshold to such a level would greatly increase the number of sources requiring permits, impose undue costs on small sources, overwhelm the resources of permitting authorities, and severely impair the functioning to the PSD and Title V programs. For example, based on PTE, an emergency diesel generator, of which there are approximately 9,000 in the Basin, could be a 100 tpy GHG emission source. The U.S. EPA has estimated that at the 100 ton threshold, there would be 6 million new Title V permits, nationwide, of which the AQMD could have to implement 300,000 new permits.

53. Comment: The District is required to do an AQMP every 3 years. The District should have a solar conversion plan by the end of the year.

    Response: The District is in the process of updating the AQMP due to be released in 2011/2012. A solar conversion plan is beyond the scope of this project, but this comment will be referred to the planning staff.

54. Comment: The proposal to regulate GHG emissions under existing PSD and Title V programs is highly controversial and uncertain. The federal proposal is the subject of pending litigation, and the possibility of Congressional intervention in the matter is not at all remote. If the AQMD moves forward with rulemaking in light of the uncertainty, it must make accommodation for future changes to the regulatory landscape. If approved, the proposed revisions to Regulations XVII

and XXX should be automatically and immediately suspended in the event they are no longer federally mandated.

Response: The litigation of the federal actions is speculative and as such the District will move forward with the proposal to adopt the federal requirements as the required implementation date for Step 1 is January 2, 2011. If there is a change, staff will address the issue when it arises.

55. Comment: We understand the severe time constrains you are meeting. Still, the one week time for digesting the material and commenting on such a serious matter is not enough. If you cannot extend the comment period, perhaps you could divide the proposed rules into those subject to January 2, 2011 compliance date and others.

Response: The draft rules and staff report for Regulation XXX were available one week before the Public Workshop. Staff realizes the comment period after the PWS was limited and is one of the reasons why staff has scheduled a Public Consultation Meeting for October 12, 2010. The idea of splitting amendments in not practical since the rule development process takes at least six months and this is the time period between the compliance dates.

CEQA and Socio-economic

56. Comment: It is assumed that the federal government did an NEPA analysis and socio-economic analysis since the District is not.

Response: The District is adopting federal requirements and thus will publish an NOE determining them to be exempt from CEQA requirements pursuant to State CEQA Guidelines §15268 – Ministerial Projects. NEPA does not apply to actions under the Clean Air Act. U.S. EPA conducted a regulatory impact analysis and determined that absent the tailoring rule, small sources would be impacted and that by raising the threshold this rule would result in a cost savings.

57. Comment: The District should do a CEQA document with a socioeconomic impact analysis or a separate socioeconomic analysis document.

Response: The District performs CEQA and socioeconomic analyses separately. The CEQA document to be prepared after the Public Hearing will be a Notice of Exemption. Please see response to comment # 56.

PARegs XXVII and XXX represent an adoption of the federal Tailoring Rule for PSD by reference and Title V by incorporation of federal requirements in the Regulation XXX rules. Since the proposed amendments do not impose requirements beyond the federal rule, Title V and PSD permit holders are not expected to face additional costs or other socioeconomic impacts as a result of the proposed amendments. As such, a socioeconomic assessment is not required.

The following comments were received following the close of comments (September 17, 2010) for the public workshop held September 9, 2010.

58. Comment: The proposed language in PAR 3001 (c)(9) states such facilities "shall apply for a Title V permit within 180 days after July 1, 2011, unless a Title V permit has already been applied for and all requirements that are applicable requirements (as defined in Rule 3000 (b)(4)) shall be included in the permit." The proposed language that discusses how GHG requirements shall be included in the permit should be moved to Rule 3004.

    Response: The language the commentor is referring to has been removed.

59. Comment: The proposed amendments to Rule 3000 continue to rely on the term "regulatory requirements" set forth in existing paragraph (b)(25); however this definition is ambiguous. The Title V permitting scheme is intended to ensure compliance with all "applicable requirements".

    Response: The language pertaining to GHGs specifically calls out "applicable requirements", in PAR 3001 (c)(8) and PAR 3002 (a)(2) and (a)(3). Also, please see response to comment # 30.

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

SUBJECT: **NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT**

PROJECT TITLE: **PROPOSED RULE 1714 – PREVENTION OF SIGNIFICANT DETERIORATION (PSD) FOR GREEHHOUSE GASSES (GHGS) AND PROPOSED AMENDED REGULATION XXX – TITLE V PERMITS**

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, the South Coast Air Quality Management District (SCAQMD) is the Lead Agency and will prepare a Notice of Exemption for the project identified above.

Proposed Rule 1714 and Proposed Amended Regulation XXX would implement the federal tailoring rule, which includes requirements for GHGs for the PSD and Title V programs. Proposed Rule 1714 would incorporate federal requirements for GHGs by reference. Proposed amendments to Regulation XXX would add federal GHG requirements into existing SCAQMD regulations. Since the proposed project is implementing federal requirements and the SCAQMD is not exercising discretion with regard to implementing the federal requirements, it is exempt from CEQA pursuant to state CEQA Guidelines §15268 – Ministerial Projects. A Notice of Exemption has been prepared pursuant to CEQA Guidelines §15062 - Notice of Exemption. The Notice of Exemption will be filed with the county clerks of Los Angeles, Orange, Riverside and San Bernardino counties immediately following the adoption of the proposed project.

Any questions regarding this Notice of Exemption should be sent to Jeff Inabinet (c/o Planning, Rule Development & Area Sources) at the above address. Mr. Inabinet can also be reached at (909) 396-2453.

Date: November 5, 2010 **Signature:** Steve Smith

Steve Smith, Ph.D.
Program Supervisor
Planning, Rule Development &
Area Sources

Reference: California Code of Regulations, Title 14

NOTICE OF EXEMPTION

To:	County Clerks of Los Angeles, Orange, Riverside, San Bernardino	**From:**	South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765

Project Title:

Proposed Rule 1714 – Prevention of Significant Deterioration (PSD) for Greenhouse Gasses (GHGs) and Proposed Amended Regulation XXX – Title V Permits

Project Location:

South Coast Air Quality Management District (SCAQMD) area of jurisdiction consisting of the four-county South Coast Air Basin (Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties), and the Riverside County portions of the Salton Sea Air Basin and the Mojave Desert Air Basin.

Description of Nature, Purpose, and Beneficiaries of Project:

Proposed Rule 1714 – Prevention of Significant Deterioration for GHGs, and Proposed Amended Regulation XXX – Title V Permits, are proposed to implement federal changes to 40 CFR Parts 52 and 70, published June 3, 2010 and effective August 2, 2010. Proposed Rule 1714 (proposed for Regulation XVII) adopts by reference the provisions promulgated by EPA in the June 3, 2010 Federal Register. In general, the federal rules establish dates for a phased-in multi-step process for Proposed Rule 1714. Beginning January 2, 2011, any source already subject to the PSD regulation for new construction or a modification for any attainment pollutant, and having an increase in GHG emissions on a carbon dioxide equivalent (CO_2e) basis (Global Warming Potential [GWP] applied) greater than or equal to 75,000 tons per year (tpy) CO_2e and with a net emission increase of GHG emissions greater than zero on a mass basis (no GWP applied), will be required to include Best Available Control Technology (BACT) for GHG emissions (Step 1). Step 2 of the phased-in implementation for GHG sources has an effective date of July 1, 2011. At this point, all sources subject to the regulation through Step 1 will continue to be subject to the rule, and additionally, sources with a potential to emit (PTE) GHGs greater than or equal to 100,000 tpy CO_2e and emitting a New Source Review (NSR) or GHG pollutant above the 100/250 tpy (mass based) statutory thresholds, will be subject to the regulation. Amendments to Regulation XXX are proposed for the following rules: PAR 3000 – General, is proposed to be amended by adding three definitions: carbon dioxide equivalent (CO_2E), global warming potential (GWP) and greenhouse gas (GHG), and the definition for minor permit revision is amended by adding a GHG threshold; PAR 3001 – Applicability and PAR 3002 – Requirements, are proposed to be amended by adding the January 2, 2011 and July 1, 2011 dates for including GHGs in Title V permits; PAR 3003 – Applications, PAR 3005 – Permit Revisions, and PAR 3006 – Public Participation, are proposed for amendment only due to references in those rules to definitions in PAR 3000 – General; and PAR 3008 – PTE Limitations, authorizes sources to cap their PTE to avoid applicability of Title V based on GHG emissions.

Public Agency Approving Project:	**Agency Carrying Out Project:**
South Coast Air Quality Management District	South Coast Air Quality Management District

Exempt Status:

Ministerial Projects [CEQA Guidelines §15268]

Reasons why project is exempt:

Proposed Rule 1714 and Proposed Amended Regulation XXX would implement the federal tailoring rule, which includes requirements for GHGs for the PSD and Title V programs. Proposed Rule 1714 would incorporate federal requirements for GHGs by reference. Proposed amendments to Regulation XXX would add federal GHG requirements into existing SCAQMD regulations. Since the proposed project is implementing federal requirements and the SCAQMD is not exercising discretion with regard to implementing the federal requirements, it is exempt from CEQA pursuant to state CEQA Guidelines §15268 – Ministerial Projects.

Certification Date:

SCAQMD Governing Board Hearing: November 5, 2010, 9:00 a.m.; SCAQMD Headquarters

CEQA Contact Person:	**Phone Number:**	**Fax Number:**	**Email:**
Mr. Jeff Inabinet	(909) 396-2453	(909) 396-3324	<jinabinet@aqmd.gov>
Rule Contact Person:	**Phone Number:**	**Fax Number:**	**Email:**
Ms. Pamela Perryman	(909) 396-3103	(909) 396-3324	<pperryman@aqmd.gov>

Date Received for Filing_____ Signature *Signed upon certification*

Steve Smith, Ph.D.
Program Supervisor - CEQA
Planning, Rule Development and Area Sources

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BOARD MEETING DATE: November 5, 2010 AGENDA NO. 37

PROPOSAL: Proposed Amendments to SOx RECLAIM Program (Regulation XX)

SYNOPSIS: Proposed Amendments to Regulation XX RECLAIM will achieve additional SOx reductions pursuant to the 2007 AQMP Control Measure #2007CMB-02. The proposed amendments also address requirements for demonstrating Best Available Retrofit Control Technology equivalency in accordance with California Health and Safety Code §40440.

COMMITTEE: Stationary Source Committee, June 20, 2008, June 19, 2009, November 20, 2009, May 21, 2010, July 23, 2010, and September 24, 2010, Reviewed. Refinery Committee, December 11, 2009, August 18, 2010 and September 22, 2010, October 14, 2010, Reviewed.

RECOMMENDED ACTIONS:
Adopt the attached resolution:
1. Certifying the Final Program Environmental Assessment (PEA) for Proposed Amended Regulation XX – Regional Clean Air Incentives Market (RECLAIM); and
2. Amending Proposed Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx).

Barry R. Wallerstein, D.Env.
Executive Officer

LTT:JC:GQ:MHP

Introduction
The AQMD Board adopted the Regional Clean Air Incentives Market (RECLAIM) program in October 1993. The purpose of the RECLAIM program is to reduce NOx and SOx emissions through a market-based program. The program replaced a series of

existing and future command-and-control rules and was designed to provide facilities with the flexibility to seek the most cost-effective solution to reduce their emissions. AQMD staff is proposing amendments to Regulation XX – RECLAIM to achieve additional SOx reductions pursuant to the 2007 AQMP Control Measure CMB-02 and state law. Specifically, the proposed amendments address requirements for 1) Best Available Retrofit Control Technology (BARCT) in accordance with California Health and Safety (H&S) Code §40440, and 2) a demonstration of equivalency to command-and-control regulations, as required under H&S Code § 39616(c)(1). Reductions in SOx will help the Basin attain the federal annual average PM2.5 standard by 2015, and the federal 24-hour average standard by 2020. Other proposed rule amendments include clarifications and changes to the protocols.

Public Process

In a three-year rule development process for the proposed amendments from 2008-2010, staff conducted a Public Workshop on June 23, 2009; an Informational Governing Board Hearing on January 8, 2010, and a Public Consultation Meeting on September 8, 2010. Staff held numerous Working Group meetings with the stakeholders, as well as individual meetings with WSPA and the refineries to discuss issues related to the proposed amended rule. Staff presented its proposal at six Stationary Source Committee meetings and four Refinery Committee meetings for review. Staff released the first Preliminary Draft Staff Report in April 2008. At the June 23, 2009 Public Workshop, staff released the Draft Staff Report, the Notice of Preparation of the Draft Environmental Assessment, and the Draft Rule 2002. On August 18, 2010, staff released its Draft Program Environmental Assessment for a 45-day public review. On October 1, 2010, staff released its revised Draft Staff Report and the Socioeconomic Analysis for a 30-day public review. Regarding feasibility and cost analyses, in 2008-2009, staff contracted two consultants, ETS, Inc. and NEXIDEA to conduct independent feasibility and cost analyses. In 2010, staff contracted a third consultant - Norton Engineering Inc. (NEC) - to review the first two consultants' analyses. The consultants' non-confidential reports are posted on the AQMD web page.

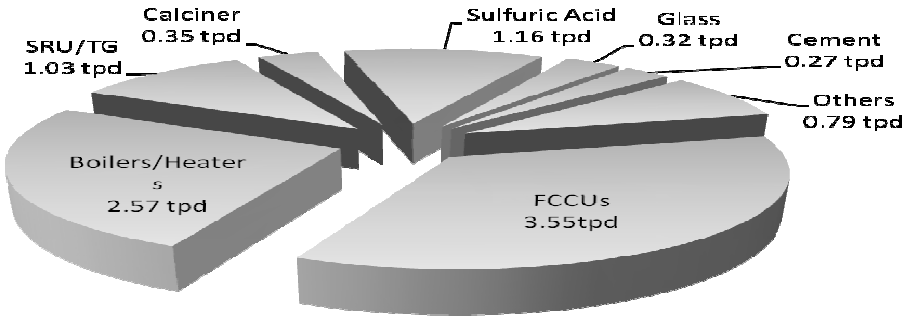
Affected Facilities

The proposed amendments will affect eleven major facilities: six refineries, a coke calciner, two sulfuric acid plants, a container glass manufacturing plant, and a cement plant. These eleven major facilities emitted 9.31 tons per day (93% of the total emissions from the SOx RECLAIM universe.) These eleven facilities hold 10.21 tons per day RTCs (87% of the total RTC holdings for the SOx RECLAIM universe.) The refinery sector accounted for 76 % of the total emissions and 73 % of the total available RTCs. [1] Figure 1 shows the emission distribution at these eleven facilities. The majority

[1] The 2005 audited emissions for the entire SOx RECLAIM universe were 10.04 tons per day. The total RTC Holdings for the universe are 11.77 tons per day.

of the emissions was generated from seven categories of sources: 1) fluid catalytic cracking units; 2) sulfur recovery and tail gas treatment units; 3) refinery boilers and heaters; 4) sulfuric acid manufacturing plants; 5) container glass melting furnace; 6) coke calciner; and 7) cement kilns and a coal fired steam boiler at a cement manufacturing facility.

FIGURE 1
2005 Emission Distribution



Total 32 active facilities = 10.04 tons per day audited emissions.
Top 11 facilities. Top 7 sources.

Staff Proposal

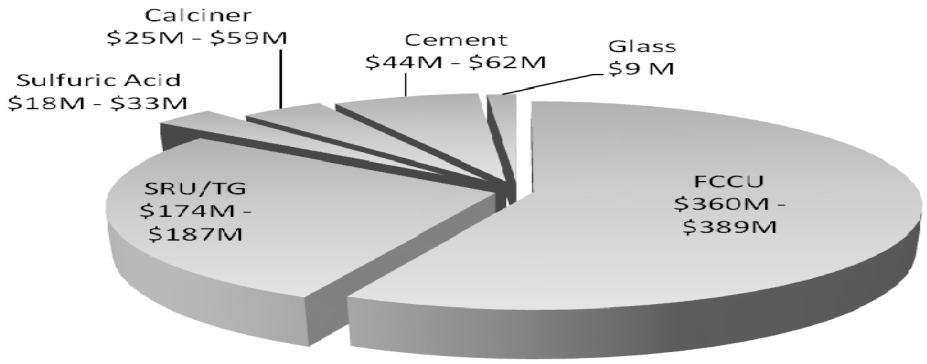
BARCT Levels

Table 1 shows staff's proposed new BARCT levels, emission reductions estimated from 2005 baseline, and the average cost-effectiveness values estimated based on ETS/AEC's and NEXIDEA's recommendations (the first figure in the cost-effectiveness range), and Norton Engineering's recommendations (the second figure in the cost effectiveness range.) Figure 2 shows the present worth values for the 25-year equipment life, estimated using the consultants' input. The total investments were estimated to be approximately $630 millions to $750 millions dollars. The weighted average cost effectiveness spans between $16,000 per ton to $19,000 per ton SOx reduced for this project. The cost effectiveness for individual source categories ranges from $2,000 per ton to $50,000 per ton. It should be noted that WSPA strongly disagrees with the analyses performed by staff and the consultants.

TABLE 1
Staff's Proposed New BARCT Levels

	New BARCT	Emission Reductions (tons per day)	Cost Effectiveness ($/ton)
FCCUs	5 ppmv	2.88	20K - 21K
SRU/TGs	5 ppmv	0.73	31K - 45K
Sulfuric Acid	10 ppmv	1.03	2K – 3K
Coke Calciner	10 ppmv	0.28	10K - 23K
Container Glass	5 ppmv	0.19	5K
Cement Kilns	5 ppmv	0.25	19K - 27K
Coal Fired Boiler	95% reduction	0.00	4 K

FIGURE 3
Present Worth Values (for 25 years) Based on Consultants' Input
(Excluding Cost-Ineffective Controls of >$50 K per Ton)



RTC Reductions

To implement the proposed BARCT levels, staff is recommending that RTC holdings be reduced by 5.7 tons per day or by 51.4 percent beginning 2012 through 2019. When fully implemented, these RTC reductions are expected to result in 5.4 tons per day actual emission reductions. This proposal differs slightly than the staff proposal released on October 1, 2010 and was crafted based on the latest available data and fully complies with all legal requirements.

The 5.7 tons per day RTC reductions will be distributed among the 11 major facilities, investors, and 3 facilities that have more RTCs holdings than originally allocated as of

August 29, 2009. Staff proposes not to shave the RTC holdings of the 18 remaining facilities. Any RTCs traded after August 29, 2009 and prior to the Governing Board hearing date will be subject to the proposed shave levels to ensure that no RTC holdings are inappropriately traded or sheltered.

The 5.7 tons per day RTC reductions will be implemented in four (4) phases over eight (8) years. Staff will submit the first 4 tons per day of RTC reductions to EPA to satisfy the SIP commitment and help the Basin meet the standard in 2015, and will submit the remaining 1.7 tons per day at a later phase.

Phase 1: 3.0 tons per day of reductions in compliance year 2013
Phase 2: 4.0 tons per day of reductions in compliance year 2014
Phase 3: 5.0 tons per day of reductions in compliance year 2017
Phase 4: 5.7 tons per day of reductions in compliance year 2019

In an effort to ensure early reductions for the RECLAIM Program, facilities will be required to use SOx reducing catalysts in the FCCUs no later than July 1, 2011 to achieve a limit of 25 ppmv. The use of alternative controls is also allowed.

Safety Valves

To safeguard the successful implementation of the SOx RECLAIM program, several necessary "safety valves" are built in the proposed rule language: Staff is proposing set-aside RTC accounts (i.e. non-tradable/non-usable) equivalent to the RTC reductions called for by the specific compliance years that can potentially be made available to the impacted facilities in the event RTC prices exceed the $50,000 per ton threshold (discrete credit). Staff commits to monitor the 12-month rolling average RTC price and in the event the SOx RTC price exceeds $50,000 per ton, staff will report to the Governing Board at a public hearing to be held no more than 60 days from staff determination. At the public hearing, the Governing Board will decide whether or not to convert any portion of the non-tradable/non-usable RTCs to tradable/usable RTCs and give that portion back to the facilities so that it can be used for compliance with the facility cap. In addition, staff will not submit any of the post-2015 emission reductions for inclusion into the State Implementation Plan until the reductions have been in effect for one full compliance year.

Key Issues

Although staff resolved most of the outstanding issues relative to the staff proposal the following discussion summarizes the key issues raised during the rule development phase by the stakeholders: 1) costs for compliance and BARCT determination, 2) BARCT determination for Owens-Brockway glass container manufacturing facility in Vernon; 3) water and wastewater, 4) market viability, and 5) shaving methodology for

facilities that are not subject to new BARCT, and for facilities that are subject to new BARCT. Staff's responses to these key issues are summarized below:

1) Costs for Compliance& BARCT Determination

As part of its proposal included in the Set Hearing Board Package released on October 1, 2010, staff proposed to reduce RTC by 6.1 tons per day (55% shave) representing 5.4 tons per day actual emission reductions by 2019. WSPA commented that staff should not pursue the 6.1 tons per day RTC reductions because WSPA estimated the cost of compliance with this shave to be $1.637 billion dollars, of which $836 million dollars would be for emission reductions under WSPA's main strategy to comply with the "programmatic" BARCT, and $801 million dollars would be for "other" investments that must be implemented to achieve additional reductions within WSPA member facilities to comply with the 55% shave.

Staff's Response:

Staff has reviewed WSPA's analysis and concluded that WSPA's main strategy to meet the "programmatic" BARCT is reasonable. However, staff also concluded that WSPA's assumption for an additional $801 million investment to implement "other" measures to meet the 55% shave would not be reasonable or necessary. Staff has identified cost-effective off-site reductions which could be used to substitute for cost-ineffective on-site controls as provided under a market-based cap-and-trade program such as RECLAIM. However, to provide additional margin of safety, staff is proposing to increase the compliance margin to 18.5% and reduce the shave from 55% to 51.4%. Summary of staff's analysis is provided below.

WSPA's Main Strategy. Even though WSPA's main strategy[2] is different than staff's main strategy on an equipment-per-equipment basis, WSPA's strategy would result in 3.81 tons per day actual emission reductions at a cost of $836 million and a cost-effectiveness of $24K per ton. In comparison, staff's proposed main strategy would result in 3.92 tons per day actual emission reductions at a cost of between $561 million - $638 million and a cost-effectiveness of $16K - $18K per ton. On this basis, staff believes that the "programmatic" BARCT strategy proposed by WSPA is similar to staff's proposal since it will achieve similar reduction levels through cost-effective measures.

WSPA's "Other" Strategies. In its analysis presented to the Refinery Committee on October 14, 2010, staff concluded that the two "other" control strategies for a SRU/TG and fuel gas treatment proposed by WSPA at a cost-effectiveness of $213,000 per ton

[2] WSPA's main strategy includes 1) FCCUs would use 2 WGSs and SOx reducing additives to meet 5 ppmv – 35 ppmv; 2) SRU/TGs would use 2 WGSs and have process modifications to meet 5 ppmv - 25 ppmv; 3) 1 WGS and other process modification at other units.

and $100,000 per ton would not be reasonable strategies to implement. However, two "other" strategies proposed by WSPA related to CEMS improvements and RTC holdings surrendered are very cost-effective at $1,686 - $6,805 per ton. The two "other" cost-effective strategies amounted to $81 million dollars. With the main strategy and the two "other" cost-effective strategies in combination, WSPA members could achieve 5.31 tons per day reductions at $917 million and at an average cost-effectiveness of $18,925 per ton. However, WSPA members would only need 5.17 tons per day reduction to meet a 55% shave. Therefore, it is only reasonable to conclude that an investment of $917 million, not $1.637 billion estimated by WSPA, would be more than adequate to meet the proposed 55% shave and would generate 0.14 tons per day surplus RTCs. Nevertheless, to address concerns relative to safety margin, staff has modified its proposal to increase the compliance margin to 18.5% and reduce the shave from 55% to 51.4% which will provide facilities with additional flexibility and the ability to meet the proposed reduction target at less costs than those estimated above. In addition, staff estimated that there would be approximately 1.45 tons per day potentially available surplus RTCs[3] in the market from other sources after the 51.4% shave, which would raise the pool of surplus credits to 1.6 tons per day.

2) BARCT Determination for Owens-Brockway Container Glass Facility in Vernon

Owens-Brockway commented that staff incorrectly determined the BARCT for glass melting furnaces. BARCT for glass melting furnaces should be at 80% not 95% (or 5 ppmv). Owens-Brockway commented that the packed bed scrubbers recommended would not work; the pressure drop introduced by the wet gas scrubbers was not considered; the costs of $225,000 to handle waste water stream were inadequate; other costs (e.g. CEMS, stack, permitting costs) were not included; and other analyses (e.g. NSR for other pollutants, Rule 1401 requirements) were not analyzed.

[3] The 1.47 tpd potentially available RTCs post-shave in the market comprised of:

- 0.21 tpd post-shave remaining unused RTCs (which is calculated as follows: The surplus RTCs estimated from the 2005 baseline are 1.73 tpd (11.77 – 10.04 = 1.73 tpd). WSPS already accounted for 1.30 tpd surplus RTC in their strategy, therefore the remaining unused RTCs are 1.73 – 1.30 = 0.43 tpd pre-shave and (0.43 tpd)(0.486) = 0.21 tpd post shave)
- 0.0009 tpd post shave hold by non-RECLAIM investors. (As of October 14, 2010, there are only two remaining investors that are non-RECLAIM facilities, and these two investors hold approximately 1,306 lbs of RTCs pre-shave or 0.002 tpd pre-shave or 0.0009 tpd post-shave.)
- 0. 60 tpd from non-refinery sector. (Assuming that the non-refineries would install control technologies proposed by either WSPA to meet the 51.4% shave; and would have surplus RTCs to sell in the market.)
- 0.66 tpd from refinery sector. (Assuming that the refineries would install control technologies proposed by either WSPA to meet the 51.4% shave; and would have surplus RTCs to sell in the market.)

Staff's Response:

Staff disagrees with the commenter. Staff's feasibility analysis concludes that today's BARCT is 5 ppmv (95% control efficiency or more). The proposed BARCT for glass facility has been achieved in practice at a container glass manufacturing facility in Seattle Washington. Relative to the control equipment configuration for the Owens-Brockway facility in the South Coast basin, the consultant (ETS) recommended the removal of the two dry scrubbers located upstream of the ESPs, and their replacement with two wet scrubbers (packed bed) positioned downstream of the ESPs. The ESPs located upstream of the packed bed scrubbers will be highly efficient in controlling particulate matter, and thus would provide protection for the packed bed scrubbers from clogging. In the consultant's analysis, a fan was provided to overcome the pressure drop across the wet scrubbers and costs for a new stack were included. The cost effectiveness of this project is about $5,198 per ton SOx removed, and therefore other marginal additional costs such as adding new CEMS and permitting costs would not alter the project's cost-effectiveness significantly. The consultant (ETS) estimated the equipment costs ($225,000) and annual operating costs for a waste water treatment based on information provided by Manufacturer D who cited from their relevant experience with a glass container facility in Seattle, Washington. Nevertheless, to address concerns expressed by Owens-Brockway and other facilities relative to additional margin for safety, staff has modified its proposal to increase the compliance margin to 18.5% and reduce the proposed shave from 55% to 51.4%. Relative to the issues such as NSR, staff recommends that they should be handled at the permitting phase not at the rule development phase of this project. Staff commits to help this and all other impacted facilities during permitting to ensure the successful implementation of this very important program. Staff would further like to remind the commenter that the District's NSR Program (Regulation XIII) includes provisions that shields installation of pollution control equipment from the applicability of certain other NSR requirements.

3) Water & Wastewater Impacts

Stakeholders commented that the water and wastewater impacts of the project would be significant.

Staff's Response: Industry argued that staff proposal will result in significant increases on water demand and wastewater impacts due to the use of wet gas scrubbers. If wet gas scrubbers are used to comply with the proposed rule, staff estimated that the total water demand will increase by approximately 1 million gallons per day or 3 acre feet per day, but increased water demand over current water usage at affected facilities is well below the SCAQMD's significance threshold of 5 million gallons per day of total increased water demand (i.e. potable water, recycled water, and groundwater). The information that staff received to date from the water purveyors and their 2005 Urban Water Management Plans is that there are adequate supplies to meet the total water demand, and use of recycled water is highly recommended if available. Relative to the

wastewater impact, staff's analysis indicates that the overall wastewater increase will be less than 2% and that the facilities have adequate wastewater treatment capacity to treat the increase, and no modifications to any existing wastewater discharge permits are anticipated. WSPA continues to strongly disagree with staff's analyses.

3) Market Viability

Stakeholders commented that there were not enough trading partners, the SOx market was very competitive and reserved, and there was an uneven distribution of RTC holdings.

Staff's Response: For a market based incentive program, staff is required by the H&S codes to conduct periodic BARCT reassessment and demonstrate equivalency with command-and-control rules which would otherwise be developed as a result of BARCT reassessment. To ease the issues identified by the stakeholders, staff is proposing to return a portion of the reductions to the facilities as a compliance margin (18.5%). Similar approach was also utilized as part of the 2005 NOx RECLAIM amendments. Accounting for the fact that the SOx RECLAIM market is a lot less robust than the NOx RECLAIM market, staff is proposing a compliance margin of 18.5%. In addition, staff is proposing to establish a set-aside, non-tradable reserve that could be tapped in when RTC value in the open market reach a certain level. Staff believes that compliance with a facility cap still provides the facilities more operational flexibility than being subject to stringent requirements in command-and-control rules and regulations.

4) Shaving Methodology

Facilities with no equipment subject to new BARCT commented that the uniform shave was not equitable, would create significant difficulties for them to stay in compliance, and indicated that they had limited ability to buy RTCs from large facilities. While WSPA and the refineries that are subject to new BARCT argued strongly during the rule development process in 2008-2009 for the use of a shave methodology that was consistent with that used during the 2005 NOx RECLAIM amendment. During the later phase of the rule development process, they commented that staff should use the 2005 as baseline for the shave, not shave the 1.98 tpd RTCs converted from ERCs and portion reserved for Clean Fuel projects, and not set new BARCT for SRU/TGs and cement kilns.

Staff's Response: Because of the non-uniform emissions and RTC distributions in the SOx RECLAIM market (11 major facilities hold almost 90% of the RTCs and contribute more than 90% of emissions, and the remaining 21 facilities hold only 6% of the RTCs and contribute about 6% of emissions), a uniform percent shave cross the board is not the ultimate solution. The 21 facilities that have no equipment subject to the new BARCT cannot reduce their emissions further, cannot sustain operation since they had limited ability to buy RTCs from large facilities, and therefore cannot remain in

compliance after the shave. To keep the 21 facilities active in the SOx market, staff is proposing to not shave the RTC holdings for these facilities if the RTC holdings are below their initial allocations provided to them at the start of the RECLAIM program. However, the amount of RTC holdings above their initial allocation will be shaved at the same rate as other 11 facilities and investors. With this approach, staff estimated that the 11 facilities will have a shave of 51.4%, 18 of the 21 facilities will be exempt totally from the shave, and 3 of the 21 facilities that have RTC holdings above their initial allocations will be shaved accordingly. Any trading from August 29, 2009 to the Governing Board hearing date will also be subject to the shave to ensure that RTC holdings are not inappropriately traded to or sheltered by a third party to avoid the shave.

California Environmental Quality Act (CEQA) Analysis

Pursuant to California Environmental Quality Act (CEQA) Guidelines §15252 and §15168 and AQMD Rule 110, the SCAQMD has prepared a Program Environmental Assessment (PEA) for proposed amended Regulation XX. Only the topics of air quality and hydrology (water demand) were identified in the Draft PEA as exceeding the SCAQMD's significance thresholds. The Draft PEA was released for a 45-day public review and comment period from August 18, 2010 to October 1, 2010. Three comment letters were received from the public relative to the Draft PEA.

Since the release of the Draft PEA, responses to the comments have been prepared and included in the document. Also, minor modifications have been made to the document. None of the modifications alter any conclusions reached in the Draft PEA, nor provide new information of substantial importance relative to the draft document. Further, the modifications do not constitute significant new information that would require recirculation of the Draft PEA pursuant to CEQA Guidelines §15088.5. Therefore, the document is a now a Final PEA and is included as an attachment to this Governing Board package.

Socioeconomic Analysis

The socioeconomic analysis of the proposed amended SOx RECLAIM was based on the 55 percent shave of SOx RTC holdings. Eleven facilities would be affected, the majority of which are located in Los Angeles County. The average annual compliance cost of the 55 percent shave ranged from $32 to $42 million with few job impacts on the local economy. The new proposed 51.4 percent shave would lower the compliance cost. The job impact of the new proposal would be within the noise of the economic model used for the SOx RECLAIM analysis. WSPA prepared its own socioeconomic analysis, including a scenario where a mid-size refiner closes. Staff reviewed this issue and pointed out a number of mitigating factors relative to any potential job impacts.

Implementation and Resources

It is expected that there will be a temporary workload increase due to applications submitted for installing new control equipment or retrofitting/modifying existing processes and there might be an increase in RTC trading activities. However, current AQMD resources are adequate to implement the proposed rule.

Attachments

A. Summary of Proposal
B. Rule Development Process
C. Key Contact List
D. Resolution and Attachment 1
E. Rule Language for PAR 2002 -
F. Final Staff Report - SOx RECLAIM, Part 1 – BARCT Assessment & RTC Reductions Analysis, and Part 2 – Summary of Consultants' Analyses
G. Program Environmental Assessment
H. Socioeconomic Analysis

ATTACHMENT A
SUMMARY OF PROPOSAL

New Proposed BARCT Levels for Tier III

— 5 ppmv for FCCUs, SRU/TGs, glass melting furnaces, cement kilns and coal fired boiler
— 10 ppmv for sulfuric acid plants and petroleum coke calciner
— 15 ppmv for diesel combustion[1], and
— 40 ppmv for refinery boilers/heaters

Proposed RTC Reductions

— The total RTC reductions are 5.7 tons per day (51.4% shave) cumulatively distributed as follows: 3.0 tons per day by 2013, 4.0 tons per day by 2014, 5.0 tons per day by 2017, and 5.7 tons per day by 2019.

— The shave will be applied to RTCs held by the 11 major facilities, to those RTC holdings that exceed initial allocations at 3 facilities, and RTCs held by investors, including any RTCs traded between August 29, 2009 and the Governing Board meeting date to prevent inappropriate sheltering of RTCs.

— In addition, by no later than July 1, 2012, SOx emissions from the fluidized catalytic cracking units (FCCUs) must meet an emission limit of 25 ppmv dry @ 0% O2 on a 365-day rolling average. For the purpose of demonstrating compliance with this limit, the refinery shall commence the use of SOx reducing additives in the FCCUs no later than July 1, 2011, unless the operator can demonstrate that the FCCU will achieve this limit by using other control methods.

RTC Adjustment Factors & Backstop

To address market viability concerns, for Phase 3 and 4 (post 2015) of the SOx RECLAIM, staff is proposing set-aside RTC accounts (i.e. non-tradable/non-usable) equivalent to the RTC reductions called for by the specific compliance years that can potentially be made available to the impacted facilities in the event RTC prices exceed the $50,000 per ton threshold (discrete credit).

The AQMD RECLAIM Administrative team shall calculate the 12-month rolling average SOx RTC price for all "discrete" trades. In the event the price exceeds $50 K per ton, the Executive Officer will report to the Governing Board, and at a duly scheduled Public Hearing, the Governing Board will decide whether or not to convert any portion of the non-tradable/non-usable RTCs to tradable/usable, and how much to convert.

[1] As required under AQMD Rule 431.2 – Sulfur Content of Liquid Fuels

The AQMD RECLAIM Administrative team shall determine the tradable/usable SOx RTC adjustment factors for Phase 1 to Phase 4 (2012-2019 and after). The non-tradable/non-usable RTC adjustments factors for Phase 3 and Phase 4 (post-2015) shall also be determined. The adjustment factors will be published and posted on the AQMD website within 30 days after rule adoption date.

ATTACHMENT B - RULE DEVELOPMENT PROCESS

Calendar Year 2008	
January 02, 2008	RECLAIM Working Group was formed
February 07, 2008	Public Consultation Meeting was conducted
April 03, 2008 April 30, 2008	Preliminary Draft Staff Report was released. Two Working Group Meetings were conducted.
May 1, May 15, May 28, June 20, July 02, 2008	Request for Proposal to seek expert consultants was drafted and discussed with the RECLAIM Working Groups on three Working Group Meetings from May to July. A Stationary Committee Meeting was also conducted on June 20.
July 11, 2008 July 16, 2008	RFP was presented to the Governing Board, and received Governing Board's approval to release on July 11. A Bidder Conference was conducted on July 16
August 1, 2008 August 30, 2008	Staff formed a task force to evaluate the six proposals received & make recommendation to the Governing Board
September 5, 2008	Staff presented the recommendation of consultants to the Governing Board and received an approval to hire ETS, Inc. and NEXIDEA
September 15, 2008 October 15, 2008	The consultants visited the facilities and conducted their feasibility and cost analyses, and the draft analyses were released to the facilities for comments.
December 16, 2008	NEXIDEA finalized the analyses for coke calciner and sulfuric acid plants. ETS Inc. finalized the analyses for glass and cement facilities.
Calendar Year 2009	
January – April 20, 2009	ETS Inc., their subcontractors, and staff conducted a second visit to all refineries. ETS, Inc. released their draft analyses three additional times to the refineries for comments and finalized their analyses on April 20, 2009.
June 23, 2009 (Public Workshop and CEQA Scoping Meeting)	Staff conducted a Public Workshop and CEQA Scoping Meeting. At this stage, staff proposed about 7 tpd RTC reduction from 2012-2017 with a total costs (present worth value for 25 years) estimated to be $883 - $944 million dollars and a weighted average cost effectiveness of about $16 K per ton SOx reduced. Staff released the draft staff report, Notice of Preparation for Environmental Assessment, and draft rule.
June 19, 2009 November 20, 2009	Two Stationary Committee Meetings were conducted in 2009. In addition, from March – December, staff conducted several

	meetings with WSPA and the refineries to discuss issues related to costs, baseline and RTC shave methodologies.
December 11, 2009 December 15, 2009	The Governing Board established a Refinery Committee Group and conducted the first Refinery Committee Meeting on December 11 and a WGM on December 15. At this stage, staff's estimates were 6.2 tpd emission reductions from 2005 baseline, 7.5 tpd RTC reduction, 64% - 67.5% RTC shave, total estimated costs of $745 million, and cost effectiveness of about $13 K per ton SOx reduced.
Calendar Year 2010	
January 08, 2010 (Informational Hearing)	Staff conducted an "Informational Hearing" to inform the Governing Board and the public about the development of PAR XX, the main issues associated with PAR XX, and a proposed Work Plan for 2010.
March 10, 2010 – June 15, 2010	As called for under the Work Plan and approved by the Governing Board, staff hired a Norton Engineering Inc. (NEC) to review ETS, Inc. and NEXIDEA's feasibility and costs analyses. NEC and staff visited the refineries in March/April, and NEC completed its review and issued a final report on June 15. In April – June, staff also met with WSPA and the refineries numerous times to discuss RTC shave methodologies and costs, costs and cost-effectiveness analyses. In addition, staff contacted the California Department of Water Resources and other water purveyors to discuss about the water impacts of the proposal, current and potential future regulations related to water usage in California.
August 18, 2010	Draft CEQA document was released and staff conducted a second Refinery Committee Meeting. Staff's revised estimates were 5.4 tpd emission reductions from 2005 baseline, 6.1 tpd RTC reduction from 2012 - 2019, 55% RTC shave, total estimated costs of $630 - 745 million, and cost effectiveness of about $16 K - $19 K/ton. Staff excluded the emission reductions of 0.85 tpd estimated from boilers/heaters, used audited emissions in the analysis for RTC shave, extended the compliance period to 2019 and accounted for growth.
September 8, 22 and 24, 2010	Staff reconvened the WGM & conducted a Public Consultation Meeting on September 8, a RCM on September 22, and a SSC Meeting on September 24, 2010.
October 1, 2010	Set Hearing for PAR XX was conducted on October 1st, 2010-

October 14, 2010	Revised Draft Staff Report and Socioeconomic Analysis were released for 30-day public review. A RCM was conducted on October 14, 2010. On October 26, staff revised its proposal to 5.7 tpd RTC reduction (51.4% shave) in 4 phases: 3 tpd in CY 2013, 4 tpd in CY 2014, 5 tpd in CY 2017, and 5.7 tpd in CY 2019.
November 5, 2010	A Governing Board Hearing is planned for November 5, 2010.

ATTACHMENT C - KEY CONTACT LIST

Affected Facilities

British Petroleum
Chevron
ExxonMobil
Tesoro
ConocoPhillips
Valero
Rhodia
Owens Illinois
California Portland Cement Corporation
Other SOx RECLAIM facilities are listed in Table A-1 of the Staff Report

Manufacturers of Control Devices & Consultants

BELCO
CANSOLV
Emerachem Power
Grace Davidson
INTERCAT
MECS
Tri-Mer

Others

California Air Resources Board
Northwest Air Pollution Authority
Maryland Department of Natural Resources
Puget Sound Clean Air Agency
U.S. Environmental Protection Agency
Western States Petroleum Association

ATTACHMENT D – RESOLUTION

A Resolution of the South Coast Air Quality Management District (AQMD) Governing Board Certifying the Final Program Environmental Assessment for Proposed Amended Regulation (PAR) XX – Regional Incentive Market Program (RECLAIM).

A Resolution of the Governing Board Amending Proposed Amended Regulation XX (Proposed Amended Rule (PAR) 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx))

WHEREAS, the 2007 AQMP was adopted by the AQMD Governing Board in June 2007 and subsequently approved by the California Air Resources Board and submitted to the U.S. Environmental Protection Agency for inclusion into the State Implementation Plan; and

WHEREAS, the Governing Board finds and determines with certainty that the PAR XX (PAR 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx)) is considered a "project" pursuant to the California Environmental Quality Act (CEQA); and

WHEREAS, the AQMD has had its regulatory program certified pursuant to Public Resources Code §21080.5 and has conducted CEQA review and analysis pursuant to such program (AQMD Rule 110); and

WHEREAS, AQMD staff has prepared a Draft Program Environmental Assessment (PEA) pursuant to its certified regulatory program and CEQA Guidelines §15252 and §15168 setting forth the potential environmental consequences of PAR XX (PAR 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx)); and

WHEREAS, the Draft PEA was released for public review, all comments received were responded to, and the Draft PEA has been revised such that it is now a Final PEA; and

WHEREAS, it is necessary that the adequacy of the Final PEA, including responses to comments be determined by the Governing Board prior to its certification; and

WHEREAS, it is necessary that the AQMD prepare a Statement of Findings and Statement of Overriding Considerations pursuant to CEQA Guidelines §15091 and §15093, respectively, regarding potentially significant adverse environmental impacts that cannot be mitigated to insignificance; and a Mitigation Monitoring Plan pursuant to Public Resources Code §21081.6, regarding the mitigation included in the Final PEA; and

WHEREAS, the Governing Board prior to voting on PAR XX (PAR 2002), has reviewed and considered the Final PEA including responses to comments, prior to its certification; and

WHEREAS, the Governing Board finds and determines, taking into consideration the factors in §(d)(4)(D) of the Governing Board Procedures, that the modifications adopted which have been made to PAR XX (PAR 2002), since notice of public hearing was published do not significantly change the meaning of the proposed project within the meaning of Health and Safety Code §40726 and would not constitute significant new information requiring recirculation of the Draft PEA (CEQA document) pursuant to CEQA Guidelines §15088.5; and

WHEREAS, the Governing Board has determined that the socioeconomic impact assessment of the PAR 2002 is consistent with the Governing Board March 17, 1989 and October 14, 1994 resolutions and the provisions of Health and Safety Code §§40440.8, 40728.5 and 40920.6; and

WHEREAS, the Governing Board has reviewed and considered the staff's findings related to cost and employment impacts of the PAR Regulation XX (PAR 2002) set forth in the socioeconomic impact assessment made public with the agenda package for this meeting, and hereby find and determines that cost and employment impacts are as set forth in that assessment; and

WHEREAS, the Governing Board has determined that PAR XX (Rule 2002) are cost-effective per ton of SOx reduced; and

WHEREAS, the Governing Board has actively considered the socioeconomic impact assessment and has made a good faith effort to minimize such impacts; and

WHEREAS, the Governing Board of the South Coast Air Quality Management District by adopting this regulation is implementing, interpreting, or making specific the provisions of Health and Safety Code §39616(c)(1) (equivalent or less cost under RECLAIM compared with command-and-control regulations) and §39616(c)(4) (no significant shift from high- to low-skilled jobs); and

WHEREAS, the Governing Board has determined that a need exists to adopt the PAR XX (Rule 2002) to implement Control Measure CMB-02 of the 2007 AQMP and to reduce SOx and implement BARCT for refinery fluid catalytic cracking units, sulfur recovery units/tail gas, sulfuric acid plants, container glass manufacturing plants, cement kilns and coal fired boiler at cement manufacturing plants, and coke calciner; and

WHEREAS, the Governing Board of the South Coast Air Quality Management District obtains its authority to adopt this proposed amended rule from Sections 39002, 39616, 39650, 40000, 40001, 40440, 40440.1, 40702, 41508 and 41700 of the California Health and Safety Code; and

WHEREAS, the Governing Board has determined that PAR XX (Rule 2002) as proposed is written or displayed so that its meaning can be easily understood by the persons directly affected by it; and

WHEREAS, the Governing Board has determined that PAR XX (PAR 2002) as proposed is in harmony with, and not in conflict with or contradictory to, existing federal or state statutes, court decisions, or regulations; and

WHEREAS, the Governing Board has determined that PAR XX (PAR 2002) as proposed does not impose the same requirements as any existing state or federal regulation and the proposed rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the District; and

WHEREAS, the Governing Board has determined that PAR XX (PAR 2002) as proposed references the following statutes which the AQMD hereby implements, interprets or makes specific: Health and Safety Code §40001(a) and (b) (air quality standards and air pollution episodes); 40702 (adoption of rules and regulations), §40440(a) (rules to carry out plan); §40440(b) (best available retrofit control technology); and Federal Clean Air Act Section 172(c)(1) (reasonably available control technology); and

WHEREAS, the AQMD Governing Board has determined that there is a problem that the proposed amendments to Regulation XX will alleviate (Health and Safety Code §40001(c)). Specifically, the amendments will reduce SOx credits in the market to reflect BARCT; and

WHEREAS, the AQMD Governing Board finds, pursuant to Health and Safety Code §39616(c)(1), that the proposed amendments to RECLAIM are designed to achieve the emissions levels projected to result from implementation of the rules and control measures subsumed by RECLAIM and any future air quality measures that would otherwise have been adopted as part of the District's plan for attainment at equal or less cost; and

WHEREAS, the AQMD Governing Board finds, pursuant to Health and Safety Code §39616(c)(2), that the proposed amendments to RECLAIM do not change the previous findings that RECLAIM provides a level of enforcement and monitoring comparable to more stringent than command and control air quality measures by requiring more frequent and more accurate monitoring, more frequent and more complete emissions reports, electronic emissions reporting, maintenance of on-site records of their emissions

reports and underlying data for three years, annual or more frequent facility inspections, and annual emissions audits; and

WHEREAS, the AQMD Governing Board finds, pursuant to Health and Safety Code §39616(c)(4), that the proposed amendment to RECLAIM will not result in a greater loss of jobs or more significant shifts from higher to lower skilled jobs, on an overall District-wide basis, than would exist under command and control air quality measures; and

WHEREAS, the Governing Board has determined that there is a problem that PAR XX (PAR 2002) will help alleviate, that is the basin does not meet the ambient quality standards for $PM_{2.5}$, and the proposed rule will promote the attainment of these standards; and

WHEREAS, a public hearing has been properly noticed in accordance with the provisions of Health and Safety Code Section 40725; and

WHEREAS, the Governing Board has held a public hearing in accordance with all provisions of law; and

WHEREAS, the Governing Board specifies the manager of PAR XX (PAR 2002) as the custodian of the documents or other materials which constitute the record of proceeding upon which the adoption of this proposed amended rule is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

NOW, THEREFORE, BE IT RESOLVED, that the Governing Board does hereby certify that the Final PEA for PAR XX (PAR 2002) was completed in compliance with CEQA and Rule 110 provisions; and finds that the Final PEA was presented to the Governing Board, whose members reviewed, considered and approved the information therein prior to acting on PAR XX (PAR 2002); and

BE IT FURTHER RESOLVED, that the Governing Board adopts a Statement of Findings and a Statement of Overriding Considerations pursuant to CEQA Guidelines §15091 and §15093, respectively, and a Mitigation Monitoring Plan pursuant to Public Resources Code §21081.6 regarding potentially significant adverse environmental impacts that cannot be mitigated to insignificance, as required by CEQA, and which are included as Attachment 1 and incorporated herein by reference; and

BE IT FURTHER RESOLVED, that the Governing Board does hereby adopt, pursuant to the authority granted by law, PAR XX (PAR 2002) as set forth in the attached and incorporated herein by reference.

_____ _____

Date Clerk of the District Board

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Attachment 1 to the Governing Board Resolution for:
Final Program Environmental Assessment for Proposed Amended Regulation XX – Regional Clean Air Incentives Market (RECLAIM)

Statement of Findings, Statement of Overriding Considerations, and Mitigation Monitoring Plan

SCAQMD No. 06182009BAR
State Clearinghouse No: 2009061088

October 5, 2010

Author:	Barbara Radlein	Air Quality Specialist
Reviewed By:	Steve Smith, Ph.D.	Program Supervisor, CEQA
	Joe Cassmassi	Planning and Rules Manager, Planning, Rule Development, and Area Sources
	Gary Quinn, P.E.	Program Supervisor, Planning, Rule Development, and Area Sources
	Barbara Baird	District Counsel
	William Wong	Principal Deputy District Counsel
	Veera Tyagi	Deputy District Counsel II

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EXECUTIVE OFFICER:
BARRY R. WALLERSTEIN, D.Env.

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INTRODUCTION

The proposed amendments to Regulation XX - Regional Clean Air Incentives Market (RECLAIM) are considered a "project" as defined by the California Environmental Quality Act (CEQA) (California Public Resources Code §§21000 et seq.). The SCAQMD as Lead Agency for the proposed project, prepared a Notice of Preparation/Initial Study (NOP/IS) which identified environmental topics to be analyzed in a Draft Environmental Assessment (EA). The NOP/IS provided information about the proposed project to other public agencies and interested parties prior to the intended release of the Draft EA. The NOP/IS was distributed to responsible agencies and interested parties for a 30-day review and comment period from June 19, 2009, to July 21, 2009. The initial evaluation in the NOP/IS identified the topics of aesthetics, air quality, energy, hydrology and water quality, hazards and hazardous materials, and transportation and traffic as potentially being adversely affected by the proposed project. During that public comment period, the SCAQMD received three comment letters.

Of the comment letters received relative to the NOP/IS, in particular, Comment 2-4 from Comment Letter #2 suggested that a Program Environmental Assessment (PEA), in lieu of an EA, be prepared for the proposed project. In response to this comment, and in accordance with CEQA Guidelines §15168, SCAQMD has prepared a Final PEA to evaluate potential adverse impacts from the proposed project. The decision to prepare a PEA is appropriate because the proposed project consists of a series of actions that can be characterized as one large project and are related: 1) in connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program (CEQA Guidelines §15168 (a)(3)); and, 2) as individual activities that would be carried out under the same authorizing regulatory authority and having similar environmental effects which can be mitigated in similar ways (CEQA Guidelines §15168 (a)(4)).

The Draft PEA, which included the NOP/IS and comment letters with responses to comments in Appendices C and D, respectively, was released for a 45-day public review and comment period from August 18, 2010 to October 1, 2010. Based on the conclusions in the NOP/IS prepared for the proposed project, the Draft PEA further analyzed whether or not the aesthetics, air quality, energy, hydrology and water quality, hazards and hazardous materials, and transportation and traffic impacts are significant. The Draft PEA concluded that only the topics of air quality and hydrology (water demand) would have significant adverse impacts.

Three comment letters were received during the public comment period on the analysis presented in the Draft PEA. Responses to these comment letters have been prepared and are included in Appendix E of the Final PEA The Final PEA, prepared pursuant to CEQA Guidelines §15132, identifies air quality and hydrology (water demand) as areas that may be adversely affected by the proposed project. No comment letters were received that identified other potentially significant adverse impacts from the proposed project.

Note that some minor modifications have been made to the Draft PEA to make it into a Final PEA. These modifications were evaluated by staff and it was concluded that none of the modifications alter any conclusions reached in the Draft PEA, nor do they constitute "significant

new information"[1] and, therefore, do not require recirculation of the document pursuant to CEQA Guidelines §15088.5. The Final PEA will be presented to the Governing Board prior to its November 5, 2010 public hearing.

SUMMARY OF THE PROPOSED PROJECT

SCAQMD staff is proposing amendments to Regulation XX – Regional Clean Air Incentives Market (RECLAIM), Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx) to achieve additional SOx emission reductions as outlined in the 2007 AQMP in Control Measure (CM) CMB-02: Further SOx Reduction for RECLAIM (CM #2007CMB-02). The proposed changes to Rule 2002 would reduce the allowable SOx emission limits based on current Best Available Retrofit Control Technology (BARCT) for the following industrial equipment and processes: 1) petroleum coke calciners; 2) cement kilns; 3) coal-fired boiler (cogeneration); 4) container glass melting furnace; 5) diesel combustion; 6) fluid catalytic cracking units; 7) refinery boilers/heaters; 8) sulfur recovery units/tail gas treatment units; and, 9) sulfuric acid manufacturing. Additional amendments are proposed to establish procedures and criteria for reducing RECLAIM Trading Credits (RTCs) and RTC adjustment factors for year 2013 and later. Other minor changes are proposed for clarity and consistency throughout the regulation. The proposed project is expected to result in anticipated reductions of up to 5.7 tons per day of SOx emissions by 2019 from 11 facilities.

POTENTIAL SIGNIFICANT ADVERSE IMPACTS THAT CANNOT BE REDUCED BELOW A SIGNIFICANT LEVEL

The Final PEA identified the topics of air quality and water demand as the only areas that may be significantly adversely affected by the proposed project.

<u>Project-Specific and Cumulative Construction Air Quality Impacts</u>

Relative to construction emissions, the "worst-case" scenario are that the construction phases overlap due to concurrent construction activities at a single facility or at more than one facility. Specifically, the scenario analyzed in the Final PEA is the simultaneous activities of demolishing existing equipment, site preparation, and constructing new air pollution control equipment, which could occur at a single facility or at more than one facility. The analysis further assumes that the "worst-case" day is that in which each construction project is operating construction equipment that generates the greatest emissions.

Based on these assumptions for overlapping construction phases, the "worst-case" emissions were calculated to be 89 pounds of VOC per day, 464 pounds per day of NOx, and 159 pounds

[1] Pursuant to CEQA Guidelines §15088.5, "Significant new information" requiring recirculation include, for example, a disclosure showing that:

(a) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.

(b) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.

(c) A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the environmental impacts of the project, but the project's proponents decline to adopt it.

(d) The draft EA was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

per day of PM10. The significance threshold for construction-related emissions is 75 pounds of VOC per day, 100 pounds of NOx per day, and 150 pounds of PM10 per day. Estimated construction emissions did not exceed the significance thresholds for CO, SOx and PM2.5.

Greenhouse Gas Impacts

With regard to greenhouse gas (GHG) emissions, the proposed project involves combustion processes during both construction and operation, which could generate GHG emissions such as carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O). However, the proposed project does not affect equipment or operations that have the potential to emit non-combustion GHGs such as sulfur hexafluoride (SF6), hydrofluorocarbons (HFCs) or perfluorocarbons (PFCs).

Installation of SOx control equipment as part of implementing the proposed project is expected to generate construction-related CO2 emissions. In addition, based on the type and size of equipment affected by the proposed project, CO2 emissions from the operation of the SOx control equipment are likely to increase from current levels due to electricity, fuel and water use. The proposed project will also result in an increase of GHG operational emissions produced from additional truck hauling and deliveries necessary to accommodate the additional solid waste generation and increased use of supplies such as catalyst and caustic.

For the purposes of addressing the GHG impacts of the proposed project, the overall impacts of CO2 equivalent (CO2eq) emissions from the project were estimated and evaluated from the earliest possible initial implementation of the proposed project with construction beginning in 2012. Once the proposed project is fully implemented, the potential SOx emission reductions would continue through the end of the useful life of the equipment. The analysis estimated CO2eq emissions from all sources subject to the proposed project (construction and operation) from the beginning of the proposed project (2012) to the end of the project construction (2019). The beginning of the proposed project was assumed to be no sooner than 2012, since installing SOx control equipment such as a wet gas scrubber (WGS) takes considerable advance planning and engineering. Full implementation of the proposed project is expected to occur by the end of 2018 since all the affected facilities would be required to comply with the proposed project by January 1, 2019, such that any installed or modified SOx controls would be constructed and operational by the final compliance date. Thus, once construction is complete and the equipment is operational, no further changes in CO2eq emissions are anticipated.

Implementing the proposed project is expected to increase GHG emissions that exceed the SCAQMD's GHG significance threshold for industrial sources and this potentially significant adverse impact cannot be mitigated below significance. The SCAQMD's GHG significance threshold for industrial sources is 10,000 metric tons of CO2eq emissions per year (MTCO2eq/yr). While none of the affected facilities individually exceed the GHG industrial significance threshold of 10,000 MTCO2eq/yr, the "worst-case" GHG emissions from the proposed project as a whole were calculated to be 39,020 MTCO2eq/yr which exceeds the SCAQMD's GHG significance threshold.

Recycled water projects and the utilization of recycled water are among the most direct ways to reduce GHG from combustion activities associated with conveying water to the affected facilities if water-intensive scrubbers are installed as a result of the proposed project. Specifically, the

energy it would take to treat and convey reclaimed water to a facility (e.g., 1,200 kilowatt-hours per million gallons (kWh/MMgallons)[2]) is approximately 10 times less than the amount of energy it would take for potable water (e.g., 12,700 kWh/MMgallons[3]) to be supplied, conveyed and distributed. Thus, for each facility that will have future access to recycled water and uses reclaimed wastewater to satisfy the water demands for the proposed project and in turn, mitigate CO2eq emissions, less GHG emissions would be generated for the operational water use/conveyance and operational wastewater generation portions of the proposed project. While the GHG mitigation measures identified in the Mitigation Monitoring Plan section of this document may reduce GHG emissions associated with water conveyance to the maximum extent feasible, none are mitigation measures that will avoid the significant impact or reduce the GHG impact to less than significant. Also, no other feasible mitigation measures have been identified to reduce GHG emissions to a level of insignificance. Therefore, the proposed project is considered to have significant adverse unavoidable cumulative GHG impacts.

Water Demand

Implementation of the proposed project may cause water demand impacts associated with the existing facilities affected by the proposed project. Specifically, the installation of WGSs and dry gas scrubbers (DGSs), the installation of new or modification of existing fuel gas treatment (FGT) systems, and upgrading existing sulfuric acid plant controls all involve an increased demand for water. However, for any facility that installs a SOx control equipment that utilizes water, SCAQMD staff requires that the facility operators utilize both current supplies and future supplies of recycled water if available, pursuant to the Harbor Refineries Recycled Water Pipeline Project (HRRWPP), for operation of the equipment. The HRRWPP is an ongoing construction project to conserve potable water and instead produce and convey recycled water to multiple industrial and irrigation customers in the Los Angeles Harbor area[4]. Several facilities that may be affected by the proposed project will be served by the HRRWPP.

The analysis in the Final PEA shows that the increased potential demand for total water (i.e., 883,368 gallons per day) that may result from implementing the proposed project is not expected to exceed the SCAQMD's significance threshold of five million gallons of total water demand per day. Further, based on discussions with the local water suppliers, the existing water supply is expected to have the capacity to meet the increased demands of the proposed project. While the total water demand for the proposed project will not exceed the SCAQMD's significance threshold for total water demand, based on the definition of "water demand project" in CEQA Guidelines §15155, the potential increase in potable water demand was estimated to be 201,587

[2] California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[4] Future access to recycled water for these five facilities is dependent upon the completion of the Harbor Refineries Recycled Water Pipeline Project (HRRWPP) by Summer 2013 (SCH No. 2008121093, certified on October 20, 2009). The HRRWPP will conserve potable water and instead produce and convey recycled water to multiple industrial and irrigation customers in the Los Angeles Harbor area (http://www.ladwp.com/ladwp/cms/ladwp011486.jsp). Proponents of the HRRWPP are working with each of the affected facilities to negotiate construction of a new water conveyance at their site in order to tie-into the recycled water pipeline.

gallons per day and may be considered a substantial use of potable water. For the purposes of the CEQA analysis prepared for the proposed project, a substantial amount of potable water is defined as the amount of water necessary to supply 500 dwelling units or approximately 133,911 to 223,186 gallons of potable water per day.

While the use of recycled water may reduce potable water demand to the maximum extent feasible, the use of recycled water will not avoid the significant impact or reduce the potable water demand impact to less than significant. Also, no other feasible mitigation measures have been identified to reduce potable water demand to a level of insignificance. Therefore, the proposed project may cause significant potable water demand impacts.

STATEMENT OF FINDINGS

Public Resources Code §21081 and CEQA Guidelines §15091(a) state that no public agency shall approve or carry out a project for which a CEQA document has been completed which identifies one or more significant adverse environmental effects of the project unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding. Additionally, the findings must be supported by substantial evidence in the record (CEQA Guidelines §15091(b)). As identified in the Final PEA and summarized above, the proposed project has the potential to create significant adverse air quality and water demand impacts. The SCAQMD Governing Board, therefore, makes the following findings regarding the proposed project. The findings are supported by substantial evidence in the record as explained in each finding. This Statement of Findings will be included in the record of project approval and will also be noted in the Notice of Decision. The Findings made by the SCAQMD Governing Board are based on the following significant adverse impacts identified in the Final PEA.

1. **Potential project-specific and cumulative VOC, NOx, and PM10 emissions during construction exceed the SCAQMD's applicable significance air quality thresholds and cannot be mitigated to insignificance.**

   Finding and Explanation:

   The implementation of the proposed project is anticipated to trigger construction activities associated with the installation of new SOx control equipment, (i.e., WGSs). Construction activities associated with the proposed project would result in emissions of VOC, NOx, SOx, CO PM10, and PM2.5, but only the estimated emissions for VOC, NOx and PM10 are expected to exceed the SCAQMD's applicable significance air quality thresholds for construction. As a result, the proposed project is expected to have significant adverse construction air quality impacts. However, the temporary construction emissions would cease upon completion of the installation of new or modification of existing air pollutant control equipment, as applicable. Once all the modified or new equipment are in place, the proposed project is expected to result in a reduction of SOx emissions up to 5.7 tons per day.

   The Governing Board finds that mitigation measures have been identified, but they would not reduce to insignificance the significant adverse project-specific or cumulative impacts to air quality associated with construction. No other feasible mitigation measures have

been identified. CEQA Guidelines §15364 defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."

The Governing Board further finds that the Final PEA considered alternatives pursuant to CEQA Guidelines §15126.6, but no project alternative, other than the No Project Alternative, would reduce to insignificant levels the significant project-specific or cumulative construction air quality impacts identified for the proposed project.

2. Potential GHG emissions exceed the SCAQMD's applicable significance GHG threshold and cannot be mitigated to insignificance.

Finding and Explanation:
While none of the affected facilities individually exceed the SCAQMD's industrial GHG significance threshold of 10,000 MTCO2eq/yr, if the proposed project is implemented, the analysis indicates that there would be a significant increase in GHG emissions for the project as a whole. Because there are significant adverse GHG impacts from the proposed project, the PEA must describe feasible measures that could minimize significant adverse impacts.

The Governing Board finds that mitigation measures have been identified, but they would not reduce to insignificance the significant adverse GHG emission impacts. No other feasible mitigation measures have been identified. CEQA Guidelines §15364 defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."

The Governing Board further finds that aside from the No Project Alternative, the Final PEA considered alternatives pursuant to CEQA Guidelines §15126.6, Alternative B was found to be the environmentally superior alternative. Alternative B can reduce to insignificant levels the significant GHG impacts identified for the proposed project. However, Alternative B, with a potential SOx emissions reduction of 1.50 tons per day, only partially achieves the SOx emission reductions identified in the AQMP, which are necessary to demonstrate attainment with state and federal air quality standards. When compared to the proposed project, while Alternative B creates fewer environmental impacts, it also provides fewer benefits to air quality and public health and does not satisfy project objectives.

3. Potential potable water demand would use a substantial amount of potable water and cannot be mitigated to insignificance.

Finding and Explanation:
The PEA concluded that the proposed project may cause significant adverse potable water demand impacts. Because there are significant adverse potable water demand impacts from the proposed project, the PEA must describe feasible measures that could minimize significant adverse impacts. While these mitigation measures may reduce the

amount of potable water needed, they would not avoid or reduce the adverse potable water demand impact to less than significant.

The Governing Board further finds that aside from the No Project Alternative, the Final PEA considered alternatives pursuant to CEQA Guidelines §15126.6, Alternative B was found to be the environmentally superior alternative. Alternative B can reduce to insignificant levels the significant water demand impacts identified for the proposed project. However, Alternative B, with a potential SOx emissions reduction of 1.50 tons per day, only partially achieves the SOx emission reductions identified in the AQMP, which are necessary to demonstrate attainment with state and federal air quality standards. When compared to the proposed project, while Alternative B creates fewer environmental impacts, it also provides fewer benefits to air quality and public health and does not satisfy project objectives.

Conclusion

The Governing Board finds that feasible mitigation measures have been identified to help minimize the potentially significant adverse impacts to air quality and water demand. CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors" (Public Resources Code §21061.1).

The Governing Board further finds that aside from the No Project Alternative, the Final PEA considered alternatives pursuant to CEQA Guidelines §15126.6. While Alternative B would reduce to insignificant levels the significant GHG and water demand impacts identified for the proposed project, Alternative B will not reduce to insignificant levels the significant air quality construction impacts and will not achieve the objectives of the proposed project.

The Governing Board further finds that a Mitigation Monitoring Plan (pursuant to Public Resources Code § 21081.6) needs to be prepared since feasible mitigation measures were identified.

The Governing Board further finds that the findings required by CEQA Guidelines §15091(a) are supported by substantial evidence in the record. The record of approval for this project may be found in the SCAQMD's Clerk of the Board's Office located at SCAQMD headquarters in Diamond Bar, California.

STATEMENT OF OVERRIDING CONSIDERATIONS

If significant adverse impacts of a proposed project remain after incorporating mitigation measures, or no measures or alternatives to mitigate the adverse impacts are identified, the lead agency must make a determination that the benefits of the project outweigh the unavoidable adverse environmental effects if it is to approve the project. CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits of a proposed project against its unavoidable environmental risks when determining whether to approve the project [CEQA Guidelines §15093(a)]. If the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable"

[CEQA Guidelines §15093(a)]. Accordingly, a Statement of Overriding Considerations regarding potentially significant adverse air quality and water demand impacts that may result from the proposed project has been prepared. This Statement of Overriding Considerations is included as part of the record of the project approval for the proposed project. Pursuant to CEQA Guidelines §15093(c), the Statement of Overriding Considerations will also be noted in the Notice of Decision for the proposed project.

Despite the inability to incorporate changes into the proposed project that will mitigate potentially significant adverse air quality and water demand impacts to a level of insignificance, the SCAQMD's Governing Board finds that the following benefits and considerations outweigh the significant unavoidable adverse environmental impacts:

1. The analysis of potential adverse environmental impacts incorporates a "worst-case" approach. This entails the premise that whenever the analysis requires that assumptions be made, those assumptions that result in the greatest adverse impacts are typically chosen. This method likely overestimates the actual environmental impacts from the proposed project.

2. Each of the alternatives was crafted to show the various possibilities or permutations of how operators of SOx RECLAIM facilities could achieve actual SOx reductions, but ultimately, there is no way to predict what each facility operator will do. Further, because of the compliance flexibility inherent in the RECLAIM program, affected operators may choose to reduce SOx emissions using compliance options that minimize or eliminate significant environmental impacts at their facilities.

3. The 2007 AQMP identifies ambient air pollutant levels relative to federal and state ambient air quality standards (AAQS), establishes baseline and future emissions, and develops control measures to ensure attainment of the AAQS. Construction is a continuous activity in the district and is accounted for in the AQMP. Thus, any changes in air quality as a result of construction emissions from the proposed project are accounted for in the AQMP and would not be expected to interfere with the attainment demonstrations.

4. The proposed project implements 2007 AQMP Control Measure CMB-02: Further SOx Reductions for RECLAIM (CM #2007CMB-02) and obtains 2.9 tons per day of SOx emission reductions as called for in the 2007 AQMP. The proposed project may actually achieve additional SOx emission reductions beyond 2.9 tons per day (up to 5.7 tons per day) depending on the actual BARCT SOx emission controls employed.

5. The reduction of SOx emissions that may occur from implementing the proposed project will also reduce the secondary formation of PM2.5, which will provide additional health benefits from reducing exposure to PM2.5 concentrations.

6. Since the Basin is in non-attainment for PM2.5, for which SOx is a major precursor and since 17 million residents of the South Coast Air Basin are experiencing the worst PM2.5 exposure in the nation, the proposed project achieves the largest amount of overall SOx reductions by relying on currently available SOx control technologies.

7. SCAQMD staff has calculated that the air quality benefit of reducing one ton of SOx is equivalent to the air quality benefit achieved by reducing 15 tons of NOx in progressing towards attainment of the PM2.5 standard. Thus, the SOx reductions that may be achieved by the proposed project will help substantially reduce PM2.5 concentrations.

8. Although the proposed project also has the largest amount of adverse environmental impacts overall when compared to the alternatives, it achieves the maximum level of SOx reductions and corresponding health benefits.

9. Considering the PM2.5 exposure levels of the residents in the South Coast Air Basin and the need for expeditious improvement in PM2.5 air quality, the proposed project is preferred over Alternatives A, B, and C because it provides the most flexibility in the methods for reducing SOx emissions while maximizing the amount of potential SOx reductions and health benefits if the methods are implemented.

10. Implementing the control measures in the 2007 AQMP will result in an overall net reduction in criteria pollutant emissions. Therefore, cumulative air quality impacts from the proposed project and all other AQMP control measures when considered together, are not expected to be significant because implementation of all AQMP control measures is expected to result in net emission reductions and overall air quality improvement.

The SCAQMD's Governing Board finds that the above-described considerations outweigh the unavoidable significant effects to the environment as a result of the proposed project.

MITIGATION MONITORING PLAN

When making findings as required by Public Resources Code §21081 and CEQA Guidelines §15091, the lead agency must adopt a reporting or monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment (Public Resources Code §21081.6 and CEQA Guidelines §15097[a]). To fulfill the requirements of Public Resources Code §21081.6 and CEQA Guidelines §15097, the SCAQMD has developed this mitigation monitoring plan for anticipated impacts resulting from implementing the proposed project.

AIR QUALITY IMPACTS

IMPACT SUMMARY OF MITIGATION MEASURES AQ-1 to AQ-8: Project-specific and cumulative construction-related emissions of VOC, NOx, and PM10 emissions, based on a "worst-case" analysis, would exceed the SCAQMD's regional mass daily significance thresholds for these pollutants. Emission sources include worker vehicles and heavy construction equipment. The following mitigation measures are intended to minimize the emissions associated with these sources during construction activities. No feasible mitigation measures have been identified to reduce emissions to a level of insignificance.

MITIGATION MEASURES: The following construction mitigation measures are required for each of the affected facilities.

On-Road Mobile Sources

AQ-1 Develop a Construction Emission Management Plan for each affected facility to minimize emissions from vehicles including, but not limited to: consolidating truck deliveries; scheduling deliveries to avoid peak hour traffic conditions; describing truck routing; describing deliveries including logging delivery times; describing entry/exit points; identifying locations of parking; identifying construction schedule; and prohibiting truck idling in excess of five consecutive minutes or another time-frame as allowed by the California Code of Regulations, Title 13 §2485 - CARB's Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.

Off-Road Mobile Sources

AQ-2 Suspend all construction activities that generate air pollutant emissions during first stage smog alerts.

AQ-3 Prohibit construction equipment from idling longer than five minutes.

AQ-4 Use electricity or alternate fuels for on-site mobile equipment instead of diesel equipment to the extent feasible.

AQ-5 Tune-up construction equipment and maintain a two- to four-degree retard diesel engine timing, to the extent feasible.

AQ-6 Use electric welders to avoid emissions from gasoline or diesel welders in portions of the project sites where electricity is available.

AQ-7 Use on-site electricity rather than temporary power generators in portions of the project sites where electricity is available.

AQ-8 Prior to use in construction, each project applicant will evaluate the feasibility of retrofitting the large off-road construction equipment that will be operating for substantial periods. Retrofit technologies such as particulate traps, selective catalytic reduction, oxidation catalysts, air enhancement technologies, etc., will be included in the evaluation. These technologies will be required if they are certified by CARB and/or USEPA and are commercially available and can feasibly be retrofitted onto construction equipment.

Other mitigation measures were considered but were rejected because they would not further mitigate the potential significant impacts of the proposed project. These mitigation measures included: 1) provide temporary traffic control during all phases of construction activities (traffic safety hazards have not been identified); 2) implement a

shuttle service to and from retail services during lunch hours (most workers eat lunch onsite and lunch trucks visit the construction site); 3) use methanol, natural gas, propane or butane-powered construction equipment (equipment is not CARB-certified or commercially available); 4) pave unpaved roads (most facility roads are paved).

IMPLEMENTING PARTIES: The SCAQMD's Governing Board finds that implementing the mitigation measures AQ-1 through AQ-8 is the responsibility of the owner, operator, or agent of each affected facility who submits a permit application to comply with the proposed project.

MONITORING AGENCY: The SCAQMD's Governing Board finds that through its discretionary authority to issue and enforce permits for this project, the SCAQMD will ensure compliance with mitigation measures AQ-1 through AQ-8. Mitigation monitoring and reporting will be accomplished as follows:

MMAQ-1: CONSTRUCTION EMISSION MANAGEMENT PLAN

Each facility operator shall develop and submit a Construction Emission Management Plan to the SCAQMD for approval prior to starting construction activities. Upon approval, each facility operator shall train all personnel subject to the requirements set forth in the Construction Emission Management Plan on how to comply with the requirements in the plan, and document that training. The SCAQMD may conduct routine inspections of the site to verify compliance. The Construction Emission Management Plan shall include all of the following: description of construction traffic control methods such as flag persons, contractor entry/exit gates, et cetera; construction schedule including hours of operation; description of truck routing; and, description of deliveries including hours of delivery.

<u>Traffic Control</u>

Traffic requiring entrance onto each facility's property will be directed toward the entry gate or gates, if there are multiple entrances, so that congestion, as well as associated air pollution, will be minimized.

Points of entry will be selected to maximize facility security and reduce traffic-associated emissions. Each facility operator will direct their Receiving Department to consider delivery items, time of delivery, in-plant congested areas, surrounding area traffic, and gate security issues when assigning a gate entry location.

On-site parking will be used to the maximum extent available. In the event that off-site parking is required, construction workers may be requested to park at a designated off-site property. Buses or some other type of shuttle may transfer multiple workers at one time to and from the project site. No on-street parking (i.e., off of each facility's site) will be allowed.

Construction Schedule

In an effort to reduce traffic by construction workers, operators of the each facility may request its contractors to follow a compressed workweek. An example of a compressed workweek would be a four-day work week and a 10-hour work day with most work scheduled to begin by 7:00 a.m. and end after 5:30 p.m., Monday through Friday, to further minimize traffic congestion and related emissions. In addition, some work may need to be scheduled during the night shift, which will begin after 6:00 p.m. and end around 4:30 a.m. Critical path work may require a deviation from the aforementioned workweek and start- and stop-times; however, deviations will be minimized.

During process unit shutdowns, extended work shifts and night shifts, scheduled six to seven days per week, may be necessary. Each facility operator will establish in their Construction Emission Management Plan the details of the construction schedule, including operating hours, days, and number of shifts per day. This construction work schedule will need to be designed to minimize the travel time during peak travel periods.

Trip Reduction Plan

No feasible mitigation has been identified for the emissions from on-road vehicle trips. CEQA Guidelines §15364 defines feasible as "...capable of being accomplished in a successful manner." No feasible mitigation measures for offsite motor vehicles have been identified. Health and Safety Code §40929 prohibits the air districts and other public agencies from requiring an employee trip reduction program making such mitigation infeasible.

Delivery of Equipment and Materials

Each facility operator will coordinate the delivery of equipment and materials to avoid peak hour traffic, whenever possible. That is, delivery of construction materials to the site will be scheduled to occur during off-peak periods which are typically from 8:30 a.m. until 4:00 p.m. Monday through Friday. Each facility operator will request that equipment and material deliveries be minimized between the hours of 7:00 a.m. to 8:00 a.m. and 4:30 p.m. to 5:30 p.m. to reduce traffic in and out of each facility during high traffic peak times. Exceptions will be made for trucks carrying time-critical materials, e.g., concrete delivery and soil hauling (which eliminates the double handling or on-site stock-piling of soil, preventing it from being moved from place-to-place due to lack of adequate staging area, and subsequent removal at a later time via trucks). Delivery routes and schedules will be developed pursuant to the California Department of Transportation regulations.

It may be necessary to handle a limited amount of equipment as wide or special loads. These deliveries are subject to California Department of Transportation regulations and will be coordinated with local police departments. These trips will be scheduled to avoid peak hour traffic.

MMAQ-2: SUSPEND ALL CONSTRUCTION ACTIVITIES THAT GENERATE AIR EMISSIONS DURING FIRST STAGE SMOG ALERTS.

If and when any first stage smog alert or greater occurs, each facility operator will record the date and time of each alert, will suspend all construction activities that generate emissions, and will record the date and time when the use of construction equipment and construction activities are suspended. This log shall be maintained on-site for a period of at least two years from completion of construction.

MMAQ-3: PROHIBIT TRUCKS FROM IDLING LONGER THAN FIVE MINUTES

Each facility operator will notify all vendors that during deliveries, truck idling time will be limited to no longer than five minutes. For any delivery that is expected to take longer than five minutes, each facility operator will require the truck's operator to shut off the engine. Each facility operator will notify the vendors of these delivery requirements at the time that the purchase order is issued and again when trucks enter the gates of the facility. To further ensure that drivers understand the truck idling requirement, signs will be posted at each facility entry gates stating idling longer than five minutes is not permitted.

MMAQ-4: USE ELECTRICITY OR ALTERNATE FUELS FOR ON-SITE MOBILE EQUIPMENT INSTEAD OF DIESEL EQUIPMENT TO THE EXTENT FEASIBLE

Each facility operator shall evaluate the use of electricity and alternate fuels for on-site mobile construction equipment prior to the commencement of construction activities, provided that suitable equipment is available for the activity. Equipment vendors will be contacted to determine the commercial availability of electric or alternate-fueled construction equipment. Equipment that will use electricity or alternate fuels will be included in the Construction Emission Management Plan.

The potential equipment that may be considered includes, but is not limited to:

- Electric scissor lifts
- Electric golf carts
- Bicycles
- Boom lifts

Each facility operator will limit the number of personal and company vehicles allowed to enter each facility beyond the parking lots. This restriction helps minimize onsite emissions and promotes the use of ride sharing and alternate fueled transportation such as bicycles and electric golf carts.

In addition to the other alternative fueled equipment, each facility operators and the construction contractors will use electric boom lifts or bi-powered boom lifts, when available.

MMAQ-5: MAINTAIN CONSTRUCTION EQUIPMENT, TUNED UP AND WITH TWO TO FOUR DEGREE RETARD DIESEL ENGINE TIMING

Each facility operator, in cooperation with the construction contractors, will maintain vehicle and equipment maintenance records for the construction portion of the proposed project. All construction vehicles must be maintained in compliance with the manufacturer's recommended maintenance schedule. Each facility operator will maintain their construction equipment and the construction contractor will be responsible for maintaining their equipment and maintenance records. All maintenance records for each facility and their construction contractor(s) will remain on-site for a period of at least two years from completion of construction. Each facility operator, in cooperation and coordination with each construction contractor and equipment vendor, will evaluate the practicality of retarding diesel engine timing on off-road construction equipment for the purpose of reducing emissions.

MMAQ-6: USE ELECTRIC WELDERS INSTEAD OF GAS OR DIESEL WELDERS IN PORTIONS OF THE FACILITY WHERE ELECTRICITY IS AVAILABLE.

Each facility operator and their construction contractor will conduct a survey of the proposed project area to assess whether the existing infrastructure can provide access to electricity, as available, within the facility. Construction areas within the facility where electricity is not available will be identified on a site plan as part of the Construction Emission Management Plan. The use of gas or diesel welders shall be prohibited in areas of the facility that are shown to have access to electricity. Each facility operator will assess the number of electrical welding receptacles available, and will indicate whether diesel generators or welders are required for the proposed project. Each facility operator shall include in all construction contracts the requirement that diesel welders are only allowed to operate in the portions of the facility as identified on the site plan as not being accessible to electric power. If gas or diesel welders are actually used, each facility operator shall maintain welder records that indicate the location where welders are operated for a period of at least two years from completion of construction.

MMAQ-7: USE ON-SITE ELECTRICITY RATHER THAN TEMPORARY POWER GENERATORS IN PORTIONS OF THE FACILITY WHERE ELECTRICITY IS AVAILABLE.

The use of temporary power generators shall be prohibited in areas of the facility that have existing infrastructure to provide access to electricity. Construction areas within the facility where electricity is not available will be identified on a site plan as part of the Construction Emission Management Plan. The use of temporary power generators within these identified areas of the facility will be allowed. The use of temporary power generators outside of these identified areas shall be prohibited. Each facility operator shall include in all construction contracts the requirement that the use of temporary power generators is prohibited in certain portions of the facility as identified on the site plan. Each facility operator shall maintain records that indicate the location where the generators are operated, if at all, for a period of at least two years from completion of construction.

MMAQ-8: PRIOR TO USE IN CONSTRUCTION, EACH FACILITY OPERATOR WILL EVALUATE THE FEASIBILITY OF RETROFITTING THE LARGE OFF-ROAD CONSTRUCTION EQUIPMENT THAT WILL BE OPERATING FOR SIGNIFICANT PERIODS. RETROFIT TECHNOLOGIES SUCH AS SELECTIVE CATALYTIC REDUCTION, OXIDATION CATALYSTS, AIR ENHANCEMENT TECHNOLOGIES, ETC., WILL BE EVALUATED. SUCH TECHNOLOGIES WILL BE REQUIRED IF THEY ARE COMMERICALLY AVAILABLE AND CAN FEASIBLY BE RETROFITTED ONTO CONSTRUCTION EQUIPMENT.

All construction equipment diesel engines rated at 50 hp or greater shall meet the highest tier of California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, §2423(b)(1) unless such engine is not available for a particular item of equipment within the southern California area for use for the needed construction equipment for the proposed project.

At a minimum, construction equipment engines will be required to meet Tier 1 California standards if equipment with engines that meet Tier 2 standards are not available, unless such engine is not available for a particular item of equipment.

In the event that an engine is not available that meet any tier (e.g., Tier 1 up to Tier 4) for any off-road engine rated at 50 hp or greater, that engine shall be equipped with a diesel particulate filter, unless certified by engine manufacturers that the use of such devices is not practical for specific engine types. Each facility operator shall submit to the SCAQMD, prior to initiation of construction, information in writing on why particulate filters are not practical. For purposes of this condition, the use of such devices is "not practical" if, among other reasons:

(1) There is no available particulate filter that has been certified by either the California Air Resources Board or U.S. Environmental Protection Agency for the engine in question; or,
(2) The construction equipment is intended to be on-site for 30 days or less.

The use of a particulate filter may be terminated immediately if one of the following conditions exists:

(1) The use of the particulate filter is excessively reducing normal availability of the construction equipment due to increased downtime for maintenance, and/or reduced power output due to an excessive increase in backpressure;
(2) The particulate filter is causing or is reasonably expected to cause significant engine damage; or,
(3) The particulate filter is causing or is reasonably expected to cause a significant risk to workers or the public.

During construction of the proposed project and for two years following completion of construction, each facility operator shall keep records onsite of applicable compliance activities to demonstrate the steps taken to assure compliance with Mitigation Measure AQ-8 as specified in Tables 1 and 2.

GHG IMPACTS

IMPACT SUMMARY OF MITIGATION MEASURES GHG-1 to GHG-2: Based on a "worst-case" analysis, none of the affected facilities individually exceed the industrial GHG significance threshold. However, if the proposed project gets implemented, the analysis indicates that there will be a significant increase in GHG emissions for the project as a whole. Because there are significant adverse GHG impacts from the proposed project, the PEA must describe feasible measures which could minimize the significant adverse impacts. The following mitigation measures are intended to minimize the GHG emissions associated with water conveyance. No feasible mitigation measures have been identified to reduce GHG emissions to a level of insignificance.

MITIGATION MEASURES: The following GHG mitigation measures are required for each of the affected facilities.

GHG-1 When SOx control equipment is installed and water is required for its operation, the facility operator is required to use recycled water, if available, to satisfy the water demand for the SOx control equipment.

GHG-2 In the event that recycled water cannot be delivered to the affected facility, the facility operator is required to use their best efforts to submit a written declaration with the application for a Permit to Construct for the

SOx control equipment, to be signed by an official of the water purveyor indicating the reason(s) why recycled water cannot be supplied to the project.

IMPLEMENTING PARTIES: The SCAQMD's Governing Board finds that implementing mitigation measures GHG-1 through GHG-2 is the responsibility of the owner, operator, or agent of each affected facility who submits a permit application to comply with the proposed project.

MONITORING AGENCY: The SCAQMD's Governing Board finds that through its discretionary authority to issue and enforce permits for this project, the SCAQMD will ensure compliance with mitigation measures GHG-1 through GHG-2. Mitigation monitoring and reporting will be accomplished as follows:

MMGHG-1: USE RECYCLED WATER, IF AVAILABLE, FOR SOX CONTROL EQUIPMENT THAT REQUIRES WATER FOR ITS OPERATION

At the time of submitting an application for a Permit to Construct for SOx control equipment that requires water for its operation, each facility operator shall submit a copy of a Memorandum of Understanding agreement reached between the facility operator and the recycled water supplier or purveyor that indicates recycled water will be used to supply water to the SOx control equipment. Once the SOx control equipment becomes operational, on a monthly basis, each facility operator will record the amount of recycled water supplied to the SOx control equipment from the recycled water bill. This log shall be maintained on-site for a period of at least two years from initiating operation.

MMGHG-2: SUBMIT WRITTEN DECLARATION IF RECYCLED WATER IS NOT AVAILABLE

The facility operator is required to use their best efforts submit a written declaration with the application for a Permit to Construct for the SOx control equipment, to be signed by an official of the water purveyor indicating the reason(s) why recycled water cannot be supplied to the project.

WATER DEMAND IMPACTS

IMPACT SUMMARY OF MITIGATION MEASURES HWQ-1 to HWQ-2: Because some SOx control equipment can utilize a substantial amount of water, significant adverse impacts associated with water demand are expected from the proposed project during operation. Because there are significant adverse potable water demand impacts from the proposed project, the PEA must describe feasible measures which could minimize the significant adverse impacts. The following mitigation measures are intended to minimize the amount of potable water demand. No feasible mitigation measures have been identified to reduce the potable water demand to a level of insignificance.

MITIGATION MEASURES: The following water demand mitigation measures are required for each of the affected facilities.

HWQ-1 When SOx control equipment is installed and water is required for its operation, the facility operator is required to use recycled water, if available, to satisfy the water demand for the SOx control equipment.

HWQ-2 In the event that recycled water cannot be delivered to the affected facility, the facility operator is required to submit a written declaration with the application for a Permit to Construct for the SOx control equipment, to be signed by an official of the water purveyor indicating the reason(s) why recycled water cannot be supplied to the project.

IMPLEMENTING PARTIES: The SCAQMD's Governing Board finds that implementing the mitigation measures HWQ-1 through HWQ-2 is the responsibility of the owner, operator, or agent of each affected facility who submits a permit application to comply with the proposed project.

MONITORING AGENCY: The SCAQMD's Governing Board finds that through its discretionary authority to issue and enforce permits for this project, the SCAQMD will ensure compliance with mitigation measures HWQ-1 through HWQ-2. Mitigation monitoring and reporting will be accomplished as follows:

MMHWQ-1: USE RECYCLED WATER, IF AVAILABLE, FOR SOX CONTROL EQUIPMENT THAT REQUIRES WATER FOR ITS OPERATION

At the time of submitting an application for a Permit to Construct for SOx control equipment that requires water for its operation, each facility operator shall submit a copy of a Memorandum of Understanding agreement reached between the facility operator and the recycled water supplier or purveyor that indicates recycled water will be used to supply water to the SOx control equipment. Once the SOx control equipment becomes operational, on a monthly basis, each facility operator will record the amount of recycled water supplied to the SOx control equipment from the recycled water bill. This log shall be maintained on-site for a period of at least two years from initiating operation.

MMHWQ-2: SUBMIT WRITTEN DECLARATION IF RECYCLED WATER IS NOT AVAILABLE

The facility operator is required to submit a written declaration with the application for a Permit to Construct for the SOx control equipment, to be signed by an official of the water purveyor indicating the reason(s) why recycled water cannot be supplied to the project.

CONCLUSION

Based on a "worst-case" analysis, the potential adverse construction air quality impacts, GHG impacts, and water demand impacts from the adoption and implementation of the proposed project are considered significant and unavoidable. Although feasible mitigation measures have been identified that would reduce these impacts associated with the proposed project, they are not sufficient to reduce the impacts to insignificance. Further, although implementing Alternative B would reduce GHG and potable water demand impacts to less than significant, Alternative B does not achieve the project objectives as well as the proposed project. As a result, no other feasible mitigation measures or project alternatives have been identified that would further reduce these impacts while still achieving the overall objectives of the proposed project.

Table 1
Mitigation, Monitoring and Reporting Plan for Each Affected Facility Operator

Mitigation Measure/Implementation Requirement	Party Responsible for Implementing Mitigation	Monitoring Action	1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase
AQ-1/ Schedule truck deliveries of over-sized equipment and materials for non-peak a.m. and p.m. periods (i.e., avoid deliveries between 7:00 a.m. – 8:00 a.m. and 4:30 p.m. – 5:30 p.m. periods), except for time-sensitive materials during construction activities.	Each Affected Facility Operator	Maintain records of the date and time of each delivery of over-sized equipment and materials during construction activities.	1. SCAQMD 2. SCAQMD 3. Daily during all construction phases
AQ-1/ Limit access to and from the construction site.	Each Affected Facility Operator	Submit plot plan to SCAQMD that indicates access points to and from the construction site. Maintain records documenting that all construction contractors and subcontractors have been directed to use only specified access points.	1. SCAQMD 2. SCAQMD 3. Prior to the start of construction
AQ-1/ Provide sufficient parking on the facility site or other local site to accommodate all the construction employees, and do not permit on-street parking.	Each Affected Facility Operator	Submit plot plan to SCAQMD that indicates location(s) of construction employee parking and number of parking spaces available. Maintain records that all construction contractors and subcontractors have been directed to park only in designated areas and are not permitted to use on-street parking.	1. SCAQMD 2. SCAQMD 3. Prior to the start of construction

Table 1 (continued)
Mitigation, Monitoring and Reporting Plan for Each Affected Facility Operator

Mitigation Measure/Implementation Requirement	Party Responsible for Implementing Mitigation	Monitoring Action	1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase
AQ-1/ Schedule construction delivery materials to occur during off-peak periods (i.e. from 8:30 a.m. until 4:00 p.m.) and/or after 5:30 p.m. and before 7:00 a.m., except for time-sensitive materials.	Each Affected Facility Operator	Maintain records of the date and time of each construction material delivery.	1. SCAQMD 2. SCAQMD 3. Daily during all construction phases
AQ-1/ Record number of construction personnel on-site.	Each Affected Facility Operator	Maintain records of number of construction personnel on-site.	1. SCAQMD 2. SCAQMD 3. Daily during all construction phases
AQ-1/ Record number of construction delivery trucks and haul trucks.	Each Affected Facility Operator	Maintain records of number of construction delivery trucks and haul trucks entering the facility site.	1. SCAQMD 2. SCAQMD 3. Daily during all construction phases
AQ-2/ Suspend use of construction equipment during first stage smog alert or greater.	Each Affected Facility Operator	Maintain records of date and time of each first stage smog alert or greater.	1. SCAQMD 2. SCAQMD 3. Per first stage smog alert or greater
AQ-3/ Notify vendors and contractors that truck and equipment operators are prohibited from idling longer than five minutes.	Each Affected Facility Operator	Prepare standard notification letter that explains idling limitation during deliveries and provide copy to all vendors. Post signs on-site.	1. SCAQMD 2. SCAQMD 3. At time purchase order is issued or contract is signed

Table 1 (continued)
Mitigation, Monitoring and Reporting Plan for Each Affected Facility Operator

Mitigation Measure/Implementation Requirement	Party Responsible for Implementing Mitigation	Monitoring Action	1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase
AQ-4/ Identify on-site mobile construction equipment that will use electricity or alternate fuels.	Each Affected Facility Operator	Maintain on-site mobile construction equipment records as follows: 1. equipment ID; 2. equipment type; 3. equipment manufacturer/ model; 4. engine horsepower rating; and, 5. power source/fuel type.	1. SCAQMD 2. SCAQMD 3. Daily during all construction phases
AQ-4/ Restrict the number of personal and company vehicles entering the facility site beyond the parking lots.	Each Affected Facility Operator	Maintain records of number of personal and facility-owned or operated vehicles entering the facility site. Each affected facility operator will restrict drive in authorization for contractors, to only those with specific permission.	1. SCAQMD 2. SCAQMD 3. Daily during all construction phases
AQ-5/ Identify construction equipment that will undergo retarding of diesel engine timing for the purpose of reducing emissions.	Each Affected Facility Operator	Submit to SCAQMD a letter that identifies the construction equipment that will undergo retarding of diesel engine timing as follows: 1. equipment ID; 2. equipment type; 3. equipment; 4. manufacturer/model; 5. engine horse-power rating; and, 6. power source/fuel type.	1. SCAQMD 2. SCAQMD 3. Submit letter to SCAQMD prior to scheduled use in the field and quarterly thereafter during all construction phases

Table 1 (continued)
Mitigation, Monitoring and Reporting Plan for Each Affected Facility Operator

Mitigation Measure/Implementation Requirement	Party Responsible for Implementing Mitigation	Monitoring Action	1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase
AQ-5/ Schedule periodic maintenance activities for all vehicle and construction equipment, including regular tune-ups and retard diesel engine timing.	Each Affected Facility Operator	Maintain records of maintenance activities for all vehicle and construction equipment.	1. SCAQMD 2. SCAQMD 3. Daily during all construction phases
AQ-6/ Use electric welders during construction activities where existing infrastructure to provide access to electricity is available.	Each Affected Facility Operator	Submit to SCAQMD a site plan that identifies the construction areas within the facility site where electricity is not available.	1. SCAQMD 2. SCAQMD 3. Prior to scheduled use in the field
AQ-6/ Identify diesel and gasoline welders used during construction.	Each Affected Facility Operator	Maintain records of diesel and gasoline welders used during construction that specify the following: 1. equipment ID; 2. welder type; 3. manufacturer and model number; 4. date, time and duration of operation; 5. location within the facility site where operated; and, 6. amount and type of fuel used (applies to non-electric welders).	1. SCAQMD 2. SCAQMD 3. Daily during all construction phases

Table 1 (continued)
Mitigation, Monitoring and Reporting Plan for Each Affected Facility Operator

Mitigation Measure/Implementation Requirement	Party Responsible for Implementing Mitigation	Monitoring Action	1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase
AQ-7/ Use on-site electricity during construction instead of temporary power generators where existing infrastructure to provide access to electricity is available.	Each Affected Facility Operator	Submit to SCAQMD a site plan that identifies the construction areas within the facility site where electricity is not available.	1. SCAQMD 2. SCAQMD 3. Prior to scheduled use in the field
AQ-7/ Identify temporary diesel power generators used, the equipment rating, the date, time and duration of operation, and the location within the facility site where operated.	Each Affected Facility Operator	Maintain records of temporary power generators used during construction by identifying each unit as follows: 1. equipment ID; 2. generator type; 3. equipment manufacturer and model; 4. engine horsepower rating; 5. date on-site and hours of operation; 6. type and amount of fuel used; and, 7. equipment location.	1. SCAQMD 2. SCAQMD 3. Weekly during all construction phases

Table 1 (continued)
Mitigation, Monitoring and Reporting Plan for Each Affected Facility Operator

Mitigation Measure/Implementation Requirement	Party Responsible for Implementing Mitigation	Monitoring Action	1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase
AQ-8/ Evaluate feasibility of retrofitting large (e.g., 50 hp or greater) sized construction equipment. Verify that each diesel engine meets the highest tier, as applicable, of the California Emission Standards for Off-Road Compression-Ignition Engines or that such an engine is not available. Verify that each construction equipment diesel engine that does not meet any tier standards, is equipped with a diesel particulate filter, unless certified by engine manufacturers that the use of such devices is not practical for specific engine types.	Each Affected Facility Operator	Submit a list to SCAQMD of all large off-road construction equipment that specifies: 1. equipment ID; 2. equipment description/ type; 3. manufacturer and model number; 4. engine horsepower rating; 5. engine emission certification; 6. equipment is retrofitted with a diesel particulate filter, if not certified to Tier 1 or better and documentation is provided that a Tier 1 or better engine is not available; and, 7. retrofit method or reason why the equipment will not be retrofitted.	1. SCAQMD 2. SCAQMD 3. Prior to scheduled use in the field and quarterly thereafter during all construction phases
AQ-8/ Equip diesel construction engines 50 hp or above, scheduled to operate one month or greater, that do not meet, at a minimum, California Tier 1 standards, with diesel particulate filters.	Each Affected Facility Operator	Submit a list to SCAQMD of all diesel-fueled equipment rated at 50 hp that do not meet California Tier 1 standards, that specifies: 1) equipment ID; 2) equipment description/type; 3) manufacturer/model; 4) engine horsepower rating; and, 5) a statement that the engine will be equipped with a particulate filter or a statement documenting why use of a diesel particulate filter is not practical.	1. SCAQMD 2. SCAQMD 3. Prior to scheduled use in the field and quarterly thereafter during all construction phases

Table 1 (concluded)
Mitigation, Monitoring and Reporting Plan for Each Affected Facility Operator

Mitigation Measure/Implementation Requirement	Party Responsible for Implementing Mitigation	Monitoring Action	1. Enforcement Agency 2. Monitoring Agency 3. Monitoring Phase
GHG-1 & HWQ-1/ Supply recycled water to SOx control equipment, if water is required for its operation.	Each Affected Facility Operator	Submit a copy of a Memorandum of Understanding agreement reached between the facility operator and the recycled water supplier or purveyor that indicates recycled water will be used to supply water to the SOx control equipment	1. SCAQMD 2. SCAQMD 3. At the time of submitting an application for a Permit to Construct for SOx control equipment that requires water for its operation
GHG-1 & HWQ-1/ Use recycled water to operate SOx control equipment, if water is required for its operation.	Each Affected Facility Operator	Maintain records of the amount of recycled water supplied to the SOx control equipment from the water bill. This log shall be maintained on-site for a period of at least two years from initiating operation.	1. SCAQMD 2. SCAQMD 3. Monthly, once SOx control equipment becomes operational.
GHG-2 & HWQ-2/ Notify SCAQMD if recycled water cannot be supplied to the facility for operation of the SOx control equipment	Each Affected Facility Operator	Submit a written declaration to be signed by an official of the water purveyor indicating the reason(s) why recycled water cannot be supplied to the project.	1. SCAQMD 2. SCAQMD 3. At the time the application for a Permit to Construct for the SOx control equipment is submitted.

Table 2
Off-Road Construction Equipment List

Equipment ID	Type	Manufacturer	Model	Engine Rating (hp)	To What Tier Is Equipment Certified?	Modifications Made	Date(s) and Hour(s) Operated

(Adopted October 15, 1993)(Amended March 10, 1995)(Amended December 7, 1995)
(Amended July 12, 1996)(Amended February 14, 1997)
(Amended May 11, 2001)(Amended January 7, 2005)
(Draft October 28, 2010)

PROPOSED AMENDED RULE 2002. ALLOCATIONS FOR OXIDES OF NITROGEN (NO_X) AND OXIDES OF SULFUR (SO_X)

(a) Purpose

The purpose of this rule is to establish the methodology for calculating facility Allocations and adjustments to RTC holdings for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx).

(b) RECLAIM Allocations

(1) RECLAIM Allocations will begin in 1994.

(2) An annual Allocation will be assigned to each facility for each compliance year starting from 1994.

(3) Allocations and RTC holdings for each year after 2011 are equal to the 2011 Allocation and RTC holdings, as determined pursuant to subdivision (f) unless, as part of the AQMP process, and pursuant to Rule 2015 (b)(1), (b)(3), (b)(4), or (c), the District Governing Board determines that additional reductions are necessary to meet air quality standards, taking into consideration the current and projected state of technology available and cost-effectiveness to achieve further emission reductions.

(4) The Facility Permit or relevant sections thereof shall be re-issued at the beginning of each compliance year to include allocations determined pursuant to subdivisions (c), (d), (e), and (f) and any RECLAIM Trading Credits (RTC) obtained pursuant to Rule 2007 - Trading Requirements for the next fifteen years thereafter and any other modifications approved or required by the Executive Officer.

(c) Establishment of Starting Allocations

(1) The starting Allocation for RECLAIM NO_X and SO_X facilities initially permitted by the District prior to October 15, 1993, shall be determined by the Executive Officer utilizing the following methodology:

Starting Allocation=$\Sigma[A \times B_1]$+ERCs+External Offsets

where

A = the throughput for each NO_X and SO_X source or process unit in the facility for the maximum throughput year from 1989 to 1992 inclusive; and

B_1 = the applicable starting emission factor for the subject source or process unit as specified in Table 1 or Table 2

(2) (A) Use of 1992 data is subject to verification and revision by the Executive Officer or designee to assure validity and accuracy.

(B) The maximum throughput year will be determined by the Executive Officer or designee from throughput data reported through annual emissions reports submitted pursuant to Rule 301 - Permit Fees, or may be designated by the permit holder prior to issuance of the Facility Permit.

(C) To determine the applicable starting emission factor in Table 1 or Table 2, the Executive Officer or designee will categorize the equipment at each facility based on information relative to hours of operation, equipment size, heating capacity, and permit information submitted pursuant to Rule 201 - Permit to Construct, and other relevant parameters as determined by the Executive Officer or designee. No information used for purposes of this subparagraph may be inconsistent with any information or statement previously submitted on behalf of the facility to the District, including but not limited to information and statements previously submitted pursuant to Rule 301 - Permit Fees, unless the facility can demonstrate, by clear and convincing documentation, that such information or statement was inaccurate.

(D) Throughput associated with each piece of equipment or NO_X or SO_X source will be multiplied by the starting emission factors specified in Table 1 or Table 2. If a lower emission factor was utilized for a given piece of equipment or NO_X or SO_X source pursuant to Rule 301 - Permit Fees, than the factor in Table 1 or Table 2, the lower factor will be used for determining that portion of the Allocation.

(E) Fuel heating values may be used to convert throughput records into the appropriate units for determining Allocations based on the emission factors in Table 1 or Table 2. If a different unit basis than set forth in Tables 1 and 2 is needed for emissions calculations, the Executive Officer shall use a default heating value to determine source emissions, unless the Facility Permit holder can demonstrate with substantial evidence to the Executive Officer that a different value should be used to determine emissions from that source.

(3) All NO_X and SO_X ERCs generated at the facility and held by a RECLAIM Facility Permit holder shall be reissued as RTCs. RECLAIM facilities will have these RTCs added to their starting Allocations. RTCs generated from the conversion of ERCs shall have a zero rate of reduction for the year 1994 through the year 2000. Such RTCs shall have a cumulative rate of reduction for the years 2001, 2002, and 2003, equal to the percentage inventory adjustment factor applied to 2003 Allocations pursuant to paragraph (e)(1) of this rule and shall have a rate of reduction for compliance year 2004 and subsequent years determined pursuant to paragraph (f)(1) of this rule.

(4) Non-RECLAIM facilities may elect to have their ERCs converted to RTCs and listed on the RTC Listing maintained by the Executive Officer or designee pursuant to Rule 2007 - Trading Requirements, so long as the written request is filed before July 1, 1994. Such RTCs will be assigned to the trading zone in which the generating facility is located. RTCs generated from the conversion of ERCs shall have a zero rate of reduction for the year 1994 through the year 2000. Such RTCs shall have a cumulative rate of reduction for the years, 2001, 2002, and 2003, equal to the percentage inventory adjustment factor applied to 2003 Allocations pursuant to paragraph (e)(1) of this rule.

(5) External offsets provided pursuant to Regulation XIII - New Source Review, not including any offsets in excess of a 1 to 1 ratio, will be added to the starting Allocation pursuant to paragraph (c)(1) provided:

(A) The offsets were not received from either the Community Bank or the Priority Reserve.

(B) External offsets will only be added to the starting Allocation to the extent that the Facility Permit holder demonstrates that they have not already been included in the starting Allocation or as an

ERC. RTCs issued for external offsets shall not include any offsets in excess of a 1 to 1 ratio required under Regulation XIII - New Source Review.

(C) RTCs generated from the conversion of external offsets shall have a zero rate of reduction for the year 1994 through the year 2000. These RTCs shall have a cumulative rate of reduction for the years 2001, 2002, and 2003, equal to the percentage inventory adjustment factor applied to 2003 Allocations pursuant to paragraph (e)(1) of this rule, and for compliance year 2004 and subsequent years allocations shall be determined pursuant to paragraph (f)(1) of this rule. The rate of reduction for the year 2001 through year 2003 shall not be applied to new facilities initially totally permitted on or after January 7, 2005.

(D) Existing facilities with units that have Permits to Construct issued pursuant to Regulation II - Permits, dated on or after January 1, 1992, or existing facilities which have, between January 1, 1992 and October 15, 1993, installed air pollution control equipment that was exempt from offset requirements pursuant to Rule 1304 (a)(5), shall have their starting Allocations increased by the total external offsets provided, or the amount that would have been offset if the exemption had not applied.

(E) Existing facilities with units whose reported emissions are below capacity due to phased construction, and/or where the Permit to Operate issued pursuant to Regulation II - Permits, was issued after January 1, 1992, shall have their starting Allocations increased by the total external offsets provided.

(6) If a Facility Permit holder can demonstrate that its 1994 Allocation is less than the 1992 emissions reported pursuant to Rule 301 - Permit Fees, and that the facility was, in 1992, operating in compliance with all applicable District rules in effect as of December 31, 1993, the facility's starting Allocation will be equal to the 1992 reported emissions.

(7) For new facilities initially totally permitted on or after January 1, 1993 but prior to October 15, 1993, the starting Allocation shall be equal to the external offsets provided by the facility to offset emission increases at the facility pursuant to Regulation XIII - New Source Review, not including any offsets in excess of a 1 to 1 ratio.

(8) The Allocation for new facilities initially totally permitted on and after

October 15, 1993, shall be equal to the total RTCs provided by the facility to offset emission increases at the facility pursuant to Rule 2005-New Source Review for RECLAIM.

(9) The starting Allocation for existing facilities which enter the RECLAIM program pursuant to Rule 2001 - Applicability, shall be determined by the methodology in paragraph (c)(1) of this rule. The most recent two years reported emission fee data filed pursuant to Rule 301 - Permit Fees, may be used if 1989 through 1992 emission fee data is not available. For facilities lacking reported emission fee data, the Allocation shall be equal to the external offsets provided pursuant to Regulation XIII - New Source Review, not including any offsets in excess of a 1 to 1 ratio. The Allocation shall not include any emission offsets received from either the Community Bank or the Priority Reserve.

(10) A facility may not receive more than one set of Allocations.

(11) A facility that is no longer holding a valid District permit on January 1, 1994 will not receive an Allocation, but may, if authorized by Regulation XIII, apply for ERCs.

(12) Clean Fuel Adjustment to Starting Allocation

Any refiner who is required to make modifications to comply with CARB Phase II reformulated gasoline production (California Code of Regulations, Title 13, Sections 2250, 2251.5, 2252, 2260, 2261, 2262, 2262.2, 2262.3, 2262.4, 2262.5, 2262.6, 2262.7, 2263, 2264, 2266, 2267, 2268, 2269, 2270, and 2271) or federal requirements (Federal Clean Air Act, Title II, Part A, Section 211; 42 U.S.C. Section 7545) may receive (an) increase(s) in his Allocations except to the extent that there is an increase in maximum rating of the new or modified equipment. Each facility requesting an increase to Allocations shall submit an application for permit amendment specifying the necessary modifications and tentative schedule for completion. The Facility Permit holder shall establish the amount of emission increases resulting from the reformulated gasoline modifications for each year in which the increase in Allocations is requested. The increase to its Allocations will be issued contemporaneously with the modification according to a schedule approved by the Executive Officer or designee (i.e., 1994 through 1997 depending on the refinery). Each increase to the Allocations shall be equal to the increased emissions resulting from the modifications solely to comply with the state or federal reformulated gasoline requirements at

the refinery or facility producing hydrogen for reformulated gasoline production, and shall be established according to present and future compliance limits in current District rules or permits. Allocation increases for each refiner pursuant to this paragraph, shall not exceed 5 percent of the refiner's total starting Allocation, unless any refiner emits less than 0.0135 tons of NO_X per thousand barrels of crude processed, in which case the Allocation increases for such refiner shall not exceed 20 percent of that refiner's starting Allocation. The emissions per amount of crude processed will be determined on the basis of information reported to the District pursuant to Rule 301 - Permit Fees, for the same calendar year as the facility's peak activity year for their NO_X starting Allocation.

(d) Establishment of Year 2000 Allocations

(1) (A) The year 2000 Allocations for RECLAIM NO_X and SO_X facilities will be determined by the Executive Officer or designee utilizing the following methodology:

$$\text{Year 2000 Allocation} = \Sigma [A \times B_2] + \text{RTCs created from ERCs} + \text{External Offsets},$$

where

A = the throughput for each NO_X or SO_X source or process unit in the facility for the maximum throughput year from 1987 to 1992, inclusive, as reported pursuant to Rule 301 - Permit Fees; and

B_2 = the applicable Tier I year Allocation emission factor for the subject source or process unit, as specified in Table 1 or Table 2.

(B) The maximum throughput year will be determined by the Executive Officer or designee from throughput data reported through annual emissions reports pursuant to Rule 301 - Permit Fees, or may be designated by the permit holder prior to issuance of the Facility Permit.

(C) To determine the applicable emission factor in Table 1 or Table 2, the Executive Officer or designee will categorize the equipment at each facility based on information on hours of operation, equipment size, heating capacity, and permit information submitted pursuant to Rule 201 - Permit to Construct, and other parameters as determined by the Executive Officer or designee. No information used for purposes of this

subparagraph may be inconsistent with any information or statement previously submitted on behalf of the facility to the District including but not limited to information and statements previously submitted pursuant to Rule 301 - Permit Fees, unless the facility can demonstrate, by clear and convincing documentation, that such information or statement was inaccurate.

(D) Throughput associated with each piece of equipment or NO_X or SO_X source will be multiplied by the Tier I emission factor specified in Table 1 or Table 2. If a factor lower than the factor in Table 1 or Table 2 was utilized for a given piece of equipment or NO_X or SO_X source pursuant to Rule 301, the lower factor will be used for determining that portion of the Allocation.

(E) The fuel heating value may be considered in determining Allocations and will be set to 1.0 unless the Facility Permit holder demonstrates that it should receive a different value.

(F) The year 2000 Allocation is the sum of the resulting products for each piece of equipment or NO_X or SO_X source multiplied by any inventory adjustment pursuant to paragraph (d)(4) of this rule.

(2) For facilities existing prior to October 15, 1993 which enter RECLAIM after October 15, 1993, the year 2000 Allocation will be determined according to paragraph (d)(1). The most recent two years reported emission fee data filed pursuant to Rule 301 - Permit Fees, may be used if 1989 through 1992 emission fee data is not available. For facilities lacking reported emission fee data, the Allocation shall be equal to their external offsets provided pursuant to Regulation XIII - New Source Review, not including any offsets in excess of a 1 to 1 ratio.

(3) No facility shall have a year 2000 Allocation [calculated pursuant to subdivision (d)] greater than the starting Allocation [calculated pursuant to subdivision (c)].

(4) If the sum of all RECLAIM facilities' year 2000 Allocations differs from the year 2000 projected inventory for these sources under the 1991 AQMP, the Executive Officer or designee will establish a percentage inventory adjustment factor that will be applied to adjust each facility's year 2000 Allocation. The inventory adjustment will not

apply to RTCs generated from ERCs or external offsets.

(e) Allocations for the Year 2003

(1) The 2003 Allocations will be determined by the Executive Officer or designee applying a percentage inventory adjustment to reduce each facility's unadjusted year 2000 Allocation so that the sum of all RECLAIM facilities' 2003 Allocations will equal the 1991 AQMP projected inventory for RECLAIM sources for the year 2003, corrected based on actual facility data reviewed for purposes of issuing Facility Permits and to reflect the highest year of actual Basin-wide economic activity for RECLAIM sources considered as a whole during the years 1987 through 1992.

(2) No facility shall have a 2003 Allocation (calculated pursuant this subdivision) greater than the year 2000 Allocation [calculated pursuant to subdivision (d)].

(f) Annual Allocations for NO_X and SO_x and Adjustments to ~~NOx~~ RTC Holdings

(1) Allocations for the years between 1994 and 2000, for RECLAIM NO_X and SO_X facilities shall be determined by a straight line rate of reduction between the starting Allocation and the year 2000 Allocation. For the years 2001 and 2002, the Allocations shall be determined by a straight line rate of reduction between the year 2000 and year 2003 Allocations. ~~SOx Allocations for each year after 2003 are equal to the facility's 2003 Allocations, as determined pursuant to subdivision (e).~~ NOx Allocations for 2004, 2005, and 2006 and SOx Allocations for 2004 through 201~~1~~2 are equal to the facility's 2003 Allocation, as determined pursuant to subdivision (e). NOx RTC Allocations and holdings subsequent to the year 2006 and SOx Allocations and holdings subsequent to the year 201~~1~~2 shall be adjusted to the nearest pound as follows:

(A) The Executive Officer will adjust NOx RTC holdings, as of January 7, 2005 for compliance years 2007 and thereafter by multiplying the amount of RTC holdings by the following adjustment factors for the relevant compliance year, to obtain tradable/usable and non-tradable/non-usable holdings:

Compliance	Tradable/Usable NOx RTC Adjustment	Non-t~~T~~radable/ Non-u~~U~~sable NOx

Year	Factor	RTC Adjustment Factor
2007	0.883	0
2008	0.856	0.027
2009	0.829	0.054
2010	0.802	0.081
2011 and after	0.775	0.108

RTCs designated as non-tradable/non-usable pursuant to this subparagraph shall be held, but shall not be used or traded. The adjustment factors in this subparagraph are subject to change pursuant to paragraph (i)(5).

(B) Commencing on January 1, 2008 with NOx RTC prices averaged from January 1, 2007 through December 31, 2007, the Executive Officer will calculate the 12-month rolling average RTC price for all trades for the current compliance year. The Executive Officer will update the 12-month rolling average once per month. The computation of the rolling average prices will not include RTC transactions reported at no price or ~~and~~ RTC swap transactions.

(C) Notwithstanding the requirements of non-tradable/non-usable credits specified in subparagraph (f)(1)(A), in the event that the NOx RTC prices exceed $15,000 per ton based on the 12-month rolling average calculated pursuant to subparagraph (f)(1)(B), the Executive Officer will report to the Governing Board. If the Governing Board finds that the 12-month rolling average RTC price exceeds $15,000 per ton, then the incremental NOx reductions as specified in subparagraph (f)(1)(D) shall be converted to T~~t~~radable/U~~u~~sable NOx RTCs upon Governing Board concurrence. The Executive Officer's report to the Board will be made at a public hearing at the earliest possible regularly scheduled Board Meeting, but no more than 60 days from Executive Officer determination.

(D) The incremental NOx RTCs restored shall be the difference between the N~~n~~on-tradable/N~~n~~on-usable A~~a~~djustment F~~f~~actors, as specified in subparagraph (f)(1)(A), of the current compliance year and the most recent prior year the adjustment factor was implemented.

(E) RTC conversion pursuant to subparagraph (f)(1)(C) shall only

occur in the compliance year in which Cycle 1 facilities are operating.

(F) Notwithstanding the adjustment factors required pursuant to subparagraph (f)(1)(A), beginning with the following December and each year thereafter that the Governing Board finds the $15,000 per ton NOx RTC price is exceeded pursuant to subparagraph (f)(1)(C), the Executive Officer will publish the applicable adjustment factors for the next compliance year beginning January 1. The adjustment factors will be published at a public hearing during a regularly scheduled Board Meeting. The adjustment factors will be determined as follows:

(i) If the 12-month rolling average falls below $15,000 per ton for at least 6 consecutive months, then the emission adjustment factors for the following compliance year shall equal the next more stringent adjustment factors listed in subparagraph (f)(1)(A) than the factors currently in effect; otherwise;

(ii) The next compliance year adjustment factors shall equal the compliance year adjustment factors currently in place.

The Executive Officer need no longer comply with the annual public hearing requirement once the adjustment factors for the 2010 compliance year have been implemented for a 12-month period.

(G) The NOx RTC adjustment factors for compliance years 2008 through 2010 shall not be submitted for inclusion into the State Implementation Plan until the adjustments have been in effect for one full compliance year. The 2011 NOx RTC adjustment factors shall not be submitted for inclusion into the State Implementation Plan until 12-months after the adjustments have been in effect for one full compliance year.

(H) NOx Allocations for facilities that enter RECLAIM after January 7, 2005 for compliance years 2007 and after shall be determined by applying the Tradable/Usable and Non-t~~T~~radable/Non-u~~U~~sable NOx RTC Adjustment Factors under subparagraph (f)(1)(A) to the facility's Compliance Year 2006 Allocation.

(I) SOx RTC Holdings as of (*date of adoption*) for compliance years 2013~~2~~ and after shall be adjusted to achieve an overall reduction in the following amounts:

Compliance Year	Minimum emission reductions (lbs.)
~~2012~~	~~1,095,000~~
2013	2,190,000
2014	2,920,000 ~~3,285,000~~
2015	2,920,000 ~~3,518,600~~
2016	2,920,000 ~~3,752,200~~
2017	3,650,000 ~~3,985,800~~
2018	3,650,000 ~~4,219,400~~
2019 and after	4,161,000 ~~4,453,000~~

(J) The Executive Officer shall determine a Tradable/usable SOx RTC Adjustment Factor~~s~~ for each compliance year~~s~~ after 201~~2~~1~~1~~ as follows:

$$F_{\text{compliance year i}} = 1 - [X_i / (A_i + B_i + C_i)]$$

Where:

$F_{\text{compliance year i}}$ = Tradable/usable SOx RTC Adjustment Factor for compliance year i starting with 2013~~2~~

A_i = Total SOx RTCs for compliance year i held as of (rule adoption date) by all RTC holders, except those listed in Table 5

B_i = Total SOx RTCs for compliance year i credited to any facilities listed in Table 5 between August 29, 2009 and (rule adoption date), and not includes in C_i

C_i = Total SOx RTCs held as of (rule adoption date) by facilities listed in Table 5 for compliance year i in excess of ~~initial~~ allocations as determined pursuant to subdivision (e).

X_i = Amount to be reduced for compliance year i starting with 2013~~2~~ as listed in subparagraph (f)(1)(I).

(K) The Executive Officer shall determine Non-tradable/N~~n~~on-usable SOx RTC Adjustment Factors for ~~each~~ compliance years ~~after 2014~~ 2017 through 2019 as follows:

$$N_{\text{compliance year j}} = F_{\text{compliance year 2016}~~4~~} - F_{\text{compliance year j}}$$

Where:

$N_{\text{compliance year j}}$ = Non-tradable/N~~n~~on-usable SOx RTC Adjustment Factor for compliance year j

$F_{\text{compliance year j}}$ = Tradable/U~~u~~sable SOx RTC Adjustment

Factor for compliance year j as determined pursuant to subparagraph (f)(1)(J~~K~~)

j = 2017~~5~~ through 2019

$F_{\text{compliance year 2016}}$~~4~~ = Tradable/usable SOx RTC Adjustment Factor for compliance year 2016~~4~~ as determined pursuant to subparagraph (f)(1)(J~~K~~)

Non-tradable/N~~n~~on-usable SOx RTC Adjustment Factors for compliance years ~~2012,~~ 2013 through 2016, 2014, 2020, and all years after 2020 shall be 0.0.

(L) The Executive Officer shall adjust the SOx RTC holdings as of (*date of adoption*) for compliance years 2013~~2~~ and after as follows:

(i) Apply the Tradable/U~~u~~sable SOx RTC A~~a~~djustment F~~f~~actor ($F_{\text{compliance year i}}$) and Non-tradable/N~~n~~on-usable SOx RTC Adjustment Factor~~s~~ ($N_{\text{compliance year j}}$) for the corresponding compliance year as published under subparagraph (f)(1)(M) to SOx RTC holdings held by any RTC holder except those listed in Table 5;

(ii) Apply no adjustment to SOx RTC holdings that are held as of August 29~~.~~, 2009 by a facility listed in Table 5, and that are less than or equal to the facility's~~s~~ allocations as determined pursuant to subdivision (e), and that were not credited between August 29, 2009 and (rule adoption date);

(iii) Apply the Tradable/U~~u~~sable SOx RTC A~~a~~djustment F~~f~~actor ($F_{\text{compliance year i}}$) and Non-tradable/N~~n~~on-usable SOx RTC Adjustment Factor~~s~~ ($N_{\text{compliance year j}}$) for the corresponding compliance year as published under subparagraph (f)(1)(M) to any SOx RTC holding as of (rule adoption date), that is held by a facility that is listed in Table 5, and that is over the facility's ~~initial~~ allocation~~s~~ as determined pursuant to subdivision (e); and

(iv) Apply the Tradable/U~~u~~sable SOx RTC A~~a~~djustment F~~f~~actor ($F_{compliance\ year\ i}$) and Non-tradable/non-usable SOx RTC Adjustment Factor~~s~~ ($N_{compliance\ year\ j}$) for the corresponding compliance year as published under subparagraph (f)(1)(M) to any SOx RTC holding that was acquired between August 29, 2009 and (rule adoption date) by a facility that is listed in Table 5.

~~(v)~~ No SOx RTC holding shall be subject to the SOx RTC adjustments as published under subparagraph (f)(1)(M) more than once.

(M) The Executive Officer shall publish the SOx RTC Adjustment Factors determined according to subparagraphs (f)(1)(J) and (f)(1)(K) within 30 days after (*date of adoption*).

(N) Commencing on January 1, 2017~~5~~ and ending on February 1, 2020, the Executive Officer will calculate the 12-month rolling average SOx RTC price for all trades during the preceding 12 months for the current compliance year. The Executive Officer will update the 12-month rolling average once per month. The computation of the rolling average prices will not include RTC transactions reported at no price or ~~and as~~ RTC swap transactions.

(O) In the event that the SOx RTC prices exceed $50,000 per ton based on the 12-month rolling average calculated pursuant to subparagraph (f)(1)(N), the Executive Officer will report to the Governing Board at a duly noticed public hearing to be held no more than 60 days from Executive Officer determination. The Executive Officer will announce that determination on the SCAQMD website. At the public hearing, the Governing Board will decide whether or not to convert any portion of the Non-tradable/N~~n~~on-usable RTCs, as determined pursuant to subparagraphs (f)(1)(K) and (f)(1)(L), and how much to convert if any, to Tradable/U~~u~~sable RTCs. The portion of Non-tradable/N~~n~~on-usable RTCs available for conversion to Tradable/U~~u~~sable RTCs shall not include any portion of Non-tradable/N~~n~~on-usable RTCs that are designated for previous compliance years and has not already been converted by the Governing Board, or that has been otherwise included in the

State Implementation Plan pursuant to subparagraph (f)(1)(P).

(P) The Executive Officer will not submit the emission reductions obtained through subparagraph (f)(1)(I) for ~~commencing with~~ compliance years 2017~~5~~ ~~and~~ through 2019 for inclusion into the State Implementation Plan until the adjustments for the RTC Holdings have been in effect for one full compliance year.

(Q) SOx Allocations for compliance years 2013~~2~~ and after, for facilities that enter RECLAIM after *(date of adoption)* and for basic equipment listed in Table 4 shall be determined according to the BARCT level listed in Table 4 or the permitted emission limits, whichever is lower.

(R) By no later than July 1, 2012, SOx emissions at the exhaust of a Fluidized Catalytic Cracking Unit, as measured at the final stack venting gases originating from the facility's FCC Regenerator, including after the CO Boiler or any additional controls in the system following the regenerator (the final stack shall constitute the only exhaust gas compliance point within the FCCU facility), shall not exceed a concentration of 25 ppmv dry @ 0% oxygen on a 365-day rolling average. The numeric concentration-based limit does not apply during time periods in which SOx data are determined to be incorrect due to analyzer calibration or malfunction. For the purpose of demonstrating compliance with this limit, the operator of a FCCU shall commence the use of SOx reducing additives in the FCCU no later than July 1, 2011, unless the operator has an existing wet gas scrubber in operation at BARCT levels prior to (*date of adoption*) or can demonstrate to the Executive Officer that the FCCU will achieve this limit by using other control methods.

(2) New facilities initially totally permitted, on and after October 15, 1993, but prior to January 7, 2005, and entering the RECLAIM program after January 7, 2005 shall not have a rate of reduction until 2001. Reductions from 2001 to 2003, inclusive, shall be implemented pursuant to subdivision (e). New facilities initially totally permitted on or after January 7, 2005 using external offsets shall have a rate of reduction for such offsets pursuant to subparagraph (c)(5)(C). New facilities initially totally permitted on or after January 7, 2005 using RTCs shall have no rate of reduction for such RTCs, provided that

RTCs obtained have been adjusted according to paragraph (f)(1), as applicable. The Facility Permit for such facilities will require the Facility Permit holder to, at the commencement of each compliance year, hold RTCs equal to the amount of RTCs provided as offsets pursuant to Rule 2005.

(3) Increases to Allocations for permits issued for Clean Fuel adjustments pursuant to paragraph (c)(12), shall be added to each year's Allocation.

(g) High Employment/Low Emissions (HILO) Facility

The Executive Officer or designee will establish a HILO bank funded with the following maximum total annual emission Allocations:

(1) 91 tons per year of NO_X

(2) 91 tons per year of SO_X

(3) After January 1, 1997, new facilities may apply to the HILO bank in order to obtain non-tradable RTCs. Requests will be processed on a first-come, first-served basis, pending qualification.

(4) When credits are available, annual Allocations will be granted for the year of application and all subsequent years.

(5) HILO facilities receiving such Allocations from the HILO bank must verify their HILO status on an annual basis through their APEP report.

(6) Failure to qualify will result in all subsequent years' credits being returned to the HILO bank.

(7) Facilities failing to qualify for the HILO bank Allocations may reapply at any time during the next or subsequent compliance year when credits are available.

(h) Non-Tradable Allocation Credits

(1) Any existing RECLAIM facility with reported emissions pursuant to Rule 301 - Permit Fees, in either 1987, 1988, or 1993, greater than its starting Allocation, shall be assigned non-tradable credits for the first three years of the program which shall be determined according to the following methodology:

Non-tradable credit for NO_X and SO_X:

Year 1 = $(\Sigma [A \times B_1])$ - 1994 Allocation;

Where:

A = the throughput for each NO_X or SO_X source or process unit in the facility from the single maximum throughput year from 1987, 1988, or

1993; and

B_1	=	the applicable starting emission factor, as specified in Table 1 or Table 2.
Year 2	=	Year 1 non-tradable credits X 0.667
Year 3	=	Year 1 non-tradable credits X 0.333
Year 4 and subsequent years	=	Zero non-tradable credit.

(2) The use of non-tradable credits shall be subject to the following requirements:

(A) Non-tradable credits may only be used for an increase in throughput over that used to determine the facility's starting Allocation. Non-tradable credits may not be used for emissions increases associated with equipment modifications, change in feedstock or raw materials, or any other changes except increases in throughput. The Executive Officer or designee may impose Facility Permit conditions necessary to ensure compliance with this subparagraph.

(B) The use of activated non-tradable credits shall be subject to a non-tradable RTC mitigation fee, as specified in Rule 301 subdivision (n).

(C) In order to utilize non-tradable credits, the Facility Permit holder shall submit a request to the Executive Officer or designee in writing, including a demonstration that the use of the non-tradable credits complies with all requirements of this paragraph, pay any fees required pursuant to Rule 301 - Fees, and have received written approval from the Executive Officer or designee for their use. The Executive Officer or designee shall deny the request unless the Facility Permit holder demonstrates compliance with all requirements of this paragraph. The Executive Officer or designee shall, in writing, approve or deny the request within three business days of submittal of a complete request and notify the Facility Permit holder of the decision. If the request is denied, the Executive Officer or designee will refund the mitigation fee.

(D) In the event that a facility transfers any RTCs for the year in which non-tradable credits have been issued, the non-tradable credit Allocation shall be invalid, and is no longer available to the facility.

(i) RTC Reduction Exemption

(1) A facility may file an application for Executive Officer approval to be exempted from all or a portion of the requirements pursuant to subparagraph (f)(1)(A) with the exception of RTC holdings as of January 7, 2005 for compliance year 2007 and thereafter in excess of the initial allocation. For the purposes of this rule, initial allocation refers to the RTCs issued by the District to a facility upon entering the RECLAIM program. The application shall contain sufficient data to demonstrate to the satisfaction of the Executive Officer that the facility meets the following criteria:

(A) the facility has been in the program since the start of RECLAIM, or existed prior to 1994, but subsequently entered RECLAIM pursuant to Rule 2001 because facility emissions exceeded 4 tons per year;

(B) at least 99 percent of the facility's emissions reported for the most recent completed compliance year prior to the date of filing an application is from equipment not listed in Table 3 and the achieved emission rates for each and every piece of equipment at the facility is less than or equal to the 2000 (Tier I) Ending Emission Factor listed in Table 1 or the emission factor listed in Table 3, whichever is lower, for the corresponding equipment type;

(C) RTCs that were part of the total initial allocation for the facility have never been transferred or sold by the facility for year 2007 or later compliance years; and

(D) the cumulative NOx compliance costs incurred by the facility up to the submittal date of the application as specified in paragraph (i)(3) to comply with the RECLAIM Allocation as required under Rule 2004(b) and (d)(1) exceed the compliance costs that otherwise would have occurred to meet and maintain emission limits specified in Table 1 for each and every piece of equipment at the facility. The compliance costs shall be based on the following parameters:

(i) cost of controlling emissions using the parameters and procedures for determining total direct and indirect capital investment and total annual costs as specified in the most recent edition of the Control Cost Manual published by the U.S. EPA Office of Air Quality and Planning Standards, excluding control costs for any equipment listed in Table 3, if any;

(ii) realized and anticipated revenues and expenditures of the Facility Permit holder resulting from buying and selling any RTCs that are or were held by the facility where the contract of sale or purchase was executed prior to the date of application for exemption pursuant to paragraph (i)(1);

(iii) costs associated with compliance with the New Source Review provisions of Rule 2005, Rule 2012(c), or other applicable state or federal requirements shall not be included;

(iv) costs that result only in improving process efficiency or product quality, costs of projects that were initiated before the date the facility was subject to RECLAIM requirements, or legal costs or any other costs that do not directly reduce NOx emissions shall not be included; and

(v) any cost savings that resulted in implementing any NOx emissions strategy, such as fuel savings, increased production or sale; or

(2) A facility may file an application for Executive Officer approval to be exempted from all or a portion of the requirements pursuant to subparagraph (f)(1)(A) for the initial allocations portion of a facility's RTC holdings provided that the facility meets all of the following:

(A) The facility's starting and year 2000 Allocations were calculated using the same emission factors that are equal to or lower than the 2000 (Tier 1) emission factors listed in Table 1;

(B) Emission rate achieved for each source at the facility is less than or equal to the emission factors listed in Table 3 for the corresponding equipment type; and

(C) RTCs for 2007 or later compliance years for the facility have never been transferred or sold.

(3) A facility shall submit the applications specified pursuant to paragraphs

(i)(1) or (i)(2) no later than July 7, 2005 or between January 1 and March 31, 2006, pay the appropriate evaluation fee pursuant to Rule 306, and accept enforceable permit conditions to ensure compliance with the provisions of this subdivision, in order for the Executive Officer to approve the exemption. If approved, the facility's initial RTC allocation shall be designated as non-tradable and additional RTCs purchased above the initial allocation shall be subject to the RTC adjustments specified in subparagraph (f)(1)(A), as appropriate. The Executive Officer shall deny an application that is not filed within the time periods specified in this paragraph, lacks any information specified under paragraph (i)(7), or fails to demonstrate that it meets the requirements in paragraphs (i)(1) or (i)(2).

(4) Upon approval the exemption shall:

(A) be limited to the adjustment factors specified in subparagraph (f)(1)(A);

(B) begin the next compliance year following the exemption approval; and

(C) not apply to reductions resulting from future periodic BARCT review.

(5) RTC adjustments exempted pursuant to this subdivision shall be distributed proportionally among the remainder of the RTC holders and implemented two years from the compliance year of the applicable exemption and are subject to applicable paragraph (f)(1) provisions. Public notification of the distributed reductions shall occur at least one year prior to implementation.

(6) A Facility Permit holder has the right to appeal the denial of the exemption application to the Hearing Board in the same manner as a permit denial as specified in Health and Safety Code Section 42302.

(7) An application submitted to request an exemption from the RTCs reduction pursuant to paragraphs (i)(1) or (i)(2) shall include the following information.

(A) Detailed description of each project and itemized listing of how it relates to meeting the RECLAIM reduction requirements;

(B) Date of start and completion of each project listed in (A);

(C) Detailed calculations or emissions data demonstrating NOx emission reductions resulting from each project or combination of projects directly resulting in reductions. The emission levels achieved shall be based on actual CEMS data or source tests results;

(D) Itemized revenue and expenditures for each RTC trading activity since participation in the RECLAIM program;

(E) Itemized costs for each project and corresponding receipts or other equivalent documentation as approved by the Executive Officer for such expenditures; and

(F) Cost savings resulting from each project(s) (e.g. fuel savings, improved productivity, increased sales, etc.) and documentation of the values of such savings.

(8) A facility qualifying for exemption shall report as part of its Annual Permit Emission Program (APEP) report, submitted pursuant to Rule 2004(b)(4), whether or not emissions from equipment listed in Table 3, if any, remain less than or equal to 1 percent of the total facility emissions on an annual basis for the duration of the exemption. If the emissions exceed 1 percent, the facility shall be in violation of the rule for each and every day of the compliance year and the Executive Officer shall reduce the facility's initial allocation for the next compliance year to the emissions level specified for that year pursuant to subparagraph (f)(1)(A).

(9) A facility applying for exemption shall have 1 percent of its initial allocations subject to the requirements pursuant to subparagraph (f)(1)(A).

(10) Non-tradable RTC allocations designated pursuant to paragraph (i)(3) shall become tradable in the event the facility permanently ceases to operate.

Table 1

RECLAIM NO_X Emission Factors

Nitrogen Oxides Basic Equipment	Fuel	"Throughput" Units	Starting Ems Factor *	2000 (Tier I) Ending Ems Factor *
Afterburner (Direct Flame and Catalytic)	Natural Gas	mmcf	130.000	39.000
Afterburner (Direct Flame and Catalytic)	LPG, Propane, Butane	1000 Gal	RV	3.840
Afterburner (Direct Flame and Catalytic)	Diesel	1000 Gal	RV	5.700
Agr Chem-Nitric Acid	Process-Absrbr Tailgas/Nw	tons pure acid produced	RV	1.440
Agricultural Chem - Ammonia	Process	tons produced	RV	1.650
Air Ground Turbines	Air Ground Turbines	(unknown process units)	RV	1.860
Ammonia Plant	Neutralizer Fert, Ammon Nit	tons produced	RV	2.500
Asphalt Heater, Concrete	Natural Gas	mmcf	130.000	65.000
Asphalt Heater, Concrete	Fuel Oil	1000 gals	RV	9.500
Asphalt Heater, Concrete	LPG	1000 gals	RV	6.400
Boiler, Heater R1109 (Petr Refin)	Natural Gas	mmbtu	0.100	0.030
Boiler, Heater R1109 (Petr Refin)	Fuel Oil	mmbtu	0.100	0.030
Boiler, Heater R1146 (Petr Refin)	Natural Gas	mmbtu	0.045	0.045
Boiler, Heater R1146 (Petr Refin)	Fuel Oil	mmbtu	0.045	0.045
Boiler, Heater R1146 (Petr Refin)	Refinery Gas	mmbtu	0.045	0.045
Boilers, Heaters, Steam Gens Rule 1146 and 1146.1	Natural Gas	mmcf	49.180	47.570
Boilers, Heaters, Steam Gens Rule 1146 and 1146.1	LPG, Propane, Butane	1000 gals	4.400	4.260
Boilers, Heaters, Steam Gens Rule 1146 and 1146.1	Diesel Light Dist. (0.05% S)	1000 gals	6.420	6.210
Boilers, Heaters, Steam Gens Rule 1146 and 1146.1	Refinery Gas	mmcf	51.520	49.840
Boilers, Heaters, Steam Gens	Bituminous Coal	tons burned	RV	4.800
Boiler, Heater, Steam Gen (Rule 1146.1)	Natural Gas	mmcf	130.000	39.460
Boiler, Heater, Steam Gen (Rule 1146.1)	Refinery Gas	mmcf	RV	41.340

* RV = Reported Value

** Does not include ceramic, clay, cement or brick kilns or metal melting, heat treating or glass melting furnaces.

*** Applies retroactively to January 1, 1994 for Cycle 1 facilities and July 1, 1994 for Cycle 2 facilities.

**** Newly installed or Modified after the year selected for maximum throughput for determining starting allocations pursuant to Rule 2002(c)(1), and meeting BACT limits in effect at the time of installation.

Nitrogen Oxides Basic Equipment	Fuel	"Throughput" Units	Starting Ems Factor *	2000 (Tier I) Ending Ems Factor *
Boiler, Heater, Steam Gen (Rule 1146.1)	LPG, Propane, Butane	1000 gallons	RV	3.530
Boiler, Heater, Steam Gen (Rule 1146.1)	Diesel Light Dist (0.05%)	1000 gallons	RV	5.150
Boiler, Heater, Steam Gen (Rule 1146)	Natural Gas	mmcf	47.750	47.750
Boiler, Heater, Steam Gen (Rule 1146)	Refinery Gas	mmcf	50.030	50.030
Boiler, Heater, Steam Gen (Rule 1146)	LPG, Propane, Butane	1000 gallons	4.280	4.280
Boiler, Heater, Steam Gen (Rule 1146)	Diesel Light Dist (0.05%)	1000 gallons	6.230	6.230
Boiler, Heater, Steam Gen (R1146, <90,000 Therms)	Natural Gas	mmcf	RV	47.750
Boiler, Heater, Steam Gen (R1146, <90,000 Therms)	Refinery Gas	mmcf	RV	50.030
Boiler, Heater, Steam Gen (R1146, <90,000 Therms)	LPG, Propane, Butane	1000 gallons	RV	4.280
Boiler, Heater, Steam Gen (R1146, <90,000 Therms)	Diesel Light Dist (0.05%)	1000 gallons	RV	6.230
Boiler, Heater, Steam Gen (R1146.1, <18,000 Therms)	Natural Gas	mmcf	RV	39.460
Boiler, Heater, Steam Gen (R1146.1, <18,000 Therms)	Refinery Gas	mmcf	RV	41.340
Boiler, Heater, Steam Gen (R1146.1, <18,000 Therms)	LPG, Propane, Butane	1000 gallons	RV	3.530
Boiler, Heater, Steam Gen (R1146.1, <18,000 Therms)	Diesel Light Dist (0.05%)	1000 gallons	RV	5.150
Boiler, Heater R1109 (Petr Refin)	Refinery Gas	mmbtu	0.100	0.030
Boilers, Heaters, Steam Gens, (Petr Refin)	Natural Gas	mmcf	105.000	31.500
Boilers, Heaters, Steam Gens, (Petr Refin)	Refinery Gas	mmcf	110.000	33.000
Boilers, Heaters, Steam Gens, Unpermitted	Natural Gas	mmcf	130.000	32.500
Boilers, Heaters, Steam Gens, Unpermitted	LPG, Propane, Butane	1000 gallons	RV	3.200
Boilers, Heaters, Steam Gens ****	Natural Gas	mmcf	38.460	38.460

* RV = Reported Value

** Does not include ceramic, clay, cement or brick kilns or metal melting, heat treating or glass melting furnaces.

*** Applies retroactively to January 1, 1994 for Cycle 1 facilities and July 1, 1994 for Cycle 2 facilities.

**** Newly installed or Modified after the year selected for maximum throughput for determining starting allocations pursuant to Rule 2002(c)(1), and meeting BACT limits in effect at the time of installation.

Nitrogen Oxides Basic Equipment	Fuel	"Throughput" Units	Starting Ems Factor *	2000 (Tier I) Ending Ems Factor *
Boilers, Heaters, Steam Gens ****	Refinery Gas	mmbtu	0.035	0.035
Boilers, Heaters, Steam Gens ****	LPG, Propane, Butane	1000 gallons	3.55	3.55
Boilers, Heaters, Steam Gens ****	Diesel Light Dist (0.05%), Fuel Oil No. 2	mmbtu	0.03847	0.03847
Boilers, Heaters, Steam Gens, Unpermitted	Diesel Light Dist (0.05%)	1000 gallons	RV	4.750
Catalyst Manufacturing	Catalyst Mfg	tons of catalyst produced	RV	1.660
Catalyst Manufacturing	Catalyst Mfg	tons of catalyst produced	RV	2.090
Cement Kilns	Natural Gas	mmcf	130.000	19.500
Cement Kilns	Diesel Light Dist. (0.05% S)	1000 gals	RV	2.850
Cement Kilns	Kilns-Dry Process	tons cement produced	RV	0.750
Cement Kilns	Bituminous Coal	tons burned	RV	4.800
Cement Kilns	Tons Clinker	tons clinker	RV	2.73***
Ceramic and Brick Kilns (Preheated Combustion Air)	Natural Gas	mmcf	213.000	170.400
Ceramic and Brick Kilns (Preheated Combustion Air)	Diesel Light Distillate (.05%)	1000 gallons	RV	24.905
Ceramic and Brick Kilns (Preheated Combustion Air)	LPG	1000 gallons	RV	16.778
Ceramic Clay Mfg	Drying	tons input to process	RV	1.114
CO Boiler	Refinery Gas	mmbtu		0.030
Cogen, Industr	Coke	tons burned	RV	3.682
Electric Generation, Commercial Institutional Boiler	Distillate Oil	1000 gallons	6.420	6.210
Composite Internal Combustion	Waste Fuel Oil	1000 gals burned	RV	31.340
Curing and Drying Ovens	Natural Gas	mmcf	130.000	32.500

* RV = Reported Value

** Does not include ceramic, clay, cement or brick kilns or metal melting, heat treating or glass melting furnaces.

*** Applies retroactively to January 1, 1994 for Cycle 1 facilities and July 1, 1994 for Cycle 2 facilities.

**** Newly installed or Modified after the year selected for maximum throughput for determining starting allocations pursuant to Rule 2002(c)(1), and meeting BACT limits in effect at the time of installation.

Nitrogen Oxides Basic Equipment	Fuel	"Throughput" Units	Starting Ems Factor *	2000 (Tier I) Ending Ems Factor *
Curing and Drying Ovens	LPG, Propane, Butane	1000 gals	RV	3.200
Delacquering Furnace	Natural Gas	mmcf	182.2***	182.2***
Fiberglass	Textile-Type Fibr	tons of material processed	RV	1.860
Fluid Catalytic Cracking Unit	Fresh Feed	1000 BBLS fresh feed	RV	RV*0.3 ***
Fluid Catalytic Cracking Unit with Urea Injection	Fresh Feed	1000 BBLS fresh feed	RV	(RV*0.3) / (1-control efficiency) ***
Fugitive Emission	Not Classified	tons product	RV	0.087
Furnace Process	Carbon Black	tons produced	RV	38.850
Furnace Suppressor	Furnace Suppressor	unknown	RV	0.800
Glass Fiber Furnace	Mineral Products	tons product produced	RV	4.000
Glass Melting Furnace	Flat Glass	tons of glass pulled	RV	4.000
Glass Melting Furnace	Tableware Glass	tons of glass pulled	RV	5.680
Glass Melting Furnaces	Container Glass	tons of glass produced	4.000	1.2***
ICEs****	All Fuels		Equivalent to permitted BACT limit	Equivalent to permitted BACT limit
ICEs, Permitted (Rule 1110.1 and 1110.2)	Natural Gas	mmcf	2192.450	217.360
ICEs Permitted (Rule 1110.2)	Natural Gas	mmcf	RV	217.360
ICEs, Permitted (Rule 1110.1 and 1110.2)	LPG, Propane, Butane	1000 gals	RV	19.460
ICEs, Permitted (Rule 1110.1 and 1110.2)	Gasoline	1000 gals	RV	20.130
ICEs, Permitted (Rule 1110.1 and 1110.2)	Diesel Oil	1000 gals	RV	31.340
ICEs, Exempted per Rule 1110.2	All Fuels		RV	RV
ICEs, Exempted per Rule 1110.2 and subject to Rule 1110.1	All Fuels		RV	RV
ICEs, Unpermitted	All Fuels		RV	RV
In Process Fuel	Coke	tons burned	RV	24.593
Incinerators	Natural Gas	mmcf	130.000	104.000
Industrial	Propane	1000 gallons	RV	20.890
Industrial	Gasoline	1000 gallons	RV	21.620

* RV = Reported Value

** Does not include ceramic, clay, cement or brick kilns or metal melting, heat treating or glass melting furnaces.

*** Applies retroactively to January 1, 1994 for Cycle 1 facilities and July 1, 1994 for Cycle 2 facilities.

**** Newly installed or Modified after the year selected for maximum throughput for determining starting allocations pursuant to Rule 2002(c)(1), and meeting BACT limits in effect at the time of installation.

Nitrogen Oxides Basic Equipment	Fuel	"Throughput" Units	Starting Ems Factor*	2000 (Tier I) Ending Ems Factor *
Industrial	Dist.Oil/Diesel	1000 gallons	RV	33.650
Inorganic Chemicals, H2SO4 Chamber	General	tons pure acid produced	RV	0.266
Inorganic Chemicals, H2SO4 Contact	Absrbr 98.0% Conv	tons 100% H2S04	RV	0.376
Iron/Steel Foundry	Steel Foundry, Elec Arc Furn	tons metal processed	RV	0.045
Metal Heat Treating Furnace	Natural Gas	mmcf	130.000	104.000
Metal Heat Treating Furnace	Diesel Light Distillate (.05%)	1000 gallons	RV	15.200
Metal Heat Treating Furnace	LPG	1000 gallons	RV	10.240
Metal Forging Furnace (Preheated Combustion Air)	Natural Gas	mmcf	213.000	170.400
Metal Forging Furnace (Preheated Combustion Air)	Diesel Light Distillate (.05%)	1000 gallons	RV	24.905
Metal Forging Furnace (Preheated Combustion Air)	LPG	1000 gallons	RV	16.778
Metal Melting Furnaces	Natural Gas	mmcf	130.000	65.000
Metal Melting Furnaces	LPG, Propane, Butane	1000 gals	RV	6.400
Miscellaneous		bbls-processed	RV	1.240
Natural Gas Production	Not Classified	mmcf gas	RV	6.320
Nonmetallic Mineral	Sand/Gravel	tons product	RV	0.030
NSPS	Refinery Gas	mmbtu	RV	0.030
Other BACT Heater (24F-1)	Natural Gas	mmcf	RV	RV
Other Heater (24F-1)	Pressure Swing Absorber Gas	mmcf	RV	RV
Ovens, Kilns, Calciners, Dryers, Furnaces**	Natural Gas	mmcf	130.000	65.000
Ovens, Kilns, Calciners, Dryers, Furnaces**	Diesel Light Dist. (0.05% S)	1000 gals	RV	9.500
Paint Mfg, Solvent Loss	Mixing/Blending	tons solvent	RV	45.600
Petroleum Refining	Asphalt Blowing	tons of asphalt produced	RV	45.600
Petroleum Refining, Calciner	Petroleum Coke	Calcined Coke	RV	0.971***
Plastics Prodn	Polyester Resins	tons product	RV	106.500
Pot Furnace	Lead Battery	lbs Niter	0.077***	0.062***
Process Specific	ID# 012183	(unknown process units)	RV	240.000
Process Specific	SCC 30500311	tons produced	RV	0.140

* RV = Reported Value

** Does not include ceramic, clay, cement or brick kilns or metal melting, heat treating or glass melting furnaces.

*** Applies retroactively to January 1, 1994 for Cycle 1 facilities and July 1, 1994 for Cycle 2 facilities.

**** Newly installed or Modified after the year selected for maximum throughput for determining starting allocations pursuant to Rule 2002(c)(1), and meeting BACT limits in effect at the time of installation.

Nitrogen Oxides Basic Equipment	Fuel	"Throughput" Units	Starting Ems Factor*	2000 (Tier I) Ending Ems Factor *
Process Specific	ID 14944	(unknown process units)	RV	0.512
SCC 39090003			RV	170.400
Sec. Aluminum	Sweating Furnace	tons produced	RV	0.300
Sec. Aluminum	Smelting Furnace	tons metal produced	RV	0.323
Sec. Aluminum	Annealing Furnace	mmcf	130.000	65.000
Sec. Aluminum	Boring Dryer	tons produced	RV	0.057
Sec. Lead	Smelting Furnace	tons metal charged	RV	0.110
Sec. Lead	Smelting Furnace	tons metal charged	RV	0.060
Sodium Silicate Furnace	Water Glass	Tons Glass Pulled	RV	6.400
Steel Hot Plate Furnace	Natural Gas	mmcf	213.000	106.500
Steel Hot Plate Furnace	Diesel Light Distillate (.05%)	1000 gallons	31.131	10.486
Steel Hot Plate Furnace	LPG, Propane, Butane	1000 gallons	20.970	10.486
Surface Coal Mine	Haul Road	tons coal	RV	62.140
Tail Gas Unit		hours of operation	RV	RV
Turbines	Butane	1000 Gallons	RV	5.700
Turbines	Diesel Oil	1000 gals	RV	8.814
Turbines	Refinery Gas	mmcf	RV	62.275
Turbines	Natural Gas	mmcf	RV	61.450
Turbines (micro-)	Natural Gas	mmcf	54.4	54.4
Turbines - Peaking Unit	Natural Gas	mmcf	RV	RV
Turbines - Peaking Unit	Dist. Oil/Diesel	1000 gallons	RV	RV
Utility Boiler	Digester/Landfill Gas	mmcf	52.350	10.080
Turbine	Natural Gas	mmcf	RV	61.450
Turbine	Fuel Oil	1000 gallons	RV	8.810
Turbine	Dist.Oil/Diesel	1000 gallons	RV	3.000
Utility Boiler Burbank	Natural Gas	mmcf	148.670	17.200
Utility Boiler Burbank	Residual Oil	1000 gallons	20.170	2.330
Utility Boiler, Glendale	Natural Gas	mmcf	140.430	16.000
Utility Boiler, Glendale	Residual Oil	1000 gallons	20.160	2.290
Utility Boiler, LADWP	Natural Gas	mmcf	86.560	15.830
Utility Boiler, LADWP	Residual Oil	1000 gallons	12.370	2.260
Utility Boiler, LADWP	Digester Gas	mmcf	52.350	10.080
Utility Boiler, LADWP	Landfill Gas	mmcf	37.760	6.910
Utility Boiler, Pasadena	Natural Gas	mmcf	195.640	18.500
Utility Boiler, Pasadena	Residual Oil	1000 gallons	28.290	2.670
Utility Boiler, SCE	Natural Gas	mmcf	74.860	15.600
Utility Boiler, SCE	Residual Oil	1000 gallons	10.750	2.240

* RV = Reported Value

** Does not include ceramic, clay, cement or brick kilns or metal melting, heat treating or glass melting furnaces.

*** Applies retroactively to January 1, 1994 for Cycle 1 facilities and July 1, 1994 for Cycle 2 facilities.

**** Newly installed or Modified after the year selected for maximum throughput for determining starting allocations pursuant to Rule 2002(c)(1), and meeting BACT limits in effect at the time of installation.

Table 2

RECLAIM SO_X Emission Factors

Sulfur Oxides Basic Equipment	Fuel	"Throughput" Units	Starting Emission Factor *	Ending Emission Factor *
Air Blown Asphalt		hours of operation	RV	RV
Asphalt Concrete	Cold Ag Handling	tons produced	RV	0.032
Calciner	Petroleum Coke	Calcined Coke	RV	0.000
Catalyst Regeneration		hours of operation	RV	RV
Cement Kiln	Distillate Oil	1000 gallons	RV	RV
Cement Mfg	Kilns, Dry Process	tons produced	RV	RV
Claus Unit		pounds	RV	RV
Cogen	Coke	pounds per ton	RV	RV
Non Fuel Use		hours of operation	RV	RV
External Combustion Equipment / Incinerator	Natural Gas	mmcf	RV	0.830
External Combustion Equip/Incinerator	LPG, Propane, Butane	1000 gallons	RV	4.600
External Combustion Equip/Incinerator	Diesel Light Dist. (0.05% S)	1000 gallons	7.00	5.600
External Combustion Equip/Incinerator	Residual Oil	1000 gallons	8.00	6.400
External Combustion Equip/Incinerator	Refinery Gas	mmcf	RV	6.760
Fiberglass	Recuperative Furn, Textile-Type Fiber	tons produced	RV	2.145
Fluid Catalytic Cracking Units		1000 bbls refinery feed	RV	13.700
Glass Mfg, Forming/Fin	Container Glass		RV	RV
Grain Milling	Flour Mill	tons Grain Processed	RV	RV
ICEs	Natural Gas	mmcf	RV	0.600
ICEs	LPG, Propane, Butane	1000 gallons	RV	0.350
ICEs	Gasoline	1000 gallons	RV	4.240
ICEs	Diesel Oil	1000 gallons	6.24	4.990
Industrial	Cogeneration, Bituminous Coal	tons produced	RV	RV
Industrial (scc 10200804)	Cogeneration, Coke	tons produced	RV	RV
Inorganic Chemcals	General, H2SO4 Chamber	tons produced	RV	RV
Inorganic Chemcals	Absrbr 98.0% Conv, H2SO4 Contact	tons produced	RV	RV

* RV = Reported Value

*** Applies retroactively to January 1, 1994 for Cycle 1 facilities and July 1, 1994 for Cycle 2 facilities.

Sulfur Oxides Basic Equipment	Fuel	"Throughput" Units	Starting Emission Factor *	Ending Emission Factor *
Inprocess Fuel	Cement Kiln/Dryer, Bituminous Coal	tons produced	RV	RV
Iron/Steel Foundry	Cupola, Gray Iron Foundry	tons produced	RV	0.720
Melting Furnace, Container Glass		tons produced	RV	RV
Mericher Alkyd Feed		hours of operation	RV	RV
Miscellaneous	Not Classified	tons produced	RV	0.080
Miscellaneous	Not Classified	tons produced	RV	0.399
Natural Gas Production	Not Classified	mmcf	RV	527.641
Organic Chemical (scc 30100601)		tons produced	RV	RV
Petroleum Refining (scc30600602)	Column Condenser		RV	1.557
Petroleum Refining (scc30600603)	Column Condenser		RV	1.176
Refinery Process Heaters	LPG fired	1000 gal	RV	2.259
Pot Furnace	Lead Battery	lbs Sulfur	0.133***	0.106***
Sec. Lead	Reverberatory, Smelting Furnace	tons produced	RV	RV
Sec. Lead	Smelting Furnace, Fugitiv	tons produced	RV	0.648
Sour Water Oxidizer		hours of operation	RV	RV
Sulfur Loading		1000 bbls	RV	RV
Sour Water Oxidizer		1000 bbls fresh feed	RV	RV
Sour Water Coker		1000 bbls fresh feed	RV	RV
Sodium Silicate Furnace		tons of glass pulled	RV	RV
Sulfur Plant		hours of operation	RV	RV
Tail gas unit		hours of operation	RV	RV
Turbines	Refinery Gas	mmcf	RV	6.760
Turbines	Natural Gas	mmcf	RV	0.600
Turbines	Diesel Oil	1000 gal	6.24	0.080
Turbines	Residual Oil	1000 gallons	8.00	0.090
Utility Boilers	Diesel Light Dist. (0.05% S)	1000 gallons	7.00	0.080
Utility Boilers	Residual Oil	1000 gallons	8.00	0.090
Other Heater (24F-1)	Pressure Swing Absorber Gas	mmcf	RV	RV

* RV = Reported Value

*** Applies retroactively to January 1, 1994 for Cycle 1 facilities and July 1, 1994 for Cycle 2 facilities.

Table 3

RECLAIM NO_X ~~2010~~2011 Ending Emission Factors

Nitrogen Oxides Basic Equipment	BARCT Emission Factor
Asphalt Heater, Concrete	0.036 lb/mmbtu (30 ppm)
Boiler, Heater R1109 (Petr Refin) >110 mmbtu/hr	0.006 lb/mmbtu (5 ppm)
Boilers, Heaters, Steam Gens, (Petr Refin) >110 mmbtu/hr	0.006 lb/mmbtu (5 ppm)
Boiler, Heater, Steam Gen (Rule 1146.1) 2-20 mmbtu/hr	0.015 lb/mmbtu (12 ppm)
Boiler, Heater, Steam Gen (Rule 1146) >20 mmbtu/hr	0.010 lb/mmbtu (9 ppm)
CO Boiler	85% Reduction
Delacquering Furnace	0.036 lb/mmbtu (30 ppm)
Fluid Catalytic Cracking Unit	85% Reduction
Iron/Steel Foundry	0.055 lb/mmbtu (45 ppm)
Metal Heat Treating Furnace	0.055 lb/mmbtu (45 ppm)
Metal Forging Furnace (Preheated Combustion Air)	0.055 lb/mmbtu (45 ppm)
Metal Melting Furnaces	0.055 lb/mmbtu (45 ppm)
Other Heater (24F-1)	0.036 lb/mmbtu (30 ppm)
Ovens, Kilns, Calciners, Dryers, Furnaces	0.036 lb/mmbtu (30 ppm)
Petroleum Refining, Calciner	0.036 lb/mmbtu (30 ppm)
Sec. Aluminum	0.055 lb/mmbtu (45 ppm)
Sec. Lead	0.055 lb/mmbtu (45 ppm)
Steel Hot Plate Furnace	0.055 lb/mmbtu (45 ppm)
Utility Boiler	0.008 lb/mmbtu (7 ppm)

Table 4
RECLAIM SOx Tier III Emission Standards

Basic Equipment	BARCT Emission Standard ~~(As Adopted on Adoption Date)~~
Calciner, Petroleum Coke	10 ppmv (0.11 lbs/ton coke)
Cement Kiln	5 ppmv (0.04 lbs/ton clinker)
Coal-Fired Boiler	5 ppmv (95% reduction)
Container Glass Melting Furnace	5 ppmv (0.03 lbs/ton glass)
Diesel Combustion	15 ppmv as required under Rule 431.2
Fluid Catalytic Cracking Unit	5 ppmv (3.25 lbs/thousand barrels feed)
Refinery Boiler/Heater	40 ppmv (6.76 lbs/mmscf~~t~~)
Sulfur Recovery Units/Tail Gas	5 ppmv for combusted tail gas (5.28 lbs/hour)
Sulfuric Acid Manufacturing	10 ppmv (0.14 lbs/ton acid produced)

Table 5
List of SOx RECLAIM ~~Holders~~ Facilities Referenced in Paragraph (f)(1)

FACILITY PERMIT HOLDER	AQMD ID NO.
AES HUNTINGTON BEACH, LLC*	115389
AIR LIQUIDE LARGE INDUSTRIES U.S., LP	148236
ANHEUSER-BUSCH INC., (LA BREWERY)	16642
CALMAT CO	119104
CENCO REFINING CO	800373
EDGINGTON OIL COMPANY	800264
EQUILON ENTER. LLC, SHELL OIL PROD. US	800372
EXIDE TECHNOLOGIES	124838
INEOS POLYPROPYLENE LLC	124808
KIMBERLY-CLARK WORLDWIDE INC.-FULT. MILL	21887
LUNDAY-THAGARD COMPANY	800080
OWENS CORNING ROOFING AND ASPHALT, LLC	35302
PABCO BLDG PRODUCTS LLC,PABCO PAPER, DBA	45746
PARAMOUNT PETR CORP*	800183
QUEMETCO INC	8547
RIVERSIDE CEMENT CO	800182
TECHALLOY CO., INC.	14944
TESORO REFINING AND MARKETING CO*	151798
THE PQ CORP	11435
US GYPSUM CO	12185
WEST NEWPORT OIL CO	42775

*SOx RECLAIM facilities that have RTC Holdings larger than initial allocations as of August 29, 2009.

ADDENDUM TO THE FINAL STAFF REPORT
Amend Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx)

Revised Staff Proposal

Subsequent to the completion of the attached staff report and Program Environmental Assessment and in our effort to resolve pending issues, staff is proposing the following minor revisions to its proposal.

Staff recommends that the compliance margin in the shave methodology for the proposed SOx RECLAIM amendment be raised from 10 to 18.5 percent. This change approximates the effective average compliance margin between RTC holdings and actual emissions in 2005 and 2008 and more accurately reflects the challenges facing a relatively smaller and less robust market. As a result of this change, the proposed SOx shave will change from 55 to 51.4 percent and the total SOx RTC reduction will be 5.7 tons per day (4,161,000 lbs/year). Staff is also proposing the consolidation of the eight-year-long implementation into four phases as follows:

	Compliance Year	RTC Reductions (tons/day)
Phase 1	2013	3.0
Phase 2	2014	4.0
Phase 3	2017	5.0
Phase 4	2019 and after	5.7

To ensure that SOx reductions are achieved early at the initial stages of rule implementation, staff is proposing the use of SOx additives beginning July 1, 2011 (alternative controls allowed).

CEQA evaluation of the Revised Staff Proposal

Staff has reviewed the recommended modifications to the proposed project identified above and concluded that the modifications are within the scope of the CEQA analysis for the proposed project and project alternatives in the Final Program Environmental Assessment (PEA). Specifically, the environmental impacts associated with the modifications to the proposed project are within the scope of what was analyzed for the proposed project under both Option 1 and Option 2. In addition, the emission reductions and environmental impacts

associated with the modifications to the proposed project are within the scope of what was analyzed for the proposed project and the alternatives. For these reasons, the modifications to the proposed project do not alter any of the conclusions reached in the Final PEA, nor provide new information of substantial importance relative to the environmental analysis since the release of the Draft PEA for public review and comment. Based on staff's review of the the proposed modifications, recirculation of the CEQA document pursuant to CEQA Guidelines §15088.5 is not required because the modifications do not constitute significant new information, which is defined as follows:

(1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.

(2) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.

(3) A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the environmental impacts of the project, but the project's proponents decline to adopt it.

(4) The draft CEQA document was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

South Coast Air Quality Management District
Planning, Rule Development & Area Sources

Final Staff Report
SOx RECLAIM

Part 1
BARCT Assessment & RTC Reductions Analysis

November 2, 2010

Deputy Executive Officer
Elaine Chang, Dr PH

Assistant Deputy Executive Officer
Laki Tisopulos, Ph.D., P.E.

Planning and Rules Manager
Joe Cassmassi

Author
Minh Pham, M.S., P.E., Air Quality Specialist

Contributor
Kevin Orellana, Air Quality Specialist

Reviewers
Gary Quinn, P.E., Program Supervisor
Joe Cassmassi, Planning & Rules Manager
Laki Tisopulos, Ph.D., P.E., Assistant DEO
William Wong, Principal Deputy District Counsel

Note that on October 26, 2010, staff revised its proposal to 5.7 tons per day RTC reductions (51.4% shave) distributed in four phases in eight years from 2013-2019 and after. Since the actual emission reductions estimated pursuant to BARCT remain unchanged at 5.4 tons per day, there is no need to update this final staff report to include this minor change.

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Information Management Division
George Haddad, Rezvan Ramezani

Source Testing Division
Mike Garibay & his team, Ramiro Gonzalez, Steve Marinoff

Technology Advancement Office
Marty Kay

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Executive Summary

RECLAIM Program & Best Available Retrofit Control Technology

On October 15, 1993, the District's Governing Board adopted Regulation XX - Regional Clean Air Incentives Market (RECLAIM) and established a declining cap and trade mechanism to reduce NOx and SOx emissions from the largest stationary sources in the South Coast Air Basin (Basin). Regulation XX is comprised of 11 rules that specify the rules applicability, NOx and SOx facility allocations, general requirements, as well as monitoring, reporting, and recordkeeping requirements for NOx and SOx sources located at RECLAIM facilities. The RECLAIM program started with 41 SOx facilities and 392 NOx facilities. By the end of 2005 compliance year, the program included 33 SOx facilities and 304 NOx facilities. By the end of 2008, the SOx facilities reduced to 32 facilities.

Under the SOx RECLAIM program, the RECLAIM facilities are issued SOx annual allocations (also known as facility caps), which decline annually from 1993 until 2003 and remain constant after 2003. The annual allocations issued to the RECLAIM facilities reflect the levels of Best Available Retrofit Control Technology (BARCT) envisioned to be in place at the RECLAIM facilities, and were the results of a BARCT analysis in 15 years, conducted in 1993. Since 1993, the District conducted one BARCT reassessment for NOx in 2005, and has not yet conducted a BARCT reassessment for SOx. Under the RECLAIM program, the facilities have the flexibility to install air pollution control equipment, change method of operations, or purchase RECLAIM Trading Credits (RTCs) to meet the BARCT levels.

AQMD staff is proposing amendments to Regulation XX – RECLAIM to achieve additional SOx reductions pursuant to the 2007 AQMP Control Measure CMB-02. The proposed amendments address requirements for BARCT in accordance with California Health and Safety (H&S) Code §40440, which is applicable to market-based incentive programs, as well as equivalency to command-and-control regulations, as required under H&S Code § 39616(c)(1). Reductions in SOx will help the Basin attain the federal annual average PM2.5 standard by 2015, and the federal 24-hour average standard by 2020. Other proposed rule amendments include clarifications and changes to the protocols.

PM2.5 Implementation Rule

In March 2007, the U.S. Environmental Protection Agency (EPA) issued a final rule, known as the *Clean Air Fine Particle Implementation Rule*, which requires non-attainment areas such as the South Coast Air Basin to meet the fine particulate ($PM_{2.5}$) standards by 2010. The *Clean Air Fine Particle Implementation Rule* requires the District to achieve the fine particulate standards as expeditiously as possible, and allows the District a one-time extension up to five years but no later than 2015. The rule requires the District to evaluate and employ all control measures to reduce the direct $PM_{2.5}$ emissions, as well as the emissions from $PM_{2.5}$ precursors, specifically sulfur dioxide (SO_2), and the most potent $PM_{2.5}$ precursors.

2007 Control Measure CMB-02 - Further SOx Reduction for RECLAIM (SOx)

To establish the basis for future compliance with the final U.S. EPA rule, staff has developed the 2007 Air Quality Management Plan (AQMP) Control Measure CMB-02 – Further SOx Reduction for RECLAIM (SOx) adopted by the Governing Board in July 2007. This control measure proposed to further reduce SOx allocations by approximately 3 tons per day in 2011-2014 to help the basin achieve the PM2.5 standards by 2014 and also stated that staff may need to incorporate the concept of facility modernization as described under Control Measure MCS-01 - Facility Modernization to achieve additional reductions beyond 2014 to meet the 2020 24-hour standard.

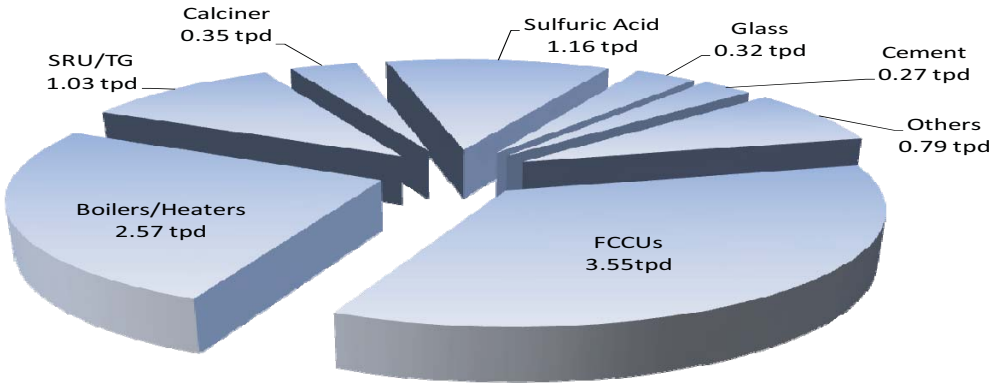
RTC Holdings, 2005 Emissions Distribution & BARCT Area of Focus

In 1993, the District issued a total of 12 tons per day of SOx allocations for the 2003 compliance year and beyond for the facilities in SOx RECLAIM. This is also the 2002 baseline for RECLAIM facilities used in the 2007 Air Quality Management Plan. It should be noted that the SOx RECLAIM emissions and RTC market are not distributed uniformly: In 2005, the SOx RECLAIM facilities emitted a total of 10.04 tons per day emissions.; more than 92% of the emissions was generated by the top 11 facilities; and in these 11 facilities, the top 7 source categories listed below were responsible for 80% of the facility emissions.

- Fluid catalytic cracking units;
- Sulfur recovery and tail gas treatment units;
- Boilers and heaters using refinery gas;
- Sulfuric acid manufacturing plants;
- Container glass melting furnace;
- Coke calciner;
- Cement kilns and a coal steam boiler at a cement manufacturing facility.

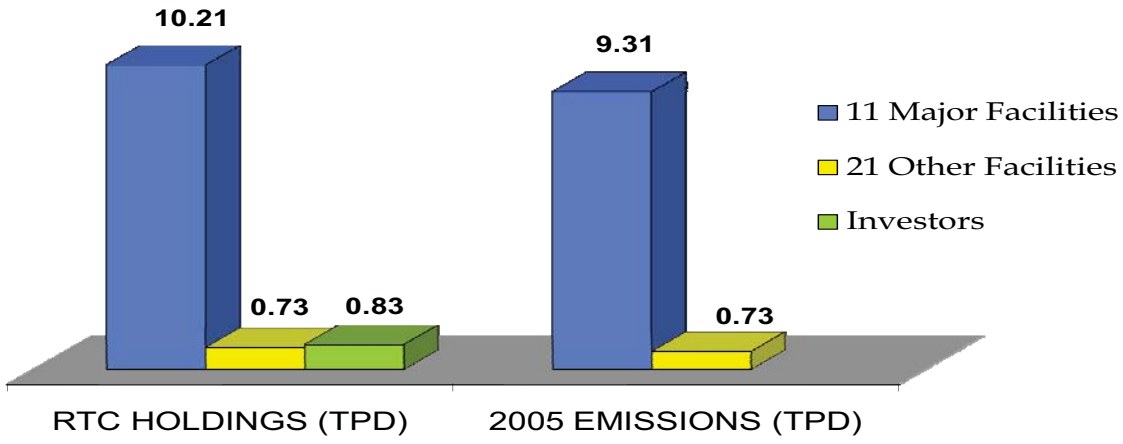
These top emitters emitted approximately 7.53 tons per day in 2005 and are the focus for BARCT evaluations in this proposed rule amendment. The remaining facilities either do not have any equipment subject to proposed new BARCT, or their facility emissions are too low to make BARCT cost-effective. Figure EX-1 presents the 2005 emissions distribution, and Figure EX-2 presents a comparison for RTC Holdings and emissions between the top 11 facilities and the remaining 21 active facilities in SOx RECLAIM universe.

FIGURE EX-1
2005 Emissions Distribution



Total 32 active facilities = 10.04 tons per day audited emissions.
Top 11 facilities. Top 7 sources.

FIGURE EX-2
Distributions of RTC Holdings versus 2005 Emissions



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Public Process

The public process of the PAR XX is summarized in Table EX-1. In 2008, staff formed the RECLAIM Working Group that included members representing SOx RECLAIM facilities, the Western States Petroleum Association (WSPA), the environmental community, as well as CARB and U.S. EPA to discuss and brainstorm the proposed amended SOx RECLAIM. The first meeting was conducted on February 7, 2008.

On April 3, 2008, staff released the first Preliminary Draft Staff Report, and conducted two Working Group meetings on April 3 and April 30, 2008 to discuss staff's initial proposal including allocations, emissions inventory and distribution, and potential BARCT for seven (7) major emitting categories of stationary source equipment located at the eleven (11) major SOx RECLAIM facilities.

In May 2008, staff, WSPA and the refineries worked in collaboration to develop a Request for Proposal (RFP) to solicit expert consultants to conduct independent studies on feasibility and cost effectiveness. Additional working group meetings were held on May 15, May 28, and July 2 to discuss the Request for Proposal. On July 11, 2008, the Governing Board approved the release of the RFP and staff conducted a Bidder's Conference immediately after. A public notice advertising the RFP and inviting bids was published in accordance with AQMD's Procurement Policy and Procedure. The District's procurement office received and accepted a total of six (6) proposals.

Staff formed an evaluation panel in August 2008 to evaluate the potential contractors. The four member evaluation panel consisted of one AQMD Assistant Deputy Executive Officer from Planning, Rule Development, and Area Sources Division; one AQMD Program Supervisor of the Best Available Control Technology team; one AQMD Program Supervisor of the Refinery Team; and one representative from WSPA. Staff invited one representative from the environmental group and two representatives from the U.S. EPA; however, they could not participate in this evaluation process due to schedule conflicts.

The panel was in agreement that the contractors possessed good qualifications, presented good approaches and had workable schedules. After serious consideration, the panel recommended the Governing Board award the contracts to:

— ETS, Inc. in the amount not to exceed $289,360 to conduct analyses for refinery Fluid Catalytic Cracking Units (FCCUs), boilers/heaters, and sulfur recovery units and tail gas treatment units (SRU/TGTUs); and

— NEXIDEA Inc. in the amount not to exceed $45,500 to conduct analyses for sulfuric acid manufacturing facility and a coke calciner facility.

The panel recommendation was approved by the Governing Board in a public meeting on September 5, 2008. The two consulting firms started the projects immediately after receiving the awards. First, the consultants and staff scheduled and conducted site visits at BP, Chevron, ConocoPhillips, Tesoro, Valero, ExxonMobil, California Portland Cement, Owens Brockway, and Rhodia in September and October 2008. During these site visits, the consultants gathered all necessary technical information on equipment and operating conditions, discussed operational characteristics of the equipment with the facilities, observed the physical layout of the

equipment, as well as listened to any concerns or foreseen constraints provided by the refinery technical experts related to future prospective add-on control devices.

After the site visits, the consultants conducted their own independent research, contacted the control manufacturers and vendors, gathered cost information, and performed their own independent engineering analyses on commercially available control technologies and cost effectiveness. In October 2008, the consultants developed the draft reports which were distributed to the affected facilities and AQMD staff for comments. After addressing all comments received from the facilities, as well as AQMD staff, the consultants finalized their analyses and reports for coke calciner, cement kilns, coal fired boiler, glass furnaces, and sulfuric acid plants on December 16, 2008 as planned in the contracts.

Because of the complexity associated with the refinery systems, the analyses related to FCCUs, SRU/tail gas, and fuel gas treatment could not be completed in December 2008. The contractors and staff scheduled another round of extensive site visits at all six refineries in January and February 2009. The consultants' draft analyses were provided to the refineries a total of four times (October 2008, January, February and March 2009) for comments. The primary consultant, ETS, Inc., and the subcontractor, AEC Engineering, addressed substantial amount of comments received from all six refineries, revised their reports appropriately, and finalized their assessment for the refineries in April 2009. The non-confidential reports from NEXIDEA, ETS and AEC Engineering are available for public information.

In 2009, staff reconvened the Working Group meetings. A Public Workshop was conducted on June 23, 2009, and in this workshop, staff released 1) the Draft Staff Report to discuss BARCT, cost effectiveness, RTC reduction methodology, and timing of the proposed rule implementation; 2) Notice of Preparation of the Draft Environmental Assessment; and 3) the Draft PAR XX. In addition, staff conducted numerous meetings with WSPA and WSPA members, and other affected facilities as requested. Two Working Group meetings were held on August 27 and December 15, 2009.

At the January 8, 2010 Governing Board Meeting, staff conducted an Informational Hearing to inform the Governing Board and the public about the development of PAR XX, the main issues associated with the proposed amended rule, and proposed a Work Plan for 2010 which was developed in collaboration with WSPA and provided a roadmap towards resolving pending issues. To address concerns by WSPA relative to the feasibility and cost analyses conducted by ETS/AEC and NEXIDEA in 2008-2009, the Governing Board approved in January 2010 the hiring of a second consultant to provide an independent review of the analyses previously conducted. To fulfill that commitment, staff hired Norton Engineering Inc. (NEC) to review ETS, Inc. and NEXIDEA's feasibility and costs analyses. NEC was the next highest ranked consultants from the six initially reviewed, and the highest ranked by WSPA. NEC and staff visited the refineries in March/April, and NEC completed its review and issued a final report on June 15. Between April to June, staff met with WSPA and the refineries numerous times to discuss RTC shave methodologies, costs, and estimate impacts to the refineries.

On August 18, 2010, staff released its Draft CEQA document concurrently with the second Refinery Committee Meeting addressing SOx RECLAIM. Staff also conducted a Public Working Group Meeting and a Public Consultation Meeting on September 8, 2010. Staff's revised estimates for BARCT reductions at this time were 5.4 tpd emission reductions from 2005 baseline, 6.1 tpd RTC reductions from 2012 – 2019 amounting to a 55% RTC shave. The

estimated total costs are $630 - $745 millions, and cost effectiveness of about $16 K - $19 K per ton SOx reduced.

In staff's current proposal, several significant changes have been made as follows: 1) exclusion of emission reductions of 0.85 tpd estimated from boilers/heaters since the proposed BARCT limit was unchanged from the previous BARCT level of 40 ppmv; 2) use of audited emissions in the analysis for RTC shave, and 3) extension of the compliance period to 2019 instead of 2017 as previously proposed, and 4) accounting for growth in emissions as was done in the 2005 BARCT reassessment under NOx RECLAIM.

The proposed amendments to SOx RECLAIM have been scheduled to be presented to the Governing Board for consideration at the November 5, 2010 Governing Board Meeting.

TABLE EX-1
Summary of the rule development process for Proposed Amended Regulation XX

Calendar Year 2008	
January 02, 2008	RECLAIM Working Group was formed
February 07, 2008	Public Consultation Meeting was conducted
April 03, 2008 April 30, 2008	Preliminary Draft Staff Report was released. Two Working Group Meetings were conducted.
May 1, May 15, May 28, June 20, July 02, 2008	Request for Proposal to seek expert consultants was drafted and discussed with the RECLAIM Working Groups on three Working Group Meetings from May to July. A Stationary Committee Meeting was also conducted on June 20.
July 11, 2008 July 16, 2008	RFP was presented to the Governing Board, and received Governing Board's approval to release on July 11. A Bidder Conference was conducted on July 16
August 1, 2008 August 30, 2008	Staff formed a task force to evaluate the six proposals received & make recommendation to the Governing Board
September 5, 2008	Staff presented the recommendation of consultants to the Governing Board and received an approval to hire ETS, Inc. and NEXIDEA
September 15, 2008 October 15, 2008	The consultants visited the facilities and conducted their feasibility and cost analyses, and the draft analyses were released to the facilities for comments.
December 16, 2008	NEXIDEA finalized the analyses for coke calciner and sulfuric acid plants. ETS Inc. finalized the analyses for glass and cement facilities.
Calendar Year 2009	
January – April 20, 2009	ETS Inc., their subcontractors, and staff conducted a second visit to all refineries. ETS, Inc. released their draft analyses three additional times to the refineries for comments and finalized their analyses on April 20, 2009.

TABLE EX-1 (Cont.)

June 23, 2009 (Public Workshop and CEQA Scoping Meeting)	Staff conducted a Public Workshop and CEQA Scoping Meeting. At this stage, staff proposed about 7 tpd RTC reduction from 2012-2017 with a total costs (present worth value for 25 years) estimated to be $883 - $944 million dollars and a weighted average cost effectiveness of about $16 K per ton SOx reduced. Staff released the draft staff report, Notice of Preparation for Environmental Assessment, and draft rule.
June 19, 2009 November 20, 2009	Two Stationary Committee Meetings were conducted in 2009. In addition, from March – December, staff conducted several meetings with WSPA and the refineries to discuss issues related to costs, baseline and RTC shave methodologies.
December 11, 2009 December 15, 2009	The Governing Board established a Refinery Committee Group and conducted the first Refinery Committee Meeting on December 11 and a WGM on December 15. At this stage, staff's estimates were 6.2 tpd emission reductions from 2005 baseline, 7.5 tpd RTC reduction, 64% - 67.5% RTC shave, total estimated costs of $745 million, and cost effectiveness of about $13 K per ton SOx reduced.
Calendar Year 2010	
January 08, 2010 (Informational Hearing)	Staff conducted an "Informa~~l~~tional Hearing" to inform the Governing Board and the public about the development of PAR XX, the main issues associated with PAR XX, and a proposed Work Plan for 2010.
March 10, 2010 – June 15, 2010	As called for under the Work Plan and approved by the Governing Board, staff hired a Norton Engineering Inc. (NEC) to review ETS, Inc. and NEXIDEA's feasibility and costs analyses. NEC and staff visited the refineries in March/April, and NEC completed its review and issued a final report on June 15. In April – June, staff also met with WSPA and the refineries numerous times to discuss RTC shave methodologies and costs, costs and cost-effectiveness analyses. In addition, staff contacted the California Department of Water Resources and other water purveyors to discuss about the water impacts of the proposal, current and potential future regulations related to water usage in California.
August 18, 2010	Draft CEQA document was released and staff conducted a second Refinery Committee Meeting. Staff's revised estimates were 5.4 tpd emission reductions from 2005 baseline, 6.1 tpd RTC reduction from 2012 - 2019, 55% RTC shave, total estimated costs of $630 - 745 million, and cost effectiveness of about $16 K - $19 K/ton. Staff excluded the emission reductions of 0.85 tpd estimated from boilers/heaters, used audited emissions in the analysis for RTC shave, extended the compliance period to 2019 and accounted for growth.

TABLE EX-1 (Cont.)

September 8, 22, and 24, 2010	Staff reconvened the WGM & conducted a Public Consultation Meeting on September 8, a RCM on September 22, and a SSC Meeting on September 24, 2010.
October 1, 2010 October 14, 2010	Set Hearing for PAR XX was conducted on October 1st, 2010- Revised Draft Staff Report and Socioeconomic Analysis were released for 30-day public review. RCM was conducted on October 14. On October 26, staff revised its proposal to 5.7 tpd RTC reduction (51.4% shave) in 4 phases: 3 tpd in CY 2013, 4 tpd in CY 2014, 5 tpd in CY 2017, and 5.7 tpd in CY 2019.
November 5, 2010	A Governing Board Hearing is planned for November 5, 2010.

Current Staff Proposal for BARCT and SOx RTC Reductions

To estimate SOx RTC reductions, staff used the RTC reduction methodology first developed in the 2005 NOx RECLAIM rule amendment. In this methodology, the base year inventory (i.e., 1997) was selected. Associated growth factors were used to project the 1997 audited emissions to year 2019. BARCT adjustment was then applied to the projected 2019 inventory to calculate the remaining emissions at BARCT levels. Staff then applied a 10% adjustment (increase) to the remaining emissions to account for inaccessible RTCs due to imperfect market conditions and RTCs held by facilities to ensure compliance with annual audits. The proposed project results in 5.4 tons per day emission reductions from the 2005 baseline. This is equivalent to 6.1 tons per day RTC reduction, approximately 55% reductions of RTC's holdings of 11.09 tons per day by 2019.[1]

In staff's current proposal shown in Table EX-2, staff made the following changes:

- Staff removed emission reductions estimated for boilers/heaters. Since the proposed BARCT limit is retained at 40 ppmv for boilers/heaters, any reductions estimated for boilers/heaters from the 2005 baseline are considered as "opportunity reductions" that the facilities may select to implement, but not as reductions due to new BARCT.

- Staff used 1997 audited emissions instead of reported emissions to estimate RTC shave,

- Staff provided additional 2 years for implementing the RTC reductions as requested by several RECLAIM facilities, and extended the implementation period to 2019 and incorporated growth factor adjustments to reflect the extension period.

[1] Based on RTC records as of August 29, 2009

TABLE EX-2
Staff's Proposal

	2014	2017	2019
Original Proposal in January 2010	RTC reduction = 4.5 tpd RTC Shave = 41%	RTC reduction = 7.5 tpd RTC Shave = 67.5%	
Current Proposal	RTC reduction = 4.5 tpd RTC Shave = 41%		RTC reduction = 6.1 tpd RTC Shave = 55%

Note: Percentage shave is calculated using RTC holdings of 11.09 tons per day for major emitters and investors. Current unused RTCs based on 2008 emissions = 11.77-9.22=2.55 tpd (22% of 11.09 tons per day)

Table EX-3 shows the new proposed BARCT levels, Tier I current BARCT levels, the percent reduction from Tier I and the estimated cost effectiveness for each of the seven (7) categories of sources located at the eleven (11) major facilities:

TABLE EX-3
Proposed New BARCT Levels

	Tier I (1993 Projected BARCT for Year 2000)	New BARCT	Emission Reductions from 2005	% Reduction from Tier I	Cost Effectiveness (note 1)
FCCUs	13.7 lbs/Mbarrels	5 ppmv 3.25 lbs/Mbarrels	2.88 tons/day	76%	$20K - $21K per ton
SRU/TGs	Reported Value Avg 9.03 lbs/hour	5 ppmv 5.28 lbs/hour (note 2)	0.73 tons/day	42%	31K - $45K per ton
Boilers & Heaters	6.76 lbs/mmscft	40ppmv 6.76 lbs/mmscft	0.00 tons/day	0%	Not Applicable
Sulfuric Acid	Reported Value Avg 5.08 lbs/hour	10 ppmv 0.14 lbs/hour	1.03 tons/day	97%	$2K - $3K per ton
Coke Calciner	Reported Value Avg 2.47 lbs/ton coke	10 ppmv 0.11 lbs/ton coke	0.28 tons/day	96%	$10K - $23K per ton
Container Glass	Reported Value Avg 2.51 lbs/ton	5 ppmv 0.03 lbs/ton	0.19 tons/day	99%	$5K per ton
Cement Kilns	Reported Value Avg 0.05 lbs/ton	5 ppmv 0.04 lbs/ton	0.25 tons/day	20%	$19K - $27K per ton
Coal Fired Boilers	Reported Value	95% reduction	0 tons/day **	95%	$4 K per ton

Note: 1) The first figure of the range reflects the cost effectiveness estimated based on ETS/AEC/NEXIDEA analyses, and the second figure reflects the cost effectiveness estimated based on input provided by Norton Engineering. ** Equipment not in operation in 2005. 2) 5 ppmv is for combusted tail gas.

The net facility investment for BARCT was estimated to be $630 million - 745 million dollars. The weighted average cost effectiveness was about $16 K - $19K per ton SOx reduced, with a range from $2K to $50K per ton SOx reduced. Figure EX-3 presents the emission reductions estimated from the 2005 baseline. Figure EX-4 presents the estimated costs (the present worth

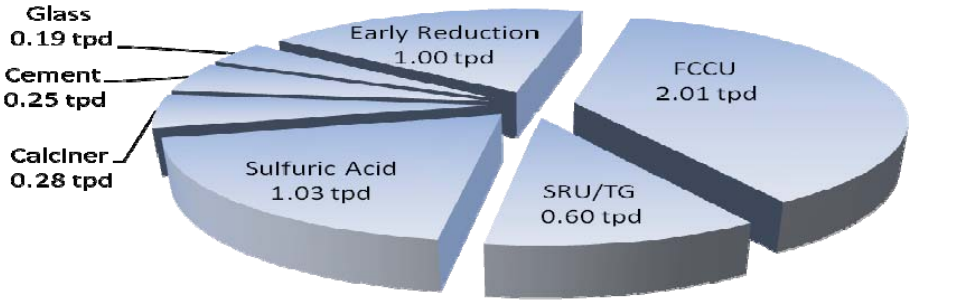
values for 25 years) based on the first set of consultants' (ETS/AEC and NEXIDEA) estimates. The second consultants estimated the costs of about $750 million dollars for the proposed projects.

The revised 6.1 tpd RTC reductions would be implemented over eight (8)years:

- 1.5 tons per day of reductions in compliance year 2012
- 1.5 tons per day of reductions in compliance year 2013
- 1.5 tons per day of reductions in compliance year 2014
- 0.32 tons per day of reductions in compliance year 2015
- 0.32 tons per day of reductions in compliance year 2016
- 0.32 tons per day of reductions in compliance year 2017
- 0.32 tons per day of reductions in compliance year 2018
- 0.32 tons per day of reductions in compliance year 2019

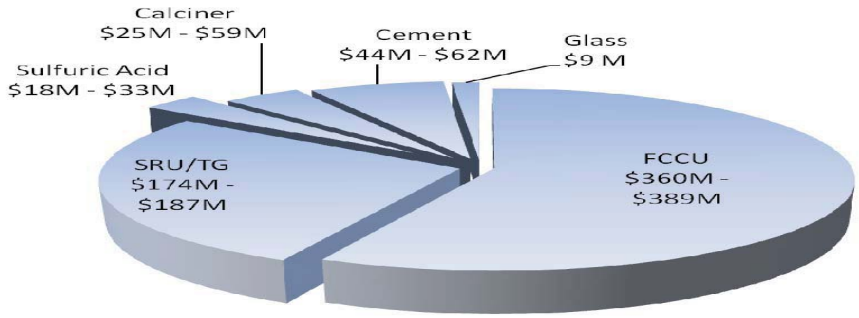
Staff proposed to submit the first 4.5 tons per day RTC reductions to EPA to satisfy the SIP commitment and help the Basin meets the standard in 2015. The remaining reductions would be submitted at a later phase.

FIGURE EX-3
Emission Reduction (Tons per Day) from 2005 Baseline



Total Emission Reductions from 2005 Baseline = 5.36 tons per day

FIGURE EX-4
Present Worth Values for 25 years (Million Dollars) Based on ETS/AEC, NEXIDEA's and Norton Engineering Estimates (Excluding Cost-Ineffective Controls of >$50 K per Ton)

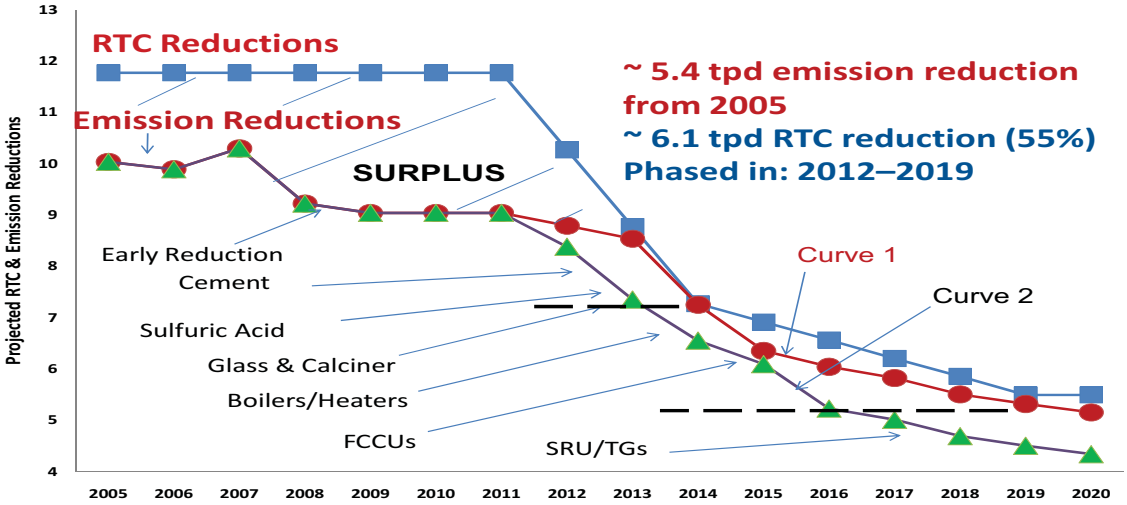


SOx RECLAIM project = $630 M - $738 M, 5.4 tpd emission reductions, cost effectiveness = $16 K - $19K per ton. Refinery sector = $561 M - $638 M, 3.9 tpd emission reductions.

Figure EX-5 shows the RTC reductions as proposed by staff. Figure EX-5 also shows the reported emissions from 2005 – 2008 and the amount of unused RTCs available in the market. In Figure EX-5, Curve 1 and Curve 2 represent two hypothetical but realistic emission reduction scenarios that use cost effectiveness as the key variable to phase-in source category compliance in future years. In Curve 1, it is assumed that BARCT would be implemented for cement, sulfuric acid, glass, and calciner by year 2014, and BARCT for FCCUs and SRU/TGs would be implemented after 2014. In Curve 2, it is assumed that RECLAIM facilities would implement voluntarily the cost-effective control measures identified by the consultants for boilers/heaters to meet the Tier 1 BARCT. The first dashed line in Figure EX-5 shows that because there is ample amount of RTCs currently available in the market comprised of unused RTCs (2.55 tpd) in the market, early reductions achieved at two refineries (1 tpd), and reductions from currently not operative cement kilns (0.25 tpd), the RECLAIM facilities will be in compliance with the proposed shave in 2014 without significant expenditures on BARCT for major equipment such as FCCUs and SRU/TGs. Implementing BARCT for FCCUs and SRU/TGs will likely take place after 2014 to meet the target of 2019. However, careful evaluation of the second dashed line in Figure EX-5 intersects with Curve 2 suggests that in perfectly operating market, many of the estimated expenditures for FCCU's and SRU/TG's controls may not be necessary after all.

The draft CEQA analysis for this proposed rule amendment was released on August 18, 2010. The draft socioeconomic analysis was released with this revised draft staff report. The draft rule language for the proposed Rule 2002 is attached with this revised draft staff report. Rule development is ongoing and staff is committed to working with all stakeholders throughout the process.

FIGURE EX-5 [2]
Staff's Proposal and Potential Compliance Scenarios



Emissions - Curve 1: BARCT for staff proposal. Curve 2: Additional opportunity for reductions from boilers/heaters

[2] The assumptions used in Figure EX-5 are as follows: 1) early implementation occurred in 2008-2009; 2) In late 2009, CPCC announced the shutdown of the cement kilns, which may or may not be permanent, and to the extent that when the economy improves, they plan to bring the cement kiln on-line. An assumption was made that either CPCC would sell their unused RTCs in 2013 or installed control equipment to achieve emission reductions; 3) Controls for sulfuric acid will be implemented in 2013, for glass and calciner in 2014, for FCCUs and SRUs in 2015 – 2020; and 4) any opportunity reduction from boilers/heaters will be implemented in 2012-2015.

Key Issues Raised by WSPA at the Refinery Committee Meeting on October 14, 2010

Staff's original proposal presented to the Governing Board on January 8, 2010 was:

- 4.5 tpd RTC reductions by 2014 (41% shave), and
- 7.5 tpd RTC reductions by 2017 (67.5% shave)

After numerous meetings with WSPA, in August, staff revised its proposal to:

- 4.5 tpd RTC reductions by 2014 (41% shave), and
- 6.1 tpd RTC reductions by 2019 (55% shave)

WSPA indicated that it would cost the refineries $2.85 billion to comply with 60% shave. WSPA hired a consultant firm (ENVIRON) to collect data from the refineries and perform analysis with the results aggregated and de-identified. In the August 18, 2010 Refinery Committee Meeting, the members of the Governing Board directed staff to analyze the costs provided by WSPA. Staff identified three "outliers" in WSPA's estimates that were substantially different from the consultants' estimates. If the costs for these three "outliers" were adjusted, then the costs estimated by WSPA would be in close comparison with the consultants' estimates. The three "outliers" are in the control costs of 1) Refinery 1's FCCU, 2) Refinery 3's FCCU, and 3) Refinery 3's SRU/TG.[3] Staff's analysis was presented at the September 22 Refinery Committee Meeting.

On October 12, 2010, WSPA revised its cost analysis to reflect staff's proposal of 55% shave. The overall costs estimated by WSPA were now $1.637 billion. WSPA indicated that it would cost $836 million to comply with BARCT. WSPA also indicated that complying with BARCT would not be enough; WSPA's members asserted that they would need to invest an additional of $801 million in "other" strategies to achieve additional emission reductions within WSPA-members' facilities to comply with the 55% shave. Table EX-3 and EX-4 show a cost comparison between WSPS's proposal and staff's proposal.

As shown in Table EX-3, staff and the consultants estimated that the refineries would reduce 3.92 tpd by installing 4 WGSs for the FCCUs, 3 WGSs for the SRU/TGs, 1 WGS for coke calciner and implementing other process modification at a cost (present worth value for 25 years) of between $561 million - $638 million and the cost-effectiveness of $16K - $18K per ton.

In comparison, as shown in Table EX-3, WSPA estimated that the refineries would reduce 3.81 tpd by 1) installing 2 WGSs for FCCUs, 2 WGSs for the SRU/TGs, and 1 WGS for coke calciner; 2) using SOx reducing additives in the other FCCUs; and 3) implementing other process modification. The cost (present worth value for 25 years) of these control strategies proposed by WSPA and its members was estimated at $836 million and the cost-effectiveness was estimated at $24K per ton. Even though WSPA's proposed main strategy does not meet BARCT on equipment by equipment basis (e.g. 5 ppmv for FCCUs, 5 ppmv for SRU/TGs), WSPA's proposal comes very close to staff's proposal on the actual emission reductions achieved (i.e. 3.81 tpd from WSPA's proposal versus 3.92 tpd from staff's proposal.)

[3] Detailed explanations are provided in Response #16 to WSPA's comments received from March 2010 – August 2010 in Chapter 14 - Comments & Responses of the Staff Report.

WSPA indicated that they must invest an additional $801 million in "other" strategies shown in Table EX-4 to secure adequate reductions at each member facility rather than relying on RTCs available in the open market to meet staff's proposed shave of 55%. However, the first two of the "other" strategies proposed by WSPA and its members in Table EX-4 are not cost-effective: 1) the strategy for SRU/TG is cost-ineffective at $213,277 per ton; and 2) the strategy for fuel gas treatment is also cost-ineffective at $104,445 per ton. While the first two strategies in Table EX-4 are not cost-effective, the third and fourth strategies are very cost-effective, and therefore would be reasonable to implement.

In addition, as shown in Table EX-5, the 55% shave would require RTC reductions in the amount of 5.17 tpd RTC from the refinery sector. WSPA and the refineries have demonstrated that they can achieve 5.31 tpd reductions with the main strategy and the two "other" (third and fourth) cost-effective strategies negating the need for implementing the cost-ineffective strategies proposed by WSPA and its members. The costs estimated by WSPA to achieve 5.31 tpd reductions are $917 million, which reflects a cost-effectiveness of $18,925 per ton SOx reduced.

Furthermore, in addition to the 5.31 tpd actual reductions that can be obtained through WSPA's strategies, staff estimated that there would be an additional of about 1.47 tpd potentially available RTCs from other sources.[4] As a result, there would be about 6.57 tpd combined RTCs and actual emission reductions to comply with the 55% shave of 5.17 tpd reduction target attributed to WSPA members and subsequently this would result in a surplus of more than 1.5 tpd.

In conclusion, staff has concluded that WSPA's assumption for additional costs of $801 million for an additional of 2.12 tpd reduction would not be reasonable under a market-based program.

[4] The 1.47 tpd potentially available RTCs post-sahve in the market comprised of:

- 0.21 tpd post-shave remaining unused RTCs (which is calculated as follows: The surplus RTCs estimated from the 2005 baseline are 1.73 tpd (11.77 – 10.04 = 1.73 tpd). WSPS already accounted for 1.30 tpd surplus RTC in their strategy, therefore the remaining unused RTCs are 1.73 – 1.30 = 0.43 tpd pre-shave and (0.43 tpd)(0.486) = 0.21 tpd post shave)
- 0.0009 tpd post shave hold by non-RECLAIM investors. (As of October 14, 2010, there are only two remaining investors that are non-RECLAIM facilities, and these two investors hold approximately 1,306 lbs of RTCs pre-shave or 0.002 tpd pre-shave or 0.0009 tpd post-shave.)
- 0.60 tpd from non-refinery sector. (Assuming that the non-refineries would install control technologies proposed by either WSPA to meet the 51.4% shave; and would have surplus RTCs to sell in the market.)
- 0.66 tpd from refinery sector. (Assuming that the non-refineries would install control technologies proposed by either WSPA to meet the 51.4% shave; and would have surplus RTCs to sell in the market.)

TABLE EX-3
Cost Comparison between WSPA's and AQMD's Main Strategies

AQMD's Main Strategy							WSPA's Main Strategy					
		Limit	Reduction (TPD)	Range of Costs ($Million)		CE ($/ton)		Limit	Reduction (TPD)	Costs ($Million)	CE ($/ton)	
FCCU	4 WGS	5 ppmv	2.01	360	389	$20K - $21K	FCCU	2 WGS	5 ppmv	1.60	328	$22K
								3 DeSOx	6-35 ppmv			
SRU	3 WGS	5 ppmv	0.60	174	187	$31K - $44K	SRU	2 WGS and other process modification	5-25 ppmv	0.36	331	$101K
Other Units	1 WGS and other process modification	10 ppmv	0.31	27	62	$9K - $22K	Other Units	1 WGS and other process modification	Not specified	0.98	177	$20K
Early Reductions (FCCU, SRU)	1 WGS and other process modification	5 ppmv	1.00	-	-		Early Reductions (FCCU)	1 WGS	5 ppmv	0.87	-	
Sub Total			3.92	561	638	$16K-$18K	Sub Total			3.81	836	$24K

TABLE EX-4
Costs Information on WSPA "Other" Strategies

Project		Reduction (TPD)	Costs ($Million)	Cost Effectiveness ($/Ton)
SRUs	15 ppmv	0.13	253	213,277
Fuel Gas Treatment	<40 ppmv	0.49	467	104,445
CEMS Improvements	3 projects	0.26	4	1,686
RTCs		1.24	77	6,805
Total for Others		**2.12**	**801**	**41,406**
Total for Others (excluding cost-ineffective projects)		**1.5**	**81**	**5,918**

TABLE EX-5
Likely Refinery Compliance Strategy

WSPA Strategies	Reduction (TPD)	Costs ($Million)
1. WSPA's Main Strategy	3.81	836
2. "Other" Cost-Effective WSPA Strategies	1.5	81
Total Actual Reductions & Costs	**5.31**	**917**
Average Cost Effectiveness = $18,925 Per Ton		

Key Issues Raised Prior to the Informational Hearing on January 8, 2010

There are four (4) key issues raised by the stakeholders: 1) BARCT determination, 2) water and wastewater, 3) market viability, 4) shaving methodology for facilities that are not subject to new BARCT, and for facilities that are subject to new BARCT. Staff's responses to these key issues are summarized below:

1) BARCT Determination

Stakeholders commented that staff should pursue only 3 tons per day reduction as stated in the 2007 AQMP to meet the SIP commitment. The current trend of PM2.5 is declining and does not warrant a SOx shave that is estimated to cost industry over one billion dollars. In addition, the costs and cost effectiveness were under-estimated and environmental impacts (e.g. water, energy) were not appropriately analyzed.

Staff's Response: For a market based incentive program, staff is required by the H&S codes to conduct periodic BARCT reassessment and demonstrate equivalency with command-and-control rules which would otherwise be developed as a result of BARCT reassessment:

> *"…achieve an equivalent or greater level of emission reductions at an equivalent or lower cost as would have been achieved under a command-and-control rule"*

The percent RTC reduction (55%) that staff estimated for the SOx RECLAIM universe is still much less stringent than the percent reduction (90% - 98%) that could be imposed to specific categories of sources such as FCCUs, SRU/TGs, sulfuric acid plant, cement plant, coal fired boiler, and glass melting furnaces under the command-and-control approach.

Furthermore, it should be noted that SOx is a significant building block of PM2.5. Chemical speciation of PM2.5 samples indicated that in the South Coast Air Basin 25% of the ambient PM2.5 is attributed to contribution from sulfates. Furthermore, SOx reductions are highly effective in reducing ambient PM2.5 levels as compared to other primary and secondary contributors to PM2.5 formation (1 tons SOx = 1.5 tons PM2.5 = 15 tons NOx). Therefore, the reductions of SOx are essential for the Basin to meet the federal annual standard of PM2.5 by 2015 and the federal 24-hour average standard of PM2.5 by 2020. As indicated in the 2007 AQMP, the control strategies included in the Plan to meet the annual PM2.5 standard when fully implemented will fall short of meeting the 24-hour standard by approximately 30%. Therefore, additional reductions above and beyond the control strategies committed in the 2007 AQMP for meeting the 2015 annual PM2.5 standard are necessary to meet the 24-hour PM2.5 standard in 2020. For further information, please refer to Chapter 5 of the 2007 AQMP.

In addition, it is worth mentioning that the U.S. EPA is proposing to set a new, more stringent, one-hour standard for SO2 between 50 – 100 parts per billion (ppb) and revoke the current 24-hour of 140 ppb and the current annual standard of 30 ppb to further protect public health. The U.S. EPA and the state are also proposing to tighten the annual average PM2.5 standard.

Regarding the costs and cost effectiveness analyses, after verifying the consultants' analyses, staff formulated its proposal based largely on consultants' recommendations. In response to comments from industry related to costs and in an effort to optimize the effectiveness of its proposal, staff removed the least cost effective control strategies (exceeding $50,000 per ton SOx

reduced) from staff proposal. While these refinements to the staff proposal have reduced anticipated reductions by 5% (0.33 tons per day), they improved the overall cost effectiveness to $16 K- $19K per ton SOx reduced and reduced the total compliance costs by 25%. To further reduce the cost impacts, staff proposes to spread the potential emission reductions over 8 years starting from 2012. Staff also proposes to submit only 3 tons per day reductions to satisfy the SIP commitment in Phase 1 (i.e. 3 tpd reductions by 2014). The remaining reductions will be submitted later.

2) Water & Wastewater Impacts

Stakeholders commented that the water and wastewater impacts of the project would be significant.

Staff's Response: Industry argues that staff proposal will result in significant increases on water demand and wastewater impacts due to the water-intensive operation of wet gas scrubbers. To the extent that wet gas scrubbers are used to comply with the proposed SOx control requirements of the proposed project, staff acknowledges that the total water demand will increase, (by approximately 1 million gallons per day or 3 acre feet per day), but increased water demand over current water usage at affected facilities is well below the SCAQMD's significance threshold of 5 million gallons per day of total increased water demand (i.e. potable water, recycled water, and groundwater). The information that staff received to date from the water purveyors and collected from their 2005 Urban Water Management Plans is that there are adequate supplies to meet the total water demand because the water demand can be largely offset by recycled water and groundwater sources. Availability of water supplies to meet increased water demand is another water demand significance threshold criterion. Even though the potential increase in total water demand is below the SCAQMD's significance threshold of 5 million gallons per day, and because California is in a state of emergency for drought, staff has identified another criterion for what would be considered a substantial use of when determining whether a project, could be considered a "water demand" project as defined by CEQA. Using the more stringent criterion of what constitutes a potable water demand project, the potable water demand of the proposed project would exceed the more stringent criterion if recycled water was not utilized. Currently, recycled water is used at the three refineries in the basin and the water purveyors indicated that, as part of their Urban Water Management Plans, they are in the process of expanding their pipeline service to serve the remaining refineries. Therefore, in the spirit of utilizing abundance of caution, it was determined to classify the water impacts of the proposed project as significant and the impact of the proposed project can be mitigated by the use of recycled water, if available.

Relative to the wastewater impact, staff's analysis based on the Survey [5] conducted among the affected facilities indicates that the overall wastewater increase will be less than 2% and that the facilities have adequate wastewater treatment capacity to treat the increase in wastewater generated. An increase of 25 percent would trigger a permit revision and would be considered a significant adverse wastewater impact. Since all of the affected facilities have been shown to have a potential wastewater increase less than 25 percent, no modifications to any existing wastewater discharge permits are anticipated as a result of the proposed project. Nevertheless,

[5] Staff developed a Survey Questionnaire and sent to the impacted facilities in July 2009 to collect current information related to water usage and wastewater generated at the facilities. The results of the responses from the facilities are summarized in Chapter 11 of this Staff Report.

staff will continue working with water purveyors and the impacted facilities to further refine the water demand analysis and analyze other impacts and alternatives.

3) Market Viability

Stakeholders commented that there were not enough trading partners, the SOx market was very competitive and reserved, and there was an uneven distribution of RTC holdings.

Staff's Response: For a market based incentive program, staff is required by the H&S codes to conduct periodic BARCT reassessment and demonstrate equivalency with command-and-control rules which would otherwise be developed as a result of BARCT reassessment. To ease the issues identified by the stakeholders, staff is proposing to return a portion of the reductions to the facilities as a compliance margin (10%). This approach was also utilized as part of the 2005 NOx RECLAIM amendments. In addition, staff is proposing to establish a set-aside, non-tradable reserve that could be tapped in when RTC value in the open market reach a certain level. Staff is also proposing to submit 4.5 tons per day reductions by December 2014 to meet the minimum AQMP obligation and will submit the remaining at later date no later than December 2019. Staff believes that compliance with a facility cap still provides the facilities more operational flexibilities than being subject to stringent requirements in command-and-control rules and regulations.

4) Shaving Methodology

Facilities with no equipment subject to new BARCT commented that the uniform shave was not equitable, would create significant difficulties for them to stay in compliance, and indicated that they had limited ability to buy RTCs from large facilities. While WSPA and the refineries that are subject to new BARCT argued strongly during the rule development process in 2008-2009 for the use of a shave methodology that was consistent with that used during the 2005 NOx RECLAIM amendment. During the later phase of the rule development process, they commented that staff should use the 2005 as baseline for the shave, not shave the 1.98 tpd RTCs converted from ERCs and portion reserved for Clean Fuel projects, and not set new BARCT for SRU/TGs and cement kilns.

Staff's Response: Because of the non-uniform emissions and RTC distributions in the SOx RECLAIM market (11 major facilities hold 87% RTCs and contribute more than 94% of emissions, and the remaining 21 facilities hold only 6% RTCs and contribute about 6% of emissions), a uniform percent shave of 52% across the board is not the ultimate solution. The 21 facilities that have no equipment subject to the new BARCT cannot reduce their emissions further, cannot sustain operation since they had limited ability to buy RTC from large facilities, and therefore cannot remain in compliance after the shave. To keep the 21 facilities active in the SOx market, staff is proposing to not shave the RTC holdings for these facilities if the RTC holdings are below their initial allocations provided to them at the start of the RECLAIM program. However, the amount of RTC holdings above their initial allocation will be shaved at the same rate as other 11 facilities and investors. With this approach, staff estimated that instead of a 52% shave across the board, the 11 facilities will have a shave of 55%, 18 of the 21 facilities will be exempt totally from the shave, and 3 of the 21 facilities that have RTC holdings above their initial allocations will be shaved up to the initial allocation levels. Any trading from August 29, 2009 to the Governing Board hearing date will also be shaved to ensure that the 14 facilities subject to shave as of August 29, 2009 will not sell their RTC holdings to a third party investor or any of the remaining 18 facilities to avoid the shave.

Staff used the 1997 baseline to be consistent with the approach used in the NOx RECLAIM adopted by the Governing Board in 2005. Using the audited 1997 baseline emissions, grown to 2019 based on assumptions embedded in the 2007 AQMP, would result in 55% shave to the 11 facilities, including the refineries and investors, whereas using the audited 2005 baseline would result in 59% shave. The emission profile changed significantly since 1997. Active facilities have purchased RTCs from shutdown facilities to partially sustain/expand their facility operations. These investments would be wasted if the shave is based strictly on today BARCT and current emission profile. [6] However, the SRU/TGs and cement kilns should not be exempt from BARCT because retrofit control technologies are available for these sources. The 1.98 tons per day RTCs converted from ERCs at the start of the RECLAIM program are not inherently protected from the shave since their values were reduced at approximately 35% in Tier II, and furthermore, even ERCs for non-RECLAIM facilities are often recalled and reduced in values.

~~Draft~~ Staff Report

The attached ~~revised Draft~~ Staff Report includes the following information:

- BARCT determinations;
- Cost-effectiveness;
- Summary of consultants' analyses;
- Method of determining RTC reductions and amount estimated;
- Timing of reductions; and
- Preliminary methods of applying reductions.

Draft Staff Report changes since December 2009

Since the release of the draft Staff Reports in the Public Workshop conducted on June 23, 2009, and the Informational Hearing on January 8, 2010, staff modified the document as follows:

- Removed control technology recommendations with cost effectiveness larger than $50 K per ton (1 for FCCU, 2 for SRU/TGTUs, 1 for Boilers/Heaters) from the cost analysis, emission and RTC reduction analyses,
- Added achieved-in-practice information,
- Added a draft analysis on water and waste, and
- Provided responses to the comments received in the Public Workshop,
- Included analysis by Norton Engineering (NEC) and a cost effectiveness analysis based on NEC's recommendations,
- Used the audited 1997 emissions in the analysis for RTC shave,
- Excluded the emission reductions of 0.85 tpd estimated from boilers/heaters since the proposed BARCT limit is retained at the previous BARCT level of 40 ppmv, and
- Extended the implementation period from 2017 to 2019 and reflected growth embedded in the 2007 AQMP.

~~Staff will continue to revise the draft Staff Report as needed in the future.~~

[6] Total RTCs from shutdown facilities as of today date are 1.42 tons per day of which investors have 0.83 tons per day. The amount of RTCs hold by investors will be shaved at the same rate as the RTCs hold by the 11 facilities that have equipment subject to BARCT.

Chapter 1 - Background

1.1 Legislative Authority

The California Legislature created the Air Quality Management District (AQMD) in 1977 (the Lewis-Presley Air Quality Management Act, Health and Safety Code Section 40400 et seq.) as the agency responsible for developing and enforcing air pollution control rules and regulations in the South Coast Air Basin (Basin). By statute, the AQMD is required to adopt an Air Quality Management Plan (AQMP) demonstrating compliance with all state and federal ambient air quality standards for the Basin (Health and Safety Code (H&SC) §40460(a)). In addition, the AQMD must adopt rules and regulations that implement the AQMP (H&SC §40440(a)).

The California Clean Air Act (CCAA) also requires the AQMD to achieve and maintain state standards by the earliest practicable date and for extreme non-attainment areas and to implement all Best Available Retrofit Control Technologies (BARCT) for existing sources. H&SC §40406 specifically defines BARCT as "…best available retrofit technology means an emission limitation that is based on the maximum degree of reduction achievable taking into account environmental, energy, and economic impacts by each class or category of source."

1.2 Fine Particle Regulation and SOx Control

Scientific studies have found an association between exposure to particulate matter and significant health problems, including: aggravated asthma; chronic bronchitis; reduced lung function; irregular heartbeat; heart attack; and premature death in people with heart or lung disease. Individuals particularly sensitive to fine particle exposure include older adults, people with heart and lung disease, and children.

In July 1997, the U.S. EPA promulgated the National Ambient Air Quality Standards for Fine Particles (PM-2.5). The annual standard is a level of 15 micrograms per cubic meter (μg/m3) based on a 3-year average of annual mean PM2.5 concentrations. The 24-hour standard is a level of 65 μg/m3, based on a 3-year average of the 98th percentile of 24-hour concentrations. In September 2006, EPA significantly strengthened the previous daily fine particle standard from 65 μg/m3 to 35 μg/m3. This standard increases protection of the public from short-term exposure to fine particles.

There are multiple areas across the country exceeding the federal PM2.5 standards. Unfortunately, Southern Californians are burdened with a disproportional share of the PM2.5 exposure estimated to be 52 percent of the nation wide exposure resulting in approximately 5,400 premature deaths annually.

In March 2007, EPA issued a final rule, known as the *Clean Air Fine Particle Implementation Rule*, requires non-attainment areas to meet PM 2.5 standards by 2010. The Basin is classified as a non-attainment area and the District must develop an Air Quality Management Plan by 2008 to address the implementation processes to substantially reduce PM2.5 in order to meet the PM2.5 standards by 2010. The attainment date of 2010 may be extended for up to five years; however the District must achieve PM2.5 standards as expeditiously as possible, no later than 2015. The recently adopted AQMP revision in 2007 serves as the region's attainment demonstration to the federal ozone and PM2.5 standards and includes a formal request to the U.S. EPA to extend the PM2.5 attainment date to 2015.

Five main types of pollutants contribute to ambient PM2.5 concentrations: direct PM2.5 emissions, sulfur dioxide, nitrogen oxides, ammonia and volatile organic compounds. The effect of reducing emissions of each of these pollutants varies by areas depending on the composition, concentrations of these pollutants and other area-specific factors. The EPA's *Clean Air Fine Particle Implementation Rule* requires the District to implement all reasonably available control measures (RACM) and reasonably available control technology (RACT), considering economic and technical feasibility and other factors that are needed to show that the area will attain the fine particle standards as expeditiously as practicable. In this *Clean Air Fine Particle Implementation Rule*, the U.S. EPA specifically requires the non-attainment areas to evaluate all control measures to reduce direct PM2.5 emissions, as well as PM2.5 precursors, especially SOx. While the 2007 AQMP lays out a multi-pollutant control strategy to demonstrate attainment with the federal PM2.5 standards, it identifies NOx and SOx reductions by far as the two most effective tools in reaching attainment with the PM2.5 standards.

1.3 Current RECLAIM Program

On October 15, 1993, the District's Governing Board adopted the RECLAIM program and Regulation XX. Regulation XX includes 11 rules that specify the applicability, NOx and SOx allocations, general requirements, as well as monitoring, reporting, and recordkeeping requirements. The RECLAIM program started with 41 SOx and 392 NOx facilities in 1993. By the end of 2005 compliance year, the program includes 33 SOx and 304 NOx facilities.

Under the RECLAIM program, facilities are issued SOx and NOx annual allocations, or also known as facility caps. The facility caps declined annually to reflect the levels of BARCT that were envisioned to be in place at the RECLAIM facilities. To meet the annual declining allocation, RECLAIM facilities have the flexibility of installing pollution control equipment, changing operations, or purchasing RECLAIM Trading Credits (RTCs). It was envisioned that a BARCT analysis be conducted every three years to capture any advancement in control technology and to assure that the RECLAIM program would achieve emission reductions as expeditiously as possible.

Throughout the years, there have been a number of amendments to the RECLAIM rules. In January 2005, a BARCT analysis was re-conducted for NOx, and as a result of this analysis, the

RECLAIM rules were amended and the NOx annual allocations previously given to the NOX RECLAIM facility were further reduced by approximately 20% to reflect BARCT.

For SOx, the annual allocations given decline annually from 1993 until 2003, and remain constant since 2003. The 2003 SOx allocations reflected the BARCT levels envisioned for SOx in 1993. BARCT analysis for SOx has not been reevaluated since 1993, and is reevaluated with this proposed amendment.

1.4 Control Measure CMB-02

Control Measure CMB-02 estimated that BARCT would be implemented to achieve approximately 3 tons per day SOx emission reductions from 2011 to 2014. The control measure estimated that reducing sulfur content in refinery fuel gas could achieve approximately 1.6 tons per day SOx; and reducing SOx emissions from fluid catalytic cracking units could achieve 1.3 tons per day SOx. It was expected that the control measure implementation may either affect all SOx RECLAIM facilities or only affect the facilities that have highest SOx emissions and that can employ BARCT. During the rulemaking process, it was envisioned that staff will also explore the feasibility to incorporate the control concept of Control Measure MCS-01 - Facility Modernization to achieve reductions beyond 2014.

1.5 Affected Facilities

Currently, there are 32 facilities in the SOx RECLAIM Program. Six of the 32 facilities are refineries with substantial operational capacities compared to 150 refineries in the U.S, and Chevron and BP are the two largest refineries in the state of California based on the operational capacities reported. [7] These 32 RECLAIM facilities have SOx emissions greater than or equal to four tons per year in 1990 or any subsequent year. SOx facilities in the RECLAIM program have a wide range of equipment such as Fluidized Catalytic Cracking Units (FCCU), furnaces, kilns, sulfuric acid plants, tail gas units, boilers, heaters, internal combustion engines, and gas turbines. The emission inventory of these facilities and the top emitters at these facilities is discussed in Chapter 1, Section 1.7.

[7] Operable capacities of six refineries and their ranks compared to 150 refineries in the U.S.

Refinery	Capacity (Barrels per Day)	Rank in the U.S.
Chevron	279,000	17
BP West Coast Products LLC	265,000	18
ExxonMobil	149,500	47
ConocoPhillips	139,000	52
Tesoro	96,860	64
Ultramar Inc.	80,887	71

Reference: The U.S. Energy Information Administration, www.eia.doe.gov/neic/rankings/refineries.htm, July 2010. Refinery individual crude capacity data were reported by individual refinery as of January 1, 2009. See Appendix E.

1.6 2007 Air Quality Management Plan

The 2007 Air Quality Management Plan (AQMP) was based on the 2002 base year inventory. In the 2007 AQMP, RECLAIM facilities were reported to emit a total of 12 tons per day SOx as shown in Table 1-1. In 2002, the SOx emissions from RECLAIM represented more than 50% of the total SOx emissions from stationary sources, and 23% of the total SOx emissions from the entire basin.

TABLE 1-1

Summary of Emissions by Major Source Category (2002 Base Year)
(Tons per Day)

Source Category	NOx	SOx
Stationary Sources		
Fuel Combustion	35	2
Waste Disposal	2	0
Cleaning and Surface Coatings	0	0
Petroleum Production and Marketing	0	7
Industrial Processes	0	0
Solvent Evaporation		
Consumer Products	0	0
Architectural Coatings	0	0
Others	0	0
Misc. Processes	27	0
RECLAIM Sources	**29**	**12**
Total Stationary Sources	**93**	**22**
Total Mobile Sources	**1000**	**31**
TOTAL	**1093**	**53**

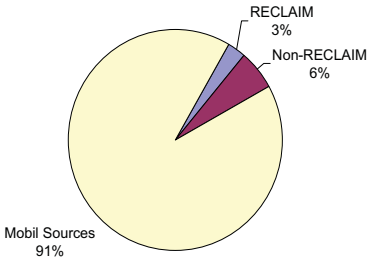
Reference: 2007 AQMP. The actual emissions from RECLAIM facilities of 12 tpd were also reported in the "Annual RECLAIM Audit Report for the 2002 Compliance Year", dated March 5, 2004. Total RTCs (allocations and converted ERCs) were reported to be 13 tpd in the 2002 RECLAIM Audit Report.

Data presented in Table 1-1 and Figure 1-1 present a sharp distinction between the distributions of NOx versus SOx emissions in the basin, and explain the importance of undertaking a BARCT reassessment for RECLAIM facilities in this amendment of Regulation XX. As shown in Table 1-1 and Figure 1-1, the RECLAIM facilities contribute to only about 3% of the NOx emissions in the entire South Coast Air Basin (Basin). A majority of NOx emissions in the Basin comes from mobile sources. In contrast, the RECLAIM facilities contribute to more than 23% of SOx emissions in the Basin and more than 50% of SOx emissions from stationary sources.

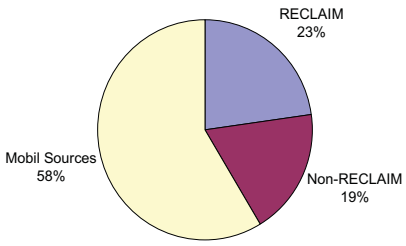
The top 10 ranking sources of SOx emissions in the basin in 2002, 2014 and 2023 are shown in Table 1-2. SOx emissions from RECLAIM facilities are ranked #2, second only to ships and commercial boats. Given the effectiveness of the SOx reduction in improving PM2.5 air quality

and ultimately reaching the federal PM2.5 standards, searching for additional emission reductions in RECLAIM category sources becomes an important effort.

FIGURE 1-1
NOx and SOx Emission Distribution (2002 Baseline)



NOx Emissions



SOx Emissions

TABLE 1-2
Top Ten Ranking of SOx Emissions from Highest to Lowest

	2002 Base Year	2014 Base Year	2023 Base Year
1	Ships & Commercial Boats	Ships & Commercial Boats	Ships & Commercial Boats
2	RECLAIM Sources	RECLAIM Sources	RECLAIM Sources
3	Non-RECLAIM Sources	Aircraft	Aircraft
4	Heavy-Duty Diesel Trucks	Manufact/Industrial Combustion	Manufact/Industrial Combustion
5	Aircraft	Light-Duty Passenger Cars	Light-Duty Passenger Cars
6	Trains	Light-Duty Trucks	Light-Duty Trucks
7	Off-Road Equipment	Service/Commercial Combustion	Service/Commercial Combustion
8	Light-Duty Passenger Cars	Non-RECLAIM Sources	Non-RECLAIM Sources
9	Manufact/Industrial Combustion	Waste Burning & Disposal	Waste Burning & Disposal
10	Light-Duty Trucks	Residential Fuel Combustion	Residential Fuel Combustion

Reference: 2007 AQMP. Note that Non-RECLAIM sources are sources that are not included in the RECLAIM program such SOX emissions emitted from flares or generated under upset conditions.

The 2007 AQMP calls for significant reductions of SOx from both stationary and mobile sources by 2014. As shown in Table 1-3, a regional modeling in the 2007 AQMP indicates that an overall emission reduction of 24 tons per day SOx is needed to meet the particulate standard in 2014. In that 24 tons per day reduction, mobile source control measures from California Air Resources Board and the District can potentially reduce 21 tons per day. The remaining 3 tons per day reductions comes from the stationary source control measure for RECLAIM facilities. A BARCT reassessment for SOx is therefore essential to identify the potential sources that can generate the 3 tons per day SOx reduction required for 2014.

TABLE 1-3
Emission Reductions for 2014 Based On
Average Annual Emissions Inventory (tons per day)

Sources	SOx
Year 2014 Baseline	43
Emission Reductions:	
• District's Short Term/Mid-Term Stationary Source Control Measures	**3**
• CARB's Proposed State Strategy	20
• District's Proposed Mobile Source Control Measures	1
Total Reductions (All Measures)	24
2014 Remaining Emissions	19

Reference: Table 4-10 of 2007 AQMP

1.7 2005 Annual Emissions Report

RECLAIM facilities reported a total of 10 tons per day SOx from January to December 2005. As shown in Table 1-4, the top twelve SOx emitting facilities emitted 9.47 tons per day SOx, which are about 95% of total emissions from RECLAIM universe. The top 11 emitting facilities where staff will focus in to find the sources of emission reductions include:

- Six refineries: BP, ConocoPhillips, Chevron, ExxonMobil, Ultramar, and Equilon (Tesoro.)
- Two sulfuric acid plants: Rhodia Inc. and ConocoPhillips
- One coke calciner plant: BP located in Wilmington
- One cement manufacturing plant: California Portland Cement Co.
- One container glass manufacturing plants: Owns Brockway Glass Container Inc.

TABLE 1-4
SOx Emissions at RECLAIM Facilities (Compliance Year 2005)

Facility ID	Facility Name	Cycle	Emissions (tons per year)	Emissions (tons per day)	Cumulative Percentage
131003	BP WEST COAST PROD.LLC BP CARSON REFINERY	2	679.4	1.86	19%
800363	CONOCOPHILLIPS COMPANY	2	421.2	1.15	30%
114801	RHODIA INC.	1	410.7	1.13	42%
800370	EQUILON (Now is TESORO)	1	363.6	1.00	52%
800030	CHEVRON PRODUCTS CO.	2	362.5	0.99	62%
800089	EXXONMOBIL OIL CORPORATION	1	333.5	0.91	71%
800026	ULTRAMAR INC	1	312.8	0.86	80%
800362	CONOCOPHILLIPS COMPANY	1	210.7	0.58	85%
131249	BP WEST COAST PRODUCTS LLC,BP WILMINGTON	1	130.1	0.36	89%
800181	CALIFORNIA PORTLAND CEMENT CO	2	100.5	0.28	92%
7427	OWENS-BROCKWAY GLASS CONTAINER INC	1	74.7	0.20	94%
108701	SAINT-GOBAIN CONTAINERS, INC. (Not in Operation)	1	55.9	0.15	95%
	OTHER RECLAIM FACILITIES	1 and 2	165.0	0.45	100%
	Total		**3621**	**9.92**	

Reference: Based on the 2005 Annual Permit Emissions Report (January 2005 – December 2005), the emissions reported for 2005 were 9.92 tons per day. Please note that the audited 2005 emissions were 3,663 lbs (10.04 tons per day) as shown in the 2010 Annual RECLAIM Audit Report, March 5, 2010.

Table 1-5 shows the distribution of SOx emissions with respect to the equipment/processes at RECLAIM facilities. As shown in Table 1-5, top emitters at RECLAIM facilities include fluid catalytic cracking units, sulfur recovery and tail gas treatment units, refinery boilers and heaters burning refinery gases, coke calciner, cement kilns, sulfuric acid absorption tower and glass melting furnaces. Staff will focus in reassessing BARCT for these top emitters which emit more than 80% of SOx emissions at RECLAIM facilities.

TABLE 1-5
Distribution of SOx Emissions at RECLAIM Facilities

Equipment/Processes	Percentage of Emissions
Fluid Catalytic Cracking Units	33%
Sulfur Recovery & Tail Gas Units	10%
Refinery Process Heaters and Boilers	31%
Cement Kilns – Glass Melting Furnaces	7%
Sulfuric Acid Manufacturing	12%
Other Miscellaneous Processes/Equipment	7%

Reference: 2005 baseline emissions

Table 1-6 shows SOx emissions reported from 2002 to 2007, grouped by compliance year and calendar year (e.g. SOx emissions reported for the 2003 compliance year were the emissions reported from January 1, 2003 – December 31, 2003 for Cycle 1 RECLAIM facilities, and from July 1, 2003 – June 31, 2004 for Cycle 2 facilities. SOx emissions reported for the 2003 calendar year were the emissions reported from January 1, 2003 – December 31, 2003 for both Cycle 1 and Cycle 2 facilities.) The average reported emissions from 2003 – 2007 compliance year were approximately 10 tpd (Staff did not include year 2002, and the years before 2002 in the average, because the Tier II shave started in 2003.) Year 2005 emissions are closest to the average, and thus stand out to be the most representative emissions for the period from 2003 – 2007.

TABLE 1-6
SOx Emissions Reported by RECLAIM Facilities from 2002 – 2007

Year	SOx Emissions by Compliance Year (tpd)	SOx Emissions by Calendar Year (tpd)
2002	11.84	12.17
2003	10.56	11.08
2004	9.85	9.85
2005	**9.92**	**10.13**
2006	9.81	10.24
2007	10.27	
Average (2003 - 2007)	**10.08**	

Chapter 2 – Best Available Retrofit Control Technology

2.1 Definition

Best Available Retrofit Control Technology (BARCT) is defined in California Health and Safety (H&S) Code §40406 as:

> *"… an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, & economic impacts by each class or category of source."*

In addition, Section §40440(b) (1) requires the District to adopt rules that requires the use of BARCT for existing sources:

> *"Require the use of best available control technology for new or modified sources and the use of best available retrofit control technology for existing sources."*

The BARCT analysis procedure for RECLAIM is identical to any BARCT analysis procedure used in developing a command-and-control rule. In RECLAIM, however, the BARCT levels are mainly used for assessing programmatic RECLAIM Trading Credit (RTC) reductions. Unlike other facilities that are subject to a command-and-control rule, RECLAIM facilities are not required to meet the BARCT levels at all times. RECLAIM facilities are provided the flexibility to meet the programmatic reductions by various means, such as installing control devices or buying RTCs.

It should be noted that California H&S Code §39616 requires a market incentive program to achieve an equivalent or greater level of emission reductions at an equivalent or lower cost as would have been achieved under a command-and-control rule. Since the adoption of RECLAIM in 1993, staff has not conducted any BARCT analysis for SOx. Starting with the 2003 AQMP, staff committed to conduct a BARCT analysis for RECLAIM facilities every three years to assure that RECLAIM and non-RECLAIM facilities are subject to the same BARCT standards based on state-of-the-art control technologies.

2.2 BARCT Evaluation Process

In order to identify BARCT meeting the definition of California Health and Safety (H&S) Code §40406, staff conducted the following procedure:

2.2.1 Identify Technology That Can Achieve Maximum Degree of Reduction

To identify technology that can achieve maximum degree of reduction for this project, staff conducted a thorough and extensive research of the:

1. Control technology (both existing technology and potential future technology) from literature research, consultations with manufacturers/vendors, and expert consultants;

2. Federal, state, or other air pollution control district or agency rules/regulations; and

3. U.S. EPA RACT/BARCT/LAER Clearinghouse, CARB database, and other state and local district permitting database to search for recent BACT or BARCT implementation.

It should be noted that in the rule making process staff is not obligated or limited to look at fully commercialized available technologies. Sometimes staff is called upon to develop technology forcing rules. In this situation, staff can consider technology that has not been applied to full scale operations, and provide sufficient time in the rule language to assist the technology to reach maturity. In addition, staff can develop alternative compliance provisions to handle situations where the technology cannot be fully developed.

Staff will consider feasible retrofit control technology, which is a technology that has been previously installed and operated successfully at a similar type of source, or has practical potential for application to the source (i.e. has been successfully applied to similar sources with similar gas stream characteristics).

Staff will also consider currently available retrofit control technology, which is a control technology that 1) is being offered commercially by vendors, or 2) is in commercial demonstration or licensing. Technologies that are in development and testing stages are generally classified as not currently available, but if available in the future, will be considered in the BARCT determination as well.

In July 2008, staff awarded two contracts to two individual contractors and a sub-contractor to conduct an independent analysis on feasible/available control technologies and assess costs and cost effectiveness of control technologies. The contractors were required to identify at least two available control technology manufacturers/vendors for each of the seven categories of sources. The contractors were also asked to collect the manufacturers' performance guaranteed letters. The results are of staff's work and consultants' analyses are summarized in Chapter 3 – Chapter 9 of this report.

A summary of staff's review on federal, state or other air pollution control districts' regulatory requirements is shown in Appendix B of this report. [8]

[8] In addition, please also see staff's review of regulatory requirements shown in Appendix VI of the 2007 AQMP – RACM Demonstration.

2.2.2 Evaluate Control Effectiveness

After the technically feasible and available control technologies were identified, staff evaluated the control effectiveness of the control technology using the control efficiency, or the outlet SOx concentration, or the emission factor reported for each control technology. These control effectiveness information was obtained by considering data available through permitting, source testing, engineering estimates, or performance guarantees by the control manufacturers/vendors.

As part of the contracts, the contractors were required to assess the levels of emission reductions that could be achieved from at least two different types of control technology. The results are summarized in Chapter 3 – Chapter 9 of the Staff Report.

2.2.3 Conduct Top-Down Cost Effectiveness Analysis

After the control effectiveness is established, a top-down cost effectiveness analysis starting with the most effective control technology was conducted to provide information on emission reductions and cost effectiveness associated with different control technologies and different levels of control.

The top-down cost effectiveness analysis must consider site-specific, physical limitation, as well as operational characteristics of the equipment at the facilities. Equipment costs, installation costs, annual operating costs, the useful life of the control equipment are all captured in this analysis to generate a cost-effectiveness factor in dollars per ton of pollutants reduced.

Staff did not conduct a cost effectiveness analysis for this project but selected to contract this task to two contractors and a subcontractor. Their extensive and detailed cost analyses are summarized and referenced in Part II of the Staff Report. In most parts, staff was in agreement with the contractors' analyses and used their costs and cost effectiveness in the scenario studies discussed in Chapter 12. However, in some few scenarios, staff adjusted the consultants' estimate to reflect the actual conditions at the facilities.[9]

Establishing a cost-effectiveness factor allows a comparison of control technologies. Using the contractors' costs information, staff estimated the following four types of cost-effectiveness:

1) Individual cost effectiveness for a specific emitting source (e.g. cost effectiveness for each FCCU);
2) Average cost effectiveness for the category of source (e.g. average cost effectiveness for five FCCUs in the Basin);
3) Average cost effectiveness for the entire project; and

[9] For example, for coke calciner, the consultant used maximum operational parameters to design the control system, estimated costs, emission reductions, and cost effectiveness. Staff used the estimated costs from the consultant's analysis but estimated cost effectiveness based on actual emission reductions not emission reductions estimated based on the designed operational parameters.

4) Incremental cost-effectiveness for the entire project.

The individual cost-effectiveness is defined as the present worth value of the control technology divided by the total quantity of pollutants removed during the life time of a control technology. The average cost effectiveness is an average of all control technologies, or an average of all control technologies for all sources in the project. The incremental cost-effectiveness is a comparison of the cost and performance level of a control technology to a next more stringent option.

There is no bright line cut-off of what cost effectiveness in dollars per ton should be considered as cost effective. The cost-effectiveness factor remains a relative measurement factor.

The top down analysis conducted by the contractors and their results are summarized in Part II of the Staff Report.

In addition to the top down analysis conducted by the contractors, staff conducted a scenario analysis presented in Chapter 12 where staff estimated the emission reductions and cost effectiveness for four scenarios of control ranging from the most stringent set of control to the least stringent set of control. From this analysis, staff selected a scenario that best reflected BARCT, "… *maximum degree of reduction achievable, taking into account of ....economic impacts by each class or category of source."*

2.2.4 Select Best Available Retrofit Control Technology (BARCT)

The H&S Code 40406 requires the District to take into account environmental, energy and economic impacts during the BARCT selection process. The energy impact of each evaluated control technology is the energy penalty or benefit resulting from the operation of the control technology at the source. An example of the energy impact includes the increase (or decrease) in energy consumption at the source.

The environmental impacts are evaluated to determine whether a particular control technology has any impacts, either positive or negative, to the environment. An example of the environmental impact is the generation of wastewater discharge and solid waste.

The economic impacts (costs and cost effectiveness) are evaluated to determine the impacts of staff proposal on each affected facility and to the economy of the basin as a whole.

Staff asked the consultants to identify and quantify the environmental effects or impacts (water demand, wastewater treatment, solid waste, energy consumption) and provide information on any hazardous materials and hazardous waste, if known for each SOx reduction technique or technology evaluated. The consultants' results for this analysis are in their final reports. [10]

[10] The consultants' estimates are accurate except for the reported water demand for the SRU/TG's wet gas scrubbers. The figures reported in the final report are not the same as the numbers reported in the draft report. It is an oversight in transferring the numbers, only for the SRU/TGs. Staff contacted the wet gas scrubber

In addition, the consultants were asked to conduct an analysis on concurrent effect on other air pollutants, and made comments and recommendations if there were technologies capable of reducing SOx, and concurrently reducing (or increasing) PM2.5, and/or CO2. The consultants indicated that wet gas scrubbers should have a positive effect on particulate emissions and minimal impact on NOx, ammonia, and volatile organic compound. Fine particulate impact will be lessened by reducing SO2 emissions which is PM2.5 precursor.

After considering environmental, energy, and economic impacts of each category of seven sources identified by staff, the contractors proposed the BARCT levels shown in Table 2-1.

Staff was in agreement with the consultants' recommendation for FCCUs, SRUs/TGs, refinery boilers/heaters, coke calciner, and sulfuric acid manufacturing, however, staff differed in setting the BARCT limits for glass melting furnace and cement kilns/coal-fired boiler, and further removed the scenarios where the cost effectiveness was lower exceeding >$50K per ton. The proposed BARCT levels recommended by staff and the consultants are shown in Table 2-1. Refer to Chapter 3 – Chapter 9 for additional information and BARCT evaluation.

Table 2-1
BARCT Levels Recommended by the Consultants and AQMD

Basic Equipment	Consultants' Recommendation	AQMD's Recommendation
Fluid Catalytic Cracking Units	5 ppmv	5 ppmv
SRUs/TGs	Incinerated tail gas: 5 ppmv; Non incinerated tail gas: 10 ppmv H2S & 300 ppmv non H2S	Incinerated tail gas: 5 ppmv; Non incinerated tail gas: 10 ppmv H2S & 300 ppmv non H2S
Refinery Boilers/Heaters	40 ppmv	40 ppmv
Calciner, Petroleum Coke	10 ppmv	10 ppmv
Sulfuric Acid Mfg	10 ppmv	10 ppmv
Container Glass Melting Furnace	1-2 ppmv (99% control)	5 ppmv
Cement Kiln & Coal-Fired Boiler	1-2 ppmv (95% control)	5 ppmv

Additional CEQA, Socioeconomic, and market analyses are being conducted and staff will continue to readjust the proposed BARCT levels if needed to satisfy the requirement of the H&S Code.

manufacturers and directly gathered the water demand information for SRU/TGs as explained in a footnote in Chapter 11.

Chapter 3 – Fluid Catalytic Cracking Units

3.1 Process Description

There are six refineries that operate six fluid catalytic cracking units (FCCU) in the District: Chevron, BP West Coast, ExxonMobil, ConocoPhillips, Ultramar and Tesoro. The FCCUs are classified as major sources of emissions in RECLAIM, and as such, the emissions from FCCUs are required to be monitored with continuous emission monitoring system (CEMS), and reported on a daily basis electronically to the District. A brief description of the process is presented below. The FCCU capacities in barrels fresh feed per calendar day reported to the U.S. Energy Information Administration are as follows. BP and ExxonMobil operate the two largest FCCUs in the state of California in terms of barrels fresh feed per calendar days processed.

BP	101,500 barrels per calendar day
ExxonMobil	83,500 barrels per calendar day
Chevron	66,500 barrels per calendar day
Valero	52,200 barrels per calendar day
ConocoPhillips	48,700 barrels per calendar day
Tesoro	31,958 barrels per calendar day

The FCCU is the most important and widely used refinery process for converting heavy oils into more valuable gasoline and lighter products. The process uses a very fine catalyst that behaves as a fluid when aerated with a vapor. The fluidized catalyst is circulated continuously between a reactor and a regenerator and acts as a vehicle to transfer heat from the regenerator to the oil feed in the reactor. The cracking reaction is endothermic and the regeneration reaction is exothermic. A schematic of a fluid catalytic cracking unit (FCCU) is shown in Figure 3-1.

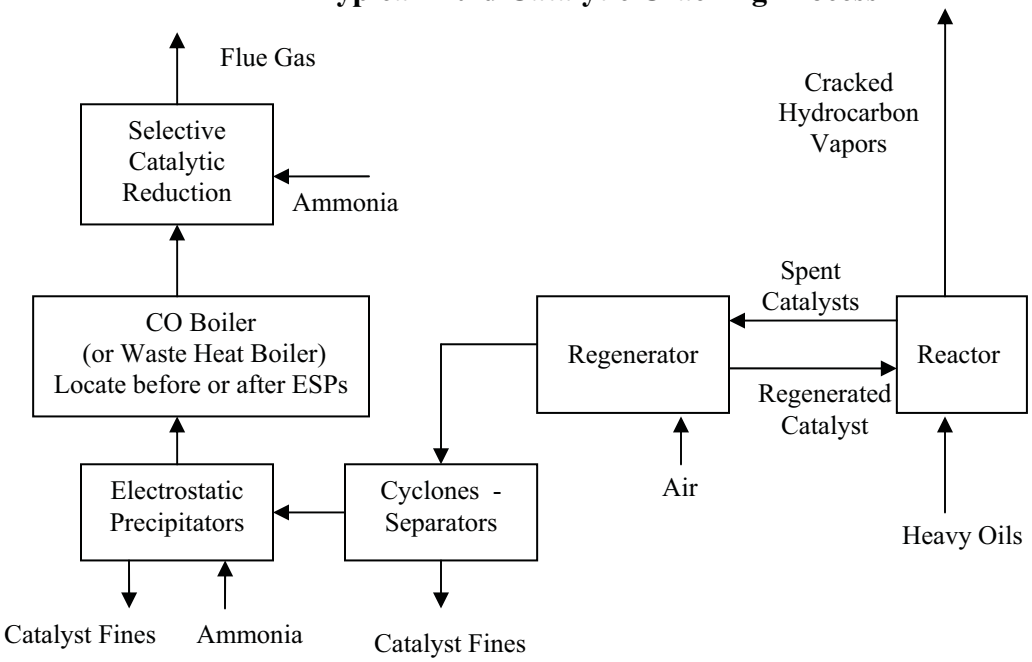
The fresh feed is preheated by heat exchangers to a temperature of 500-800 degree Fahrenheit and enters the FCCU at the base of the feed riser where it is mixed with the hot regenerated catalyst. The heat from the catalyst vaporizes the feed and brings it up to the desired reaction temperature. The mixture of catalyst and hydrocarbon vapor travels up the riser into the reactor. The cracking reaction starts in the feed riser and continues in the reactor. Average reactor temperatures are in the range of 900-1000 degree Fahrenheit. As the cracking reaction progresses, the catalyst surface is gradually coated with carbon (coke), reducing its efficiency. While the cracked hydrocarbon vapors are routed overhead to a distillation column for separation into lighter components, the oil remaining on the catalyst is removed by steam stripping before the spent catalyst is cycled to the regenerator.

In the regenerator, the coke is burned off with air and the spent catalyst is reactivated. The regenerator can be designed and operated to either partially burn the coke on the catalyst to a mixture of carbon monoxide (CO) and carbon dioxide (CO_2), or completely burn the coke to CO_2. The regenerator temperature is carefully controlled to prevent catalyst deactivation by overheating and to provide the desired amount of carbon burn-off. This is done by controlling the air flow to give a desired CO_2/CO ratio in the exit flue gases or the desired temperature in the

regenerator. The flue gas containing a high level of CO is routed to a supplemental-fuel fired CO boiler if needed to completely burn off the CO to CO_2. Generally, FCCUs operate in a completely burn mode; and in this scenario, the CO boiler might be used as a heat recovery device without any supplemental fuel. The regenerated catalyst is generally steam-stripped to remove adsorbed oxygen before being cycled back to the reactor. The regenerator exit temperatures for catalyst are about 1,200-1,450 degree Fahrenheit.

It is during the regeneration cycle that some of the catalyst is lost in the form of catalyst fines. The catalyst fines escape the regenerator in both the flue gas and the hydrocarbon vapor stream going to the fractionation column. The FCCU is a major source of sulfur oxides, nitrogen oxides and particulate matter in the refinery. To control particulate emissions, flue gas from the regenerator is routed through a series of cyclones and electrostatic precipitators. Selective catalytic reduction can be used to reduce nitrogen oxides emissions. The control options for sulfur oxides are discussed in Section 3.3 below.

FIGURE 3-1
Typical Fluid Catalytic Cracking Process



3.2 Current Allocations and Emissions

3.2.1 Allocations

In 1993, the six refineries in the basin were issued emission allocations to their FCCUs based on an emission factor (also known as Tier I emission factor) of 13.7 lbs SOx per thousand barrels refinery feed. The activity of each FCCU used in the allocation determination in 1993, and the emissions allocated to each FCCU are listed in Table 3-1. The total Tier I allocations provided for the six FCCUs are 2.17 tons per day.

3.2.2 Emissions

Since FCCUs are classified as major sources in RECLAIM, the SOx emissions from the FCCUs are monitored with CEMS and reported on a daily basis to the District. The total annual emissions from January 2005 – December 2005 from the FCCUs is about 3.55 tons per day as shown in Table 3-2.

The FCCUs at RECLAIM facilities are not subject to any specific concentration or emission rate standards. RECLAIM facilities are given the flexibility to operate their equipment as long as the total emissions from the facility are at or below the facility emission caps. The allocations provided to the FCCUs since 1993 have not been adjusted even though there are commercially available technologies that can be used to further reduce SOx emissions from the FCCUs. In addition, the capacity of each FCCU may increase since the level reported in 1993, which warrants for a need to upgrade the capacity of the control device.

TABLE 3-1
SOx Allocations for FCCUs

Facility	Peak Year	Emission Factor (lbs/1000 barrels)	Tier I Allocations (lbs/year)	Tier I Allocations (tons/day)
A	1992	13.7	297,345	0.41
B	1990	13.7	414,233	0.57
C	1988	13.7	188,545	0.26
D	1992	13.7	374,037	0.51
E	1991	13.7	127,684	0.18
F	1990	13.7	172,291	0.24
			Total	**2.17**

Reference: Allocation files for each facility developed based on reported data in 1993.

TABLE 3-2
Current SOx Emissions from FCCUs

Facility	2005 SOx Emissions (tons/day)	2006 SOx Emissions (tons/day)	2007 SOx Emissions (tons/day)
A	0.39	0.36	0.33
B	1.03	0.70	0.71
C	0.96	1.00	0.97
D	0.31	0.27	0.20
E	0.25	0.28	0.18
F	0.61	0.89	0.56
	3.55	**3.50**	**2.95**

Note: The 2005 SOx emissions were from SCAQMD database for the period from January 2005 – December 2005. The 2006 and 2007 emissions were reported by the facilities through a Survey Questionnaire distributed by SCAQMD in 2008.

Based on responses from the facilities to the 2008 SCAQMD Survey Questionnaire, staff estimated that the six refineries were operated at the current emission rates listed in Table 3-3.

TABLE 3-3
Current SOx Emission Rates & Concentrations from FCCUs

SOx Outlet Concentrations (ppmv)	Emission Rate (lbs/1000 barrels feed)
Average 18 ppmv	10.99
Average 36 ppmv	21.68
35 ppmv – 95 ppmv	34.91
Average 12 ppmv	6.89
Average 11 ppmv	16.67
Average 58 ppmv	22.18
Average of 6 Refineries	**17.93**

Note: The SOx outlet concentrations at 0% O2 were either data reported by the facilities through the Survey conducted in 2008, or data in the source test results provided by SCAQMD source testing team.

3.3 Control Technology

The potential available control technologies to reduce SOx emissions from a FCCU are:

1. Processing of low sulfur feed stocks,
2. Feed hydro-treating,
3. Flue gas scrubbing,
4. Using SOx reducing additives,
5. Using combination of the above control technologies

Currently, the six refineries in the Basin have processed low sulfur feed stocks and use feed hydrotreating. Five refineries in the District have experimented with SOx reducing additives, and one refinery has chosen to install a wet scrubber to reduce SOx and PM concurrently.

3.3.1 SOx Reducing Catalysts

Type of Catalysts

Developed in the late 1970s, SOx reducing catalysts were initially alumina based. However, the alumina based catalysts were shown to be susceptible to deactivation. In 1980, it was found that the potential pick-up SO3 in the regenerator was substantially increased by replacing the pure alumina-based catalysts with magnesium-aluminate catalysts (1 mole of magnesium per 2 moles of aluminum). In 1990, Akzo Nobel invented hydrotalcite, and hydrotalcite-like, compounds to support up to 3 to 4 moles of magnesium per mole of aluminum. In 1997, Intercat Inc. patented a self-supporting hydrotalcite SOx reducing catalyst, named SOXGETTER®, and Grace-Davidson developed a DESOX® catalyst with significantly improved performance. In 2000,

Intercat Inc. commercialized Super SOXGETTER® which is advertised to be 80% better than SOXGETTER®, and Grace-Davidson commercialized Super DESOX®, 35% better than DESOX® .[11, 12]

Mechanism for SOx Reduction

In general, SOx reducing catalysts remove SOx from the regenerator flue gas and release the sulfur as H_2S in the FCCU reactor through a three step mechanism:

In the regenerator, sulfur bearing coke is burned to SO_2; and in the presence of excess oxygen, a portion of SO_2 is converted to SO_3

$$S + O_2 \rightarrow SO_2$$
$$SO_2 + 1/2O_2 \rightarrow SO_3$$

The magnesium-based reducing catalysts "pick-up" SO_3 in the regenerator and form magnesium sulfate:

$$M_xO + SO_3 \rightarrow M_xSO_4$$

The magnesium sulfate recirculates back to the reactor, and reacts with hydrogen to form either magnesium sulfide and water, or magnesium oxide, and hydrogen sulfide:

$$M_xSO_4 + 4\ H_2 \rightarrow M_xS + 4H_2O$$
$$M_xS + H_2O \rightarrow M_xO + H_2S$$
$$M_xSO_4 + 4\ H_2 \rightarrow M_xO + H_2S + 3H_2O$$

The H_2S then exits the FCCU in the dry gas and must be removed by the sulfur recovery units. This increase in H_2S, 5% - 20%, can typically be managed within a refinery's operations.

Performance of SOx Reducing Catalysts

Control efficiency of SOx reducing additives depends on many factors such as 1) feed type, 2) starting SOx level, 3) catalyst type, 4) amount of catalysts added, and 5) FCCU's operating conditions. Manufacturers of SOx reducing catalysts generally use a proprietary computer model to estimate the performance of their products. Typical control efficiencies are reported to be in a range of 70% - 87% from an uncontrolled level as shown in Table 3-4.

[11] *Super DESOX®: Providing Bechmark Effectiveness for SOx Reduction*, D. Sellery, Murphy Oil Corporation and B. Riley, GRACE Davison.

[12] *The Role of Additives in Reducing Fluid Catalytic Cracking SOx and NOx Emissions,* A. Vierheilig and M. Evans, Petroleum and Coal, Volume 45, 3-4, 147-153, 2003.

TABLE 3-4
Commercial Results of SOx Reduction Additives

FCC Type **Combustion Mode**	***Kellogg*** **Total**		***UOP High Eff,*** **Total**		***UOP SBS*** **Total**		***UOP Stacked*** **Partial**
Additive	*SOXGETTER*	*DESOX*	*SOXGETTER*	*DESOX*	*SOXGETTER*	*DESOX*	*SOXGETTER*
Feed Quality							
Fresh Feed Rate, MBPD	19.1	18.5	55.5	53.6	64.0	63.0	7.0
Fresh Feed Sulfur, wt%	0.52	0.54	0.71	0.70	1.25	1.49	0.55
Operating Conditions							
Reactor Temperature, ^{o}F	1009	1009	1006	999	1005	1005	985
Reactor O_2, vol%	1.9	1.9	0.9	1.1	1.1	1.3	1.5
Additive Addition, lb/day	728	676	1583	2081	2125	3240	40
Emissions							
Uncontrolled SOx, lb/hr	1181	1086	2046	1895	3100	3853	35
Controlled SOx, lb/hr	154	141	286	303	868	1117	11
Controlled SOx, ppmv	188	179	358	370	575	754	98
Reduction %	**87**	**87**	**86**	**84**	**72**	**71**	**70**
Additive Efficiency, lb/lb at equivalent SOx red level	**34**	**34**	**27**	**18**	**25**	**20**	**15**

Reference: *The Role of Additives in Reducing Fluid Catalytic Cracking SOx and NOx Emissions,* A. Vierheilig and M. Evans, Petroleum and Coal, Volume 45, 3-4, 147-153, 2003.

SOx reducing catalysts also reduce PM10. In 2003, during the development of Rule 1105.1 – Reduction of PM10 and Ammonia Emissions from Fluid Catalytic Cracking Units, five refineries in the District experimented with SOx reducing catalysts supplied by Intercat Inc. and Grace-Davidson. Data collected from 2 refineries shown in Table 3-5 shows that with the use of SOx reducing catalysts, SOx and PM_{10} emissions could be reduced by approximately 40% - 60%. [13]

TABLE 3-5
Application of SOx Reducing Catalysts at Two Refineries in the District

Refinery	**#1**	**#1**	**#2**	**#2**
Test Date	Oct-01	Mar-02	Aug-96	Oct-01
SOx Reducing Additives (lbs/day)	0	178	0	1,471
Total PM_{10} (lbs/hr)	11.41	6.50	128.89	48.25
SOx (lbs/day)	2,291	1,352	4,553	1,583
Average Period for SOx (days)	16	23	4	24
Percent Reduction	43% for PM_{10}, 41% for SOx		63% for PM_{10}, 65% for SOx	

Note: The percent reduction in total PM10 with the SOx reducing additives for Refinery #1 was calculated as follows: % reduction = (1-(6.50/11.42))x100 = 43%. Same approach is used to estimate the percent reduction in total PM10 for Refinery # 2, and the percent reductions in SOx emissions for both refineries. SOx emissions from FCCUs are reported on a daily basis and staff has used an average period from 4 days to 24 days to estimate an average of SOx emissions at these 2 refineries. The information here was presented in the final Staff Report of Rule 1105.1, October 2003.

[13] Staff Report of SCAQMD Rule 1105.1 – Reduction of PM10 and Ammonia Emissions from Fluid Catalytic Cracking Unit, October 9, 2003.

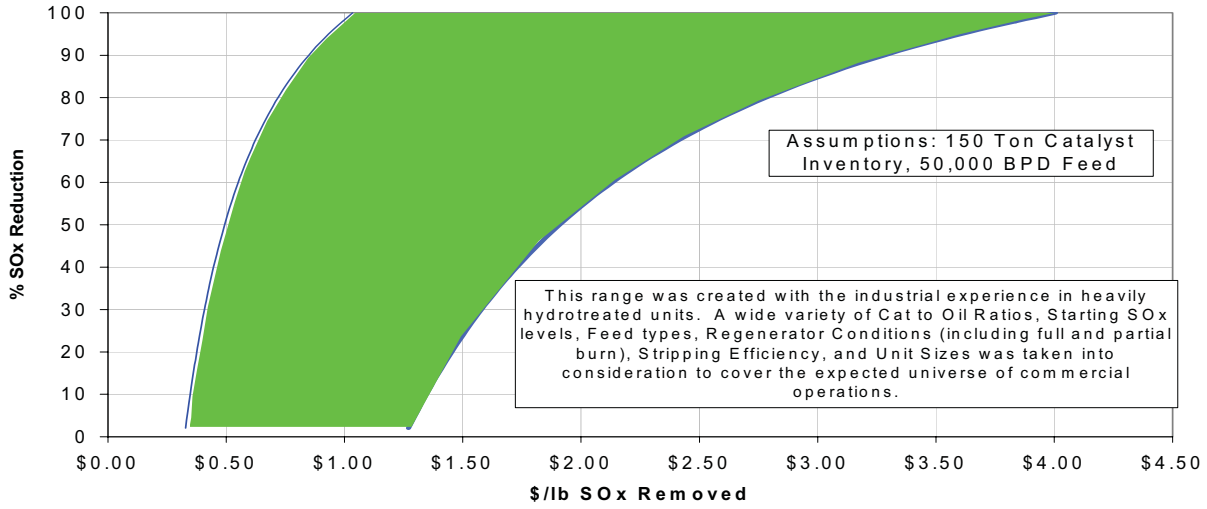
Just recently, a refinery in the District voluntarily conducted a short-term testing with SOx reducing catalysts from September 2008 – December 2008. CEMS was used to continuously measured SOx. Source tests were conducted to measure SOx and PM10. The results indicated that SOx could be reduced to 7 ppmv, 0% O2, without any increase in PM10. A considerable amount of SOx reducing additives was needed throughout this period of time. The short-term testing proceeded without any problems to the FCCU operation. Additional long term testing would be needed however to ensure that a level of 7 ppmv or below was a sustainable level with SOx reducing catalysts.

Costs and Cost Effectiveness for SOx Reducing Catalysts in Literature

Commercial data from Intercat for SOXGETTER® have shown that 85% reduction in SOx, resulting in 50 ppmv emissions, can be achieved with an addition rate of 18 lbs SOx per pound of additive. Decreasing emissions to below 25 ppmv reduced the additive efficiency to below 14 lbs SOx per pound of additive. The concentration of SOXGETTER® required to reduce emissions below 25 ppmv was slightly greater than 5% by weight of the total catalyst inventory. The relative cost increase to reduce emissions from 50 to 25 ppmv was 31%.

Figure 3-2 was built based on a manufacturer's field and laboratory experience with the additives and provided to staff during the development of Rule 1105.1. In this scenario, if 85% reduction is needed to achieve 25 ppmv SOx outlet concentration, the cost effectiveness will be approximately $6,000 per ton SOx removed. [14]

FIGURE 3-2
Efficiency of SOx Reducing Additives



In other references shown in Table 3-6, a range of $500 - $3,000 per ton SOx reduced has been reported in literature.

[14] Staff Report of SCAQMD Rule 1105.1 – Reduction of PM10 and Ammonia Emissions from Fluid Catalytic Cracking Unit, October 9, 2003.

Through the 2008 Survey Questionnaire, the refineries reported that they currently use Intercat SUPER SOXGETTER and Grace Davison SUPERDESOX at a rate of $6 - $8 per pound at an addition rate of 220 lbs/day – 800 lbs/day to the FCCUs.

TABLE 3-6
Cost Effectiveness of SOx Reducing Catalysts

SOx Level	Cost Effectiveness
7 ppmv at 0% O2 (short-term testing)	$18,941 per ton [3]
25 ppmv at 0% O2, 365 day average and 50 ppmv at 0% O2, 7-day rolling average	$500 - $880 per ton [1]
50% reduction from uncontrolled level	$2,000 - $3,000 per ton [2]

Note: 1) *Assessment of Control Options for Petroleum Refineries in the Mid-Atlantic Region – Final Technical Support Document*. Prepared by MACTEC Federal Programs, Inc. for the Mid-Atlantic Regional Air Management Association (MARAMA), January 31, 2007. 2) *Reducing Refinery SOx Emissions*. E. Butler, K. Groves, J. Hymanyk of Chevron Canada Limited and M. Maholland, P. Clark, and G. Aru of Intercat Inc. Petroleum Technical Quarterly, Quarter 3, 2006. 3) Short-term testing with SOx reducing additives at a refinery in the District.

3.3.2 Wet Gas Scrubbers

Wet scrubbing is used to control both SOx and particulate. There are two types of wet scrubbing that are typically used for FCCUs, the caustic-based non-regenerative wet scrubbing and the regenerative scrubbing. Both systems can achieve a level of less than 5 ppmv demonstrated at several refineries in the U.S. as shown in Table 3-7.

Non-Regenerative Wet Gas Scrubbers

Non-regenerative wet scrubbing is a proven control technology for many decades and there are many manufacturers in the U.S. Typically, caustic soda (NaOH) is used as the alkaline absorbing reagent for SO2. Other alkaline reagents, such as soda ash and magnesium hydroxide, can also be used. The absorbents capture SO2, and convert SO2 to various types of sulfites and sulfates (NaHSO3, Na2SO3, Na2SO4). Acid mist (H2SO4) is also captured. The sulfites and sulfates are later separated in a purge treatment system and the treated water, free of suspended solids, are either discharged or recycled. One example of the caustic-based non regenerative scrubbing system is the proprietary EDV (Electro Dynamic Venturi) scrubbing system offered by BELCO Technologies Corporation, shown in Figure 3-3.[15, 16]

An EDV scrubbing system consists of three main modules 1) a spray tower module, 2) a filtering module, and 3) a droplet separator module. The flue gas enters the spray tower module, which is an open tower with multiple layers of spray nozzles. The nozzles supply a high density stream of

[15] *Evaluating Wet Scrubbers*, Edwin H. Weaver of BELCO Technologies Corporation, Petroleum Technology Quarterly, Quarter 3, 2006.

[16] *A Logical and Cost Effective Approach for Reducing Refinery FCCU Emissions.* S.T. Eagleson, G. Billemeyer, N. Confuorto, and E. H. Weaver of BELCO, and S. Singhania and N. Singhania of Singhania Technical Services Pvt., India, Presented at PETROTECH 6th International Petroleum Conference in India, January 2005.

caustic water, which travels countercurrent with the gas flow, circles, encompasses, wets, and saturates the flue gas. Multiple stages of liquid/gas absorption occur in the spray tower module. SO2 and acid mist are captured and converted to sulfites and sulfates. Large particles in the flue gas are also removed by impaction with the water droplets.

The flue gas saturated with heavy water droplets continues to move up the wet scrubber to the filtering module. In here, the flue gas reaches super-saturation. Water further condenses and agglomeration of fine particles in the gas stream takes place. The size and mass of the fine particulate in the gas stream continue to increase. The flue gas, super-saturated with heavy water droplets, then enters the droplet separator module. The droplet separator module consists of a bank of parallel spin vanes. The heavy, super-saturated, water droplets impinge on the walls of these spin vanes, and are drained to the bottom of the wet scrubber. The filtering module and the droplet separator modules are important components of the wet scrubber to control fine particulate.

The spent caustic water purged from the wet scrubber is typically processed in a purge treatment shown in Figure 3-4. In the purge treatment unit, a clarifier is used to remove suspended solids which are later disposed. The effluent from the clarifier is oxidized with agitated air. Sulfites are converted to sulfates, and the chemical oxygen demand (COD) is further reduced so that the effluent can be safely discharged to the waste water system.

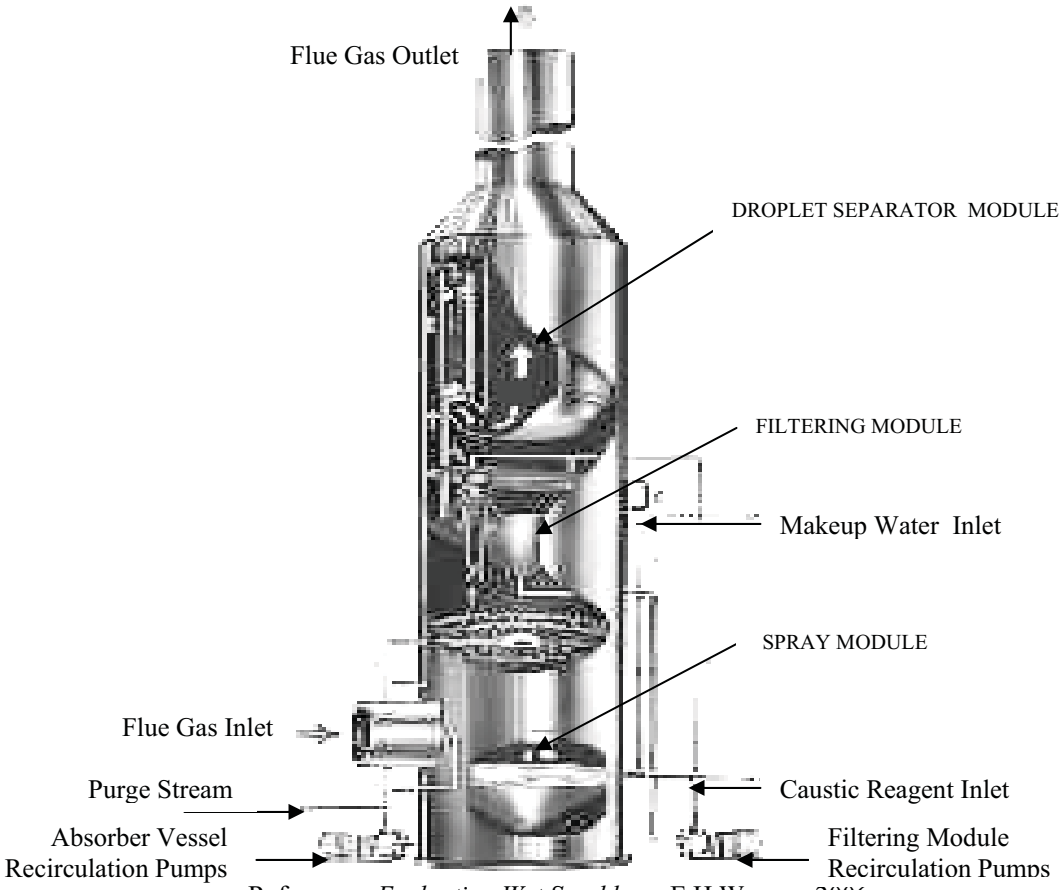
Regenerative Wet Gas Scrubbers

The regenerative wet gas scrubbing process removes the SO2 from the flue gas with a buffer that can be regenerated. The buffer is sent to a regenerative plant where the SO2 is extracted from the buffer as concentrated SO2. The concentrated SO2 is then sent to a sulfur recovery unit (SRU) to recover sulfur as byproducts, such as liquid SO2, sulfuric acid or elemental sulfur. Where the inlet concentrations of SO2 are high and a significant amount of byproducts can be generated and sold to be used in the fertilizer, chemical, pulp and paper industries, the use of regenerative wet gas scrubber is favored over non-regenerative wet gas scrubber. One example of a regenerative scrubber is the proprietary LABSORB offered by BELCO Technologies Corporation. [17, 18]

[17] *Evaluating Wet Scrubbers*, Edwin H. Weaver of BELCO Technologies Corporation, Petroleum Technology Quarterly, Quarter 3, 2006.

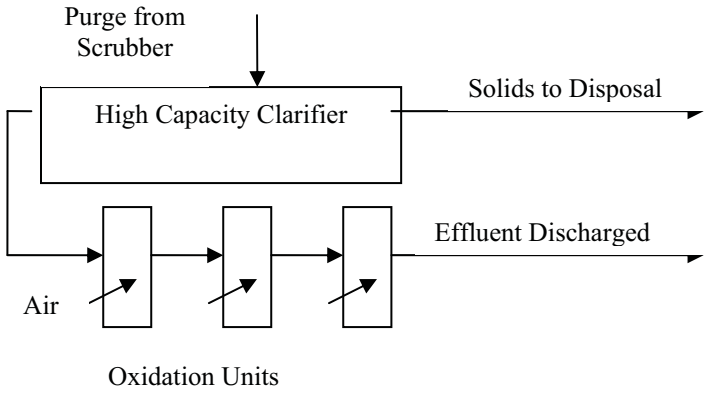
[18] *A Logical and Cost Effective Approach for Reducing Refinery FCCU Emissions.* S.T. Eagleson, G. Billemeyer, N. Confuorto, and E. H. Weaver of BELCO, and S. Singhania and N. Singhania of Singhania Technical Services Pvt., India, Presented at PETROTECH 6th International Petroleum Conference in India, January 2005.

FIGURE 3-3
EDV Non-Regenerative Wet Scrubbing System Developed By BELCO



Reference: *Evaluating Wet Scrubbers*, E.H.Weaver, 2006.

FIGURE 3-4
Purge Treatment System



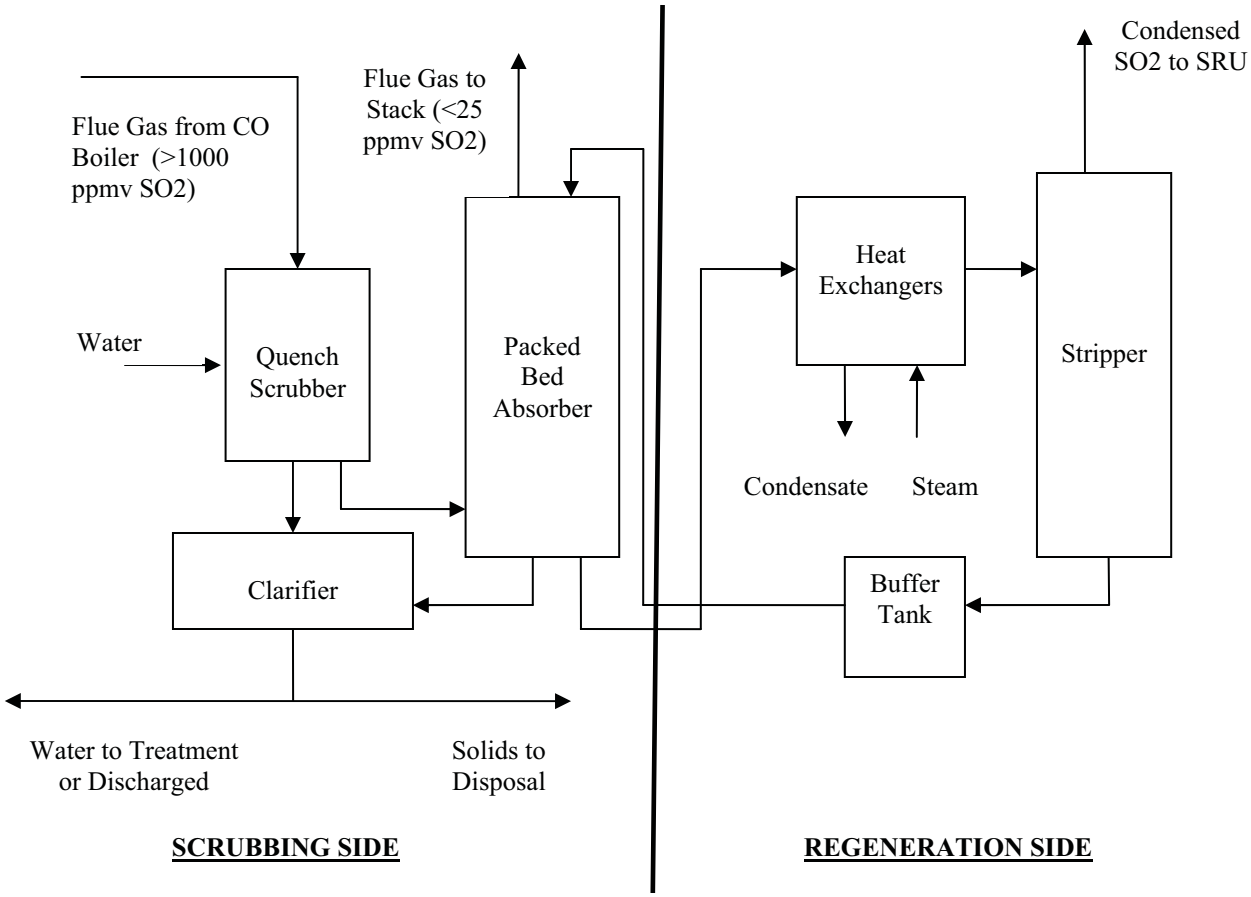
The LABSORB scrubbing process, as shown in Figure 3-5, uses a patented non-organic aqueous solution of sodium phosphate salts as a buffer. This buffer is made from two common available products, caustic and phosphoric acid. The LABSORB scrubbing system is capable of reducing

SOx to 25 ppmv or less. The LABSORP system consists of 1) a quench pre-scrubber, 2) an absorber, and 3) a regeneration section which typically includes a stripper and a heat exchanger.

In the scrubbing side of the regenerative scrubbing system, the quench pre-scrubber is used to wash out the large particles carried over, as well as acid components in the flue gas such as HF, HCl and SO3. The absorption of SO2 is carried out in the absorber. The absorber is typically a single high-efficient packed bed scrubber, packed with high-efficient structural packing materials. In some scenarios, such as when the inlet SO2 concentration is low, a multiple-staged packed bed scrubber, or a spray and plate tower scrubber, is recommended to achieve an outlet concentration of 25 ppmv or less.

In the regenerative side of the regenerative scrubbing system, the SO2-rich buffer stream is first heated by steam to vaporize the water and remove it from the buffer. The buffer stream is then sent to a stripper/condenser to separate the SO2 from the buffer. The buffer free of SO2 is returned to the buffer mixing tank while the condensed-SO2 gas stream is sent back to the SRU for further treatment.

FIGURE 3-5
LABSORB Regenerative Wet Scrubbing System Developed By BELCO



A regenerative wet gas scrubber typically costs more than a non-regenerative unit to install. BELCO Inc. estimated that the capital cost of a regenerative system is about 2.4 times the capital cost of a non-regenerative system, primarily due to the additional complexity of the regenerative wet scrubbing system. However, the regenerative system has a significant advantage in annual operating costs because the alkaline absorbing buffer in the regenerative system can be regenerated, low amount of reagents used in the regenerative system, and the byproducts (e.g. elemental sulfur) can be sold. The annual operating costs of a regenerative system are estimated to be about 35% of the annual operating costs of a non-regenerative system as shown in Table 3-7. Table 3-8 presents an estimate for cost effectiveness of the wet gas scrubber reported in literature, ranging from $500 - $3,000 per ton to achieve 25 ppmv. As shown later, a 5 ppmv and lower level has also been achieved. The consultants and staff's estimated a cost effectiveness of $12,000 - $76,000 per ton to achieve 5 ppmv level as shown in Chapter 12 of this report.

TABLE 3-7
Capital Costs and Annual Operating Costs of Regenerative Wet Gas Scrubbing System

Type of Costs	Percent Of Costs Comparing to Non-Regenerative WGS
Capital Costs:	240% of Non-Regenerative WGS's
Operating Costs:	
Caustic	18%
Power	35%
Make-Up Water	Less than 5%
Water Discharge	Less than 5%
Solids Disposal	Less than 5%
Operating & Maintenance	20%
Steam	10%
Cooling Water	Less than 5%
Phosphoric Acid	5%

Reference: *Evaluating Wet Scrubbers*, Edwin H. Weaver of BELCO Technologies Corporation, Petroleum Technology Quarterly, Quarter 3, 2006.

TABLE 3-8
Cost Effectiveness for Wet Gas Scrubbers

SOx Achieved Level	Cost Effectiveness
5 ppmv at 0% O2, 365 day average	$12,000 - $76,000 per ton [(2)]
25 ppmv at 0% O2, 365 day average 50 ppmv at 0% O2, 7-day rolling average	$500 - $3,000 per ton [(1)]

Note: 1) *Assessment of Control Options for Petroleum Refineries in the Mid-Atlantic Region – Final Technical Support Document*. Prepared by MACTEC Federal Programs, Inc. for the Mid-Atlantic Regional Air Management Association (MARAMA), January 31, 2007. 2) Refer to the consultants' report for this project. The high end $76,000 per ton was for a refinery that already has the feed extensively hydrotreated to a level slightly above 10 ppmv.

3.4 Achieved-In-Practice Information

As shown in Table 3-9, there is an extensive list of refineries in the U.S. have been installed wet gas scrubbers or use SOx reducing catalysts to meet a typical U.S. EPA current standard of 25 ppmvd SO2 at 0% O2, 365-day rolling average; 50 ppmvd at 0% O2, 7-day rolling average set through various consent decrees since 2001.

TABLE 3-9
SOx Control Technology for FCCUs

Refinery	SOx Limit	Technology	Implementation
Marathon Petroleum Co LLC., Garyville Refinery, Louisiana [1]	25 ppmvd at 0% O2, 365-day rolling average	Wet Gas Scrubber	NA
BP, Texas City, Texas [4]	25 ppmvd at 0% O2, 365-day rolling average	Wet Gas Scrubber & SOx Reducing Catalysts	2006
Valero Delaware City. FCCU w CO boiler [2], [5]	25 ppmvd at 0% O2, 365-day rolling average; 50 ppmvd at 0% O2, 7-day rolling average. Achieved 1 ppmv – 2ppmv SOx, 0% O2.	Wet Gas Scrubber BELCO & CANSOLV	By 2006
ConocoPhyllips Bayway. FCCU w two CO boilers. [2]	25 ppmvd at 0% O2, 365-day rolling average; 50 ppmvd at 0% O2, 7-day rolling average.	Wet Gas Scrubber	By 2005
ConocoPhyllips Trainer. FCCU w two CO boilers. [2]	25 ppmvd at 0% O2, 365-day rolling average; 50 ppmvd at 0% O2, 7-day rolling average.	Wet Gas Scrubber	By 2006
Motiva, Convent, LA [2]	25 ppmvd at 0% O2, 365-day rolling average (225,000 barrels per day capacity FCCU)	Wet Gas Scrubber	2006 – 2007
Motiva, Port Arthur, TX [3]	25 ppmvd at 0% O2, 365-day rolling average (235,000 barrels per day capacity FCCU)	Wet Gas Scrubber	2001
Equilon, Wilmington, CA	25 ppmvd at 0% O2, 365-day rolling average (99,000 barrels per day capacity FCCU)	SOx Reducing Catalysts	2001
Equilon, Martinez, CA [3]	25 ppmvd at 0% O2, 365-day rolling average (155,000 barrels per day capacity FCCU)	SOx Reducing Catalysts	2001
Equilon, Anacortes, WA [3]	25 ppmvd at 0% O2, 365-day rolling average (145,000 barrels per day capacity FCCU)	Wet Gas Scrubber	2006
Deer Park Refining, Deer Park, TX [3]	25 ppmvd at 0% O2, 365-day rolling average (340,000 barrels per day capacity FCCU)	Wet Gas Scrubber	2003

Note: 1) The U.S. Environmental Protection Agency RACT/BACT/LAER Clearinghouse; 2) *Assessment of Control Options for Petroleum Refineries in the Mid-Atlantic Region – Final Technical Support Document*. MACTEC Federal Programs, Inc. for Mid-Atlantic Regional Air Management Association (MARAMA), January 31, 2007; 3) *Motiva Enterprises LLC, Equilon Enterprises LLC, and Deer Park Refining Limited Partnership Civil Judicial Settlement,* March 21, 2001; 4) *BP Texas City Site – Texas City, Texas – 2004 Environmental Statement*, June 2005. 5) Valero installed two wet gas scrubbers for the FCCU and fluid coker units continuously achieved 1 ppmv – 2 ppmv SOx, at 0% O2 in the past 2 years.

An extensive study by a refinery in Canada indicates that wet gas scrubbers are commonly used to achieve an emission reduction of 95%, while reducing additives are routinely being used to achieve 85% - 90% reduction. [19] As shown in Table 3-9, it seems that SOx reducing catalysts are typically the choice for FCCUs with average capacity of less than 150,000 barrels feed per day, while wet gas scrubbers are typically the choice for FCCUs with capacity higher than 150,000 barrels per day.

Achieved-In-Practice Information for 5 PPMV Using Wet Gas Scrubbers

In the past several months, District staff contacted many air pollution control agencies throughout the nation to collect the performance information for the FCCU's wet gas scrubbers. Some air pollution control agencies do not require a facility to submit CEMS data, and in this case, the agencies provide staff with source test or RATA information.

To date, staff received the performance data of ten FCCU's wet gas scrubbers. All ten FCCU's wet gas scrubbers achieved a level below 18 ppmv. Six out of the ten FCCUs overly surpassed the performance of a typical wet gas scrubber (i.e., 25 ppmv SO2 ^{at} 0% O2, 365-day rolling average and 50 ppmvd at 0% O2, 7-day rolling average required by the U.S. EPA.) Staff was informed that many facilities choose not to lower the SOx level below the level required by the U.S. EPA. However, lower SOx levels are achievable by scrubbing the flue gases with more caustic solution at a higher pH level. Staff identified six facilities that opted to achieve these lower SOx levels. The resulting emissions from these six outstanding refineries are shown in Table 3-10, which demonstrate that wet gas scrubbers can achieve a level below 5 ppmv at 0% O2 in practice.

[19] *Reducing Refinery SOx Emissions*. E. Butler, K. Groves, J. Hymanyk of Chevron Canada Limited and M. Maholland, P. Clark, and G. Aru of Intercat Inc. Petroleum Technical Quarterly, Quarter 3, 2006.

TABLE 3-10
Achieve-in-Practice Level for FCCU's Wet Gas Scrubbers

Facility	Control Equipment Manufacturer	Start-Up	SO_2	Method (CEMS or Source Test)
A Refinery in *SCAQMD* (1)	Wet gas non-regenerative scrubber/wet ESP as polisher	2008	< 5 ppmv	Source Test & CEMS (10/2008)
Valero *Delaware City, DE* (2)	BELCO/CANSOLV – regenerative packed bed scrubber	2006	1-2 ppmv	CEMS (1/2008 – 6/2009) & Source Test
Conoco Phillips *Ferndale, WA*(3)	BELCO	2002	3.87 ppmv	RATA (5/13/08)
Lion Oil *El Dorado, AR* (4)	BELCO	2002	2.65 ppmv	Source Test
Placid Refining *Port Allen, LA* (5)	BELCO	2008	< 1 ppmv	Source Test (2/19/09)
Citgo (FCCU-A) *Lake Charles, LA* (5)	BELCO	2005	1.87 ppmv	RATA (9/13 and 9/14/05)

Note:
1) Source test data was conducted in October, 2008. CEMS data was submitted to SCAQMD by the refinery. Concentration was estimated by SCAQMD staff based on the average refinery gas throughputs. CEMS/source test data shown in Appendix C of this report.
2) Telephone conversations and emails between Minh Pham (SCAQMD) and Ravi Rangan of Delaware Department of Natural Resources and Environmental Control (DNREC) between April 2008 and July 2009. Permit for Delaware City Refinery (aka Premcor Refining) is now owned by Valero. Source test and CEMS data provided by DNREC. The unit includes a BELCO pre-scrubber, an amine-based regenerative CANSOLV packed-bed absorber, and a caustic polisher to reduce both SOx and particulate emissions for their FCCU and their fluidized coker unit (FCU). The system for the FCCU is to treat an inlet flow of 442,400 scfm, and 258,200 scfm for FCU. The system is to reduce 97% emissions from FCCU, and 99% emissions from FCU. The systems were in operation since 2006, and continuously achieved levels of 1 ppmv – 2 ppmv SOx, 0% O2. Extensive CEMS data were provided by air quality engineer of Delaware City. The capacity of this refinery FCCU is about twice bigger than the largest refinery FCCU in the District.
3) Telephone conversations and emails between Kevin Orellana (SCAQMD) and Toby Allen of Northwest Clean Air Agency between July and November 2009.
4) Telephone conversations and emails between Kevin Orellana (SCAQMD) and Mary Pettyjohn of Arkansas Department of Environmental Quality in August 2009.
5) Telephone conversations and emails between Kevin Orellana (SCAQMD) and Tim Bergeron of Louisiana Department of Environmental Quality between August and November 2009

3.5 Proposed BARCT Level and Emission Reductions

The consultants (ETS/AEC) recommended a BARCT level of 5 ppmv at 0% O2, 365-day average for all remaining five FCCUs based on the solid achieve-in-practice performance of a wet gas scrubber at the refinery in the District for the past 6 months. The estimated emission reductions and cost effectiveness based on ETS/AEC are shown in Table 3-11

TABLE 3-11
Emission Reductions & Cost Effectiveness Estimates (ETS/AEC)

	Refinery:	1	2	3	4	5	6	Total
Emissions Reduction (tpd)		0.58	0.19	0.28	0.20	0.87	0.94	3.07
	Cost Effectiveness (ETS/AEC)	$14.4k	$76.2k	$36.6k	$42.1k	$11.6k	$12.8k	~~$20.8k~~ $24.6k

Reference: Table EX-1 of ETS/AEC Final Report for Module 3A, April 20, 2009

Since there are at least six refineries in the U.S. successfully operating wet gas scrubbers to achieve a level below 5 ppmv, staff concurred with the consultants' recommendation, and proposed to set BARCT for FCCUs at 5 ppmv, 0% O2, 365-day average. However, because Refinery 2 has heavily treated their FCCU feed to the low 10 ppmv level, installing a wet gas scrubber to get to a level of 5 ppmv is not cost effective ($76 K per ton). Therefore, staff removed the emission reductions and costs associated with this control scenario from its proposal and subsequent analyses. With this refinement, the anticipated emission reductions and weighted average cost effectiveness from this process category are estimated as shown below. Staff hired Norton Engineering Consultants (NEC) to review the cost analyses conducted by ETS/AEC. The cost effectiveness estimated by using NEC recommendations is shown in Table 13-12.

TABLE 3-12
Comparison of Cost Effectiveness
ETS/AEC versus NEC

Refinery:	1	3	4	5	6	Total
Emissions Reduction (tpd)	0.58	0.28	0.20	0.87	0.94	2.88
Cost Effectiveness based on ETS/AEC ($/ton)	$14.4k	$36.6k	$42.1k	$11.6k	$12.8k	$19.6k (Note 3)
Cost Effectiveness based on input from NEC ($/ton)	$15.4k	$41.3-$44.2k (Note 1)	$45.1k	~~$11.6k~~$ 9.4k (Note 2)	$12.8k	$21.2k (Note 3)

Note: 1) The low end of the cost effectiveness reflects the costs of a WGS without additional PM10 control capability and the high end of the cost effectiveness reflects the costs of a WGS with additional PM10 control. 2) In March 2010, Refinery 5 revised the capital cost estimate that they provided to staff from $70 million as shown in their Authority for Expenditures (AFE) to $60 million dollars, and staff revised the cost-effectiveness based on the revised data. 3) The weighted average cost-effectiveness numbers shown here were calculated excluding the costs and emission reductions associated with early reductions, and excluding the costs and emission reductions associated with the cost-ineffective case for Refinery 2.

The proposed BARCT is then equal to approximately 3.25 lbs/thousand barrels feed, ~~77%~~76% reduction from the Tier I level of 13.7 lbs/thousand barrels feed.

Chapter 4 – Refinery Boilers and Heaters

4.1 Process Description

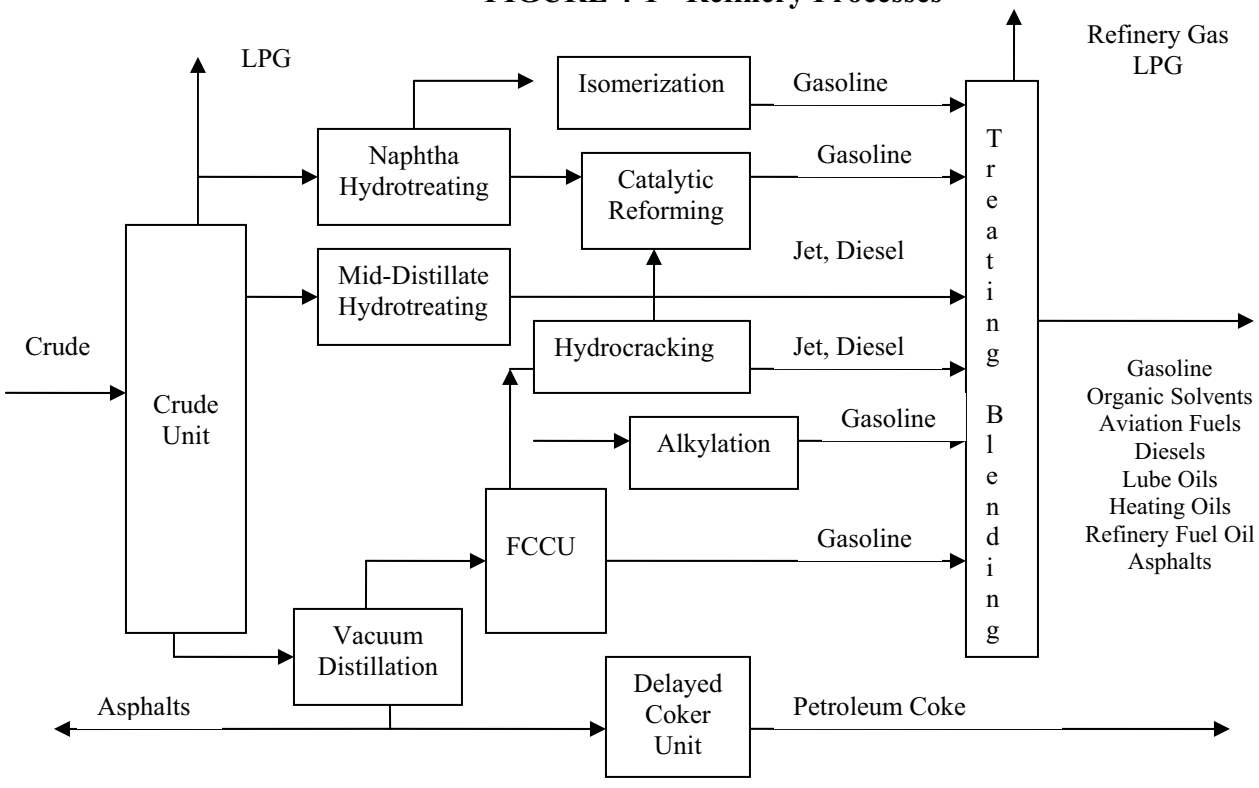
Boilers and heaters are used extensively in almost all of the processes in refinery such as distillation, hydrotreating, fluid catalytic cracking, alkylation, reforming, and delayed coking. Figure 4-1 provides a simplified diagram of the processes where boilers and heaters are used.

The refinery heaters and boilers primarily use refinery gas, one of the products generated at the refinery. As a back-up fuel, most of these boilers and heaters use natural gas. Liquid fuel or solid fuel is rarely used in refinery boilers and heaters. The combustion of sulfur or sulfur compounds in fuel generates sulfur dioxide (SO_2), with a small amount being further oxidized to sulfur trioxide (SO_3):

$$S + O_2 = SO_2$$
$$SO_2 + ½\ O_2 = SO_3$$

There are approximately 300 boilers and heaters in the refineries. The majority (96%) of these boilers and heaters are classified as major SOx sources. Collectively, the boilers and heaters emit about 3 tons per day SOx, ranging from 1 lbs to 498 lbs per day from each source, with SOx outlet concentration ranging from 7 ppmv – 200 ppmv.

FIGURE 4-1 - Refinery Processes



4.2 Current Allocations and Emissions

4.2.1 Allocations

In 1993, all boilers and heaters at the refineries were provided allocations based on the highest reported fuel usage from 1987 to 1992, and an emission factor of 6.76 lbs SOx per million cubic foot of refinery fuel gas. This emission factor was developed based on an assumption that the refinery fuel gas would meet the 40 ppmv standard in Rule 431.1.

TABLE 4-1
SOx Allocations for Refinery Boilers/Heaters

Facility	Emission Factor (lbs/mmcft)	Tier I Allocations (lbs/year)	Tier I Allocations (tons/day)
A	6.76	190,422	0.26
B	6.76	139,918	0.19
C	6.76	73,779	0.10
D	6.76	101,839	0.14
E	6.76	93,315	0.13
F	6.76	49,859	0.07
		Total	**0.89**

4.2.2 Emissions

In calendar year 2005, the refineries reported a total of 3 tons per day SOx emissions from all 300 boilers and heaters currently operated at the refineries. Table 4-2 presents a list of the top 16 emitters in this category which collectively emitted about 1 ton per day of SOx in 2005.

TABLE 4-2
SOx Emissions from Top Emitting Boilers/Heaters

Facility	Device Description	Rating (mmbtu/hr)	2005 Emissions (tons/day)	2006 Emissions (tons/day)	2007 Emissions (tons/day)
B	Crude Heater	550	0.08	0.07	0.07
C	Crude Heater	350	0.10	0.11	0.17
C	Steam Reforming Heater	340	0.09	0.06	0.1
C	Steam Generation Boiler	352	0.06	0.07	0.11
C	Steam Generation Boiler	Not in operation	0.06	0.06	0.11
C	Crude Heater	154	0.04	0.04	0.07
C	Delayed Coking Unit Heater	175	0.04	0.05	0.05
C	Delayed Coking Unit Heater	175	0.04	0.07	0.06
D	Crude Heater	457	0.07	0.11	0.05
D	Hydrogen Plant Furnace	527	0.04	0.05	0.04
D	Steam Generation Boiler	291	0.03	0.02	0.02

TABLE 4-2 (Continued)
SOx Emissions from Top Emitting Boilers/Heaters

Facility	Device Description	Rating (mmbtu/hr)	2005 Emissions (tons/day)	2006 Emissions (tons/day)	2007 Emissions (tons/day)
E	Coking Unit Heater	252	0.07	0.06	0.06
E	Crude Distillation Heater	175	0.05	0.06	0.06
E	Delayed Coking Unit Heater	168	0.05	0.05	0.05
E	Auxiliary Boiler	139.5	0.04	0.06	0.04
E	Steam Generation Boiler	184	0.04	0.04	0.04
Total 16 Heaters (1 Not in Operation)			**0.91**	**0.98**	**1.11**

Note: The 2005 SOx emissions were from SCAQMD database for the period from January 2005 – December 2005. The 2006 and 2007 emissions were reported by the facilities through a Survey Questionnaire distributed by SCAQMD in 2008.

As part of the responses to the 2008 SCAQMD Survey, the refineries reported that the refinery fuel gas is generally hydrotreated with Amine solution to reduce sulfur before being combusted in the refinery heaters and boilers. The sulfur contents in the refinery fuel gas were reported to be in a range of 49 ppmv – 327 ppmv. The SOx concentrations in in the boilers/heaters' stacks vary from 6.5 ppmv – 44 ppmv

4.3 Control Technology

Generally, SOx emissions from boilers and heaters can be further reduced by:

- Using lower sulfur fuels;
- Improving efficiency of fuel gas treating system; and
- Using dry or wet gas scrubbers.

4.3.1 Lower Sulfur Fuels

Currently, many boilers and heaters in the U.S. still use solid fuel or liquid fuel. Solid fuel and liquid fuel typically contain higher sulfur content than refinery fuel gas or natural gas, thus the combustion of solid fuel and liquid fuel generates more NOx and SOx than other types of fuel. Recently, the U.S. EPA has reached various settlement agreements with the refineries to eliminate, or minimize, the use of solid fuel/liquid fuel in all boilers and heaters operated at the refineries.[20, 21] According to these settlement agreements, the use of liquid/solid fuels is only allowed during natural gas curtailment periods.

[20] Motiva Enterprises LLC, Equilon Enterprises LLC, and Deer Park Refining Limited Partnership Civil Judicial Settlement, March 21, 2001.

[21] *BP Exploration & Oil Co., Amoco Oil Comapany, and Atlantic Richfield Company Consent Decree*, Civil No. 2:96CV095RL

In the District, boilers/heaters at the refineries typically use refinery gas as primary fuel, and natural gas as a back-up fuel. Liquid fuel, such as diesel, is typically used in internal combustion engines. Diesel fuel, if used, must contain less than 15 ppmw (0.0015%) of sulfur to comply with the South Coast AQMD Rule 431.2.[22] This requirement is applicable to all non-RECLAIM facilities, as well as RECLAIM facilities, on and after June 1, 2004; however it has not been used to adjust the RECLAIM SOx allocations provided in 1993.

However, it should be noted that the allocations provided for the combustion of diesel/liquid fuel in 1993 were approximately 0.043 tons per day, which was less than 0.5% of the total allocations provided to RECLAIM facilities at that time. In addition, the 2005 emissions from the combustion of diesel/liquid fuel in internal combustion engines are only 729 lbs per year (or 0.001 tons per day) which is only about 0.03% of the total emissions from boilers/heaters that use refinery gas. Because the allocations and the 2005 emissions from the combustion solid/liquid fuel in refineries are negligible compared to those generated from the combustion of refinery gas, staff has chosen not to focus in adjusting the allocations of RECLAIM refineries based on the fact that they are required to comply with low sulfur diesel fuel by 2004 at this time.

4.3.2 Improving Efficiency of Fuel Gas Treating System

At the refinery, refinery fuel gas is treated in various acid gas processing units such as an amine or Merox treating unit for removal of sour components (e.g. hydrogen sulfide, carbonyl sulfide, mercaptan, ammonia). Lean amine is generally used as absorbent. At the end of the process, the lean amine is regenerated to form rich amine, and H2S is evolved as acid gas which is then fed to the SRUs/tail gas treatment as discussed in Chapter 5. By improving the efficiency of the amine treating unit to recover more sulfur from the inlet acid gas stream, the sulfur content of the outlet refinery fuel gas, and subsequently the SOx emissions from boilers and heaters that use these refinery fuel gases can be reduced.

The South Coast AQMD Rule 431.1 limits the sulfur content in the refinery fuel gas to 40 ppmv sulfur.[23] This limit was already incorporated in the RECLAIM allocations and resulted in an emission factor of 6.76 lbs SOx per million cubic feet of refinery gas. However, as shown in Table 4-3, the sulfur content in refinery fuel gas may be further reduced to 25 - 35 ppmv at some refineries in the U.S. The outlet SOx concentrations from boilers/heaters may also be limited to less than 20 ppmv. The costs of modifying an acid gas processing unit may vary widely on a case-by-case basis, therefore staff has chosen not to analyze this control option at this time, and may need to discuss this control option in details with the refineries at a later date.

[22] SCAQMD Rule 431.2 – Sulfur Contents of Liquid Fuels, Amended September 15, 2000.

[23] SCAQMD Rule 431.1 – Sulfur Contents of Gaseous Fuels, Amended June 12, 1998.

TABLE 4-3
Standards for Boilers and Heaters

Company	Description of Boilers/Heaters	SOx Standard
Marathon Petroleum Co LLC., Garyville Refinery, Louisiana (1)	Crude heaters, 368 mmbtu/hr Hydrogen reformer heater, 1412 mmbtu/hr Platformer heaters, 474 mmbtu/hr & 542 mmbtu/hr Vacuum tower heaters, 155 mmbtu/hr Naptha hydrotreater charge heater, 75.7 mmbtu/hr Naphtha hydrotreater reboiler heater, 138 mmbtu/hr Boiler, 526 mmbtu/hr	Inlet standard: 25 ppmv as H_2S, inlet concentration of refinery fuel gas, annual average.
Arizona Clean Fuels Yuma LLC, Yuma AZ. (Facility has not yet been built.) (1)	Atmospheric crude charge heater, 346 mmbtu/hr Vacuum crude charge heater, 101 mmbtu/hr Hydrocracker charge heater, 70 mmbtu/hr Hydrocracker main fractionator heater, 211 mmbtu/hr Naphtha hydrotreater charge heater, 21 mmbtu/hr Catalytic reforming charge heater, 122 mmbtu/hr Catalytic reforming interheater #1, 192 mmbtu/hr Catalytic reforming interheater #2, 129 mmbtu/hr Catalytic reforming debutanizer reboiler, 23 mmbtu/hr Distillate hydrotreater charge heater, 25 mmbtu/hr Distillate hydrotreater splitter reboiler, 117 mmbtu/hr Butane dehydrogenation reactor heater, 311 mmbtu/hr Butane conversion isostripper reboiler, 222 mmbtu/hr Delayed coking charge heaters, 99 mmbtu/hr	Inlet standard: 35 ppmv, as H_2S, inlet concentration of refinery fuel gas.

Note: 1) The U.S. Environmental Protection Agency RACT/BACT/LAER Clearinghouse.

4.3.3 Flue Gas Scrubbers

While the first two control options are aiming at reducing the sulfur content of fuel before it is combusted, flue gas scrubbing is aiming at reducing SOx emissions in the flue gas after it exits the boilers and heaters. Literature contains extensive information about these technologies. [24, 25]

[24] *Assessment of Control Options for Petroleum Refineries in the Mid-Atlantic Region – Final Technical Support Document*. Prepared by MACTEC Federal Programs, Inc. for the Mid-Atlantic Regional Air Management Association (MARAMA), January 31, 2007.

[25] Assessment of Control Technology Options for BART-Eligible Sources – Steam Electric Boilers, Industrial Boilers, Cement Plants, and Paper and Pulp Facilities. Northeast States for Coordinated Air Use Management (NESCAUM) in partnership with the Mid-Atlantic Northeast Visibility Union (MANE-VU), March 2005.

4.3.3.1 Dry Scrubbers

Dry scrubbers include 1) spray dryer scrubbers and 2) dry injection scrubbers. In dry scrubbers, a dry calcium and sodium based alkaline powered sorbent is used to absorb SO_2. A spray dryer scrubber refers to a configuration where the reaction between SO_2 and the dry sorbent takes place in a dedicated reactor (or scrubber), whereas in the dry injection scrubber, the sorbent is injected directly into the existing boiler/heater or the ducting system of the boiler/heater.

In the dry scrubbers, high temperatures (1800 – 2000 degree F) are needed to decompose the sorbent into porous solids with high adsorbing surface area. Several injection ports may be required for even distribution of dry sorbent in the boilers/heaters or ductwork. Cyclones and ESPs are typically used downstream of a dry scrubber to remove the particulate formed in the process. Dry injection scrubbers can achieve about 50% - 80% removal efficiency, whereas spray dryer scrubbers can achieve about 80% – 90%. Dry scrubbers are mostly applicable to small and medium size boilers/heaters with low level of inlet SOx.

4.3.3.2 Wet Scrubbers

In wet scrubbers, aqueous slurry of limestone, lime, or other proprietary sorbent is used to absorb SO_2. A wet scrubber includes a spray tower which is generally followed by a mist eliminator. The flue gas enters a spray tower, where it is impacted with aqueous lime or limestone slurry for SO_2 absorption. Particulate formed in the spray tower falls to the bottom of the spray tower, where it is collected and recycled back to the scrubber system or disposed. The scrubbed flue gas is then sent to a mist-eliminator to remove any entrained particulate droplets. Wet scrubbers are about 90% - 98% efficiency in removing SOx depending on the type of sorbent used.

As discussed in Chapter 3, Section 3.3.2, wet scrubbers are used extensively to control SOx and PM from FCCUs at several refineries in the U.S. A wet scrubber designed by BELCO includes a spray module with two additional modules, a filtering module and a droplet separator module, to remove fine particulate. This scrubber has been used to achieve an outlet concentration of 25 ppmv of SOx from FCCUs. Boilers/heaters are expected to achieve a level of 20 ppmv or lower as shown in Table 4-3.

4.3.3.3 Costs and Cost Effectiveness

Cost effectiveness for wet gas scrubbers has been estimated to be $7,700 - $45,400 per ton depending on the size of the scrubbers, inlet SOx, and amount of emissions reduced. [26] Using a wet gas scrubber may allow the refinery to combust higher sulfur fuel; and since higher sulfur

[26] *Assessment of Control Options for Petroleum Refineries in the Mid-Atlantic Region – Final Technical Support Document*. Prepared by MACTEC Federal Programs, Inc. for the Mid-Atlantic Regional Air Management Association (MARAMA), January 2007.

fuel costs less than low sulfur fuel, this can result in a savings in annual operating costs. BELCO estimated that using an EDV® wet gas scrubber with caustic soda (NaOH) as a scrubbing agent for a 198 mmbtu/hr vacuum distillation process heater burning high sulfur fuel of 150 ppmv – 200 ppmv could generate a saving of $1 - $2.8 million dollars per year.[27]

TABLE 4-4
Cost Effectiveness for Wet Scrubbers

Efficiency	Cost Effectiveness
90-99.9%	$7,700 - $45,400 per ton
99%+	$1 - $2.8 million dollars annual savings for a 198 mmbtu/hr heater

4.4 Proposed BARCT Level and Emission Reductions

For refinery boilers/heaters, the consultants studied the technologies for pre-treatment of fuel gas prior to combustion, as well as the technologies for post-treatment of flue gas after combustion. Regarding the pre-treatment of fuel gas prior to combustion, the consultants recommended that the Tier I BARCT of 40 ppmv total sulfur in refinery fuel gas be retained as BARCT. Regarding the post-treatment of flue gas from boilers/heaters after combustion, the consultants found that the wet gas scrubbers were not cost-effective. Nonetheless, the consultants found that the fuel gas at some refineries can be further reduced to the Tier I BARCT which results in about 0.89 tons per day emission reductions from the 2005 baseline. Staff concurred with the consultants' recommendation on keeping BARCT at 40 ppmv.

[27] *Controlling Fired Process Heater Emissions to Reduce Fuel Costs and Improve Air Quality,* S.T. Eagleson and N. Confuorto of BELCO, S.Singhania and N. Singhania of Singhania Technical Services Pvt., and R. John of Lisha Engineering Co., Presented in the Petrotech 7th International Oil & Gas Conference, January 24, 2007

Chapter 5 – Sulfur Recovery – Tail Gas Units

5.1 Process Description

A typical sulfur recovery system at the refineries include a sulfur recovery unit (Claus unit) followed by a tail gas treatment unit (e.g. Amine treating) to maximize the removal of H_2S.

The Claus sulfur recovery unit, as shown in Figure 5-1, consists of a reactor, converters and condensers. The two reactions proceed in the Claus sulfur recovery unit are exothermic. The first reaction occurs in the Claus reactor, where a portion of H_2S reacts with air to form SO_2.

$$2H_2S + 2O_2 \rightarrow SO_2 + S + 2H_20$$

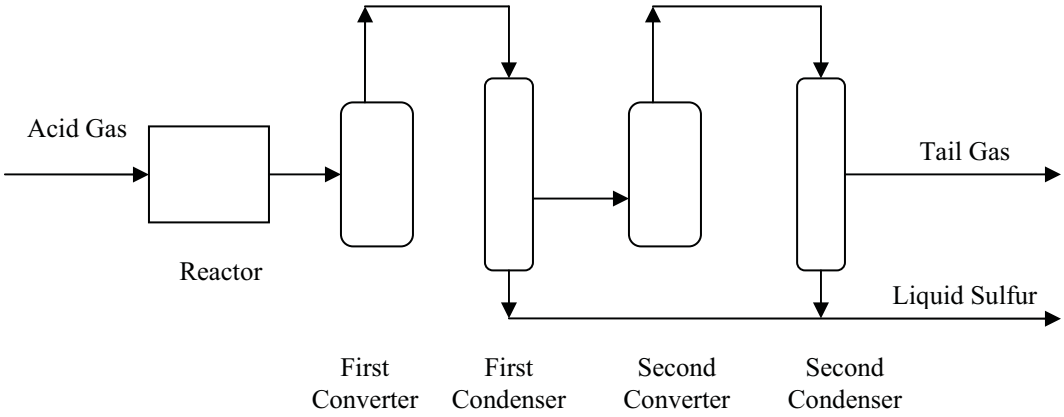
The second reaction takes place in the catalytic converter where SO_2 reacts with H_2S to form liquid elemental sulfur.

$$2H_2S + SO_2 \rightarrow 3S + 2H_20$$

Side reactions also occur which produce carbonyl sulfide (COS) and carbon disulfide (CS_2), which have presented problems in many Claus plant operations due to the fact that they cannot be easily converted to elemental sulfur and carbon dioxide,

Liquid sulfur is recovered after the final condenser. Two converters and two condensers in series generally remove 95% of the sulfur in the incoming acid gas. Some of the newer sulfur recovery units have three to four sets of converters and condensers.

FIGURE 5-1
Two Stage Claus Sulfur Recovery Process



To recover the remaining sulfur compounds in the tail gas, the tail gas is sent to a tail gas treatment process, such as amine, diethanol amine (DEA), SCOT, Wellman-Lord, and FLEXSORB.

Figure 5-2 shows a simplified diagram of SCOT tail gas treatment process. The sulfur compounds in the tail gas are reduced in a catalytic reactor to H_2S. The H_2S is absorbed in the amine (or other absorbent) in the H_2S absorber, steam-stripped from the absorbent solution in the H_2S stripper, concentrated, and recycled back to the front end of the sulfur recovery unit This approach typically increases the overall sulfur recovery efficiency of the Claus unit to 99.8% or higher. However, the fresh acid gas feed rate to the sulfur recovery unit is reduced by the amount of recycled stream, which reduces the capacity of the sulfur recovery unit. The residual H_2S in the treated gas from the absorber is typically vented to a thermal oxidizer where it is oxidized to SO_2 before emitting to the atmosphere.

FIGURE 5-2
Tail Gas Treatment – SCOT Process

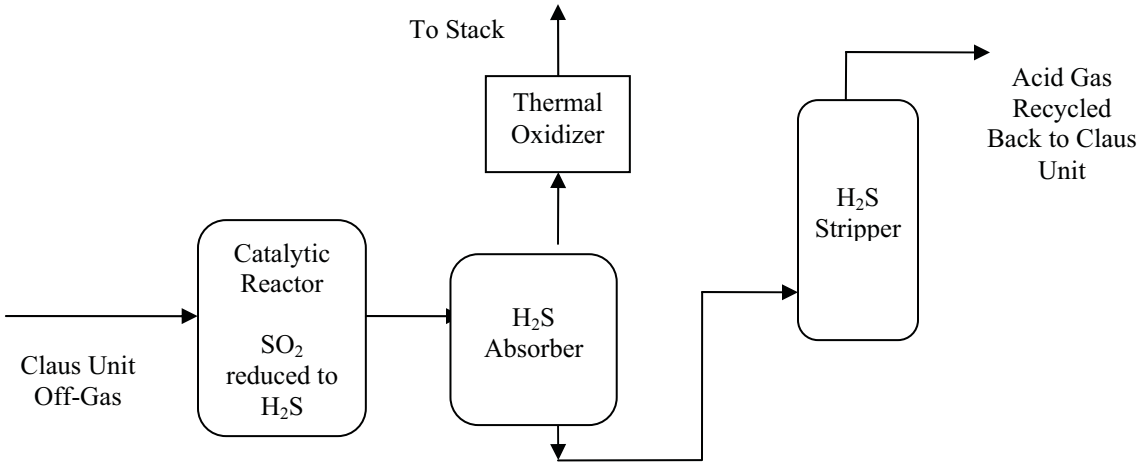
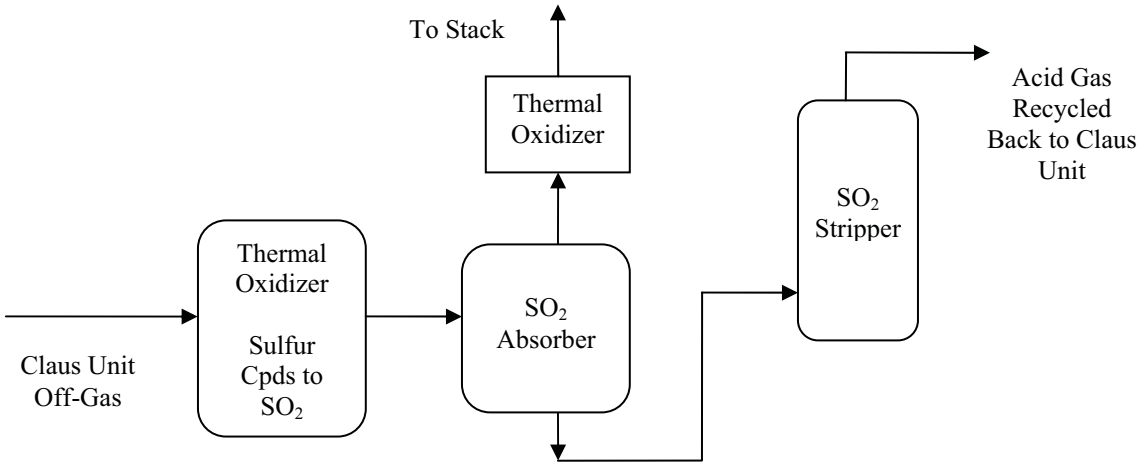


Figure 5-3 shows a simplified diagram of Wellman-Lord tail gas treatment process. The sulfur compounds in the tail gas are first incinerated with air to oxidize to SO_2. After the incinerator, the tail gas enters a SO_2 absorber, where the SO_2 is absorbed in typically sodium sulfite (Na_2SO_3) solution to form sodium bisulfite ($NaHSO_3$) and sodium pyrosulfate ($Na_2S_2O_5$). The absorbent rich in SO_2 is then stripped, and the SO_2 is recycled back to the Claus gas. The residual sulfur compounds in the treated tail gas from the SO_2 absorber is typically vented to a thermal oxidizer where it is oxidized to SO_2 before emitting to the atmosphere.

FIGURE 5-3
Tail Gas Treatment - Wellman-Lord Process



5.2 Current Allocations and Emissions

5.2.1 Allocations

In 1993, the facilities were issued emission allocations for their sulfur recovery - tail gas treatment unit based on the highest reported emissions from 1988 – 1992. The emissions allocated to each unit are listed in Table 5-1. The total Tier I allocations provided were 1.61 tons per day.

TABLE 5-1
SOx Allocations for Sulfur Recovery -Tail Gas Treatment Units

Facility	Process	Peak Year	Tier I Allocations (lbs/year)	Tier I Allocations (tons/day)
B	Tail Gas Unit	1990	353,992	0.48
A	Inorganic Chemicals	1992	280,670	0.38
A	Sour Water Oxidizer	1992	2,328	0.00
A	Sulfur Plant	1992	65,341	0.09
A	Tail Gas Unit	1992	31,343	0.04
D	KCR Process	1992	6,904	0.01
D	Merox Process	1992	1,599	0.00

TABLE 5-1 (Continued)
SOx Allocations for Sulfur Recovery -Tail Gas Treatment Units

Facility	Process	Peak Year	Tier I Allocations (lbs/year)	Tier I Allocations (tons/day)
D	Tail Gas Unit	1992	6,008	0.01
D	Tail Gas Unit	1992	50,587	0.07
G	Tail Gas Unit	1991	14,934	0.02
CC	Sour Water Coker	1988	12,360	0.02
CC	Sour Water Oxidizer	1988	12,360	0.02
CC	Sulfur Plant	1988	87,477	0.12
C	Tail Gas Unit	1988	6,500	0.01
E	Mericher Alkyd Feed	1991	250,983	0.34
			Total	**1.61**

5.2.2 Emissions

Since sulfur recovery - tail gas treatment unit with thermal oxidizers are classified as major sources in RECLAIM, the SOx emissions from these units are monitored with CEMS and reported on a daily basis to the District. The total annual emissions for 2005, 2006, and 2007, 0.96 tpd, 1.02 tpd and 0.96 tpd respectively from these units are presented in Table 5-2.

The sulfur recovery - tail gas treatment units at RECLAIM facilities are not subject to any specific concentration or emission rate standards. RECLAIM facilities are given the flexibilities to operate their equipment anyway they want provided that the total emissions from the facility are below facility emission caps. The allocations provided to these units since 1993 have not been adjusted even though there may have emerging technologies that can be used to further reduce SOx emissions from these units. Comparing the allocations provided in 1993 at 1.61 tons per day with the 2005 reported emissions at 0.96 tons per day, it seems that the sulfur recovery - tail gas treatment units at RECLAIM facilities have been slightly improved since 1993 provided that their capacity has not been changed.

Through the 2008 Survey, the refineries reported that their SRUs' capacity ranges from 90 long tons per day – 270 long tons per day. The refineries have been using more than one Claus units with the technologies such as SUPERCLAUS, FLEXSORB, or WELLMAN LORD to recover approximately 95% - 99.99% sulfur in their SRUs and tail gas treatment. All six refineries have thermal oxidizers at the end of their tail gas treatment units. A refinery reported that they would only vent the tail gas to incinerators when needed to meet the requirement of NSPS 40 CFR Part 60, Subpart J. The stack average SOx concentrations at the outlet of the thermal oxidizers vary widely from 20 ppmv at 0% O2 for Refinery E, 26 ppmv for Refinery D, 59 ppmv – 77 ppmv for Refinery A, 98 ppmv – 150 ppmv for Refinery B, and 98 ppmv for Refinery F

TABLE 5-2
SOx Emissions from Sulfur Recovery – Tail Gas Treatment Units

Facility	Device Description	Rating (mmbtu/hr)	2005 Emissions (tons/day)	2006 Emissions (tons/day)	2007 Emissions (tons/day)
B	Thermal oxidizer #2	44.5	0.16	0.22	0.26
B	Thermal oxidizer #1	39.5	0.15	0.12	0.11
A	Thermal oxidizer #70	58	0.10	0.14	0.12
A	Thermal oxidizer #20	30	0.09	0.09	0.08
A	Thermal oxidizer #10	30	0.06	0.08	0.06
C	Tail gas incinerator #1	19.5	0.01	0.00	0.01
C	Tail gas incinerator #2	19.5	0.01	0.02	0.01
CC	Thermal incinerator	NA	0.05	0.10	0.09
CC	Thermal incinerator	NA	0.02	0.01	0.02
D	Tail gas oxidizer	100	0.15	0.21	0.17
E	Incinerator for SRU	52	0.05	NA	NA
E	Incinerator for SRU	45	0.02	NA	NA
F	Thermal oxidizer	35.8	0.16	0.03	0.03
			1.03	**1.02**	**0.96**

Note: The 2005 SOx emissions were from SCAQMD database for the period from January 2005 – December 2005. The 2006 and 2007 emissions were reported by the facilities through a Survey Questionnaire distributed by SCAQMD in 2008.

5.3 Control Technology

The main purpose of the Claus sulfur recovery - tail gas treatment units is to recover sulfur. Afterwards, the treated gas is vented to a thermal oxidizer to oxidize the remaining H_2S. The Claus sulfur recovery, tail gas treatment and thermal oxidizer systems in the District generally have recovery efficiency of about 95% - 99.99% to meet NSPS 40 CFR Part 60, Subpart J limit and SCAQMD Rule 468 limit (e.g. 250 ppmv SO_2 with the use of thermal oxidizers, or 10 ppmv H_2S without the use of thermal oxidizers). The three main strategies that can be employed to further reduce SO_2 emissions from these units are 1) to increase the efficiency of the sulfur recovery unit, 2) to improve the efficiency of the tail gas treatment processes, and 3) to use a wet gas scrubber as an alternative for the thermal oxidizer.

5.3.1 Increase Efficiency of the Sulfur Recovery Unit

5.3.1.1 SELECTOX

The SELECTOX catalyst is used in the first stage of the Claus unit to promote the oxidation of H_2S to SO_2 without the use of a flame. SELECTOX catalyst has helped to increase the efficiency of sulfur recovery unit from 90% to 97%. SELECTOX has been used in San Joaquin

Refinery located in Bakersfield, California. [28] Other catalysts such as Criterion catalysts have been used to increase the sulfur recovery efficiency from a typical 96% - 97% to 99.8% - 99.9%. Testing on the tail gas unit at the Motiva Enterprises' Port Arthur refinery demonstrated that the stack SO_2 remained in the 22 ppmv – 28 ppmv range, which was only about 10% of the permitted maximum 250 ppmv required by NSPS, 40 CFR Part J. [29]

5.3.1.2 SUPER-CLAUS®

The SUPERCLAUS sulfur recovery unit is similar to the Claus unit but contains three to four catalytic converters. The first two or three catalytic converters use the Claus catalysts, while the last reactor uses a selective oxidation catalyst that highly selective and oxidize H_2S to sulfur. The efficiency of sulfur recovery is about 99%.

5.3.2 Increase Efficiency of Tail Gas Unit

5.3.2.1 SCOT Tail Gas Unit

SCOT stands for Shell Claus Off-gas Treating, which is the most common tail gas treatment system. Tail gas from the Claus unit is contacted with hydrogen and reduced in the hydrotreating reactor to form H_2S and water in the presence of a cobalt/molybdenum or alumina catalyst. The gas is then cooled and enters an amine absorber where it is contacted with monoethanolamine (MEA) or diethanolamine (DEA), or triethanolamine (TEA) to generate a rich amine stream. The rich amine stream is then desorbed in a stripper, where a lean amine stream is regenerated and recycled to the absorber, while and H_2S gas stream is sent back to the Claus unit. This technology has been used by several refineries in the District as reported through the 2008 Survey.

5.3.2.2 Sulfreen Tail Gas Unit

The Sulfreen process is a catalytic tail gas process that adds two or three Sulfreen reactors to treat the tail gas. Alumina catalyst is used to remove additional sulfur. Activated titanium oxide is used to remove COS and CS_2. Any remaining H_2S leaves the reactors are oxidized in the final stage. The recovering efficiency of the Sulfreen process is 99 – 99.9%.

5.3.2.3 Beaven Process

The Beaven process uses quinine solution to absorb H_2S in the tail gas. The absorbed H_2S is then oxidized to form a mixture of elemental sulfur and hydroquinone. Hydroquinone is

[28] *Sulfur Technology, Capability and Experience.* WorleyParsons.

[29] *Catalysts for Lower Temperature Tail Gas Unit Operation.* S. Massie and C. Wilson of Criterion Catalysts & Technologies, presented at the Brimstone Sulfur Recovery Symposium, Vail, Colorado, September 2005.

converted back to quinone. Before entering the absorber, COS and CS_2 in the tail gas can also be eliminated by the use of cobalt molybdate catalyst in a reactor located prior to the absorber. The recovering efficiency of the Beaven process is 99% – 99.9%.

5.3.2.4 Stretford Process

The Stretford process uses a hydrotreating reactor to convert SO_2 in the tail gas to H_2S, and then contacts H_2S with Stretford solution in a liquid-gas absorber. The Stretford solution contains a mixture of vanadium salt, anthraquinone disulfonic acid (ADA), sodium carbonate, and sodium hydroxide. The vanadium salt acts as a catalyst to convert H_2S into elemental sulfur. The recovering efficiency of the Stretford process is about 99%.

5.3.2.5 FLEXSORB ®

The FLEXSORB process were developed by the ExxonMobil Research and Engineering as alternative to the MDEA amine treatment process. The process uses a number of FLEXSORB solvents include the SE, SE Plus, SE hybrid, and the PS solvents. The solvents are designed to selectively absorb and convert H_2S, organic sulfur to elemental sulfur. The efficiency of FLEXSORB is about 99.9+%. This technology has been used by one refinery in the District as reported through the 2008 SCAQMD Survey.

5.3.2.6 PRO-Claus

The Parsons RedOx Claus (PROClaus) unit is a dry catalytic process that contains three additional stages, a reduction and two oxidation stages. In a reduction stage, a highly selective SO2 reduction catalyst developed by Lawrence Berkeley National Laboratory is used to accelerate the reduction of SO_2 to elemental sulfur. After this stage, the remaining H_2S is oxidized to form elemental sulfur under the presence of a Parsons Hi-Activity selective oxidation catalyst, and then it is sent to a thermal oxidizer to complete the oxidation process. An overall sulfur recovery efficiency of all three stages is 99.5%.

5.3.2.7 LO-CAT

LO-CAT is a liquid redox tail gas treatment capable of recovering 99.9+% with or with the use of a proprietary Mobile Bed Absorber (MBA) where H_2S and SO_2 are absorbed into a circulating solution and converted to elemental sulfur in the presence of a chelated-iron catalyst. The solution leaving the MBA is then oxidized. Exhaust gas from the MBA is vented to the atmosphere and contains less than 10 ppmv H_2S.

Table 5-3 provides a summary of the processes described above.

TABLE 5-3
Control Efficiency of Sulfur Recovery – Tail Gas Treatment Process

Process	Efficiency
Typical Claus with tail gas treatment and incinerators	90% - 95% (<250 ppmv)
Selectox catalyst for Claus Unit	97%
SUPERCLAUS® for Claus Unit	99%
SCOT for Tail Gas Treatment	99%
Sulfreen for Tail Gas Treatment	99% - 99.9+%
Beaven for Tail Gas Treatment	99% - 99.9+%
Stretford Tail Gas Treatment	99%
FLEXSORB Tail Gas Treatment	99.9+%
PRO-Claus Tail Gas Treatment	99.5%
LO-CAT Tail Gas Treatment	99.9+%

Reference: *Assessment of Control Options for Petroleum Refineries in the Mid-Atlantic Region – Final Technical Support Document*. Prepared by MACTEC Federal Programs, Inc. for the Mid-Atlantic Regional Air Management Association (MARAMA), January 31, 2007.

5.3.3 Wet Gas Scrubber

As described above, typically in the District, the tail gas from the Claus sulfur recovery unit is sent to an amine treatment process, which absorbs H_2S, produces a concentrated H_2S stream, and recycles the concentrated H_2S stream to the front end of the SRU. The residual H_2S in the treated gas is typically vented to a thermal oxidizer where H2S is oxidized to SO_2 before emitting to the atmosphere. This approach typically increases the overall sulfur recovery efficiency of the Claus sulfur recovery unit; however has the tendency to reduce the amount of fresh acid gas stream that could potentially be treated by the Claus sulfur recovery unit.

As an alternative to this process, the tail gas from the Claus unit is first oxidized to SO_2. The SO_2 is then captured by alkaline agent (e.g. sodium hydroxide caustic solution) in a wet gas scrubber, and the residual SO_2 not captured in the scrubber is discharged to the atmosphere. With this approach, there is no concentrated H_2S stream recycles to the front end of the SRU, and the overall sulfur recovery/removal efficiency is increased to 99.95%, above the efficiency of the current Claus SRU-Tail Gas Treatment systems in the District. [30] Two types of wet gas scrubbers that have been installed and used by the refineries in the U.S. are described in details below.

[30] *Improving Sulfur Recovery Units*, E. Juno of Sinclair Oil Corporation, S.F. Myer and C. Kulczycki of MECS, and N. Watts of CEntry Constructors and Engineers, Petroleum Technical Quarterly, Quarter 3 of 2006.

5.3.3.1 DynaWave Non-Regenerative Scrubber

Wet gas scrubbing technique is currently used at two refineries in Wyoming, the Sinclair Oil refinery, rated 72,000 barrels per day, and the Casper refinery, rated at 22,500 barrels per day. The scrubbers used at these two refineries are manufactured by DynaWave and use caustic (NaOH) as a scrubbing agent.

DynaWave scrubber can utilize other sodium based agents such as soda ash (Na_2CO_3), or calcium based agents such as lime (CaO) or limestone ($CaCO_3$), however Sinclair Oil refinery and Casper refinery have selected caustic (NaOH) because:

- Caustic was available as a 50% solution which could be pumped directly to the scrubber without further dilution or mixing. Soda ash or calcium based agents are only readily available as a powder and they would require an installation of a reagent preparation station.

- The reaction between SO_2 and caustic (NaOH) are relatively fast compared to the reaction of SO_2 with calcium based reagents. The products, sodium sulfite ($NaHSO_3$) or sodium bisulfite salts (Na_2SO_3) accumulated in the waste water stream, are soluble and can be further oxidized to reduce the COD in the waste stream to the level acceptable to the municipal wastewater treatment plant. In contrast, the products calcium sulfite ($CaSO_3$) or calcium sulfate ($CaSO_4$, aka gypsum) of the reaction between SO_2 and calcium based agents are insoluble salts which are not easily removed from the scrubber solution.

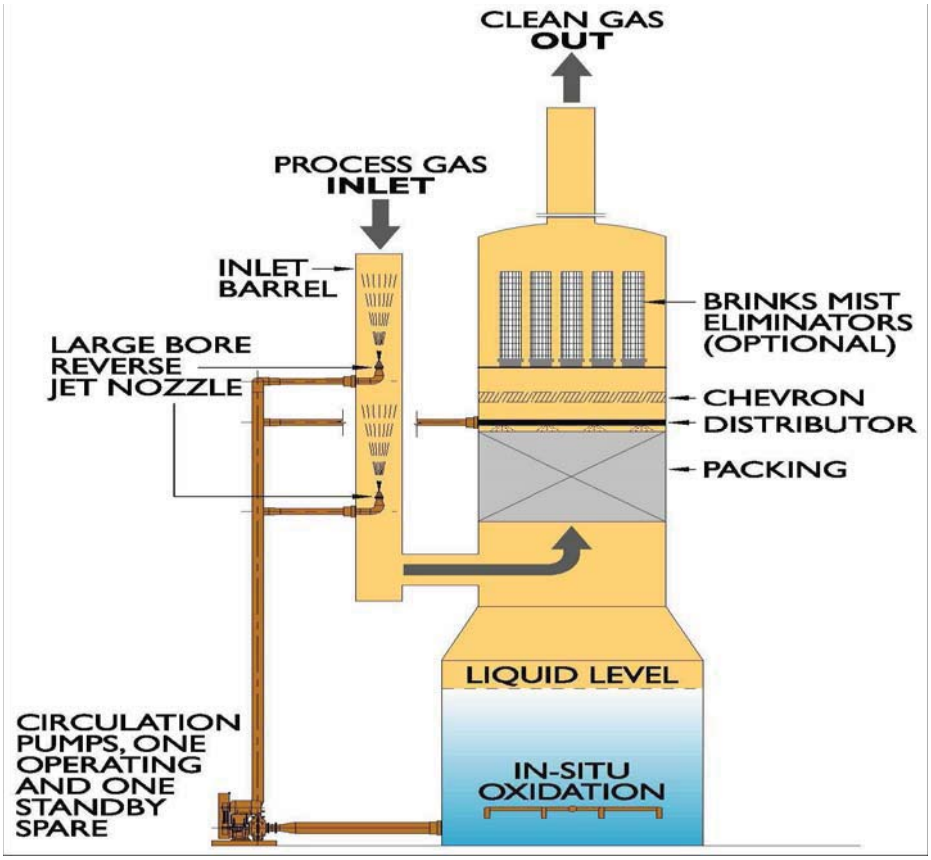
Using caustic solution as a scrubbing agent has helped the refineries to save on capital costs and annual operating costs, and improve the removal efficiency and operability of the system.

Most DynaWave scrubbers contain two stages of scrubbing, or froth zones, in the inlet barrel, as shown in Figure 5-4. In the first scrubbing stage, the inlet process gas is adiabatically saturated or "quenched". The gas exits the first scrubbing stage at 150 – 180 degree F and passes through the second scrubbing stage. In the second stage, caustic liquid agent is again injected upward into the incoming gas. The SO2 is absorbed, and reacts with the caustic agent, forming sodium by products, sodium sulfite and sodium bisulfite salts.

The reverse jet nozzles, located in the inlet barrel and used to inject the caustic reagent, is a proprietary piece of equipment supplied by Monsanto Enviro-Chem System (MECS) which is very critical to the scrubber application. A relatively large volume of scrubbing liquid is injected counter to the gas flow to create a froth zone. The gas collides with the liquid, forcing the liquid toward the wall. A standing wave, created at the point the liquid is reversed by the gas, is an extremely turbulent region. In this turbulent region, the gas absorption and particulate collection is enhanced significantly.

If the SO_2 concentration in the inlet gas stream is high, Dynaware will include a third stage scrubbing consisting of 2-inch diameter metal packing rings added to further increase the gas/liquid absorption. The liquid agent circulated to the third stage scrubbing can be turned off when it is not needed.

FIGURE 5-4
DynaWave Wet Gas Scrubber Used for Sulfur Recovery Tail Gas Treatment Unit



After passing through the third scrubbing stage, the air stream will pass through a set of chevrons which are used to maximize the liquid droplet removal. Liquid droplets disengage from the gas stream and accumulate in the bottom of the vessel. The bottom of the vessel is also used as a reservoir for the scrubber solution which ensures continuous feed to the recirculation pumps. Sulfite salts are also oxidized to sulfates in the reservoir. In addition to DynaWave scrubber, particulate filters, ESPs, or mist eliminators can be used downstream of the wet scrubber to remove fine particulates.

5.3.3.2 Cansolv® Regenerative Scrubber

Development of the Cansolv technology started in 1988 and begun by Union Carbide Canada Ltd.. Since then, it has been used commercially to control SO2 from sulfur recovery units, sulfuric acid plants, cogeneration units, and power plant boilers. In California, the Cansolv technology has also been used to control SOx emitted from a sulfuric acid plant at an oil refinery since September 2002. The Cansolv scrubber also has been installed and operated since July 2006 to control SOx from a sulfur recovery - tail gas application at BP Cherry Point refinery. The project was developed by Marsulex Inc. and is subject to an annual mass limit of 135 tons per year which can be translated to 150 ppmv SOx.[31] Cansolv advertises that their regenerative scrubber can be designed to achieve 10 ppmv SO2. [32, 33, 34]

5.4 Performance Information

The existing performance levels of the sulfur recovery units in the District reported by the facilities through the 2008 Survey are listed in Table 5-4. The SOx concentrations at the stack of the thermal oxidizers vary widely from 17 ppmv – 150 ppmv.

TABLE 5-4
Performance of SRU-Tail Gas Treatment in SCAQMD

Facility	% Sulfur Recovery	SOx Level
A	99.9%-99.99%	59 ppmv – 77 ppmv from thermal oxidizer
B	90%	98 ppmv – 150 ppmv from thermal oxidizer
C	---	17 ppmv – 56 ppmv from thermal oxidizer
D	99.9%	26 ppmv from thermal oxidizer
E	96%	20 ppmv from thermal oxidizer
F	99.5%	98 ppmv from thermal oxidizer
		<3 ppmv H2S outlet of tail gas treatment unit

The performance of several recent sulfur recovery units operated by the refineries located outside of the SCAQMD is shown in Table 5-5. The units were designed to meet 99%-99.9% sulfur recovery efficiency.

[31] According to the *2nd Round of Comments on RECLAIM SOx Shave Staff Report Part I*, dated July 1, 2008, the unit is designed to meet less than 200 ppmv, 12-hour rolling average, which is the limit of NSPS Subpart J/Ja. The unit has a mass limit of 135 tons per year, which can be translated to 150 ppmv SOx. The system was started in July 2006, was in operation for about 4 months, was shutdown due to equipment problems outside of the Cansolv system, and is currently not in operation.

[32] Hydrocarbon Engineering Word Review, 2007. www.worldcoal.com/Hydrocarbon/HE_world_review_usa.htm

[33] *Integrating Cansolv® System Technology into the Sour Gas Treating/Sulfur Recovery Plant* which indicated that Cansolv system can be designed to achieve 10 ppmv SO2. www.cansolv.com.

[34] *The Cansolv system process: A new paradigm for SO2 recover and recycle.* J.N. Sarlis and P.M. Ravary of Cansolv Technologies, Inc.

TABLE 5-5
Performance of Sulfur Recovery – Tail Gas Treatment Unit

Company	Source	SOx Standard
Arizona Clean Fuels Yuma LLC, Yuma AZ (1)	SRU - Tail Gas (Amine) Unit - Sour Water Stripper	99.97% sulfur recovery efficiency
BP, Texas City, Texas (2)	SRU	99% sulfur recovery. All refinery fuel gas is scrubbed to remove sulfur. Significant reductions by routing vent streams from the SRU to the front end of the SRU, to recover additional sulfur instead of combusting sulfur to SO2.
Shell Martinez, Contra Costa County, Bay Area (3)	SRU SCOT and tail gas thermal oxidizer	Limit at 50 ppmv at 0% O2. Test showed 13 ppmv SO2 and <0.1 ppmv H2S at 0% O2.
Marathon Petroleum Garyville Refinery, Louisiana (1)	SRU with thermal oxidizers and oxygen enrichment	93 ppmvd SO2 at 0% excess air, 99.9% sulfur recovery, 99.5% thermal oxidizer efficiency

Note: 1) The U.S. Environmental Protection Agency RACT/BACT/LAER Clearinghouse; 2) *BP Texas City Site – Texas City, Texas – 2004 Environmental Statement*, June 2005; 3) CARB BACT Clearinghouse.

Wet gas scrubbing technique is currently used at two refineries in Wyoming, the Sinclair Oil refinery and the Casper refinery since 2004. Results of a full scale testing at Sinclair refinery in November 2005 are shown in Table 5-4. The system was proven to be 99.99% in sulfur removal efficiency and resulted in SO2 outlet concentrations below 0.5 ppmv. In January 2005, Sinclair Oil Corporation decided to install a third DynaWave scrubber at its Tula refinery which has already started up in 2006. The most recent 6-months CEMS data provided to the District by the Wyoming air quality control office confirmed the achieved-in-practice performance for the DynaWave wet gas scrubbers at the level below 5 ppmv.

TABLE 5-6
Full-Scale Performance of DynaWave Non-regenerative Scrubber for Sulfur Recovery Unit at Sinclair Refinery

	Run 1	Run 2	Run 3	Average
SO2 inlet, lbs/hr	276.10	259.13	249.50	261.58
SO2 outlet, lbs/hr	0.01	0.01	0.01	0.01
SO2 outlet, ppmv	0.31	0.31	0.31	0.31
SO2, % Removal	99.99	99.99	99.99	99.99

Note: Based on EPA Source Test Method 6. The 0.31 ppmv is the lowest detection level for stack testing. From *Improving Sulfur Recovery Units*, E. Juno of Sinclair Oil Corporation, S.F. Myer and C. Kulczycki of MECS, and N. Watts of CEntry Constructors and Engineers, Petroleum Technical Quarterly, Quarter 3 of 2006.

5.5 BARCT Level and Emission Reductions

Through the data provided to the consultants, there was one refinery regularly vented the flue gas to the atmosphere, and the remaining refineries treated or incinerated the tail gas from their SRU/TG systems. Because of this distinction in the refinery's operations, the consultants divided their recommendations for SRU/TG into two areas.

— For uncombusted tail gas, the consultants recommended a BARCT level of NSPS Subpart J (Ja), namely 10 ppm H2S and 300 ppm reduced sulfur species (total of H2S, COS, and CS2)

— For the combusted tail gas, the consultants recommended 5 ppmv SOx @ 0% O2 as BARCT. The consultants indicated a level of 10 ppmv would allow a greater number of refineries to meet the overall BARCT level by the gas treatment methods without having to install a wet gas scrubber.

TABLE 5-7
Initial Emission Reductions and Cost Effectiveness Estimated by ETS/AEC for SRU/TGs

Refinery:	1	2	3	4	5	6	Total
Emission Reductions (tpd)	0.13* (note 1)	0.17	0.15	0.04	0.06	0.29	0.83
Cost Effectiveness based on ETS/AEC ($/ton)	$22.4k (note 3)	$39.0k (note 2)	$12.9k (note 3)	$54.7k (note 3)	$123k (note 2)	$36.3k (note 2)	$37.4k (note 4)

*Note: 1) Already met the emission reductions; 2) As shown in Table EX-1 of Module 3A ETS/AEC Final Report; 3) As shown in Table EX-1 of Module 2 ETS/AEC Final Report; 4) As shown in the Summary Table EX-6 of Module 2 and Module 3A of ETS/AEC Final Report.

Staff concurred with the recommendations of the consultants on the level of proposed BARCT, except that staff will not require any BARCT with low cost effectiveness (>$50 K per ton). The emission reductions estimated by staff is as follows:

TABLE 5-8
Staff's Proposed Emission Reductions and Cost Effectiveness for SRU/TGs

Refinery:	2	3	6	Total
Emission Reductions (tpd)	0.17	0.15	0.29	0.73
Cost Effectiveness ($/ton)	$39.0k	$12.9k	$36.3k	$31.5k
Cost Effectiveness based on input from NEC ($/ton)	$49.6k	$55.3k	$41.6k	$44.5k

Chapter 6 – Sulfuric Acid Manufacturing

6.1 Process Description

Sulfuric acid manufacturing process, as shown in Figure 6-1, includes three basic operations. First, sulfur in the feedstock is oxidized and spent sulfuric acid is decomposed to sulfur dioxide (SO_2) in a furnace:

$$S + O_2 = SO_2$$
$$\text{Spent } H_2SO_4 = H_2O + \tfrac{1}{2} O_2 + SO_2$$

The sulfur dioxide is then catalytically oxidized to sulfur trioxide (SO_3) in a multi-staged catalytic reactor (or converter). A typical catalyst used in the reactor is vanadium:

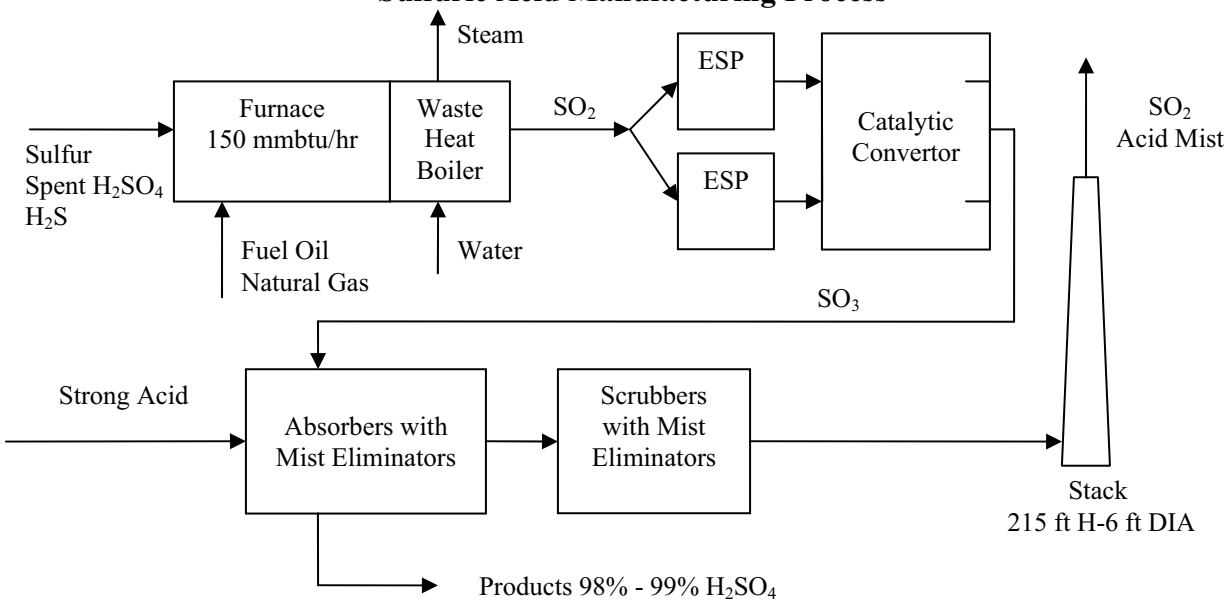
$$2SO_2 + O_2 = 2SO_3$$

The sulfur trioxide reacts with water in a absorbing tower to produce a strong sulfuric acid solution.

$$SO_3 + H_2O = H_2SO_4$$

In a double absorption process, the SO_3 gas formed from the primary converter is sent to a first absorber where the SO3 is removed to form H_2SO_4. The remaining unconverted SO_2 and SO_3 are directed to a second set of converter and absorber to further produce H_2SO_4.

FIGURE 6-1
Sulfuric Acid Manufacturing Process



The conversion to H_2SO_4 is always incomplete, and is affected by the number of stages in the catalytic converter, the type and amount of catalyst used, temperature and pressure, and the concentrations of the reactants, SO_2 and O_2. A 98% - 99% conversion to H_2SO_4 is typical. The

exhaust gas stream from the absorbers can be vented to ESPs, scrubbers, and mist eliminators to remove SO_2 and acid mist prior to venting to the atmosphere. The process produces a great deal of heat. Steam driven compressors, waste heat boilers, and heat exchangers are utilized throughout the process to recover and convert the waste heat into useful energy.

6.2 Current Allocations and Emissions

6.2.1 Allocations

Facility A and B are the two facilities in the District that operate a sulfuric acid manufacturing plants. In 1993, allocations were provided to these processes based on an emission factor ranging from 4 lbs/ton acid produced to 9.478 lbs/ton acid produced. The existing SCAQMD Rule 469 limits the SO2 concentration in effluent process gas from a sulfuric acid unit to 500 ppmv and the mass emissions to 198.5 lbs/hr of sulfur compounds expressed as SO2; and NSPS requires a sulfuric acid manufacturing plant to meet an emission level of 4 lb SO_2 per ton of 100% acid produced, maximum 2 hour average. The allocations provided to these two facilities are shown in Table 6-1.

TABLE 6-1
Allocations for Sulfuric Acid Furnace/Reactor

Facility	Peak Year	Emission Factor (lbs per ton acid produced)	Allocations (lbs/year)	Allocations (tons/day)
A	1988	4.000	598,028	0.82
B (Plant 1)	1987	4.380	371,139	0.51
B (Plant 2)	1987	4.577	329,031	0.45
B (Plant 3)	1989	9.478	549,904	0.75
			Total	**2.53**

Note: Prior to 1990, Facility B operated three sulfuric acid units that were built between the late 1920's and late 1950's. In 1990, these three furnaces were replaced with a double absorption furnace to achieve 99.85% conversion efficiency and currently subject to EPA Consent Decree limiting the emission rate to 1.7 lbs SO2 per ton of acid produced.

In addition to SO_2, there is acid mist generated from the absorber of the sulfuric acid manufacturing process. Acid mist is generated when SO_3 combines with water at temperature below the dew point of SO_3. Acid mist is a very stable compound and usually is controlled and captured by mist eliminators. Sulfuric acid mist is limited to 0.15 lbs per ton acid produced under NSPS and 0.30 lbs per ton acid produced under SCAQMD Rule 469.

6.2.2 Emissions

The 2005 emissions reported from these processes are presented in Table 6-2. Facility B reported 1.13 tons per day and Facility A reported 0.04 tons per day.
The two facilities also reported their 2006 and 2007 emissions through the SCAQMD Survey conducted in 2008, as shown in Table 6-2. The production rate of 100% sulfuric acid at Facility B is approximately 3 times larger than the production rate at Facility A.

TABLE 6-2
SO2 Emissions from Sulfuric Acid Furnace/Reactor

Facility	Device Description	2005 Emissions (tons/day)	2006 Emissions (tons/day)	2007 Emissions (tons/day)
A	Reactor	0.04 (1)	0.06	0.05
B	Furnace	1.13 (2)	1.02	0.96
		1.17	**1.08**	**1.01**

Note: 1) The emissions are from a single absorption unit and controlled by a Cansolv scrubber, 2) The emissions are from a double absorption unit.

The emissions from Facility A's reactor are low compared to the emissions from Facility B's furnace. Facility A's single absorption unit uses a Cansolv scrubber to control their SOx emissions from the reactor, whereas the emission from Facility B's double absorption unit is currently not controlled by scrubbers. The SOx outlet concentrations from Facility B's furnace were in a range of 144 ppmv – 185 ppmv, whereas the SOx outlet concentrations from Facility A's reactor were in a range of 17 ppmv – 51 ppmv. The emission rates calculated based on the information reported through the 2008 Survey are from 1.58 lbs/ton – 1.84 lbs/ton acid produced for Facility B, and 0.28 lbs/ton acid for Facility A.

6.3 Control Technology

6.3.1 EPA BARCT Clearinghouse

Staff researched the U.S. EPA RACT/BACT/LAER Clearinghouse to identify the BARCT level for sulfuric acid manufacturing plant. A summary of the information posted on the Clearinghouse is presented in Table 6-3. [35]

In general, in addition to double absorption, the sulfuric acid manufacturing plants in the U.S. have upgraded their converters and absorbers, used cesium promoted vanadium catalysts, and added tail gas scrubbers to meet an emission level ranging from 0.2 lbs – 3.5 lbs SOx per ton of 100% acid produced.

6.3.2 Clean Air Act Settlements

Recently in 2007, the U.S. Department of Justice and the U.S. EPA have announced several Clean Air Act settlements with two major sulfuric acid plants in the country to lower the SO2 emissions from their sulfuric acid plants in the country.

[35] U.S. EPA RACT/ EPA RACT/BACT/LAER Clearinghouse.

TABLE 6-3
Emission Levels for Sulfuric Acid Manufacturing Plants [(1)]

Facility	Source	SOx Level
Dupont, Union, New Jersey (New Construction in 2007)	Two identical 400 tons per day double absorption sulfuric acid plants that use spent acid, sulfur, and hydrogen sulfide as feed stocks.	– 0.2 lbs SOx per ton of 100% acid produced and 3 lbs/hr SOx at 3-hour average – 0.10 lbs sulfuric acid mist per ton of 100% acid produced.
Dupont, El Paso, Texas (New Construction in 2007)	Double absorption sulfuric acid plant that use spent acid and hydrogen sulfide as feed stocks.	– 1 lbs SOx per ton of 100% acid produced at 3-hour average – 0.10 lbs sulfuric acid mist per ton of 100% acid produced.
Dupont, New Castle, DE (New Construction in 2005)	Double absorption sulfuric acid plant, 550 tons per day, that use spent acid and hydrogen sulfide as feed stocks.	– 1.35 lbs SOx per ton of 100% acid produced at 3-hour average – 0.12 lbs sulfuric acid mist per ton of 100% acid produced.
General Chemical LLC, Augusta, Richmond	Double absorption sulfuric acid plant, 1,000 tons per day. A new soda ash scrubber was used to lower the standard from 4 lbs to 2.6 lbs/ton	– 2.6 lbs SOx per ton of 100% acid produced at 3-hour average – 0.08 lbs sulfuric acid mist per ton of 100% acid produced.
CF Industries, Hillsborough, Florida	Double absorption plant, 1,600 tons/day, uses spent acid, sulfur, and hydrogen sulfide as feed stocks. This plant has a two-stage ammonia scrubber and upgraded converters. The plant uses cesium catalysts to increase the SO2-SO3 conversion.	– 3.5 lbs SOx per ton of 100% acid produced, 99.5% conversion, and 401 lbs/hr SOx at 3-hour avg. – 0.10 lbs sulfuric acid mist per ton of 100% acid produced, 99% control efficiency, and 11 lbs/hr sulfuric acid mist.
CF Industries, Plant City, Florida	Two 2,750 tons per day double absorption plants that use spent acid, sulfur, and hydrogen sulfide as feed stocks. The converters and absorbers were upgraded and cesium promoted vanadium catalysts were used to increase the SO2-SO3 conversion.	– 3.5 lbs SOx per ton of 100% acid produced, 99.5% conversion, and 401 lbs/hr SOx at 3-hour average – 0.10 lbs sulfuric acid mist per ton of 100% acid produced, 99% control efficiency, and 11 lbs/hr sulfuric acid mist.
US Agri-Chemicals Corp., Polk, Florida	A 3,000 tons per day double absorption sulfuric acid plant with mist eliminators	– A 3.5 lbs SOx per ton 100% acid produced, and 99.9% conversion efficiency, and 1916 tons per year – 0.12 lbs sulfuric acid mist per ton of 100% acid produced, 99% control efficiency, and 65.7 tons per year sulfuric acid mist.

Note: 1) EPA RACT/BACT/LAER Clearinghouse on EPA's web page conducted in November 2007.

– Company #1 operates four sulfuric acid plants in Louisiana, Virginia, Ohio, and Kentucky. Under the recent settlements, the company has agreed to install $66 million state-of-the-art dual absorption control equipment in its largest plant located in Darrow, Louisiana. For the other three plants, the company has the option to install the $87 million additional control technologies or ceasing operations. All four plants have to meet the lower standards ranging from 1.7 lbs – 2.4 lbs SO_2 per ton acid produced by March 1, 2012. When fully

implemented, these plants will reduce SOx by an additional 90%. A summary of these agreements is included in Table 6-4. [36]

– Company #2 has agreed to spend approximately $50 million to upgrade air pollution control at their eight production plants in four states across the country to reduce SO_2 emissions by approximately 95%. As shown in Table 6-4, the consent decree requires the installation of wet gas scrubbers or double absorption technology to meet the BARCT levels ranging from 1.7 lbs – 2.5 lbs SOx per ton acid produced. [37]

TABLE 6-4
Consent Decree for Sulfuric Acid Manufacturing Plants

Company	SOx Level (lbs SO_2 per ton)	Compliance Date
#1, Burnside, Darrow, Louisiana	2.4 (1)	September 1, 2009
#1, James River, Richmond, Virginia	1.5 (1)	March 1, 2010
#1, Fort Hill, North Bend, Ohio	2.2 (1)	March 1, 2012
#1, Wurtland, Wurtland, Kentucky	1.7 (1)	March 1, 2012
#2, Hammond, Indiana (3)	2.5 (2)	Not specified
#2, Martinez, California (4)	2.2 (2)	Not specified
#2, Dominguez, California (3)	1.7 (2)	Not specified
#2, Bayton, Texas (4)	2.2 (2)	Not specified
#2, Houston #8, Texas (5)	1.7 (2)	Not specified
#2, Houston #2, Texas (5)	1.8 (2)	Not specified
#2, Baton Rouge #2, Louisiana (5)	2.2 (2)	Not specified
#2, Baton Rouge #1 Louisiana (5)	1.9 (2)	Not specified

Note: 1) the standard is a 3-hour rolling average. 2) The standard is a 365-day rolling average. Company #2 plants must meet 0.15 lbs/ton acid mist. 3) Double absorption plant. 4) Single absorption with ammonia scrubber. 5) Single absorption with caustic scrubber.

6.4 Proposed BARCT Level and Emission Reductions

As shown in Tables 6-3 and 6-4, the controlled emission level for sulfuric acid manufacturing plants has been improved significantly. The current controlled level can be as low as 0.2 lbs/ton – 0.3 lbs/ton. These levels could be achieved by upgrading the converters and absorbers, using cesium promoted vanadium catalysts, and/or adding tail gas scrubbers.

In the District, Facility A has used Cansolv scrubber to control SOx emissions from its acid production plant, and achieved 0.28 lbs/ton acid produced. As a result, the emissions from its reactor have dropped from 0.82 tons per day in 1993 to 0.04 tons per day in 2005. By using Cansolv scrubber, Facility A has achieved an emission reduction of approximately (1-0.04/0.82)*100 = 95%.

[36] Civil Clean Air Act Settlements. www.usdoj.gov

[37] Civil Clean Air Act Settlement, www.uepa.gov/compliance/resources/cases/civil/caa/rhodia-fcsht.html

The emissions from Facility B's furnace are currently not vented to scrubbers.[38] The SOx emissions from this facility's furnace were in a range of 144 ppmv – 185 ppmv, and this furnace is the #1 SOx emitter in the District at 1.13 tons per day in 2005.

The consultant's analyses (NEXIDEA) for the feasibility and costs of control are summarized in Part 2 of the Staff Report, and the non-confidential portions of the analyses (NEXIDEA & NEC) are available for public information. After considering all feasible technologies, the consultants' recommendation for BARCT level, which staff concurred with, is 10 ppmv for sulfuric acid plants. The consultants' estimates are as follows:

TABLE 6-5
Emission Reductions and Cost Effectiveness Estimated by NEXIDEA and Cost Effectiveness Estimated Based on Input from NEC

	BARCT Level	Emission Reductions	Cost Effectiveness
NEXIDEA	0.14 lbs SOx/ton acid (10 ppmv)	<0.03 tpd (Facility A) 1 tpd (Facility B)	$1.9k - $5.6k Average: $2.0k
NEC	0.14 lbs SOx/ton acid (10 ppmv)	<0.03 tpd (Facility A) 1 tpd (Facility B)	$~~2.8~~3.3k - $8.8k Average: $3.4k

Comparing to an average Tier I level of 3.93 lbs/ton, the proposed new BARCT of 0.14 lbs/ton reflects a 97% reduction from Tier I level.

[38] Permit condition no A72.1 in Facility B's Facility Permit, dated September 2007. The 99.9% efficiency seems not correlated well with the SOx outlet concentrations recorded in the range of 144 – 185 ppmv from the furnace.

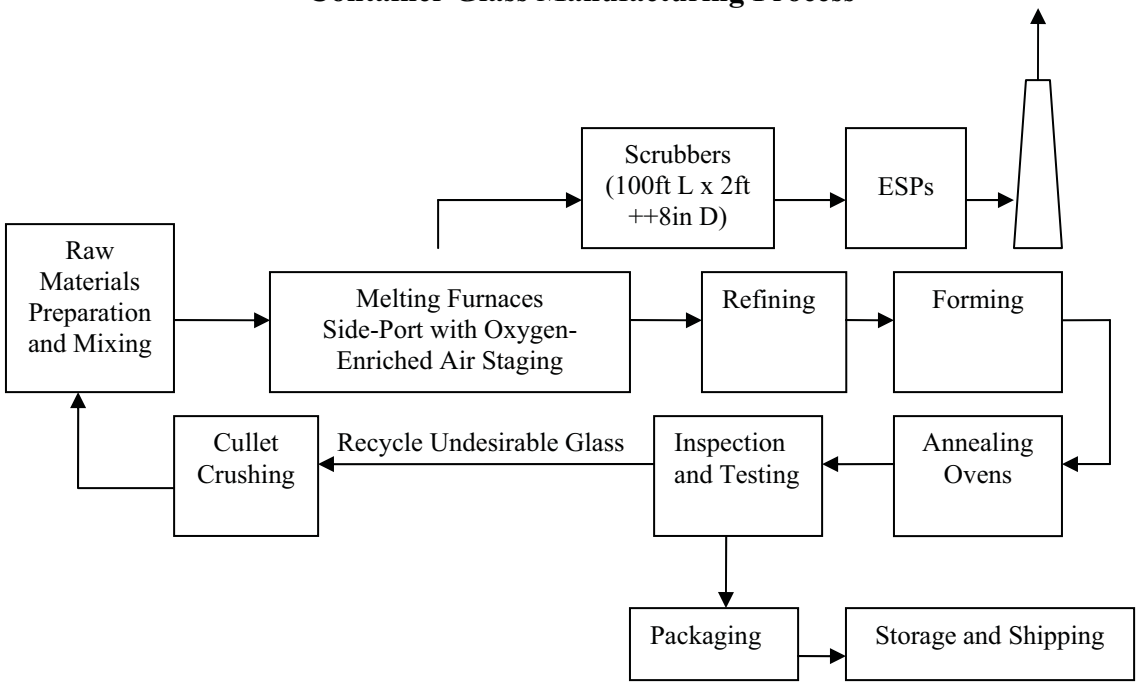
Chapter 7 – Container Glass Melting Furnaces

7.1 Process Description

Owens-Brockway Glass Container Inc. is a container glass manufacturing facility located in Vernon. The company manufactures glass bottles, glass wares, pressed & blown glass, tempered glass, as well as safety glass. The manufacturing process contains four phases 1) preparation of raw material, 2) melting in a furnace, 3) forming, and 4) finishing. Figure 7-1 is a simplified diagram for a typical glass manufacturing process.

Raw materials, which include sand, limestone, and soda ash, are crushed and mixed with cullets to ensure homogeneous melting. The raw materials are then conveyed to a continuous regenerative side-port melting furnace. As the materials enter the melting furnace through a feeder, they float on the top of the molten glass already in the furnace, melt, and eventually flow to a refiner section, and then fore hearths, forming machine, and annealing ovens. The final products undergo inspection, testing, packaging and storage. Any damaged or undesirable glass is transferred back to be used as cullets.

FIGURE 7-1
Container Glass Manufacturing Process



Sulfur oxides are generated from the decomposition of the sulfates in the raw materials and sulfur in the fuel. The melting furnace contributes over 99% of the total emissions from a glass plant. There are currently two melting furnaces at the Vernon facility, 60 mmbtu/hr furnace #23B (Device D147), and 100 mmbtu/hr furnace #23C (Device ID D112). Each furnace is limited to approximately 400 tons glass pulled per day. The SOx emissions are controlled by two scrubbers, of which one scrubber has a permit condition of 80% efficiency. The scrubbers are manufactured by PPC Industries, use sodium bi/sesquicarbonate as scrubbing agent, have two passes, and about 101 ft in length and 2ft 8 in diameter. The outlet flue gases from the scrubbers are directed to a common manifold and are vented to three dry ESPs downstream, one standby, for particulate emissions control. The furnaces currently have oxygen-enriched air staging (oxy-fuel), a control technique that is commonly used to reduce NOx.

7.2 Current Allocations and Emissions

7.2.1 Allocations

The allocations provided to the facility for their furnaces are presented in Table 7-1. These allocations were estimated based on SOx emission factors ranging from 2.12 lbs/ton to 3.15 lbs/ton of glass pulled and their peak activities in 1992. The total allocations provided for the three furnaces were 1.01 tons per day.

TABLE 7-1
Allocations for Container Glass Melting Furnaces

Equipment	Peak Year	Emission Factor (lbs per ton glass)	Allocations (lbs/year)	Allocations (tons/day)
Furnace #1	1992	3.150	231,475	0.32
Furnace #2	1992	2.480	269,673	0.37
Furnace #3	1992	2.120	237,605	0.33
			Total	**1.01**

7.2.2 Emissions

The emissions reported in 2005, 2006 and 2007 from Owens-Brockway's furnaces are presented in Table 7-2. In total, the two furnaces emitted about 0.21 tons per day SOx in 2005, 0.27 tons per day in 2006, and 0.35 tons per day in 2007. The emissions from the two furnaces were vented to two scrubbers (one scrubber dedicated to each furnace); and three parallel ESPs (shared between two furnaces). The emissions were measured by three CEMS. The SOx outlet concentrations were averaged 64 ppmv for the first CEMS, 69 ppmv for the second CEMS, and 85 ppmv for the third CEMS. In addition to Owens-Brockway, Saint-Gobains Containers Inc. operated a 78 mmbtu/hr glass melting furnace that emitted about 0.13 tons per day SOx in 2005, but this operation has ceased since then.

TABLE 7-2
SOx Emissions from Glass Melting Furnaces

Facility	SOx Avg Concentration (ppmv)	2005 Emissions (tons/day)	2006 Emissions (tons/day)	2007 Emissions (tons/day)
Owens-Brockway, A CEMS	64	0.076	0.27	0.35
Owens-Brockway, B CEMS	69	0.084		
Owens-Brockway, C CEMS	85	0.036		
Saint-Gobain (shutdown)	NA	0.128	NA	NA
		0.32	**0.27**	**0.35**

Note: The 2005 SOx emissions were from SCAQMD database for the period from January 2005 – December 2005. The 2006 and 2007 emissions were reported by the facilities through a Survey Questionnaire distributed by SCAQMD in 2008.

Through the 2008 Survey, Owens-Brockway reported that the two furnaces were in operating at > 90% maximum rated capacity from 2005-2007 and have emission rates ranging from 0.62 lbs/ton – 1.05 lbs/ton glass pulled, as shown in Table 7-3.

TABLE 7-3
SOx Emission Rates from Glass Melting Furnaces

Year	SOx Emission Rates (Lbs/Ton of Glass Pulled)
2005	0.62
2006	0.80
2007	1.05

7.3 Control Technology

In 2005, the U.S. Department of Justice and the U.S. EPA have reached an agreement with Saint-Gobain Containers, Inc. and required Saint-Gobain to install state-of-the-art pollution control at a cost of $6.6 million to reduce SO2 emissions from their melting furnaces. The Saint-Gobain plant located in Seattle Washington was permitted to a level of 1.6 lbs SOx per ton glass produced with the use of Tri-Mer Cloud Chamber Scrubber (CCS). [39] The installation of the CCS was just recently finished, and the plant started testing in mid of December 2007. The capital costs for the CCS at this plant were approximately $1,694,000, designed for an inlet flow of 40,000 acfm at 700 degree F. [40]

Other Saint-Gobain facilities must meet a level of 0.8 lbs SO2 per ton of glass pulled. This 0.8 lbs/ton is the most recent BARCT level for container glass melting furnaces and has been

[39] Title V Permit & Statement of Basis for Saint-Gobain Containers Inc. located in Seattle prepared by the Puget Sound Clean Air Agency, dated June 6, 2007.

[40] E-mail from Mr. Gerry Pade of Pudget Sound Clean Air Agency to Minh Pham, dated November 30, 2007.

proposed by San Joaquin Valley APCD in their proposed rule 4354. [41, 42] Tri-Mer Corporation estimates that their technology can achieve a level as low as 0.1 lbs SO2 per ton of glass produced, 0.1 ppmv outlet SO2, and 99.9% control efficiency. The BARCT information for glass melting furnaces is summarized in Table 7-3.

TABLE 7-3
BARCT for Container Glass Manufacturing Plant

Facility	SOx Level
Saint-Gobain Containers, Inc., Seattle, Washington (Tri-Mer Cloud Chamber Scrubber)	Permitted at 1.6 lbs per ton glass produced. Source tested at 0.01 lbs per ton glass [1, 2, 3]
San Joaquin Valley APCD Rule 4354	0.9 lbs/ton glass produced
Tri-Mer Cloud Chamber Scrubber	0.1 ppmv SO2 outlet 0.1 lbs per ton glass produced 99.9% control efficiency [4]

Note: 1) This is the permitted level of SOx from Saint-Gobain furnaces controlled by a Tri-Mer Cloud Chamber Scrubber which was designed to handle an exhaust flow of 40,000 acfm at 700 deg F. The furnaces are either operated at a) 205 tons per day capacity with an exhaust flow rate of 35,600 acfm at 350 deg F, or b) 195 tons per day capacity with an exhaust flow rate of 15,000 acfm at 500 F. 2) Fuel oil burning in these furnaces is limited to 15 ppmv by weight of sulfur (0.0015%). 3) Based on the most recent source test at this facility in September 2009, the facility achieved an outlet SOx concentrations between 0.2 – 0.7 ppmv at 99% control efficiency which resulted in about 0.01 lbs SOx per ton glass. 4) Information provided by Tri-Mer Corporation based on their own source testing information.

7.4 BARCT Level and Emission Reductions

As noted earlier, Owens Brockway achieved a level of 0.62 lbs/ton in 2005, averaged 64 ppmv - 85 ppmv SOx, with the use of dry scrubbing. Saint-Gobain Containers Inc. in Seattle Washington, with the use of Tri-Mer Cloud Chamber scrubber, can achieve an emission rate of 0.01 - 0.1 lbs/ton, or an outlet concentration of 0.1 ppmv – 0.7 ppmv SOx, further emission reductions from container glass manufacturing is feasible.

The consultant (ETS, Inc.)'s recommendation for BARCT is a level of 1 ppmv or below:

TABLE 7-4
Emission Reductions and Cost Effectiveness Estimated by ETS

Equipment	BARCT Level	BARCT Emission Level	Emission Reductions	Cost-Effectiveness
Owens-Brockway A, B & C CEMS	99% control (≤1 ppmv)	0.0058 lbs/ton glass pulled	0.19 tpd	$ 5.201 K/ton

[41] Consent Decree for Saint-Gobain Containers, Inc. www.epa.gov/compliance/resources/reports/endofyear/eoy2005/2005aircasehighlights.html.

[42] San Joaquin Valley APCD Rule 4354 – Glass Melting Furnaces, Proposed Amended Rule and Draft Staff Report, dated February 8, 2008.

This is the only container glass facility in the basin. Because of the economic reason, staff's recommendation for BARCT is 5 ppmv or below. The emission reductions and cost effectiveness are in Table 7-5.

TABLE 7-5
Staff's Proposed Emission Reductions and Cost Effectiveness for Glass Furnace

Equipment	BARCT Level	BARCT Emission Level	Emission Reductions	Cost-Effectiveness
Owens-Brockway A, B & C CEMS	95% control (≤5 ppmv)	0.03 lbs/ton glass pulled	0.19 tpd	$ 5.198 K/ton

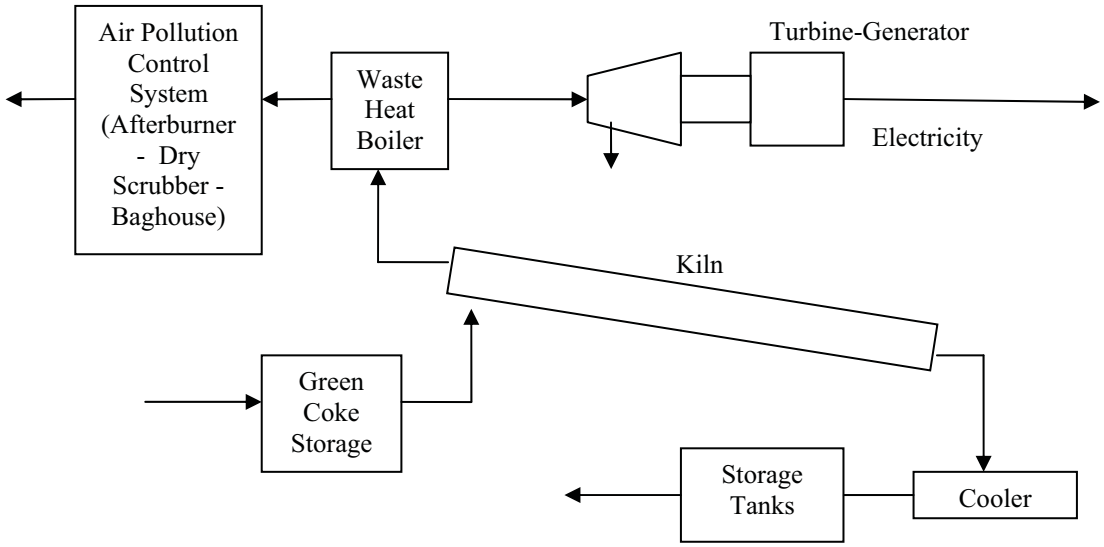
Chapter 8 – Coke Calcining

8.1 Process Description

Engineering of the coke facility began in 1978 by Martin-Marietta. Initial production of calcined coke occurred in February 1983. The company was purchased by BP Products Company in 1985. BP produces calcined coke in two locations in the United States: Wilmington California and Cherry Point Washington, and two locations in Germany: Gelsenkirchen and Lingen.

Basically, coke calcining is a process to improve the quality and value of "green coke" produced at a delayed coker in a refinery. At BP Wilmington, the green feed, produced by BP's nearby Carson Refinery, is screened and transported to the BP Wilmington Calciner by truck, where it is stored under cover in a coke storage barn. The screened and dried green coke is introduced into the high end of the rotary kiln, 3 feet diameter x 270 ft long, is tumbled by rotation, moves down the kiln countercurrent to a hot stream of combustion air produced by the combustion of natural gas or oil. The kiln temperatures are in a range of 2000 – 2500 degrees Fahrenheit. The green coke is retained in the kiln for approximately one hour to drive off the moisture, impurities, and hydrocarbon. After discharging from the kiln, the calcined coke drops into a cooling chamber, where it is quenched with water, treated with dedusting agents for dust control, carried by conveyors to storage tanks, and later are transported by trucks to the Port of Long Beach for export, or is loaded into railcars for shipments to domestic customers. A simplified process diagram of the calcining process is shown in Figure 8-1.

FIGURE 8-1
Coke Calcining Process



BP Wilmington produces approximately 400,000 short tons per year of calcined products.[43] The Wilmington coke calciner is limited to a maximum processing rate of 1,980 tons green coke per day, and is increasing to 2,400 tons of green coke per day.[44] BP Wilmington is a global supplier of calcined coke to the aluminum industry, and fuel grade coke to the fuel, cement, steel, calciner, and specialty chemicals businesses.

8.2 Current Allocations and Emissions

8.2.1 Allocations

As shown in Table 8-1, the allocations for BP coke calciner was estimated based on a controlled emission factor of 2.473 lbs SOx per ton of calcined coke and a production rate of 378,264 tons calcined coke. [45] The coke calciner was in compliance with SCAQMD Rule 1119 – Petroleum Coke Calcining Operations – Oxides of Sulfur, adopted March 2, 1979, which requires that the uncontrolled SOx emissions from coke calcining operations must be reduced by at least 80% by July 1, 1983.

TABLE 8-1
Allocations for BP Coke Calciner

Peak Year	Emission Factor (lbs per ton coke)	Allocations (lbs/year)	Allocations (tons/day)
1989	2.473	935,447	1.28
		Total	**1.28**

8.2.2 Emissions

The 2005-2007 reported emissions from BP coke calciner are presented in Table 8-2. Note that the 2005-2007 emissions are much less than the allocations provided to BP in 1993.

TABLE 8-2
SOx Emissions from BP Coke Calciner

Device ID	Rating (mmbtu/hr)	2005 Emissions (tons/day)	2006 Emissions (tons/day)	2007 Emissions (tons/day)
20	120	0.35	0.62	0.55
	Total	**0.35**	**0.62**	**0.55**

Note: The 2005 SOx emissions were from SCAQMD database for the period from January 2005 – December 2005. The 2006 and 2007 emissions were reported by the facilities through a Survey Questionnaire distributed by SCAQMD in 2008.

[43] BP Coke at Wilmington, http://coke.bp.com/tech/tech.cfm, September 2007.

[44] *SCAQMD Facility Permit to Operate of BP West Coast Products LLC, BP Wilmington*, Draft, Version September 2007.

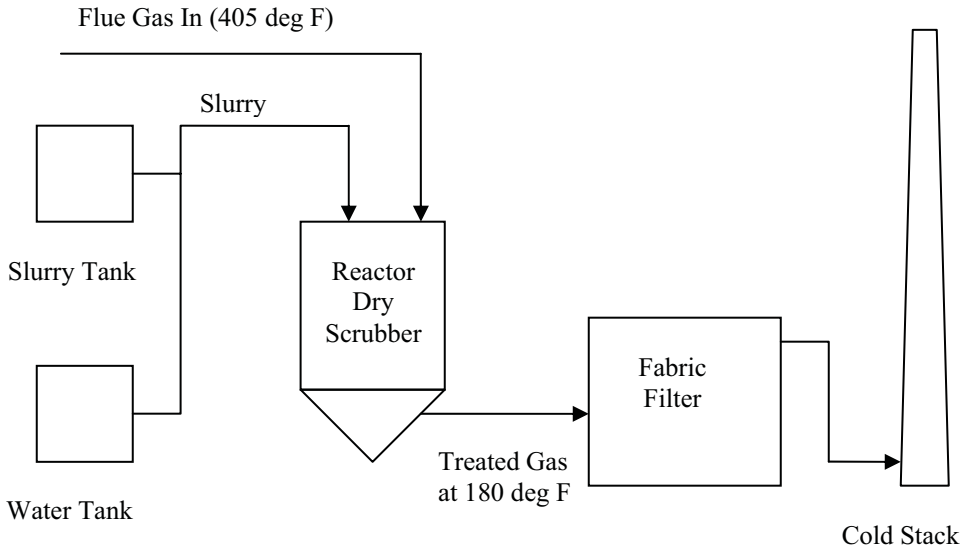
[45] SCAQMD Tier I Emission Rate, RECLAIM, 2002

8.3 Control Technology

8.3.1 Dry Scrubber at BP Wilmington

Dry scrubbing is the chosen control technology for the BP Wilmington coke calciner. The control system includes a spray dryer, a reverse-air baghouse, a slurry storage system, a slurry circulating system, and a pneumatic conveying system. Calcium hydroxide (CaOH) slurry is the absorbing medium for SO_2 control. Figure 8-2 shows a simplified process diagram for the dry scrubber system at BP Wilmington..

FIGURE 8-2
Dry FGD System for Coke Calciner at BP Wilmington



The system was designed and guaranteed to achieve 90% control efficiency for SOx at a calcined coke capacity of 54 tons/hour (1,296 tons/day or 473,040 tons/year). The SOx emission rates were tested in July 1983 to provide verification of guarantees. Production rate during the tests averaged 50 tons per hour and the emission rates ranged from 0.21 lbs/ton – 1.64 lbs/ton, averaged at 1 lbs/ton coke.[46] It should be noted that the Tier I controlled emission level of SOx from the calciner provided in 1993 is 2.47 lbs/ton coke, even though the system was designed and tested to meet lower levels than 2.47 lbs/ton.

A recent source test conducted at BP Wilmington calciner kiln reported a level of approximately 66 ppmv SOx at a processing rate of 1,848 tons green coke per day. The processing rate was substantially higher than the processing rate used for the original design at 1,296 tons per day to achieve 90% efficient.[47]

[46] *Performance of Dry Flue Gas Desulfurization on a Petroleum Coke Kiln Application*, R.J. Horn of Ecolaire Environmental Company and J.F. Bent of Martin Marietta Aluminum, Journal of the Air Pollution Control Association, September 1984.

[47] SCAQMD Source Test Report, R01032.

In responding to the 2008 Survey, BP indicated that the performance of the dry scrubber in 2005-2007 exceeded the design levels. The control efficiencies for the dry scrubber in 2005-2007 were in a range of 98% - 99%. The averages of SOx outlet concentrations in 2005-2007 were in a range of 27 ppmv – 43 ppmv, with some RATA tests conducted in 2006 and 2007 showed a higher level at 82 ppmv at 4% O2 and 84 ppmv at 5% O2. BP reported that with the dry scrubber, their emission rates in 2005-2007 were in a range of 0.56 – 0.89 lbs SOx per ton coke. Table 8-3 shows a comparison between design parameters and current performance in 2005-2007.

TABLE 8-3
Design Parameters and Current Performance of
Dry Scrubber for BP Wilmington Coke Calciner

	Design Parameter	2005 Performance	2006 Performance	2007 Performance
Processing Rate (tpd)	1,296			
Control Efficiency (%)	90%	99%	98%	99%
Emission Rate (lbs/ton)	0.21–1.64	0.56	0.97	0.89
SOx Concentration (ppmv)	Not Measured	27 ppmv	52 ppmv	43 ppmv

8.3.2 Wet Scrubber and Wet ESP at BP Cherry Point Refinery

In addition to the coke calciner ay Wilmington, BP operates three calciners at Cherry Point Refinery in Blaine, Washington. Originally, BP voluntary installed a wet scrubber to control SOx. Later, the company removed a portion of the wet scrubber and installed a wet electrostatic precipitator (WESP) to further control sulfuric acid mist emissions from the calciners, as shown in Figure 8-3.

In addition, the company added a baghouse to further control PM. The calciners had an uncontrolled emission rate of 1125 – 1425 ppmv SOx, corrected to 7% O2. With the use of the wet scrubber, the SOx emissions were reduced to about 160 ppmv at 90% control efficiency. With the addition of a WESP, SOx emissions were reduced by 96%, and met a standard of 35 ppmv SO2, corrected to 7% O2, on a daily average basis. The particulate fine including sulfuric acid mist was at 0.01 grains/dscf, corrected to 7% O2.[48, 49] The performance of BP Cherry Point coke calciners is summarized in Table 8-4.

[48] *Air Operating Permit - BP West Coast Products, LLC. Cherry Point Refinery Blaine, Washington, Final Modification.* Northwest Clean Air Agency, September 06, 2006.

[49] *Eliminating a Sulfuric Acid Mist Plume from a Wet Caustic Scrubber on a Petroleum Coke Calciner*, Charles Brown and Paul Hohne of VECO Pacific Inc., Environmental Progress, Vol. 20, No. 3, October 2001.

FIGURE 8-3
FGD System for Coke Calciner at BP Cherry Point

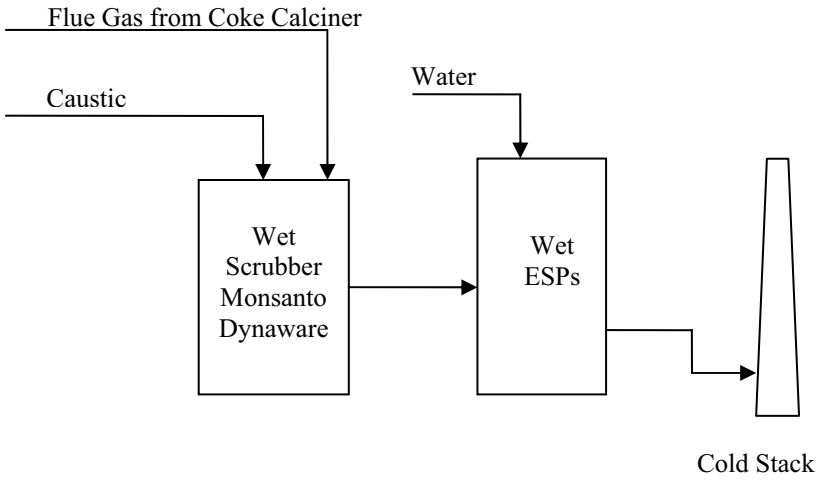


TABLE 8-4
Performance of Wet Scrubber and WESP
for BP Cherry Point Coke Calciners

Equipment:	Combination of Wet Scrubber and WESP
Processing Rate:	1,301 tons per day
Control Efficiency:	97% - 98%
Emission Rate:	0.14 lb SOx per ton coke
Outlet Concentration:	35 ppmv Limit (Test Results: 10 -12 ppmv)

8.4 BARCT Level and Emission Reductions

Given the facts that the dry scrubber at BP Wilmington designed up to 90% efficiency could perform at 98% - 99% control efficiencies to achieve emission rates ranging from 0.21 lb – 1.64 lb SOx per ton calcined coke; and that a combination of wet scrubber and wet ESP can achieve 96% control efficiency with an emission rate of 0.14 lb SOx per ton calcined coke, staff believe that further emission reductions from coke calciner is possible.

In September 2008, staff, WSPA and the refineries awarded a contract to NEXIDEA Inc. to conduct a feasibility and costs analysis of control technologies for coke calciner. A summary of the consultant (NEXIDEA)'s analysis is in Part 2 of the draft Staff Report. The consultant's recommendation was 10 ppmv, which reflects 95% additional control above Tier I. Staff concurred with the consultant's recommendation. After reviewing NEXIDEA's cost analysis, NEC also recommended WGS as BARCT for coke calciner, however NEC's cost-effectiveness was much lower as shown in table below.

TABLE 8-5
Emission Reductions and Cost Effectiveness Estimated for Coke Calciner

BARCT Level	BARCT Emission Level	Emission Reductions	Cost-Effectiveness
≤10 ppmv	0.11 lbs/ton calcined coke	0.28 tpd	$ 9,902 per ton per NEXIDEA $23,036 per ton based on input from NEC

Chapter 9 – Portland Cement Manufacturing

9.1 Process Description

There are two Portland cement manufacturing facilities in the Basin, California Portland Cement Company (CPCC) and TXI Riverside Cement Company (TXI). CPCC manufactures gray cement, and TXI manufactures white cement and produces gray cement from clinkers delivered to the facility by railcar. CPCC ranks #10 on the list of top SOx emitters in the District in 2005 with total facility emissions of 100.5 tons per year, whereas TXI is ranked #25 with total facility emissions of 0.7 tons per year. Therefore, staff will only focus on the technology to reduce SOx emissions at CPCC in this amendment.

The production of Portland cement at CPCC is a four step process presented in Figure 9-1 which includes: 1) raw materials acquisition; 2) preparation of raw materials into raw mix; 3) pyroprocessing of raw mix to make clinkers; and 4) grinding and milling of clinkers into cement.

Raw materials for manufacturing cement include calcium, silica, alumina and iron. Calcium is the element of highest concentration, and iron is raw material for gray cement but not used for white cement. These raw materials are obtained from minerals such as limestone for calcium; sand for silica; shale and clay for alumina and silica. CPCC obtains limestone from the quarry located on site. Other raw materials are delivered to CPCC by truck or rail car.

Preparing the raw mix includes crushing, milling, blending and storage. Primary, secondary and tertiary crushers are used to crush the raw materials until they are about ¾ inch or smaller in size. Raw materials are then conveyed to rock storage silos. Belt conveyors are typically used for this transport. Roller mills or ball mills are used to blend and pulverize raw materials into fine powder. Pneumatic conveyors are typically used to transport the fine raw mix to silos for storage until it is used to the pyroprocessing..

Pyroprocessing is the chemical and physical process of transforming the fine raw mix into clinkers. Pyroprocessing occurs in a rotary kiln and includes three steps:

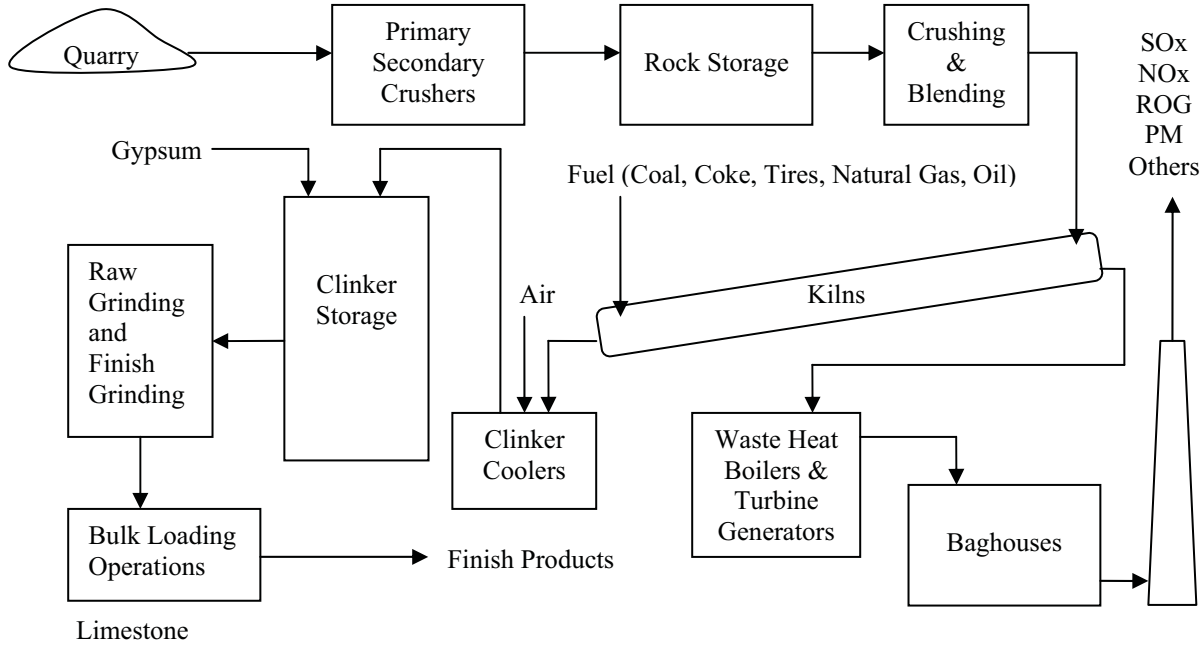
— Evaporating free water and dehydrating to form oxides of silicon, aluminum, and iron. This process occurs in a drying and preheating zone of the rotary kiln at temperatures of about 212 ^{o}F – 800 ^{o}F;

— Calcining of calcium carbonates ($CaCO_3$) to form calcium oxides (CaO) and carbon dioxide (CO_2). This process occurs in the calcining zone of the rotary kiln at temperatures of about 1100 ^{o}F – 1800 ^{o}F; and

— Chemical reacting, melting and restructuring of materials occur between calcium oxides (CaO), silica, alumina and iron to form clinker. Clinker is a solid silicate material ranges in size from 1 inch – 2 inch diameter, and formed in the "burning" zone of the rotary kiln at temperatures of about 2200 ^{o}F – 2700 ^{o}F.

The pyroprocessing process at CPCC is called a "long dry process" consisting solely of a simple long rotary kiln. CPCC operates two rotary kilns in parallel, each is 18 ft in diameter and 500 ft in length for gray clinker. The kiln is slightly inclined and rotates on its longitudinal axis. Raw materials are fed into the upper end of the kiln while fuels are burned in the lower end. As the kiln rotates, the raw materials move slowly from the upper end to the lower end, and the combustion gases move in countercurrent direction. The residence time of raw materials in a gray cement kiln is about 2 hours – 3 hours. The hot clinker, which exits at about 2000 ^{o}F from the kiln, is quickly cooled in the clinker cooler and is conveyed to storage. Clinker is water reactive and should be protected from moisture. If clinker gets wet, it will hydrate and set into concrete. Heat used in the kiln is supplied through the combustion of different fuels such as coal, coke, oil, natural gas, and tires. The combustion gases are vented to baghouse for dust control, and dusts are returned to the process or recycled if they meet certain criteria, or is discarded to landfills.

FIGURE 9-1
Portland Cement Manufacturing Process at CPCC Colton



Grinding and milling clinkers into cement is the last step of the manufacturing process. Up to 5% of gypsum is added to the clinker during this stage to control the setting time of cement. Other specialty chemicals are also added. After grinding and milling, the cement is pneumatically conveyed to the product silos, and either sold in bulk or is bagged.

9.2 Current Allocations and Emissions

9.2.1 Allocations

The allocations provided to CPCC in 1993, as well as the peak activities and emission factors, were presented in Table 9-1. The majority of the allocations was provided to the combustion of coal in boilers/heaters and cement kilns.

TABLE 9-1
Allocations for Kilns and Boilers at CPCC

Equipment	Fuel Type	Peak Yr	Emission Factor	Emissions (lbs/yr)	Emissions (tons/day)
Ovens	Natural Gas	1987	0.83 lbs/mmcf	101	0.00
Boilers/Heaters	Coal	1987	3.055 lbs/ton coal	217,018	0.30
Cement Kilns	Natural Gas	1987	21.45 lbs/mmcf	1,285	0.00
Cement Kilns	Fuel Oil	1987	1.08 lbs/thousand gals	12	0.00
Cement Kilns	Coal	1987	0.351 lbs/ton coal	22,569	0.03
Cement Kilns	Natural Gas	1987	7.55 lbs/mmcf	536	0.00
Cement Kilns	Fuel Oil	1987	3.07 lbs/thousand gals	384	0.00
Cement Kilns	Coal	1987	0.013 lbs/ton coal	948	0.00
				Total	**0.33**

9.2.2 Emissions

The calendar year 2005 reported emissions from CPCC's kilns and steam boiler are presented in Table 9-2. The 2005 facility emissions are still slightly below the overall allocations. However, the emission distribution within the facility was substantially changed: the kilns generated most of the facility emissions in 2005, whereas in 1987, most of the emissions originated from boilers/heaters at CPCC. Particulate matter from the kilns and steam boiler are controlled by baghouses. Limestone used in the kilns and boiler creates an alkaline environment that promotes a direct internal absorption of SO_2. Post combustion control for SOx is not currently used at CPCC.

In responding to a 2008 Survey conducted by the SCAQMD, CPCC reported that the average SOx concentrations from the two kilns were 49 ppmv at 13% O2 (approximately 111 ppmv at 3% O2). The emission rate for the two kilns was approximately 0.5 lbs SOx per ton clinker..

Regarding the coal-fired steam boiler, CPCC reported that the coal-fired steam boiler has not been in operation since 2002, however CPCC may operate the boiler in the near future if circumstances in energy costs or fuel sources change. The boiler used coal and natural gas as combustion fuel. The emission rate for this coal fired boiler was approximately 7 lbs SOx/ton coal.

TABLE 9-2
SOx Emissions from CPCC

	Dev ID	Rating (mmbtu /hr)	SOx Level (ppmv)	2005 Emissions (tpd)	2006 Emissions (tpd)	2007 Emissions (tpd)
Kiln #2	368	260	49 (13% O2)	0.193	0.146	0.186
Kiln #1	321	260	49 (13% O2)	0.074	0.129	0.112
Steam Boiler	851	232	NA	0.002	0.000	0.000
			Total	**0.269**	**0.275**	**0.298**

Note: The 2005 SOx emissions were from SCAQMD database for the period from January 2005 – December 2005. The fiscal year 2006 and 2007 emissions and the SOx concentrations were reported by the facilities through the 2008 Survey.

TABLE 9-3
SOx Emission Rates

	Emission Rate
Kilns	0.5 lbs SOx/ton clinker
Steam Boiler	7 lbs SOx/ton coal

9.3 Control Technology for Coal-Fired Fluidized-Bed Boilers

9.3.1 In-Process Control Technology

The control technologies for coal fired boilers are described abundantly in literature. [50] Almost all SO2 emission control technologies for coal-fired boilers are post-combustion control. The exception to this universal rule is found in the fluidized bed steam boiler (Device ID 851) used at CPCC. Fluidized bed boilers generally operate at about 1500 – 1600 degree F, a lower temperature regime than other combustion systems. This temperature regime allows the addition of limestone. Limestone (CaCO3) is converted to CaO at about 1500 degree F, and CaO captures SO2 to form CaSO4, which is thermodynamically stable at 1500 – 1600 degree F. A removal efficiency of about 90% SO2 can be achieved with a Ca/S molar ratio of 2 to 2.5, which also varies from application to application, and depends on the sulfur content of the fuel, reactivity of the limestone, and the operation of the boiler.

[50] Assessment of Control Technology Options for BART-Eligible Sources – Steam Electric Boilers, Industrial Boilers, Cement Plants, and Paper and Pulp Facilities. Northeast States for Coordinated Air Use Management (NESCAUM) in partnership with the Mid-Atlantic Northeast Visibility Union (MANE-VU), March 2005.

9.3.2 Dry and Wet Scrubber

Post-combustion control for SO2 is accomplished by scrubbers. A calcium- or sodium-based reagent is typically used in a scrubber to absorb SO2. Sulfate or sulfite formed are either disposed, or further processed for commercial use. Scrubbers are commonly classified based on the process conditions (wet versus dry); the product utilization (throwaway versus saleable); and the reagent utilization (once-through versus regenerable). Scrubbers are widely used in commercial applications such FCCUs (Chapter 3), utility/industrial boilers/heaters (Chapter 4), sulfur recovery and tail gas treatment (Chapter 5), sulfuric acid manufacturing (Chapter 6), container glass manufacturing (Chapter 7), and coke calcining (Chapter 8). Please refer to these chapters for further descriptions on this technology.

9.3.3 Costs and Cost Effectiveness Reported in Literature

Both wet and dry scrubbers are widely used in the U.S. for coal-fired utility boilers. The control efficiency, costs, and cost effectiveness reported abundantly in literature are provided in Table 9-3 and 9-4.

TABLE 9-4
SOx Control Technology for Boilers ≥ 250 mmbtu/hr

Type	Type of Control	Control Efficiency	Cost Effectiveness
Coal Fired	Dry Scrubber	90% - 95%	$1,622 - $3,578
	Wet Scrubber	90% - 99%	$1,881 - $3,822
Oil Fired	Dry Scrubber	90% - 95%	$1,841 - $5,219
	Wet Scrubber	90% -99%	$1,956 - $5,215

Note: The data in this table are from *Best Available Retrofit Technology (BARCT) for Selected Non-Electric Generating Units (EGU) Source Categories*, MACTEC Federal Programs, Inc. developed for Lake Michigan Air Directors Consortium (LADCO), June 28, 2005.

TABLE 9– 5
SOx Control Technology for Coal-Fired Boilers

Source	Type of Control	Control Efficiency	Capital Costs	Cost Effectiveness
Utility Boilers	Dry or Wet Scrubber	90%	$180/kW for >600 MW units $350/kW for 200-300 MW	$200 - $500 per ton SOx removed
Industrial Boilers	Dry Sorbent Injection	40%	$8,600 - $26,000 per mmbtu/hr	Not Estimated
	Spray Dryer Absorber	90%	Double of the costs for dry sorbent injection	$400 - $4000 per ton SOx removed
	Wet Scrubber	90%	50% higher than spray dryer absorber	Not Estimated

Reference: Assessment of Control Technology Options for BART-Eligible Sources – Steam Electric Boilers, Industrial Boilers, Cement Plants, and Paper and Pulp Facilities. Northeast States for Coordinated Air Use Management (NESCAUM) in partnership with the Mid-Atlantic Northeast Visibility Union (MANE-VU), March 2005

9.4 Control Technology for Cement Kilns

SOx emissions from a cement kiln are generated from 1) combustion of sulfur in fuel, and 2) oxidation of sulfides (e.g. pyrites) in the raw materials. Fuel switching, process alterations, dry and wet scrubbers are commercially available control technologies to reduce SOx emissions from a cement kiln. [51, 52] Table 9-4 presents the control efficiency for each technology and a brief description for each technology is presented below.

TABLE 9-6
Available Control Technology for Dry Cement Kilns

Type of Control	Control Efficiency
Fuel Switching and Process Alterations	0 – 100%
Spray Dryer Absorber	55% - 90%
Wet Scrubber	90% - 99.9%

Reference: *Assessment of Control Technology Options for BART-Eligible Sources – Steam Electric Boilers, Industrial Boilers, Cement Plants, and Paper and Pulp Facilities.* Northeast States for Coordinated Air Use Management (NESCAUM) in partnership with the Mid-Atlantic Northeast Visibility Union (MANE-VU), March 2005.

9.4.1 Fuel Switching

Cement kilns at CPCC use coal, coke, natural gas, oil and tires as combustion fuel. When the fuel sulfur levels in the primary fuels are high, switching to a lower sulfur content fuel is an appropriate strategy. However, this strategy may not be sufficient if the fuel sulfur content is much less than the sulfur content of the kiln feed (e.g. limestone). In this case, staged combustion with mid-kiln injection of a low-sulfur fuel, or high pressure air, may need to be considered. A post-combustion add-on control device may also be needed to further reduce SO2 emissions.

9.4.2 Process Control

The following process control can be used to reduce SOx emissions from the calciner kilns:

– It has been found that having sufficient oxygen to stabilize the alkali and calcium sulfate compounds formed in the burning zone of the rotary kiln minimizes SOx formation. The downside of this technique is that it can generate more NOx.

[51] Assessment of Control Technology Options for BART-Eligible Sources – Steam Electric Boilers, Industrial Boilers, Cement Plants, and Paper and Pulp Facilities. Northeast States for Coordinated Air Use Management (NESCAUM) in partnership with the Mid-Atlantic Northeast Visibility Union (MANE-VU), March 2005.

[52] *Best Available Retrofit Technology (BARCT) for Selected Non-Electric Generating Units (EGU) Source Categories*, MACTEC Federal Programs, Inc. developed for Lake Michigan Air Directors Consortium (LADCO), June 28, 2005.

- It has been found that avoiding flame impingement in the burning zone, avoiding flame impingement on the clinker, or improving distribution of kiln feed to equalize temperatures in the kiln can minimize SO2 formation.

- It has been found that when alkali is in excess of sulfur, SO2 can be retained in clinker as alkali sulfate. In addition, reducing the amount of pyritic sulfur, or organic sulfur, in raw materials can lower the SOx emissions substantially. The downside of this technique is that the amount of alkali added, or the amount of pyretic sulfur removed, are often limited by the product specifications or market and economic factors.

9.4.3 Lime or Limestone Spray Dryer Absorber

Lime and limestone contains calcium, in the form of calcium carbonate (CaCO3), which reacts with SO2 and captures SO2 to form of calcium sulfate (CaSO4). Water is typically sprayed into the feed at the end of the kiln or introduced through dilution air at the air coolers. Two most common spray dryer absorbers are the RMC Pacific's Alkaline Slurry Injection System and the EnviroCare Microfine Lime System. The RMC Pacific uses a hydrated lime as scrubbing agent. The captured sulfur compounds are returned as a portion of the raw material feedstock to the roller mill, which results in no scrubber effluent or sludge disposal. The process has obtained efficiencies ranging from 55% to 65%. The EnviroCare uses water suspension of finely pulverized calcium hydroxide Ca(OH)2 as scrubbing agent. Lime injection rate can be optimized through a feedback control loop from an SO2 monitor which helps to reach a SOx removal efficiency of 90% or more.

9.4.4 Wet Scrubber

Wet scrubbing is a technique applicable to all types of cement kilns to remove SOx and particulate matter simultaneously. A wet scrubber is usually installed downstream of the baghouse and uses limestone as absorbent. The most common system is the DynaWare scrubber, developed by Monsanto, installed by Fuller Company, and used on several cement kilns in the U.S. Limestone slurry containing 20% limestone and 80% water is produced in a mixing tank and sprayed countercurrent to the gas flow, cools the gases, reacts with SO2 to form calcium sulfite (CaSO3), calcium sulfate (CaSO4), and gypsum which in turn precipitate at the bottom of the absorbing tower and must be disposed of. A single-stage DynaWave scrubber in full-scale operation has a reported SO2 removal efficiency of about 90%., and a multiple-staged unit may achieve 99.9% control efficiency. Please refer to Chapter 5 for further description on DynaWave scrubber.

9.4.5 Costs and Cost Effectiveness

Since wet and dry scrubbers are commonly used to further control SOx from the cement kilns, the costs and cost effectiveness of these technologies are abundantly available in literature, and are summarized in Table 9-5 and 9-6.

TABLE 9-7
Costs for Control Technology for Dry Cement Kilns

Source	Clinker Capacity (tpy)	Spray Dryer		Wet Scrubber	
		Capital Cost ($/ton clinker)	Annual Operating Cost ($/ton clinker)	Capital Cost ($/ton clinker)	Annual Operating Cost ($/ton clinker)
Medium Kiln	600,000	$39.75	$14.79	$31.83	$17.21
Large Kiln	1,200,000	$23.17	$9.43	$20.42	$13.05

Note: (1) For comparison, CPCC Colton kiln #1 capacity is approximately 45 tons clinker per hour or 394,200 tons clinker per year based on a source test conducted in 2005, and an assumption that the kiln is operated 24 hours a day, 365 days a year. (2) The data in this table are from *Assessment of Control Technology Options for BART-Eligible Sources – Steam Electric Boilers, Industrial Boilers, Cement Plants, and Paper and Pulp Facilities,* Northeast States for Coordinated Air Use Management (NESCAUM) in partnership with the Mid-Atlantic Northeast Visibility Union (MANE-VU), March 2005.

TABLE 9-8
Control Efficiency and Costs for Control Technology for Dry Cement Kilns

Source	Dry Scrubber		Wet Scrubber	
	Control Efficiency	Cost Effectiveness ($/ton SO2 removed)	Control Efficiency	Cost Effectiveness ($/ton SO2 removed)
Small Kiln	90%-95%	$2,000 - $6,917	90%-99.99%	$2,030 - $6,861
Medium Kiln	90%-95%	$1,925 - $7,379	90%-99.99%	$2,004 - $6,831
Large Kiln	90%-95%	$1,881 - $7,201	90%-99.99%	$1,990 - $6,816

Reference: *Best Available Retrofit Technology (BARCT) for Selected Non-Electric Generating Units (EGU) Source Categories*, MACTEC Federal Programs, Inc. developed for Lake Michigan Air Directors Consortium (LADCO), June 28, 2005.

9.5 BARCT Level and Emission Reductions

In September 2008, staff, WSPA and the refineries awarded a contract to ETS Inc. to conduct an independent feasibility and costs analysis of control technologies for cement kilns and coal-fired boiler. A summary of ETS, Inc.'s analysis is in Part 2 of the draft Staff Report. NEC indicated that they would recommend WGS as BARCT for both cement kilns and coal fired boilers but did not provided costs information. They indicated that WGS would be more cost-effective than the technologies that ETS recommended. However, if the technologies recommended by ETS were used, NEC would recommend adding contingencies to the ETS's estimates. The consultants' recommendations are shown in Table 9-9.

TABLE 9-9
Initial Emission Reductions and Cost Effectiveness for Kilns & Coal Fired Boiler Estimated by ETS, Inc.

Equipment	BARCT Level	BARCT Emission Level	Emission Reductions	Cost Effectiveness by ETS
Kilns	95% control (≤2 ppmv)	0.03 lbs SO_x/ton clinker	0.25 tpd SO_x	$18.9 K per ton
Coal-Fired Boiler	95% control (≤5 ppmv)	---	0.36 tpd SO_x	$ 3.8 K per ton

Staff concurred with the consultants' recommendation for the coal-fired boiler, which is not in operation, at this time, and suggested the following BARCT level for the two cement kilns as shown in Table 9-10.

TABLE 9-10
Revised Emission Reductions and Cost Effectiveness for Cement Kilns

Equipment	BARCT Level	BARCT Emission Level	Emission Reductions	Cost Effectiveness
Kilns	5 ppmv	0.04 lbs SO_x/ton clinker	0.25 tpd SO_x	$19.3 k per ton per ETS $26.8 k per ton based on input from NEC

Chapter 10 – Continuous Emissions Monitoring System

Staff [53] conducted an inventory of the current Continuous Emissions Monitoring Systems (CEMS) used at the facilities to measure SOx from the seven affected categories of sources. The CEMS supplier and the SOx detection range, both low and high ranges, are presented in Table 10-1.

TABLE 10-1
Current CEMS System

Sources	Facility	CEMS Supplier	SO_2 Detection Range in ppm (High – Low)
FCCU	Refinery F	Rosemount	0-250
FCCU	Refinery C	Ametek	0-50
FCCU	Refinery A	Bovar	0-100
FCCU	Refinery D	Horiba	0-50 / 0-0.50 (diluted)
FCCU	Refinery E	API	0-50 / 0-200
FCCU	Refinery B	Teledyne	0-50 / 0-225
SRU/TG	Refinery F	Rosemount	0-500 / 0-2000
SRU/TG	Refinery C	Bovar	0-100
SRU/TG	Refinery A	Bovar	0-150 / 0-1000
SRU/TG	Refinery D	Rosemount	0-250
SRU/TG	Refinery E	API	0-20/0-50/0-1000
SRU/TG	Refinery B	Ametek	0-100 / 0-500
Sulfuric Acid	Facility Y	Bovar	0-1000
Sulfuric Acid	Facility X	Thermo Electron	0-200 / 0-1000 (actual); 0-4 / 0-20 (diluted)
Coke Calciner	BP	Rosemount	0-150
Cement	Cal-Portland Cement	Bovar/Ametek	0-500
Glass	Owens-Brockway	Thermo Electron	0-100 / 0-800

(Data provided by AQMD Source Testing Team)

To assure that there are systems capable of measuring low concentration levels of 5 ppmv – 40 ppmv SOx, staff conducted a research of market availability of CEMS for low level detection. For detection at the lower ranges for SO_2 (<10 ppm level), there are currently two main extractive methods for sampling the flue gas from a stack: dilution-extractive and extractive non-dilution.

10.1 Dilution-Extractive

This sample acquisition method allows for the sampling and detection of flue gas pollutants on a wet basis. This is convenient, since the mass emission rate is also determined on a wet basis. The extracted sample is diluted with clean air (typically in a 100:1 ratio) before analysis. The

[53] The author for Chapter 10 is Kevin Orellana.

analysis is performed with an ambient SO_2 analyzer, since the diluted pollutant concentration is near an ambient concentration level.

10.2 Extractive Non-Dilution

This sample acquisition method requires that the sample be clean and dry for measurement. Therefore, significant emphasis must be placed on particulate and moisture removal to ensure an accurate reading. This is often achieved by way of particulate filters and heated sample lines to prevent gas sample condensation. Furthermore, any remaining moisture in the sample is removed by way of a sample conditioning system. Usually, the technology employed involves refrigerated condensers, thermoelectric chillers, or gas permeation dryers. The cleaned, dry sample is then analyzed via an SO_2 gas analyzer.

For both sample acquisition methods, gas cleanup and sample conditioning is of foremost importance. For systems using dilution-extractive methods, the dilution air must be dry and free of contamination. For extractive non-dilution methods, the sample gas must be conditioned (free from particulate contamination, acid mist, ammonia, and moisture) since SO_2 is soluble in water.

The majority of the CEMS analyzers currently installed at SOx RECLAIM major sources employ extractive non-dilution sampling, and has the capability of monitoring in the 25ppm SO_2 full span range (FSR). As expected, some upgrades may have to be performed to the existing systems to achieve readability in the lower ppm SO_2 full span ranges. The first choice will be whether to install a dilution-extractive system with an ambient SO_2 analyzer as a replacement for an extractive non-dilution system. Both dilution-extractive and extractive non-dilution systems can be installed in SO_x RECLAIM source category equipment. However, some process-specific stack conditions may determine which type of system will work best at sample cleanup and analyte detection.

If sample dilution is determined as the best method for SO_2 detection, a completely new sampling system must be installed to measure pollutant gases on a wet basis approach. This will replace an existing extractive non-dilution system. The hardware required will consist of a dilution probe, sample lines, air clean up hardware, an ambient analyzer, plus integration hardware (cabinet, calibration hardware, programmable logic controller, and data acquisition system). The estimated cost for a new dilution-extractive system, including installation, is around $250,000. Since SO_2 will be detected on a wet basis, other criteria pollutants such as NO_x and CO may also be detected on a wet basis. New analyzers will have to be installed for these respective analytes in order to be sampled from the same dilution probe.

If a facility is currently operating an extractive non-dilution system and opts to continue criteria pollutant measurements on a dry basis, the two essential components required for an upgrade would be a new SO_2 gas analyzer and a gas conditioning system, such as a Nafion-based permeation drying system. Ametek Process Instruments, for example, manufactures an SO_2 gas analyzer whose minimum full scale is from 0-25 ppm SO_2. However, lower readings are possible by way of increasing the sample pressure and/or shifting to lower UV wavelengths for detection down to 0-10 ppm SO_2 FSR.

It is worth mentioning that if certain critical hardware components (e.g. probes, data acquisition systems, etc.) are near the end of their useful operating lives, a completely new extractive non-dilution system will need to be installed. This will consist of a probe, sample lines, gas conditioning system, analyzer, and integration hardware. The estimated cost for a new extractive non-dilution system, including installation, is also around $250,000.

However, if a facility that operates an extractive non-dilution system wants to only replace the SO_2 analyzer and install a stack–mounted, Nafion-based, permeation drying system, the cost is much less: around $35,000. The operator can continue to use its existing CEMS setup until the end of its useful life. The heated sample lines and condensation chillers can still be retained as a backup to the Nafion permeation drying system.

These above-mentioned systems have been in use at various SOx RECLAIM sources throughout the District. Each system uses industry-proven technology that achieves the required calibration results, analyte measurements, and valid Relative Accuracy Testing Audit (RATA) results.

Due to each individual facility's equipment setup, the CEMS shelter may or may not require relocation. The retrofits mentioned above are applicable to a scenario where the shelter is not being relocated. In this scenario, the sampling lines would be rerouted from the new SOx control equipment stack to the existing shelter.

However, the unique setup of a facility may necessitate the placement of the new control equipment at the current location of the CEMS shelter. If the facility elects to relocate its shelter, a concrete pad may need to be laid at the new shelter location and utility lines may have to be routed there. The facility may reuse and move the existing shelter and sample lines to the new shelter location, or purchase brand new equipment. A new air-purged, climate-controlled, Class 1 Division 2 shelter that can accommodate an analyzer rack costs about $250,000, and the facility may use general contractors or hire an engineering firm to design and manage the project, and the associated costs for these services may vary depending on the firm chosen.

TABLE 10-2
Future CEMS Capability

CEMS Supplier	Detection Range (ppm)	What needs to be done to upgrade existing setup?	Costs Per Unit
Horiba	0-0.05/0-0.1/0-0.2/0-0.5 (wet basis)	New sampling system (dilution probe, sample lines, dilution air cleanup, analyzer, integration hardware) + installation	$250,000
Ametek Process Instruments	0-25 (or lower, 0-10, with increased sample pressure and/or shorter UV wavelength detection, dry basis)	New sampling system (probe, heated sample lines, gas conditioning system, analyzer, integration hardware) + installation	$250,000
Perma Pure	for dry measurements	Nafion-based permeation drying system is directly mounted at the stack	$15,000
Ametek Process Instruments	0-25 (or lower, 0-10, with increased sample pressure and/or shorter UV wavelength detection, dry basis)	Direct SO_2 analyzer replacement at CEMS rack	$20,000

Chapter 11 – Water & Wastewater

11.1 District's Survey

11.1.1 Water Demand

A Survey Questionnaire shown in Appendix D was sent to the facilities in July 2009 to gather information on the water usage at the facilities. The facility's responses to this Survey Questionnaire were summarized in Table 11-1. Staff's assessment of the information presented in Table 11-1 is below:

— Total water demand is below 1 million gallons per day. As shown in Table 11-1, the increase in total water demand (fresh and recycled water) for this project, consisting of 11 wet gas scrubbers and 2 dry gas scrubbers, is estimated about 364 million gallons per year (or 1 million gallons per day).[54, 55]

— Increase in total water demand. It should be noted that as shown in Table 11-1, eleven affected facilities currently use about 53 million gallons of water per day. The increase of 1 million gallons of total water per day demand for this project, while meaningful, represents a rather modest 2% increase over the current level of total water usage at the 11 facilities.[56]

— Water suppliers can meet additional demand. CEQA staff has consulted the water suppliers for all eleven affected facilities to ask if they can support the modest 2% increase in water demand of this project. The water suppliers indicated to staff that they can provide the amount of water increase.

[54] Information on water demand listed in the consultants' final report for SRU/TGTU's wet gas scrubbers were incorrect. Staff used information provided directly by the wet gas scrubbers' manufacturers as listed below. Tri-Mer information was based on the use of caustic as a scrubbing agent.

Water Demand Information for SRU/TG's wet gas scrubbers		Refinery 6	Refinery 3	Refinery 2
Incorrect numbers listed in the consultants' final reports	MM gals/yr	614	158	342
Draft numbers listed in the consultants' draft final reports	MM gals/yr	75	19	25
Numbers provided by Tri-Mer	MM gals/yr	51	26	78
Numbers provided by DynaWave	MM gals/yr	31	11	47
Staff's Revised Numbers	MM gals/yr	51	26	78

[55] The six refineries alone would need about 264 million gallons water per year (0.7 million gallons per day) for this project. The six refineries currently consume 46 millions gals water per day. This project reflects a 1.5% increase in water demand for the refineries.

[56] Ten out of eleven facilities will have about 1% - 4% increase in water demand. Owens Brockway will experience a 44% increase in water demand. However, Owens Brockway has used wet gas scrubbers in the past before they switched to dry scrubbing technology and their water supplier (City of Vernon) indicated to staff that they can accommodate this increase of water demand.

— No cap on purchasing water. As shown in Table 11-1, the facilities reported that they have no cap in the amount of water (fresh or recycled) that they can purchase from the water suppliers. Some of the refineries indicated that they may have to pay an increase in water price in a near future because of the drought in California.[57] Since the water suppliers indicated that they can provide the water and there is no cap on the buyers, the 2% increase in water demand for this project can be met by the suppliers.

— Recycled water available at major refineries. As shown in Table 11-1, of the eleven facilities, three refineries (Refinery #2, 3, and 6) consume the largest amount of water, ranging from 3,000 – 4,500 million gallons per year. These refineries however already have access to recycled water. Currently, 50%-90% of the water used in these major refineries is recycled water. The suppliers of recycled water indicated that they are working in expanding their capacity to supply recycled water to the facilities in the basin and can supply the water demand increase for this project.

— Pumping capacity remained for in-house ground water wells. As shown in Table 11-1, seven of the eleven affected facilities have ground water wells. All seven facilities have unused pumping capacity. The remaining pumping capacity is well above the increase in water demand at the facility due to this project.

— Potable water demand is about 96,786 gallons per day. Based on the information in Table 11-1, two facilities (coke calciner and glass manufacturing) currently have no wells and no access to recycled water, and the increase in potable water demand from these two facilities will be about 96,786 gallons per day. The water suppliers indicated to CEQA staff that they can supply this increase in water demand.

11.1.2 Wastewater

Based on the facility's responses shown in Table 10-2 and staff's collected information, staff believes the wastewater impacts from this project would be less than significant because of the following reasons:

— Small increase in discharge. As shown in Table 11-2, the project would generate about 2% increase in wastewater (range from <1% - 11%).

— Wastewater treatment & discharge capacity available. As shown in Table 11-2, the facilities have available discharge capacities. Their on-site wastewater treatment plan can handle the small increase. In addition, since the increase in discharge is less than 25%, the facilities need not to revise their discharge permit.

[57] Regarding the price increase, a facility indicated that one of their facilities located in Northern California will install a wet gas scrubber as required by a U.S. EPA consent decree. The facility will pay premium price for the water usage above their cap, or conduct in-house program to monitor and conserve the water usage at their facility.

TABLE 11-1 – Water Demand Information

		Ref B	Ref A	Ref D	Ref C	Ref E	Ref F
FCCU	MM gals/yr	28	26			18	16
SRUs (Revised Numbers)	MM gals/yr	51	26	78			
Coke Calciner	MM gals/yr						
Sulfuric Acid Plant	MM gals/yr						
Glass	MM gals/yr						
Cement	MM gals/yr						
Boilers/Heaters (fuel gas)	MM gals/yr	4	3	5	6	5	0
Increase in Water Usage due to RECLAIM	**MM gals/yr**	**83**	**55**	**83**	**6**	**23**	**16**
	MM gals/day	**0.23**	**0.15**	**0.23**	**0.02**	**0.06**	**0.04**
Current Water Usage (Fresh and Recycled)	**MM gals/yr**	**4,468**	**3,792**	**3,150**	**3,154**	**2,102**	**639**
	MM gals/day	**12**	**10**	**9**	**9**	**6**	**2**
Fresh water	MM gals/yr	0.05 (<1%)	1,008 (26%)	0	12%	not provided	not provided
Cooling tower		1,682 (41%)	1,440 (38%)	1,100 (35%)	not provided	50%	not provided
Boiler feed		0.7 (16%)	1,344 (36%)	860 (27%)	not provided	25%	not provided
Others		2,785 (41%)	0	1.190 (38%)	not provided	25%	not provided
% Increase = (Increase in Usage / Current Usage)		**2%**	**1%**	**3%**	**0%**	**1%**	**3%**
Groundwater Wells		3	No well	6	2 active wells (1 at each site)	3 wells total at refinery 1 well at sulfur plant	No well
Max Allocation for Pumping	MM gals/yr	5,309 acre-ft/yr = 1,730 MM gals/yr = 3,291 gpm		2,570 acre-ft/yr = 837 MM gals/yr = 1,593 gpm	2,500 gpm	3,432 acre-ft/yr = 1,118 MM gals/yr = 2,128 gpm	
Current Rate of Pumping	MM gals/yr	1,727 acre-ft = 563 MM gals/yr = 1,071 gpm		526 MM gals/yr = 1,000 gpm	Between 600 gpm - 1,800 gpm	5,000 acre-ft/yr with lease agreements	
Unused Pumping Capacity?		Yes (67% remained)		Yes (37% remained)	Yes	Yes with lease agreements	
Recycled Water Usage	MM gals/yr	2,234 - 4,021	2,820	2,048	No	No	0
% Usage of Recycled Water		50% - 90%	74%	65%	0%	0%	0%
Water Supplier		CWS/WBMWD	WBMWD	WBMWD (65%), MWD (24%) and groundwater (11%)	CWS & LADWP	LADWP	LADWP (fresh water) & Air Products (small quality RO)
Maximum Purchase Limit?		No limit	No limit	No limit	No limit	No limit	No limit
CONCLUSION		**No limit from water supplier. Ground-water is available. Nomimal increase of 2% can be met. (note 1)**	**No limit from water supplier. Nomimal increase of 2% can be met. (note 2)**	**No limit from water supplier. Ground-water is available. Nomimal increase of 2% can be met.**	**No limit from water supplier. Ground-water is available. Nomimal increase of 2% can be met.**	**No limit from water supplier. Ground-water is available with lease agreement. Nomimal increase of 2% can be met.**	**No limit from water supplier. Nomimal increase of 2% can be met. (note 7)**

TABLE 11-1 – Water Demand Information (Cont.)

		BP Coke	Rhodia	OwensB (2 WGSs)	CPCC	Total
FCCU	MM gals/yr					88
SRUs (Revised Numbers)	MM gals/yr					155
Coke Calciner	MM gals/yr	15				15
Sulfuric Acid Plant	MM gals/yr		7			7
Glass	MM gals/yr			20		20
Cement	MM gals/yr				40	40
Boilers/Heaters (fuel gas)	MM gals/yr					23
Increase in Water Usage due to RECLAIM	**MM gals/yr**	**15**	**7**	**20**	**40**	**350**
	MM gals/day	**0.04**	**0.02**	**0.06**	**0.11**	**0.96**
Current Water Usage (Fresh and Recycled)	**MM gals/yr**	**394**	**266**	**46**	**1,200**	**19,211**
	MM gals/day	**1**	**1**	**0**	**3**	**53**
Fresh water	MM gals/yr			not provided		
Cooling tower		197 (50%)	226 (85%)	not provided	5%	
Boiler feed				not provided		
Others		197 (50%)	40 (15%)	not provided	95%	
% Increase = (Increase in Usage / Current Usage)		**4%**	**3%**	**44%**	**3%**	**1.8%**
Groundwater Wells		No well	1	No well	5	
Max Allocation for Pumping	MM gals/yr		521 acre-ft = 170 MM gals/yr		No limit	
Current Rate of Pumping	MM gals/yr		165 acre-ft = 54 MM gals/yr		1.9 MM gals/day	
Unused Pumping Capacity?			Yes. (68% remained)		No limit	
Recycled Water Usage	MM gals/yr	No	No	No	0	
% Usage of Recycled Water		0%	0%	0%	0%	
Water Supplier		Port of Long Beach	CWS	City of Vernon	Riverside Highland Water for potable an ind water from wells.	
Maximum Purchase Limit?		No limit	No limit	Not reported	No limit	
CONCLUSION		**No limit from water supplier. Nomimal increase of 2% can be met. (note 8)**	**Ground water is available and no cap from water supplier. Nomimal increase of 2% can be met. (note 9)**	**Wet gas scrubbers are past practice. Percent increase in water is meaningful but can be met.**	**No limit on groundwater pumping. Nomimal increase of 2% can be met.**	**This project is expected to result in less than 2% increse in water demand. Adequate supply of water is available.**

TABLE 11-1 – Water Demand Information (Cont.)

Notes:

1. Information from survey responses was submitted by the facility in August 2009. The facility indicated that there was no cap on fresh or recycled water supply but the facility may have to pay a 21% increase in price of water in 2009, and may have been required to reduce water usage by 20%

2. Information from survey responses submitted by this facility on August 6, 2009. The facility indicated that there was no cap on water supply, however the WBMWD may mandate a 20% reduction in near future.

3. - 6. Reserved

7. Based on the Survey Responses submitted on August 8 and 13, 2009, the facility indicated that they do not have a cap on water supply, however LADWP must review any increase to assure that there is no physical constraint (e.g. piping, pump)

8. Based on the Survey Responses submitted on August 10, 2009, the facility indicated that they do not have limits on water supplied but they do expect to pay higher fees on discharged wastewater because the fees on discharged wastewater are based on total dissolved solids and COD

9. Rhodia water information from survey responses submitted by Rhodia on August 4, 2009.

CIWMB = California Integrated Waste Management Board
CWS = California Water Service
CRWQCB = California Regional Water Quality Control Board
DTSC = Department of Toxics Substance Control
LACBS = Los Angeles City Bureau of Sanitation
LACSD = Los Angeles County Sanitation District
LACDPW = Los Angeles County Department of Public Works
LADWP= Los Angeles Department Water & Power
MWD = Metropolitan Water District
NPDES = National Pollutant Discharge Elimination System
WBMWD= West Basin Municipal Water District

TABLE 11-2 – Wastewater Information

		Ref B	Ref A	Ref D	Ref C	Ref E	Ref F
FCCU	MM gals/yr	13	12		*20*	8	8
SRUs (Revised Numbers)	MM gals/yr	10	5	16			
Coke Calciner	MM gals/yr						
Sulfuric Acid Plant	MM gals/yr						
Glass	MM gals/yr						
Cement	MM gals/yr						
Boilers/Heaters (Fuel Gas)	MM gals/yr	3.18	2.16	5.27	6.09	4	0
Increase in Discharge	**MM gals/yr**	**27**	**19**	**21**	**6**	**12**	**8**
	MM gals/d	**0.07**	**0.05**	**0.06**	**0.02**	**0.03**	**0.02**
	gpm	**51**	**36**	**40**	**12**	**23**	**15**
Wastewater Treatment System?		Yes	Yes. Two systems. (note 2)	Yes	Yes	Yes	Yes - not currently active (note 6)
Wastewater Treatment Capacity		Capacity is limited to 8,000 gpm, normal 4,000 gpm.	1) Cap 5,000 gpm, avg 3,000 gpm. 2) Cap 2,000 gpm, avg 1,800 gpm	Cap is 3,500 gpm Normal rate is 3,000 gpm	There is a permit limit at one site which has a normal rate of 2,000 gpm. There is no limit	Cap is 6,000 gpm Normal rate is 2,215 gpm in dry & 2,260 gpm in wet	1.14 (note 6)
Regulator		LACSD	CRWQCB	LACSD	LACSD	LACSD	LACSD
Discharge Point		LACSD	Santa Monica Bay	LACSD	LACSD & LACBS	LACSD	LACSD & LACBS
Discharge Limit		Hydraulically limited to 8,000 gpm & limit in wet weather is 5,200 gpm	No limit	Limit in dry weather is 12,200 gpm & in wet weather is 7,500 gpm	Max limit is 5,000 gpm at one site, and there is no limit at the refinery	Max limit is 14.4 MM gals/day (10,000 gpm). (Note 5)	Limit by LACSD to 1.1 MM gals/day & limit in wet weather is 1000 gpm
Current Discharge		4,000 gpm	7 MM gals/day. 8.8 MM gals/day in dry weather, 27 MM gals/day in wet weather	3,000 gpm	2,000 gpm at one site and 1,400 gpm at the refinery.	2,215 gpm in dry weather and 2,260 gpm in wet weather	1.3 MM gals/day in 2008 (note 6)
Remaining Capacity = Discharge Limit - (Current Discharge + Increase)		3,649 gpm hydraulically & 1149 gpm in wet weather	No limit	In dry weather = 9,160 gpm & in wet weather = 4,460 gpm	No limit at the refinery. At the other site about 3,000 gpm	7,717 gpm	Already discharged 18% over the limit (note 6)
% Increase=(Increase / Discharge Limit)		<1%	---	<1%	0.2%	0.2%	1.8%
CONCLUSION		**Wastewater treatment & discharge capacity are available. No need to revise LACSD permit. (note 1)**	**Wastewater treatment and discharge capacity are available. (note 2)**	**Wastewater treatment and discharge capacity available.**	**Discharge capacity available. Less than significant impact.**	**Less than significant impact**	**No need to revise LACSD application Less than significant impact. (note 6)**

TABLE 11-2 – Wastewater Information (Cont.)

		BP Coke	Rhodia	OwensB	CPCC	Total
FCCU	MM gals/yr					61
SRUs (Revised Numbers)	MM gals/yr					31
Coke Calciner	MM gals/yr	6				6
Sulfuric Acid Plant	MM gals/yr		4			4
Glass	MM gals/yr			5		5
Cement	MM gals/yr				52	52
Boilers/Heaters (Fuel Gas)	MM gals/yr					
Increase in Discharge	**MM gals/yr**	**6**	**4**	**5**	**52**	**159**
	MM gals/d	**0.02**	**0.01**	**0.01**	**0.14**	**0.44**
	gpm	**11**	**8**	**10**	**99**	**302**
Wastewater Treatment System?		Yes. A basin for pH adjustment.	Yes. On-site tanks for neutralization.	Yes.	No wastewater treatment. Percolation ponds on site.	
Wastewater Treatment Capacity		0.18 MM gals/day (based on 125 gpm peak flow)	0.6 MM gals/day (425 gpm)	0.4 MM gals/day (250 gpm)		
Regulator		LACSD	LACSD & LACDPW	LACSD & City of Vernon	California Regional Water Control Board, Santa Ana	
Discharge Point		LACSD	LACSD	LACSD	On site	
Discharge Limit		0.18 MM gals/day (based on 125 gpm peak flow)	0.6 MM gals/day (425 gpm) as shown on LACSD permit	131.4 MM gals/yr (0.36 MM gals/day) (250 gpm)	No limit	
Current Discharge		0.09 MM gals/day (93,775 gpd or 65 gpm daily average)	Peak is 0.56 Mmgals /day (387 gpm), and average is 0.25 MM gals/day (175 gpm)	41.89 MM gals/yr (0.12 MM gals/day)	0.45 MM gals/day dust slurry to evaporation ponds & 1.05 MM gals/day of cooling water wastes to percolation ponds.	
Remaining Capacity = Discharge Limit - (Current Discharge + Increase)		0.07 MM gals/day (=0.18-0.09-0.02)	0.03 MM gals/day (=0.6-0.56-0.01)	84.5 MM gals/yr (0.23 MM gals/day)	No limit	
% Increase=(Increase / Discharge Limit)		11%	2%	4%	No limit	
CONCLUSION		**Discharge capacity available. Less than significant impact. (note 8)**	**Discharge capacity available. Peak flow must be carefully managed. (note 9)**	**Less than significant impacts**	**Less than significant impacts**	**Less than significant impacts**

TABLE 11-2 – Wastewater Information (Cont.)

Notes

1. This facility reported a maximum treated capacity of 8,000 gpm (12 million gals per day) and a normal treated rate of 4,000 gpm (6 million gals per day). SCAQMD data (e-mail from Hanh Le to Minh Pham on August 5, 2009) provided a slightly smaller discharge levels
2. This facility has two distinct wastewater treatment systems. The first system has primary treatment only. The second system has both primary and secondary treatment. The facility also has wastewater storage capacity to handle surges due to storms and upset
3. Reserved
4. For this refinery, see e-mail from Cynthia Carter to Minh Pham on August 5, 2009. Wilmington site has no maximum limit of discharge. LACSD indicated that they did not expect to see any significant impacts to their waste water treatment system
5. For this facility, see e-mail from Sawsan Andawis to Minh Pham on August 6, 2009. The facility reported that if they are over 25% baseload of waswater discharge limit, they will be subject to a large connection fee minimum of $7.8 MM & claimed that with a wet gas scrubber installation, they will exceed the 25% baseload, which is unlikely to occur.
6. From the Survey Responses submitted on August 8, 2009, the facility responded that they do not have a wastewater treatment facility, and currently send all wastewater to LACSD for treatment. Currently, the permit given by LACSD has a cap
7. Reserved
8. Based on the Survey Responses submitted on August 10, 2009, the facility indicated that "Additional scope and cost should have been included to reduce/offset/treat the quantity generated from this project....".
9. For Rhodia, based on the Survey Responses submitted on August 4, 2009, all wastewater is pumped into above ground agitated tanks and sodium hydoxide is added to elevate the pH above 6.0. The discharge limit is 0.6 MM gals per day max (425 gals/min).

CIWMB = California Integrated Waste Management Board
CWS = California Water Service
CRWQCB = California Regional Water Quality Control Board
DTSC = Department of Toxics Substance Control
LACBS = Los Angeles City Bureau of Sanitation
LACSD = Los Angeles County Sanitation District
LACDPW = Los Angeles County Department of Public Works
LADWP= Los Angeles Department Water & Power
MWD = Metropolitan Water District
NPDES = National Pollutant Discharge Elimination System
WBMWD= West Basin Municipal Water District

11.2 California Water Plan

The California Water Plan provides a framework for water managers, legislators, and the public to consider options and make decisions regarding California's water future. The Plan, which is updated every five years, presents basic data and information on California's water resources including water supply evaluations and assessments of agricultural, urban, and environmental water uses to quantify the gap between water supplies and uses. The Plan also identifies and evaluates existing and proposed statewide demand management and water supply projects to address the State's water needs. The California Department of Water Resources (DWR) just recently released the 2009 California Water Plan update in February 2010.[58]

The 2009 Plan focuses on strategies to use water efficiently, improve water reliability and water quality, and for the first time, integrate water resource management with flood management throughout the state. In addition, the Plan for the first time discussed the impacts of climate change and included the effects of climate change in estimating the water demand and supply for each of the ten hydrologic regions in California. The Plan includes 5 volumes: Volume 1 describes the current water conditions in California and challenges, presents the strategic plans for the state as well as for the 10 hydrologic regions, and identifies recommendations that will be incorporated statewide in the next couple years; Volume 2 describes 27 resource management strategies (e.g. reduce water demand, improve operational efficiency and transfers, increase water supply, improve water quality, practice resources stewardship, and improve flood management) that can be implemented in a mix and match fashion to help the 10 hydrologic regions to diversify their water portfolio and become more regionally self-sufficient; Volume 3 contains specific regional reports, and each regional report includes a water balance summary of water use and water supply for the region from 1998 through 2005, and scenario results that project the region's water needs through year 2050 with the use of three future scenarios (i.e. Current Trends, Slow and Strategic Growth, and Expansive Growth)[59] and 12 climate change scenarios; Volume 4 and Volume 5 contain references and technical information. For further information about the 2009 California Water Plan Update, please visit the website the California Department of Water Resources.[60]

[58] The 2009 California Water Plan Update, http://www.waterplan.water.ca.gov/cwpu2009/index.cfm,
http://www.waterplan.water.ca.gov/docs/cwpu2009/0310final/highlights_cwp2009_spread.pdf
http://www.waterplan.water.ca.gov/docs/cwpu2009/0310final/v3_southcoast_cwp2009.pdf
http://www.waterplan.water.ca.gov/docs/cwpu2009/0310final/v2c11_recycmuniwtr_cwp2009.pdf
http://www.waterplan.water.ca.gov/docs/cwpu2009/0310final/v2c03_urbwtruse_cwp2009.pdf

[59] In the "Current Trends" scenario, it was assumed that the existing trends in California will continue to 2050, the population increases to nearly 60 million people in California in 2050, affordable housing has drawn families to the interior valleys, and people take longer trips in distance and time. In the "Slow and Strategic Growth" scenario, it was assumed that there will be more efficient planning and development, population growth is slower and projected to increase to 45 million people, families live in compact urban development and commute less, Californian embraces water and energy conservation, and state government successfully implements and coordinates program to improve water quality. In the "Expansive Growth" scenario, it was assumed that the population will increase to 70 million people in 2050, Californian prefers low-density housing, some water and energy conservation was offered but at a slower rate than current trends.

[60] California Department Water Resources website - http://www.waterplan.water.ca.gov/

A big picture of the current water demand and use, the predicted water demand and use for the next 30 years, as well as the Best Management Practices (BMP) and the strategies to conserve water that the DWR recommends can be found in the 2009 California Water Plan Update. Staff focuses its research in the South Coast Hydrologic Region. The South Coast region is the California's most urbanized and populous region with the largest population of the state at almost 20 million. The South Coast region covers all of Orange County and portions of Ventura, Los Angeles, San Bernardino, Riverside and San Diego counties. The region has numerous sources of water supplies: imported water, surface water, groundwater, recycled water, and desalination. According to Metropolitan Water District of Southern California (MWD), half of the water supplied to the Southern California is from local supplies (e.g. groundwater wells. lakes) and the other half is imported water from Northern California via the State Water Projects (SWP) passing through the Sacramento-San Joaquin Delta (Delta), the Colorado River, and Owens Valley/Mono Basin.

The State Water Project (SWP) is an important source of water for the South Coast region. The SWP is managed by the California Department of Water Resources (DWR). There are about 6 major contractors for the SWP. These contractors take delivery and convey the suppliers to regional wholesalers and retailers. The MWD is one of the major contractors. The contract between MWD and DWR is approximately about 1.91 MAF per year, half of the total SWP.[61]

Another key imported water supply for the South Coast region is the Colorado River. The DWR is entitled to 4.4 MAF per year from the Colorado River, of which 3.8 MAF are assigned to agricultural users and the remaining to MWD. Within the last couple years, MWD routinely uses 1.2 MAF from the Colorado River because the agricultural users have not been using their full entitlement. MWD conveys the water through a 242-mile Colorado River Aqueduct to supply to the retailers in Southern California.

Another source of imported water is the water from Mono Basin and Owens Valley. Approximately 480,000 acre-feet per year of water is delivered by the LADWP through the Los Angeles Aqueduct to the City of Los Angeles. However, this amount varies from year to year due to fluctuating precipitation in the Sierra Nevada Mountains

Local surface water (e.g. Lake Casitas, Lake Piru, Castaic Lake, Lake Perris) plays an important part in the big picture of water supply to Southern California. More than 75 impound structures are used to capture runoff for direct use and groundwater recharge, operational and emergency storage, and food protection.

Groundwater production within the Metropolitan service area is estimated at 1.6 MAF per year. However, natural recharge is typically insufficient to maintain the groundwater basin water levels and current pumping levels due to the extent of impervious surfaces and the presence of clay soils. Many local water agencies must rely on artificial recharge (e.g. using recycled water). The Water Replenishment District of Southern California (WRD) has the mission to manage and protect the groundwater supply in the basin. In the past couple years, most basin adjudications

[61] 2009 California Water Plan Update, South Coast, Volume 3 Regional Report.

have resulted in either a reduction or no increase in the amount of groundwater that can be extracted.

Within MWD's service area, there are approximately 355,000 acre-feet of planned and permitted uses of recycled water supplies. Actual use is approximately 209,000 acre-feet, mainly in golf course, landscape, irrigation, industrial uses, construction applications, maintenance of seawater barriers, and groundwater recharge. The MWD projected a development of 500,000 acre-feet recycled water supplies by 2025. The use of recycled water by LADWP is projected to approximately 50,000 acre-feet per year by 2019.

Besides imported water, groundwater, and local surface waters, urban water conservation and desalination are also the sources of water supplies in the area. Local water agencies utilize a mixture of local and imported waters, and implement diverse water management strategies to meet the urban and agricultural demands. The total water use in the South Coast Hydrologic Region is reported to be approximately 4.8 MAF averaged from 1998-2005 period and about 5.2 MAF in 2005. In the 2009 California Water Plan Update, it is projected that the urban water demand will have a range of increase from 1.65 MAF in 2050 for the "Current Trends" scenario to 3.24 MAF with "Expansive Growth" scenario. The "Slow & Strategic Growth" scenario resulted in relative smaller increase in water demand of 0.145 MAF.

To meet the California's water challenges, Governor Schwarzenegger and state lawmakers have successfully crafted a plan that passed legislation and signed into law in November 2009. The plan is comprised of four policy bills (Senate Bills No. 1, 6, 7, 8) and $11.14 billion bond. Senate Bill No. 1 establishes the framework to provide a more reliable water supply to California and restore the Delta ecosystem. Senate Bill No. 6 requires, for the first time in California's history, that local agencies monitor the groundwater levels during both normal water years and drought conditions. Senate Bill No. 7 requires urban water agencies/suppliers to reduce the potable water consumption by 20% per capita by 2020, and Senate Bill No. 8 requires stronger accounting of the location and amounts of water being diverted from the Delta and appropriates existing bond funds to various activities to benefit the Delta ecosystem and secure the reliability of the state's water supply. In addition, the newly funded bond of $11.14 billion is approved by the Governor to fund drought relief, water supply reliability, Delta sustainability, statewide water system operational improvements, conservation and watershed protection, groundwater protection, and water recycling and water conservation programs. A summary of the four Senate Bills and bonds are provided in the 2009 California Water Plan Update.[62] The focus of the next section is to discuss the 20x2020 Water Conservation Plan which is the backbone of information for the Senate Bill 7 (SBX7 7) which calls for a 20% reduction of potable water per capita by 2020.

[62] The 2009 California Water Plan Update, 2009 Comprehensive Water Package – Special Session Policy Bills and Bond Summary. http://www.waterplan.water.ca.gov/docs/cwpu2009/0310final/v4c15a05_cwp2009.pdf.

11.3 20x2020 Water Conservation Plan

In February 2008, the Governor directed state agencies to develop a 20x2020 Water Conservation Plan that aims to reduce statewide per capita urban water use by 20 percent by the year 2020. In order to develop the 20x2020 Plan, an Agency Team was formed which consisted of state and federal agencies including the Department of Water Resources (DWR), State Water Resources Control Board (SWRCB), California Energy Commission (CEC), Department of Public Health (DPH), California Public Utilities Commission (CPUC), Air Resources Board (ARB), California Bay-Delta Authority (CBDA), and the US Bureau of Reclamation (USBR), with the contribution of the California Urban Water Conservation Council and water suppliers/purveyors and organizations through public workshop and meetings.

Several important facts of the scope of the 20x2020 Plan are summarized below:

1. **The Plan addresses only urban water use and conservation, not agricultural water use**;

2. **The Plan addresses only potable water use**. Urban potable water use includes all residential, commercial, institutional, and industrial users as well as non-revenue water. Non-potable recycled water was excluded while estimating baseline per capita urban water use to give credit to agencies that have promoted recycled water in the past. Additional use of recycled water will be a significant method by which regions can continue to offset baseline potable urban water demand to meet the 2020 goals;

3. **The plan does not address water supplied by customers for their own use.** The plan focuses on potable water supplied in municipal distribution systems and does not include quantities of self-supplied water (groundwater or surface water) in per capita use calculations.

4. **The plan recommends actions that will reduce per capita use, not total urban use, by 20 percent.** Since the population is always increased, total urban water use will never go down, therefore the plan aims at improving water supply reliability and water use efficiency.

5. **This plan does not set targets for individual water suppliers.** There are wide variations among water suppliers. This plan does not provide specific guidance to move from regional planning targets to supplier-specific targets. Water suppliers are to develop their own plan to meet the state goals.

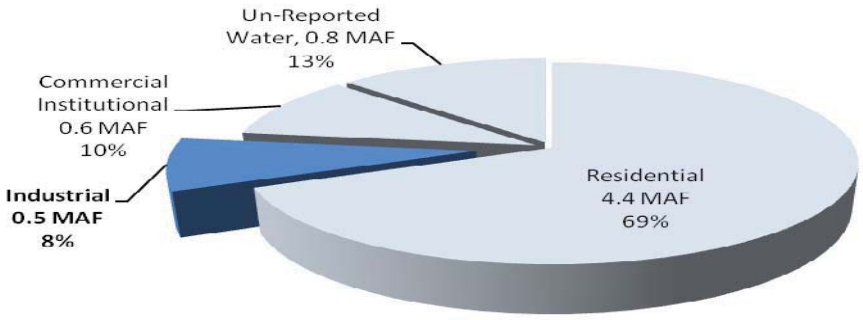
The 20x2020 plan is based on the 2005 baseline urban water use. As shown in Table 11-3, the total baseline for the South Coast region is 253 Gallons Per Capita Day, which approximately amounts to 6.37 million acre-feet per year using the projected 2020 population of 22.5 million in the South Coast Hydrologic Region. As shown in Table 11-3, the average water use for the industrial sector is approximately 8% of the total water use in the South Coast region.

TABLE 11-3
Urban Water Use Pattern in 2005 for South Coast Hydrologic Region

	Water Use
Residential (Single-and Multi-Family)	174 GPCD
Commercial and Institutional	25 GPCD
Industrial	21 GPCD
Un-Reported Water	33 GPCD
Total Baseline	**253 GPCD (6.37 MAF per year)**

Reference: Table 3 of the 20x2020 Water Conservation Plan, February 2010. Total projected 2020 population = 22.5 million. Therefore, 253 GPCD = (253 gallons per capita per day)(22.5 million)(365 days/year)(1 acre-ft/326,000 gals = 6.37 million acre-feet/year = 6.37 MAF/year)

TABLE 11-1
Urban Water Use in South Coast Hydrologic Region



After establishing the 2005 baseline, the Agency Team held numerous public meetings/workshops to establish the conservation targets and develop recommendations for future actions to achieve the targets.

Many urban water suppliers currently implement and enforce the 14 Best Management Practices. The Agency Team studied the results of the current actions and estimated future savings based on implementing current BMPs listed in Table 11-4. The Agency Team also evaluated new measures. Estimated savings for current and new measures are listed in Table 11-5.

The nine (9) Agency Team's recommended actions to achieve the Governor's statewide strategic goal of 20x2020 are listed below:

1. Establish a statewide conservation strategy
2. Reduce landscape irrigation demand
   - Require water-efficient landscapes at state-owned properties
   - Support the implementation and enforcement of landscape design and irrigation programs and the development of new landscape programs
   - Mandate the landscape irrigation Best Management Practices (BMP)

TABLE 11-4
List of Best Management Practices (BMPs)

BMP1	Water survey programs for residential customers
BMP2	Residential plumbing retrofit
BMP3	System water audits, leak detection and repair
BMP4	Metering with commodity rates for all new connections and retrofit of existing unmetered connections
BMP5	Large landscape conservation programs and incentives
BMP6	High efficiency clothes-washing machine financial incentive program
BMP7	Public information programs
BMP8	School education programs
BMP9	Conservation programs for commercial, industrial, institutional (CII)
BMP10	Wholesale agency assistance programs
BMP11	Retail conservation pricing
BMP12	Conservation coordinator
BMP13	Water waste prohibition
BMP14	Residential ultra-low-flush toilet (ULFT) replacement programs

TABLE 11-5
Summary of 2020 Savings from All Evaluated Measures for South Coast Region

	Water Saving (GPCD)
Efficiency Code Water Savings	
Residential – Indoor	4
Residential – Outdoor	0
Commercial, Institutional, Industrial (CII)	1
2020 Water Savings from Cost Effective Measures	
Residential – Indoor	2
Large Landscape	4
Commercial, Institutional, Industrial (CII),	7
Non-Revenue Water	4
Grant funded	1
Efficient Clothes Washers	*2*
Residential Flow Controllers	3
Total for Basic Measures	**24**
Accelerated coverage goals	7
Recycling	4
Water loss controls	4
Irrigation restrictions (2 days/week)	13
Miscellaneous measures	2
Total Additional Measures	**29**
Total Savings	**53**

Reference: Table 7 of the 20x2020 Water Conservation Plan, February 2010

3. Reduce water waste
   - Accelerate installation of water meters
   - Establish a state standard for water meter accuracy
   - Revise the water loss BMP to incorporate improved methodologies and accelerate coverage goals
4. Reinforce efficiency codes and related BMPs
   - Obtain authorization for state standards for high efficiency clothes washers
   - Support landscape irrigation equipment standards
   - Accelerate replacement of inefficient showerheads, toilets and urinals
   - Accelerate adoption of proven water saving technologies in new businesses
5. Provide financial incentives
   - Encourage or mandate conservation water pricing
   - Provide grants, loans, and rebates to wholesale and retail water suppliers and customers
   - Establish a public goods charge for water
   - Fund the installation of water meters
6. Implement statewide conservation public information and outreach campaign
7. Provide new or exercise existing enforcement mechanisms to facilitate water conservation
   - Require implementation of water conservation as a condition to receive state financial assistance
   - Take enforcement actions to prevent waste and unreasonable use of water
   - Provide additional enforcement tools for water suppliers
8. Investigate potential flexible implementation measures
   - Investigate requiring conservation offsets for water demand generated by new development
   - Investigate establishment of a cap-and-trade regime
9. Increase the use of recycled water and non-traditional sources of water

For comparison, the water savings from Table 11-5 are converted to million gallons of water savings per year and graphically shown in Figure 11-2. It should be noted that from Table 11-5, reducing water in irrigation to 2 days/week is the measure that would generate the most water savings. The two most important conservation measures which generate more than 50% of the conservation amount are conservation in irrigation and residential sector. The residential sector is expected to conserve more than the commercial, institutional, and industrial sector. Interestingly though is that the conservation from water loss controls is as significant as the conservation estimated for additional water recycling.

FIGURE 11-2
Comparison between Measures in the 20x2020 Plan

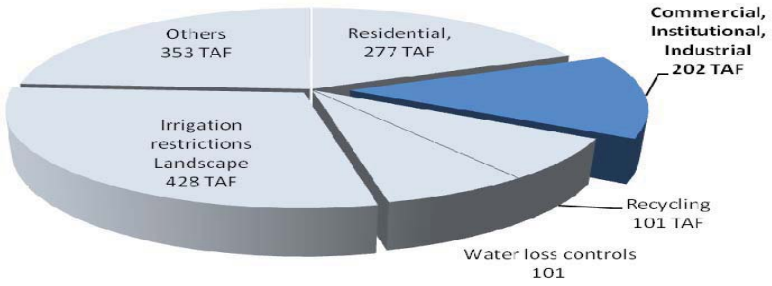


Table 11-7 shows a comparison of SOx RECLAIM total water and potable water demand to the water demand and savings of the statewide strategic plan of the South Coast Hydrologic Region. The total water demand for the proposed SOx RECLAIM project is about 0.02% of the total water usage in the South Coast Hydrologic Region. The increase in potable water demand of the proposed SOx RECLAIM project (for scenario that used wet gas scrubbers if future supplies of recycled water are available) is about 0.05% of the potable water savings estimated for the CII sector of the South Coast Hydrologic Region in 2020. Staff believes that the impacts on water demand and potable water demand is negligible based on the information in the 20x2020 Plan.

TABLE 11-7
Comparison of water demand for SOx RECLAIM Project
to the Statewide Strategic Plan of the South Coast Hydrologic Region

Total Water Usage

- Baseline for South Coast region = 253 GPCD = 6.37 million acre-ft per year (MAF)
- Future water demand for SOx RECLAIM = 1,000 acre-ft per year total water
- Percentage = 1,000 / 6.37 million = **0.02 %**

Potable Water Savings

- Savings estimated for Commercial, Institutional and Industrial sector for the South Coast region= 8 GPDC = 201,423 acre-ft per year

- Potable water demand for scenario where wet gas scrubbers (or SOx reducing catalysts) are used if future supplies of recycled water are available = 99,360 gals/day = 111 acre-ft per year. Percentage = 111 / 201,423 = **0.05%**

- Potable water demand for scenario where wet gas scrubbers are used if future supplies of recycled water are not available = 201,587 gals/day = 226 acre-ft per year. Percentage = 226 / 201,423 = **0.11%**

- Potable water demand for scenario where ~~De~~SOx reducing catalysts are used in FCCUs if future supplies of recycled water are not available = 108,436 gals/day = 121 acre-ft per year. Percentage = 121 / 201,423 = **0.06%**

11.4 Urban Water Management Plans

The Urban Water Management Planning Act (Act) became effective on January 1, 1984, and requires that every urban water supplier that provides municipal and industrial water to more than 3,000 customers, or supplies more than 3,000 acre-feet per year (AFY) prepare and adopt an urban water management plan in accordance with prescribed requirements. The Act requires the water purveyors to provide information on water supply and demand in their service area, focus primarily on water supply reliability and water use efficiency measures and put strong emphasis on drought contingency planning and recycled water. With the passage of Senate Bills 610 and 221 in 2001, the Urban Water Management Plan (UWMP) becomes more important. With SB 610 and 221, the UWMP becomes a written verification and indication to whether or not the urban water suppliers can provide water to the people living in the area. The UWMP serves as the master plan for water supply and resources management, a guidance document for policy makers to secure a sustainable water supply, as well as an ultimate source of information to the citizens in the basin. Because of this magnitude of its importance, staff conducted a research on the UWMPs of the major suppliers in the basin to understand a big picture of the water supply and demand in the basin and to consciously and intelligently answer the following questions related to the SOx RECLIAM project:

- What is the current and future water supply and demand in the basin? What is the distribution of water use in the basin?
- What are the Best Management Practices (BMPs) recommended by the water experts to conserve water and secure water resources in California? What are their effectiveness and how much water that they can help to conserve? To what extend ~~does~~is recycled water used in the basin?
- How does the water demand increase for this SOx RECLAIM project measure up to the overall water use in the basin? Can the urban water suppliers supply this amount of increase? Can this amount of increase be mitigated?

The information on the water supply/demand and water reliability analysis in the UWMPs of the three major water suppliers in the basin, Los Angeles Department of Water & Power (LADWP), West Basin Municipal Water District (WBMWD), and Metropolitan Water District of Southern California (MWD) are presented below.

West Basin Municipal Water District (WBMWD)

The WBMWD is the sixth largest water district in the state of California, serving a population of about 915,000 in 17 cities. The WBMWD currently supplies an average of 220,000 acre-feet of water annually combined of groundwater, imported water and recycled water. WBMWD is currently the wholesale supplier of recycled water for three refineries in the SCAQMD – Refinery 2, 3, and 6, and will expand its service to deliver recycled water to the sulfuric acid plant in 2013.

The WBMWD actively produces and provides recycled water, supports a desalination project,

and conducts numerous programs to promote water conservation. Some of its accomplishments are highlighted below:

— In 1992-1993, the WBMWD received state and federal funding to construct a world-class state of the art water treatment/recycling facility in the City of El Segundo named Edward C. Little Water Recycling Facility. The WBMWD is in the process of expanding the capacity of its facility to double the amount of recycled water produced in 2013. To promote the use of recycled water, the WBMWD advances funds for retrofit expenses which can be reimbursed through the water bills. The onsite plumbing retrofit costs are amortized over a 10 years period at WBMWD's cost of funds. Repayment can be made using the differential between potable and recycled water rates so that customers never pay more than potable rate. Once the loan is repaid, the rate reverts back to the current recycled rate

— The WBMWD incorporates all 14 Best Management Practices (BMPs) recommended by the California Urban Water Conservation Council (CUWCC) such as distributing water-saving showerheads and toilets, smart controllers, and conducting water recycling and water education workshops to increase public awareness about water conservation and help to increase water reliability within the region. As an example, providing $50 rebates for customers to replace/install Ultra-Low-Flush Toilet (ULFT) has saved from 44 acre-ft (1,544 toilets) to 123 acre-ft per year (4,234 toilets) in 5 years from 2000-2004. In addition, with the demand on the water supply continuing to increase, the WBMWD proactively pursues a demonstration-scale ocean-water desalination facility to explore the feasibility of large-scale ocean-water desalination for future supply.

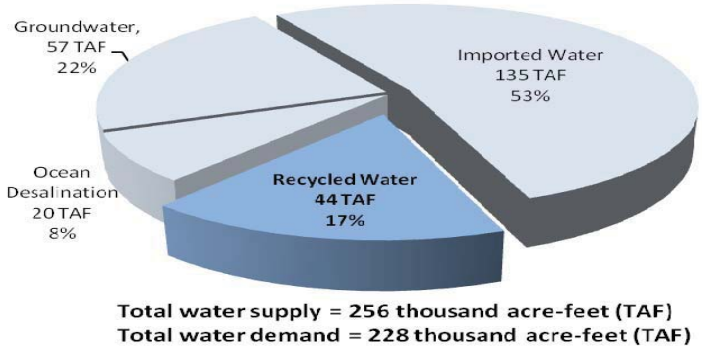
The WBWMD is in the process of developing its 2010 Urban Water Management Plan (UWMP) which is due to the Department of Water Resources in 2011. As shown in its 2005 UWMP, the WBWMD is able to supply reliable water to meet the demands projected for 25 years from 2005 to 2030 in both single dry-year scenarios or multiple dry-year scenarios. The projected water demands, supplies, and surplus from the 2005 UWMP are presented in Table 11-8 for multiple dry-water years. The projected multiple dry-year scenarios were based on the low rainfall years in FY 2001-02, 2002-03, and 2003-04. **The WBMWD estimates that they will supply reliable water with a surplus varying from 7,800 acre-feet per year to 33,236 acre-feet per year for the next 30 years.**

TABLE 11-8
Projected Water Demands and Supplies for Multiple Dry-Year Reliability [1, 2]

	Year 2010 (Acre-Feet)	Year 2014 (Acre-Feet)	Year 2015 (Acre-Feet)	Year 2020 (Acre-Feet)	Year 2030 (Acre-Feet)
Groundwater	56,797	56,797	56,797	56,797	56,797
Imported Water	135,334	130,940	135,334	135,334	135,334
Recycled Water	21,848	31,000	32,500	36,250	43,750
Ocean Desalination	0	20,000	20,000	20,000	20,000
Total Supply	**213,979**	**238,737**	**244,631**	**248,381**	**255,881**
Total Demand	**206,188**	**205,855**	**211,395**	**216,733**	**227,816**
Surplus	**7,791**	**32,882**	**33,236**	**31,648**	**28,065**

Note: 1) WBMWD 2005 Urban Water Management Plan, Chapter 4. 2) Supply reliability covers only water demand in municipal/industrial sectors and does not include replenishment.

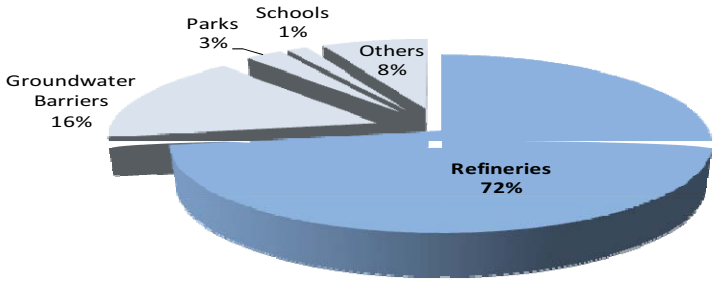
FIGURE 11-1
Projected Water Supplies for WBWMD Area (Year 2030)



Regarding recycled water, the WBWMD produces five different types of water quality from irrigation water (tertiary treated meeting California Title 22 regulation) to ultra pure Reverse Osmosis water for groundwater injection and industrial boiler feed as shown in Table 11-9.

The recycled water from WBMWD is used in various commercial, institutional and industrial operations, but mostly by refineries, with the distribution shown in Figure 11-2.

FIGURE 11-2
Distribution of Recycled Water Use for WBWMD Area



Regarding the WBMWD's water rates, the irrigation water is typically sold at a cost of $73 per acre-foot whereas ultra pure Reverse Osmosis Water is sold at a cost of $750 per acre-foot as shown in Table 11-1-B. Refinery A, B and D purchase a combination of nitrified water, one single pass pure RO water, and ultra pure RO water. **The consultants (ETS/AEC) have conservatively used a rate varying from $800 per acre-ft - $1,350 per acre-ft to estimate the annual water costs for SOx RECLAIM project accordingly to the information given to them by the refineries.**

The recycled water consumption by the three refineries located in the WBMWD's service areas is summarized in Table 11-10, side-by-side with the amount of recycled water that the refineries reported to staff, and the potential increase demand for this SOx RECLAIM project. The total

recycled water purchased by the three refineries from WBMWD is about 18,945 acre-ft in 2008-09. The total recycled water usage reported to the District is about 21,785 acre-ft. The total increase due to SOx RECLAIM is about 678 acre-ft per year, approximately 3% increase over the baseline of 21,785 acre-ft.

As shown in its 2005 UWMP and the 2008-2009 Annual Report, the WBWMD has a potential to increase its supply of recycled water to 70,000 - 100,000 acre-feet, and will reach 31,000 acre-ft by 2014, 32,500 acre-ft by 2015, and 36,250 acre-ft by 2020. **Using the current distribution of 72% for refineries, staff projects approximately 22,320 acre-ft will be available to the three refineries in 2014, 23,400 acre-ft by 2015, and 26,100 acre-ft by 2020. The projected supply of recycled water is sufficient to cover the current demand of 21,785 acre-ft and the potential increase of 678 acre-ft for SOx RECLAIM project at these three refineries.** It is anticipated that the refineries will not implement all of the SOx RECLAIM measures at the same time in 2014, and they have extra underground pumping capacity available to balance the demand when in need.

TABLE 11-9
Type of Recycled Water & Rates [1]

Disinfected Tertiary Water	Treated secondary water from Hyperion that undergoes coagulation, flocculation, filtration and disinfection to meet the Title 22 standards. Tertiary water can be used for a wide variety of industrial and irrigation purposes where high-quality, non-potable water is needed.	$73 -$169 per acre-ft
Nitrified Water	Nitrified water is tertiary water that has been nitrified to remove ammonia, which can be corrosive to pipe material. This water is used in cooling towers.	$292 per acre-ft
Softened RO Water	Secondary treated water from Hyperion that has been treated with microfiltration, lime softeners and reverse osmosis. This water is used to replenish groundwater supplies. This water is superior to State and Federal drinking water standards.	$430 per acre-ft
Pure RO Water	Secondary treated water from Hyperion that has been treated with microfiltration and reverse osmosis. This water is used for low pressure boiler feed water for large scale industrial sites such as refineries.	$568 per acre-ft
Ultra Pure RO Water	Secondary treated water from Hyperion that has been treated with microfiltration and treated twice with reverse osmosis. This water is used for high pressure boiler feed water for large scale industrial sites such as refineries. This water is so pure that there is no mineral buildup and it can be used multiple times as boiler feed water before being discharged.	$750 per acre-ft

Note: 1) WBMWD 2005 Urban Water Management Plan, Chapter 8 – Water Recycling. 2) Rates from Chapter 7 of the WBMWD 2005 UWMP. 3) ETS/AEC has used a water rate of $2,794 per million gallons (or $910 per acre-ft, 20% higher than WBMWD's rate for the ultra pure RO water) in the cost analysis for SOx RECLAIM.

TABLE 11-10

Water Use and Potential Increase (Acre-Ft)

	WBWMD's 2008-09 Water Use Report [1, 2, 3]	Refinery's Data Reported to SCAQMD [4]	Potential Increase [5]
Refinery 3	8,587	8,650	169
Refinery 6	4,759	6,853	254
Refinery 2	5,599	6,282	255
Recycled Water Use by Refineries	18,945	21,785	678
Recycled Water Use by All Customers	23,588		
Capability of WBMWD	Projected: 31,000 by 2014; 32,500 by 2015; 36,250 by 2020; and 43,750 by 2030. Capability: 70,000 - 100,000		

Note: 1) Refineries purchase a combination of nitrification, pure single pass RO, and ultra pure double pass RO. 2) Refinery's recycled water use is about 90% - 95% of the total recycled water use by the city. 3) Refineries purchase 75% - 80% recycled water produced by WBWMD. The variation for past 10 years is shown. 4) SCAQMD's Survey. 5) Potential increase in water use by addition of wet gas scrubbers for FCCUs and SRUs, and by modification/addition of fuel gas treatment.

Los Angeles Department of Water & Power (LADWP)

On average, LADWP supplies 621,765 acre-feet of water per year (5-year average of supply from 1980-2009). The water distribution in the LADWP service area is shown in Figure 11-3. It should be noted that LADWP actively implements all 14 BMPs recommended by the California Urban Water Conservation Council (CUWCC) [63] and the DWR described in the 2009 California Water Plan. LADWP also implements many water conservation efforts (e.g. ultra-low-flush toilet retrofit program, indoor and outdoor conservation), public outreach, and school education program. As a result, the water usage in the city is the same as it was 20 years ago despite an increase in population of about 750,000 people. [64]

LADWP has a water shortage contingency plan with actions that can be undertaken in response to water supply shortages, including up to 50% reduction in water supply. Some of the actions identified in the water shortage contingency plan and currently implemented are: restricting landscape irrigation to two times a week, developing a large industrial customer incentive program that provides a monetary credit for all water conservation, irrigating public parks only with recycled water, requiring recycled water to be used at commercial car washes and construction projects, and enforcing a tired billing structures to promote water use efficiently.[65]

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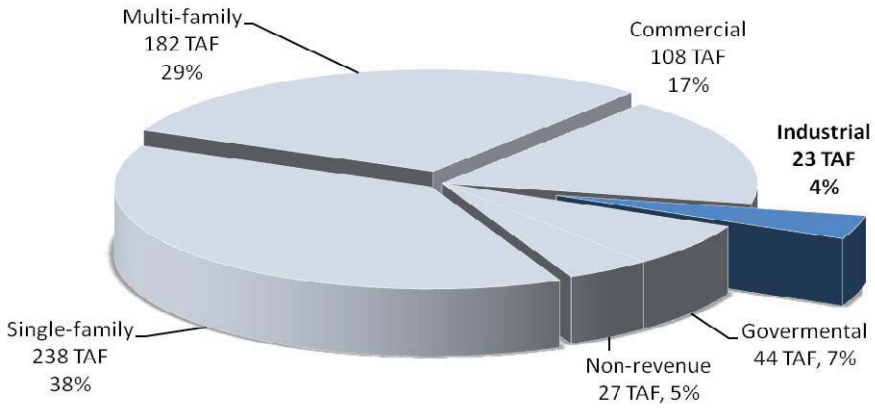
[63] The California Urban Water Conservation Council (CUWCC) is an organization formed in 1991 comprised of water suppliers and governmental agencies with a mission to promote water conservation in California. The CUWCC was instrumental in developing the "Memorandum of Understanding Regarding Urban Water Conservation in California (MOU) signed by numerous local water suppliers in California. The MOU identifies fourteen "Best Management Practices (BMPs) listed in Table 11-4 of this Staff Report, commits water suppliers to develop comprehensive conservation programs to implement the 14 BMPs, and establishes the CUWCC to monitor the implementation of the BMPs and to maintain and update the list of BMPs.

[64] City of Los Angeles Department of Water and Power, 2005 Urban Water Management Plan.

[65] To promote the use of water efficiently, LADWP restructured its water rates to a two-tier structure in 1993 with a lower first tier rate for water used within a specified allotment, and a higher second tier rate for every billing unit that exceeds the first tier allotment. The water rates are also higher during shortage periods. For example, the Tier 1 rate for commercial and industrial customers is $1.21 per hundred cubic feet, and Tier 2 rate is $3.70 per hundred

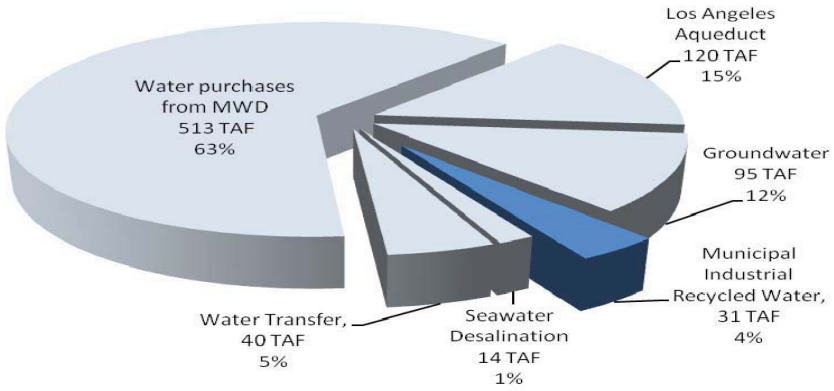
The projected water demand/supply for the LADWP is presented in Figure 11-4 and Table 11-11 for the next 30 years. The projected water supply from municipal & industrial recycled water is only about 4% of the portfolio. It is interesting to note that LADWP expected to purchase more than 60% of its water from the Metropolitan Water District in 2030. **LADWP projected that they will have reliable water supply for the next 30 years for the area that they serve.**

FIGURE 11-3
Water Distribution in the LADWP Service Area



Total Water Use = 622 thousand acre-feet (TAF)

FIGURE 11-4
Water Supply in the LADWP Service Area (Year 2030)



Total Water Supply = 813 Thousand Acre Feet (TAF) in Year 2030

cubic feet during 10% shortage period. The Tier 1 rate remains at $1.21 for 15%, 20% and 25% shortage periods but Tier 2 rate increases to $4.44, $5.18 and $6.05 per hundred cubic feet in these shortage periods, respectively.

TABLE 11-11
LADWP Projected Water Demands and Supplies for Multiple Dry-Year Reliability [1, 2]

	Year 2010 (Acre-Feet)	Year 2015 (Acre-Feet)	Year 2020 (Acre-Feet)	Year 2030 (Acre-Feet)
Existing Supplies				
Los Angeles Aqueduct	120,000	120,300	120,300	120,300
Groundwater	95,000	95,000	95,000	95,000
Municipal & Industrial Recycled Water	1,950	1,950	1,950	1,950
Subtotal	**217,250**	**217,250**	**217,250**	**217,250**
Planned Supplies				
Municipal & Industrial Recycled Water	10,000	18,000	20,000	29,000
Seawater Desalination	0	13,500	13,500	13,500
Water Transfer	40,000	40,000	40,000	40,000
Subtotal	**50,000**	**71,500**	**73,500**	**82,500**
MWD Water Purchases	**449,750**	**450,250**	**475,250**	**513,250**
Total Supply	**717,000**	**739,000**	**766,000**	**813,000**
Total Demand	**717,000**	**739,000**	**766,000**	**813,000**

Note: 1) LADWP 2005 Urban Water Management Plan, Chapter 6. 2) Project with existing water conservation program.

Metropolitan Water District of Southern California (MWD)

The MWD is a public agency formed in the late 1920's. Its function is to manage the supply of water in Southern California. Its first function was building the Colorado River Aqueduct to convey water from the Colorado River in the early 1940s. In 1960, to meet increasing water demands, MWD contracted water supplies from the State Water Project (SWP) via the California Aqueduct, which is owned and operated by the DWR. The MWD currently receives imported water from two main sources: the Colorado River and the SWP. The MWD's service area covers a portion of Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura counties. The MWD is a wholesaler and has no retail customers. The MWD distributes treated and untreated water directly to its 26 member agencies including 14 cities, 11 municipal water districts, and one county water authority (San Diego).

On daily average, the MWD delivers 6,023 AF. The record annual sales are 2.5 MAF in 1900. The projected sales for the next couple years for the commercial, institutional, industrial retail sector are estimated to be 1 MAF as shown in Table 11-12. Water is supplied at a unit price of $701 per acre-foot for treated water and $484 per acre-foot for untreated water. A balance of water supply and demand in Table 11-13 shows that MWD can provide reliable water under multiple dry year hydrologies. In addition, MWD has identified buffer supplies, including additional State Water Projects groundwater storage and transfer that could serve as a supply when additional water is needed.[66]

[66] The 2005 Regional Urban Water Management Plan – Metropolitan Water District of Southern California. November 2005. Metropolitan Water District website www.mwdh2o.com.

Just like the LADWP, the MWD has its water shortage contingency plan that outlines the necessary actions to be taken during water supply shortages including up to 50% reduction in its water supplies. The MWD also has a water surplus and drought management plan that outlines various resources to minimize the possibility of severe shortages by integrating the management of surplus and shortage into one plan. **Through effective management, the MWD indicated in its 2005 UWMP that it expected to be 100 percent reliable (with surplus supply) in meeting all demands in its service area.**

TABLE 11-12
MWD Projected Water Demands in Commercial. Industrial, Institutional Retail Sector

	Year 2010 (Acre-Feet)	Year 2020 (Acre-Feet)	Year 2030 (Acre-Feet)
Los Angesles	507,500	519,500	521,200
Orange	179,200	185,900	189,900
Riverside	64,400	78,500	93,000
San Bernardino	44,300	51,700	59,100
San Diego	167,200	171,400	174,500
Ventura	37,800	42,100	46,300
Total	**1,000,400**	**1,049,100**	**1,084,000**

Reference: Table A.1-10 of MWD's Urban Water Management Plan 2005.

TABLE 11-13
MWD Projected Water Demands and Supplies for Multiple Dry-Year Reliability

	Year 2010 (Acre-Feet)	Year 2015 (Acre-Feet)	Year 2020 (Acre-Feet)	Year 2030 (Acre-Feet)
Existing Supplies				
In-Basin Storage	514,000	518,000	502,000	470,000
California Aqueduct	912,000	912,000	912,000	912,000
Colorado River Aqueduct	722,000	699,000	699,000	699,000
Supplies Under Development				
In Basin Storage	78,000	103,000	103,000	103,000
California Aqueduct	330,000	215,000	299,000	299,000
Colorado River Aqueduct	95,000	460,000	400,000	400,000
Transfer to Other Agencies	0	(35,000)	(35,000)	(35,000)
Metropolitan Supply Capability	**2,651,000**	**2,872,000**	**2,880,000**	**2,848,000**
Firm Demands on Metropolitan	**2,392,000**	**2,302,000**	**2,309,000**	**2,585,000**
Potential Reserve and Replenishment Supplies	**259,000**	**502,000**	**473,000**	**155,000**

Reference: Table II-8 Multiple Dry Year Supply Capability and Projected Demands, The Regional Urban Water Management Plan of Metropolitan Water District of Southern California, November 2005.

11.5 Conclusion

In summary, the information and analysis above shows the following:

- The water demand increase due to this SOx RECLAIM project (consisting of installing/operating eleven wet gas scrubbers and two dry gas scrubbers at eleven major facilities to reduce 6.2 tons per day of SOx) is negligible at 1,000 acre-feet per year compared to the water use of 6.37 million acre-feet per year for the South Coast Hydrologic region. It represents 0.02% increase over the current water usage baseline.

- The potable water demands of this SOx RECLAIM project are approximately from 1~~2~~1 acre-ft per year to 226 acre-ft per year which represent about 0.0~~6~~5% - 0.11% of the potable water savings of 200 thousand acre-feet per year estimated for the South Coast Hydrologic region.

- Table 11-4 provides a comparison of the water demand for SOx RECLAIM project with the water use/demand in California, South Coast Hydrologic region and other local water suppliers. The purpose of Table 11-14 is to put the water demand of SOx RECLAIM project into the perspective of others.

TABLE 11-14
Comparison of Water Supplies and Demands

	Water Use (Acre-Feet Per Year)
California (Year 2005 Urban Use)	7,900,000
South Coast Hydrologic Region (Year 2005 Urban Use)	6,370,000
MWD's contract with DWR (State Water Project)	1,910,000
MWD's entitlement from Colorado River through DWR	1,200,000
MWD's projected supplies (Year 2030)	2,848,000
MWD's projected supplies for commercial, industrial, institutional sector (Year 2030)	1,084,000
Groundwater production in MWD's service area	1,600,000
LADWP – All sectors	621,765
LADWP – Industrial sector	23,384
Recycled water supplied by MWD	355,000
Projected total water supplied by West Basin (Year 2030)	255,881
Projected recycled water supplied by West Basin (Year 2030)	43,750
Baseline for 11 Major SOx RECLAIM Facilities	**57,798**
Project Increase for SOx RECLAIM	**1,000**

- The water suppliers can reliably supply water, including recycled water, for the next 30 years and meet the nominal increase in water demand from this project based on the predicted water supply/demand shown in the 2005 UWMPs.

- The average water use in industrial sector is only about 8% for the South Coast Hydrologic Region, 4% for the LADWP service area, and 25% for the MWD. The Best Management Practices for conserving water focus in the areas that can significantly reduce water such as irrigation and residential sector. The Agency Team of the 20x2020 Plan estimated that water savings from the Commercial, Institutional, Industrial sector only contributes approximately 15% to the overall water savings required to meet the 20% reduction by 2020 asked for the Governor. Increased use of recycled water, if available, is a BMP that can be used to mitigate increase in water demand from this project.

- The consultants have appropriately used a rate varying from $800 per acre-ft to $1,350 per acre-ft to estimate the annual water costs for SOx RECLAIM project accordingly to the information provided to them by the refineries.

While this project would result in water demand that can be viewed as meaningful, the proposal can be met by current and future portable and recycled water suppliers. The substantial air quality and health benefits of the project far outweigh the potential water impacts. However, in the spirit of carrying out abundance of caution in response to the drought affecting California, CEQA staff made the determination that the SOx RECLAIM project would be considered significant if recycled water is not available. Please refer to the August 18, 2010 Draft Program Environmental Assessment document for further information.

Chapter 12 – Costs & Cost Effectiveness Analysis

12.1 Scenario Analysis

Staff conducted the following four scenario analysis to estimate overall emission reductions for the project, costs, cost effectiveness, control factors, and RTC reductions.

Scenario 1 – Most Stringent
1 ppmv for FCCUs (98% control),
1 ppmv for SRU/TGTUs
Tier I level for boilers/heaters (40 ppmv, or to appropriate sensible levels)
5 ppmv for coke calciner
5 ppmv for sulfuric acid
1 - 2 ppmv (99% control) for glass furnace
1 - 2 ppmv (99% control) for cement plant

Scenario 2 – Consultants' Recommendations
5 ppmv for FCCUs,
5 ppmv for SRU/TGTUs
Tier I level for boilers/heaters (40 ppmv, or to appropriate sensible levels)
10 ppmv for coke calciner
10 ppmv for sulfuric acid
1 – 2 ppmv (99% control) for glass furnace
1 - 2 ppmv (99% control) for cement plant

Scenario 3A – Staff's Recommendations on January 8, 2010
The controls with cost effectiveness less than $50K per ton at the following proposed BARCT levels:
5 ppmv for FCCUs
5 ppmv for SRU/TGTUs
Tier I level for boilers/heaters (40 ppmv)
10 ppmv for coke calciner
10 ppmv for sulfuric acid
5 ppmv for glass furnace
5 ppmv for cement plant

Scenario 3B – Alternative to Staff's Recommendation in Scenario 3A.
The controls with cost effectiveness less than $50K per ton at the following proposed BARCT levels:
7 ppmv for FCCUs
10 ppmv for SRU/TGTUs, coke calciner, glass, cement
Tier I level for boilers/heaters (40 ppmv)

The results were presented in Table 12-1 using the information provided by ETS/AEC and NEXIDEA. In addition, staff added two more scenarios in the analysis, Scenario 4 and 5. In Scenario 4, there would be no BARCT for SRU/TGs and Scenario 5 is to meet the minimum requirements in the 2007 AQMP. Please refer to Section 12.~~3~~4 for further information.

After January 8, 2010 Governing Board meeting, staff received feedback from WSPA and the refineries, and as a result, Scenario 3A was modified to not include costs associated with the modifications for boilers/heaters to meet the existing Tier 1 BARCT at 40 ppmv. In addition, modification to the cost effectiveness was made to exclude any incurred costs and emission reductions from projects that have already been completed. The results in Table 12-1 for Scenario 3A are revised to:

Scenario 3A – Staff's Current Recommendation

Present Worth Values = $745 million – $116 million (for boilers/heaters) = $630 million
Emission reductions = 6.20 – 0.85 (for boilers/heaters) – 1.00 (reductions that already been achieved) = 4.36 tons per day
Weighted average cost effectiveness = $15,845 per ton

TABLE 12-1 – Costs & Cost Effectiveness

Facility	Refinery 1	Refinery 2	Refinery 3	Refinery 4	Refinery 5	Refinery 6
Control Technology /Vendor	WGS - BELCO					
Present Worth Value ($ million)	76	133	95	78	75*	110
Scenario 1 - most stringent	**98% for 6 refineries**					
Performance Level	98%	98%	98%	98%	*98%*	98%
Emission Reductions (tpd)	0.60	0.30	0.35	0.24	*0.94*	1.01
Cost Effectiveness ($/ton)	14,000	48,000	29,500	35,200	*10,700*	11,900
BARCT	0.36 lbs/Mbarrels					
BARCT/Start EF	0.01 (=0.36/52.06)					
Scenario 2 - consultants	**5 ppmv for 6 ref - 5 new wet scrubbers and 1 existing wet scrubber**					
Performance Level	5 ppmv	5 ppmv	5 ppmv	5 ppmv	5 ppmv	5 ppmv
Emission Reductions (tpd)	0.58	0.19	0.28	0.20	0.87	0.94
Cost Effectiveness ($/ton)	14,437	76,211	36,636	42,103	11,600	12,849
BARCT			13.38	lbs/Mbarrels		
BARCT/Start EF			0.26	(=2.29/52.06)		
Scenario 3A - staff's	**5 ppmv for 5 ref - 4 new wet scrubbers, 1 existing wet scrubber**					
Performance Level	5 ppmv	5 ppmv	5 ppmv	5 ppmv	5 ppmv	5 ppmv
Emission Reductions (tpd)	0.58		0.28	0.20	0.87	0.94
Cost Effectiveness ($/ton)	14,437	>50,000	36,636	42,103	9,398	12,849
BARCT			3.25	lbs/Mbarrels		
BARCT/Start EF			0.06	(=3.25/52.06)		
Scenario 3B - Alternative	**7 ppmv with DeSOx catalysts**					
Performance Level	7 ppmv	7 ppmv	7 ppmv	7 ppmv	7 ppmv	7 ppmv
Emission Reductions (tpd)	0.57	0.14	0.25	0.19	0.83	0.90
Cost Effectiveness ($/ton)	18,941	18,941	18,941	18,941	18,941	18,941
BARCT			3.23	lbs/Mbarrels		
BARCT/Start EF			0.06	(=3.23/52.06)		

*Refinery 5 revised its capital cost estimate from $70 million (Authority for Expenditures AFE) to $60 million in March 2010. Subsequently, staff revised the cost effectiveness in Scenario 3A from $11,600 per ton to $9,398 per ton.

TABLE 12-1 (Continue)

Equipment	Sulfur Recovery Units/Tail Gas					
Facility	**Refinery 1**	**Refinery 2**	**Refinery 3**	**Refinery 4**	**Refinery 5**	**Refinery 6**
Control Technology /Vendor	Emerachem	WGS-TriMer	Emerachem for 2 SRUs & Tri-Mer	Emerachem	WGS-TriMer	WGS-TriMer
Present Worth Value ($ million)	26	60	17	19	64	97
Scenario 1 - most stringent	**98% for 6 refineries**					
Performance Level						
Emission Reductions (tpd)	0.13	0.20	0.15	0.04	0.07	0.31
Cost Effectiveness ($/ton)	22,410	32,900	12,881	54,686	95,800	34,300
BARCT	2.92 lbs/hr					
BARCT/Start EF	0.35 (=2.92/8.39)					
Scenario 2 - consultants	**5 ppmv for 6 refineries. 3 with Emerachem. 5 new wet scrubbers**					
Performance Level	5 ppmv	5 ppmv	5 ppmv	5 ppmv	5 ppmv	5 ppmv
Emission Reductions (tpd)	0.13	0.17	0.15	0.04	0.06	0.29
Cost Effectiveness ($/ton)	22,409	39,000	12,880	54,705	123,169	36,359
BARCT	3.89 lbs/hr					
BARCT/Start EF	0.46 (=3.89/8.39)					
Scenario 3A - staff's	**5 ppmv for 4 refineries. 1 already met reduction. 1 with Emerachem. 3 new wet scrubbers**					
Performance Level	Already met	1WGS 5 ppmv	Emera 5 ppmv			2WGS 5 ppmv
Emission Reductions (tpd)	0.13	0.17	0.15			0.29
Cost Effectiveness ($/ton)	n/a	39,000	12,880	>50,000	>50,000	36,359
BARCT	5.28 lbs/hr					
BARCT/Start EF	0.63 (=5.28/8.39)					
Scenario 3B - Alternative	**10 ppmv for 3 refineries. 1 already met reduction. 0 Emerachem. 4 new wet scrubbers.**					
Performance Level	Already met	1WGS 10ppmv	1WGS 10 ppmv			2WGS 10 ppmv
Emission Reductions (tpd)	0.13	0.13	0.11			0.27
Cost Effectiveness ($/ton)	n/a	48,606	34,695	>50,000	>50,000	39,147
BARCT	6.39 lbs/hr					
BARCT/Start EF	0.76 (=6.39/8.39)					

TABLE 121-1 (Continue)

Equipment	Refinery Boilers/Heaters					
Facility	**Refinery 1**	**Refinery 2**	**Refinery 3**	**Refinery 4**	**Refinery 5**	**Refinery 6**
Control Technology /Vendor	FGT	FGT	FGT	FGT	FGT	FGT
Present Worth Value ($ million)	1.4	20	15	16	64	21
Scenario 1 - most stringent	**To Tier I level**					
Performance Level						
Emission Reductions (tpd)	0.06	0.07	0.04	0.35	0.33	0.04
Cost Effectiveness ($/ton)	2,395	30,948	46,906	4,903	21,071	57,416
BARCT	40 ppmv = 6.76 lbs/mmscft					
BARCT/Start EF	0.2 (=6.76/33)					
Scenario 2 - consultants	**To Tier I level**					
Performance Level						
Emission Reductions (tpd)	0.06	0.07	0.04	0.35	0.33	0.04
Cost Effectiveness ($/ton)	2,395	30,948	46,906	4,903	21,071	57,416
BARCT	40 ppmv = 6.76 lbs/mmscft					
BARCT/Start EF	0.2 (=6.76/33)					
Scenario 3A - staff's	**To Tier I level**					
Performance Level						
Emission Reductions (tpd)	0.06	0.07	0.04	0.35	0.33	
Cost Effectiveness ($/ton)	2,395	30,948	46,906	4,903	21,071	>50,000
BARCT	40 ppmv = 6.76 lbs/mmscft					
BARCT/Start EF	0.2 (=6.76/33)					
Scenario 3B - Alternative	**To Tier I level**					
Performance Level						
Emission Reductions (tpd)	0.06	0.07	0.04	0.35	0.33	
Cost Effectiveness ($/ton)	2,395	30,948	46,906	4,903	21,071	>50,000
BARCT	40 ppmv = 6.76 lbs/mmscft					
BARCT/Start EF	0.2 (=6.76/33)					

TABLE 12-1 (Continue)

Equipment	Coke Calciner	Sulfuric Acid Plant		
Facility	**Fac C**	**Fac A**	**Fac A**	**Fac B**
Control Technology /Vendor	WGS-BELCO	Equip Mod-Cansolv	WGS-BELCO	WGS-BELCO
Present Worth Value ($ million)	25.3	1.7	8.0	17.3
Scenario 1 - most stringent	**5 ppmv-1 wet scrubber**	**5 ppmv**		
Performance Level	5 ppmv (90%)	not applicable	5 ppmv (>95%)	5 ppmv (>95%)
Emission Reductions (tpd)	0.32		0.04	1.1
Cost Effectiveness ($/ton)	8,642		17,596	1,594
BARCT	0.03 lbs/ton coke		0.07 lbs/ton acid	
BARCT/Start EF	0.01 (=0.03/2.47)		0.02 (=0.07/3.93)	
Scenario 2 - consultants	**10 ppmv-1 wet scrubber**	**10 ppmv**		
Performance Level	10 ppmv	10 ppmv	not applicable	10 ppmv
Emission Reductions (tpd)	0.28	0.033		1
Cost Effectiveness ($/ton)	9,902	5,556		1,896
BARCT	0.11 lbs/ton coke	0.14 lbs/ton acid		0.14 lbs/ton acid
BARCT/Start EF	0.05 (=0.11/2.47)	0.04 (=0.14/3.93)		0.04 (=0.14/3.93)
Scenario 3A - staff's	**10 ppmv-1 wet scrubber**	**10ppmv - 1 WGS, 1 modification**		
Performance Level	10 ppmv	modification to 10 ppmv	not applicable	1WGS 10 ppmv
Emission Reductions (tpd)	0.28	0.033		1
Cost Effectiveness ($/ton)	9,902	5,556		1,896
BARCT	0.11 lbs/ton coke	0.14 lbs/ton acid		0.14 lbs/ton acid
BARCT/Start EF	0.05 (=0.11/2.47)	0.04 (=0.14/3.93)		0.04 (=0.14/3.93)
Scenario 3B - Alternative	**10 ppmv-1 wet scrubber**	**10 ppmv**		
Performance Level	10 ppmv (80%)	modification to 10 ppmv	not applicable	1WGS 10 ppmv
Emission Reductions (tpd)	0.28	0.033		1
Cost Effectiveness ($/ton)	9,902	5,556		1,896
BARCT	0.11 lbs/ton coke	0.14 lbs/ton acid		0.14 lbs/ton acid
BARCT/Start EF	0.05 (=0.11/2.47)	0.04 (=0.14/3.93)		0.04 (=0.14/3.93)

TABLE 12-1 (Continue)

Equipment	Glass Plant	Cement Plant		Costs and Cost Effectiveness (including emission reductions for existing scrubber but not costs since the scrubber was installed for R1105.1)
Facility		**Kilns**	**Coal Fired Boiler**	
Control Technology /Vendor	WGS-TriMer	Limestone Absorber-BoldEco	DGS or Limestone Abs - BoldEco	
Present Worth Value ($ million)	8.8	43.7	12.6	**1,026**
Scenario 1 - most stringent	**1 ppmv**	**1 ppmv**	**5ppmv**	
Performance Level	99%	95% (1-2 ppmv)	95% (5 ppmv)	**1,026**
Emission Reductions (tpd)	0.19	0.25	0.36	**7.5**
Cost Effectiveness ($/ton)	4,988	18,893	3,818	**15,008**
BARCT	0.0058 lbs/ton glass	0.03 lbs/ton clinker	95%	
BARCT/Start EF	0.002 (=0.0058/2.51)	0.6 (=0.03/0.05)	0.05 (=1-0.95)	
Scenario 2 - consultants	**1 ppmv**	**1 ppmv**		
Performance Level	99%	95% (1-2 ppmv)	Not use in 2005	**1,007**
Emission Reductions (tpd)	0.194	0.25		**6.53**
Cost Effectiveness ($/ton)	4,988	18,893		**16,908**
BARCT	0.0058 lbs/ton glass	0.03 lbs/ton clinker		
BARCT/Start EF	0.002 (=0.0058/2.51)	0.6 (=0.03/0.05)		
Scenario 3A - staff's	**5 pppmv - 2 WGS**	**5 ppmv - 2 DGS**		**11 WGS, 2 DGS**
Performance Level	2WGS 95% (5 ppmv)	2DGS 93% (5ppmv)	Not use in 2005	**745**
Emission Reductions (tpd)	0.186	0.248		**6.20**
Cost Effectiveness ($/ton)	5,198	19,300		**13,160**
BARCT	0.03 lbs/ton glass	0.04 lbs/ton clinker		**($15,845 per ton if excluding emi reductions of existing scrubber in the cost effectiveness calculation.)**
BARCT/Start EF	0.01 (=0.03/2.51)	0.74 (=0.04/0.05)		
Scenario 3B - Alternative	**10 ppmv**	**10 ppmv**		
Performance Level	2WGS 90% (10ppmv)	2DGS 90% (10 ppmv)	Not use in 2005	**884**
Emission Reductions (tpd)	0.176	0.24		**6.10**
Cost Effectiveness ($/ton)	5,487	19,942		**15,878**
BARCT	0.05 lbs/ton glass	0.05 lbs/ton clinker		
BARCT/Start EF	0.02 (=0.05/2.51)	1 (=0.05/0.05)		

12.2 Cost-Effectiveness Analysis Using NEC's Estimates

In March 2010, staff contracted with NEC, Inc. to conduct a refinery walkthrough in an effort to resolve any pending issues not addressed by the previous consultants and to review the feasibility and costs estimated by ETS/AEC and NEXIDEA. NEC provided a review of the capital costs and annual operating costs only, and recommended that staff re-estimate the cost effectiveness of the project. Staff's estimates using NEC's recommendations are summarized below.

Fluid Catalytic Cracking Units

NEC's estimates of capital costs for five new wet gas scrubbers at the refineries were:

- $60,823,000 for Refinery #1 (approximately 1% higher than ETS's estimate)
- $94,281,000 for Refinery #2 (approximately 6.6% lower than ETS's estimate)
- $89,953,000 for Refinery #3 (approximately 16% higher than ETS's estimate since NEC included $1.88 million for additional PM10 control. If NEC did not include the $1.88 million for additional PM10 control which would not be required under the proposed rule, staff estimated the total capital costs for Refinery #3 would be $83,028,000 by using NEC's approach, NEC's multipliers for vendor bias factor, and equipment budget factor, and NEC's estimates for piping, ductwork, knife gate valves, insulation etc.)
- $66,670,000 for Refinery #4 (approximately 1.4% higher than ETS's estimate)
- $83,164,000 for Refinery #6 (approximately 4.4% lower than ETS's estimate)

NEC recommended that the maintenance costs should be about 0.6% of the capital costs. Turnaround occurs every 5 years, and during this period, NEC estimated that the maintenance costs should be double the regular maintenance costs. Staff adjusted the maintenance costs in ETS/AEC's analyses to reflect NEC's recommendation. An example of staff's approach is provided below:

Example for Refinery #1:
Maintenance costs = (Capital costs by NEC)(0.6/100) = ($60,823,000)(0.6/100) = $364,938
Annual costs = $1,050,951 (by ETS) - 156,000 (maintenance costs estimated by ETS) + $364,938 (maintenance costs recommended by NEC) = $1,259,889

Staff then estimated the Present Worth Values (PWV) and Cost Effectiveness (CE) using NEC's capital costs and annual operating costs. An example is given below for Refinery #1. The PWV and CE for the 5 refineries are summarized in Table 12-2.

PWV = Capital Costs + (15.62)(Annual Operating Costs) – (0.35)(Salvage Value)[67] + (2.4)(Maintenance Costs Every 5 Years) = $60,823,000 + (15.62)(1,259,889) – (0.35)(250,000) + (2.4)(364,938) = $81,290,817

CE = ($81,290,817)/((211.82 tpy)(25 years)) = $15,351 per ton

[67] Salvage value is value of the control equipment at the end of its useful life (after 25 years).

TABLE 12-2
Cost Effectiveness of Wet Gas Scrubbers for FCCUs using NEC's Data

	Ref #1	Ref #2	Ref #3 (note)	Ref #4	Ref#6
Capital Costs ($)	60,823,000	94,281,000	83,028, 000 – 89,953,000	66,670,000	83,164,000
Annual Operating Costs ($)	1,259,889	$2,492,288	1,457,776 – 1,499,326	1,058,782	1,603,872
Present Worth Values ($)	81,290,817	126,253,530	106,906,571 – 114,580,302	84,080,722	109,333,879
Cost Effectiveness ($/ton)	15,351	72,393	41,292 – 44,25~~6~~7	45,12~~1~~0	12,78~~3~~2

Note: the low numbers in the range are for WGS without additional PM10 control capability, and the high numbers are for WGS with additional PM10 control capability

Sulfur Recovery/Tail Gas Units

NEC's estimates of capital costs for WGSs were:

- $49,100,000 for Refinery #2 (approximately 29% higher than ETS's estimate)
- $58,210,000 for Refinery #6 (approximately 13% higher than ETS's estimate)

NEC's indicated that the oxidation catalyst technology has not yet been proven in practice. NEC recommended wet gas scrubber as BARCT for SRU/TGs. However, if the oxidation catalyst technology was selected, the capital costs would increase by a factor of at least 5 versus ETS/AEC's estimates, or $63,416,089 for Refinery #3. NEC estimated that the maintenance costs should be about 0.6% of the capital costs. Turnaround occurs every 5 years, and the maintenance costs should be double the regular maintenance costs in these years. Staff adjusted the maintenance and annual operating costs in ETS/AEC's analyses to reflect NEC's recommendation. An example of staff's approach is provided below.

Example for Refinery #2:
Maintenance costs = (Capital costs by NEC)(0.6/100) = ($49,100,000)(0.6/100) = $294,600
Operating costs = $1,446,727 (by ETS) - 48,000 (by ETS) + $294,600 (by NEC) = $1,693,327

Table 12-3 summarizes the results for SRU/TGs.

TABLE 12-3
Cost Effectiveness of Controls for SRU/TGs using NEC's Recommendations

	Ref #2	Ref #3	Ref #6
Capital Costs ($)	49,100,000	63,416,089	58,210,000
Annual Operating Costs ($)	1,693,327	570,859	3,305,106
Present Worth Values ($)	76,151,815	73,229,787	110.463,974
Cost Effectiveness ($/ton)	49,626	55,270	41,56~~4~~3

Cement Kilns & Coal Fired Boilers

NEC recommended wet gas scrubber as BARCT for both cement kilns and coal fired boiler but did not provide any cost estimates for wet gas scrubbers. NEC commented that ETS's analysis did not include contingencies. With contingencies added as recommended by NEC, the capital costs were estimated as:

- $32,700,000 for cement kilns (approximately 67% higher than ETS's estimate)
- $10,300,000 for coal fired boiler (approximately 67% higher than ETS's estimate)

NEC estimated that the maintenance costs should be higher for cement kilns, increased from $312,000 as estimated by ETS to $467,000, and turnaround would occur every 2 years instead of every 5 years. Staff estimates of the cost effectiveness using NEC's input are provided the results in Table 12-4.

TABLE 12-4
Cost Effectiveness of Controls for Cement Facility using NEC's Recommendations

	Cement Kilns	Coal Fired Boiler
Capital Costs ($)	32,700,000	10,300,000
Annual Operating Costs ($)	1,633,250	$385,293
Present Worth Values ($)	62,086,085	17,498,910
Cost Effectiveness ($/ton)	~~26,824~~27,402	5,312

Glass Furnaces

NEC recommended the use of a large bore, open throat wet gas scrubber as BARCT for glass furnaces instead of packed-bed wet gas scrubber. NEC recommended a different location than ETS which results in an increase in the costs for ducting, substation additions, knife gate valve, and indirect costs. While NEC did not propose cost estimates for a large bore, open throat WGS, NEC agreed with ETS that wet gas scrubber would be cost effective. Without any cost information from NEC, staff used ETS's data instead.

Sulfuric Acid Plants

NEC agreed that wet gas scrubber should be recommended as BARCT for sulfuric acid plants, but estimated the following capital costs:

- $18,746,000 for Plant 1 (3 times higher than ETS's estimate)
- $1,500,000 for modification of Plant 2 at a refinery (3 times higher than ETS's estimate)

NEC recommended a turnaround every 5 years for sulfuric acid plants, and an additional maintenance cost of 0.6% capital costs. Following NEC's recommendations, staff estimated the cost effectiveness shown in Table 12-5.

TABLE 12-5
Cost Effectiveness of Controls for Sulfuric Acid Plants using NEC's Recommendations

	Plant 1	Plant 2 Modification
Capital Costs ($)	18,746,000	1,500,000
Annual Operating Costs ($)	684,092	$71,610
Present Worth Values ($)	29,701,459	2,640,148
Cost Effectiveness ($/ton)	~~2,833~~3,255	8,768

Coke Calciner

NEC recommended wet gas scrubber as BARCT for coke calciner, estimated a capital cost of $45,700,000, recommended every 2 years turnaround for the unit, and maintenance cost of 0.6% capital costs. Based on NEC's recommendations, staff estimated the cost effectiveness shown in Table 12-6:

TABLE 12-6
Cost Effectiveness of Controls for Coke Calciner Using NEC's Recommendations

Capital Costs ($)	45,700,000
Annual Operating Costs ($)	734,188
Present Worth Values ($)	58,857,089
Cost Effectiveness ($/ton)	23,036

12.3 Comparison of Costs and Cost-Effectiveness

In calculating the overall cost effectiveness using NEC's data for the project, staff 1) excluded cost-ineffective scenarios (cost effectiveness more than $50,000 per ton emission reduced), and 2) excluded the scenarios where emission targets already had been met.

Present Worth Values (million dollars) = (81.29+114.58+84.08+109.33) for FCCUs + (76.15+110.46) for SRU/TGs + 58.86 for coke calciner + (2.64+29.70) for sulfuric acid + 8.83 for glass + 62.1 for cement kilns = 389.29 + 186.62+58.86+ 32.34 + 8.83 + 62.09
= $738 million.

Emission Reductions (tons per day) = (0.58+0.28+0.20+0.94) for FCCUs + (0.17+0.29) for SRU/TGs + 0.28 for coke calciner + (0.03+1) for sulfuric acid + 0.19 for glass + 0.25 for cement = 2.01 + 0.46 + 0.28 + 1.03 + 0.19 + 0.25 = 4.22 tpd

Cost Effectiveness = 738.02 millions / (4.22 tpd x 365 days per year x 25 years) = $15,516 per ton SOx reduced = **$19 K per ton**

A comparison between the total present worth values estimated by ETS/AEC, NEXIDEA and staff's estimates based on NEC's recommendations is shown in Tables 12-7 and 12-8.

TABLE 12-7
Comparison of Costs for Scenario 3A of Staff's Proposal

		ETS/AEC and NEXIDEA		Norton Engineering (NEC)	
Equipment Category	**Proposed Standard (ppmv)**	**Emission Reductions from 2005 Baseline (tpd)**	**Present Worth Values ($ Million)**	**Emission Reductions (tpd)**	**Present Worth Values ($ Million)**
Sulfuric Acid	10	1.03	19	1.03	32.34
Glass	5	0.19	8.83	0.19	8.83 (as ETS)
Calciner	10	0.28	25.3	0.28	58.86
Cement	5	0.25	43.7	0.25	62.09
FCCU	5	2.01	359	2.01	389.28
SRU/TG	5	0.60	174	0.45	186.61
Total		**4.36***	**629.83**	**4.21**	**738.02**

*The total emission reductions from 2005 baseline are 5.36 tons per day which include the 1.00 tons per day early reductions already in place for FCCU to meet R1105.1 requirement and SRU to meet other regulatory requirement.

TABLE 12-8
Comparison of Cost Effectiveness for Scenario 3A of Staff's Proposal

Equipment Category	**Proposed Standard (ppmv)**	**Cost Effectiveness and Cost Effectiveness Range ($/ton) Based on ETS/AEC/NEXIDEA**	**Cost Effectiveness and Cost Effectiveness Range ($/ton) Based on Input from NEC**
Sulfuric Acid	10	2,016 (1,896 – 5,556)	3,431 (~~2,833~~3,255 – 8,768)
Glass	5	5,198	5,198 (ETS's estimate)
Coke Calciner	10	9,902	23,036
Cement	5	19,300	27,402
FCCU	5	19,652 (12,849 – 42,103)	21,271 (12,782 – 45,120)
SRU/TG	5	31,455 (12,880 – 39,000)	44,514 (41,563 – 49,626)
Weighted Average		**15,845**	**19,199**

The analyses above indicated that the overall costs and cost effectiveness recalculated based on input from are within +20% of ETS/NEXIDEA's estimates. Staff concluded that ETS Inc. and NEXIDEA's estimates are valid.

12.4 Cost Effectiveness for Scenario 4 and Scenario 5

Scenario 4 – In this scenario, as shown in Table 12-9, SRU/TG will not be subject to new BARCT:

Present Worth Values using ETS/AEC and NEXIDEA's costs = $455.83 million
Emission reductions = 3.76 tons per day
Cost effectiveness = $13.29 K per ton ($16 K per ton if using NEC's data)

TABLE 12- 9
Costs and Cost Effectiveness for Scenario 4

Equipment Category	Proposed Standard (ppmv)	Emission Reductions from 2005 Baseline (tpd)	Present Worth Values ($ Million)
Sulfuric Acid	10	1.03	19
Glass	5	0.19	8.83
Calciner	10	0.28	25.3
Cement	5	0.25	43.7
FCCU	5	2.01	359
SRU/TG	N/A	0.00	0.00
Total		**3.76***	**455.83**

*One ton per day reduction from 2005 baseline is already in place for an FCCU and a SRU/TG

Scenario 5 – In this scenario, as shown in Table 12-10, there will be no BARCT for SRU/TGs, FCCUs, and cement kilns. This scenario is intended to mimic the reduction estimated in the 2007 AQMP. The emission reductions of 1.5 tpd from 2005 is equivalent to approximately 3.23 tpd RTC reductions due to the unused RTCs available in the market (1.5 tpd emission reductions + 1.73 tpd unused RTCs = 3.23 tpd)

Present Worth Values using ETS/AEC and NEXIDEA's costs = $53.13 million
Emission reductions = 1.50 tons per day
Cost effectiveness = $3.88 K per ton ($7.31 K per ton if using NEC data)

TABLE 12- 10
Costs and Cost Effectiveness for Scenario 5

Equipment Category	Proposed Standard (ppmv)	Emission Reductions from 2005 Baseline (tpd)	Present Worth Values ($ Million)
Sulfuric Acid	10	1.03	19
Glass	5	0.19	8.83
Calciner	N/A	0.28	25.3
Cement	N/A	0.00	0.00
FCCU	Tier 1	0.00	0.00
SRU/TG	N/A	0.00	0.00
Total		**1.50**	**53.13**

*One ton per day reduction from 2005 is already in place for an FCCU and a SRU/TG

12.5 Incremental Cost Effectiveness

To assess the incremental cost effectiveness as required under H&SC §40440.11, staff proposal is compared to the most stringent proposal proposed by the consultants. Comparing the consultants' proposal (including modifications for fuel gas treatment system) and staff's current proposal (not including modifications for fuel gas treatment system), the cost attributed to an additional 1.17 tpd incremental emission reductions was $377 million, which translated to **an incremental cost effectiveness of $35K per incremental ton SOx reduced**. [68] This significantly high level of incremental cost between the two options was the driving force leading staff to select the BARCT levels in Scenario 3. In staff assessment, the BARCT levels in Scenario 3 seeks to optimize the efficacy of the staff proposal - maximizing emission reductions and balancing the requirements for additional controls with economic impacts. The BARCT levels in Scenario 3 finally reflect "*... emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source."* as required by California Health and Safety (H&S) Code §40406.

12.6 Comparison of Cost Effectiveness to Other Rules Adopted by the Governing Board

The weighted average cost effectiveness of staff's proposal is approximately $15K - $19K per ton of SOx reduced, or equivalent to $1K - $1.3K per ton NOx reduced, or $10K – $13K per ton PM2.5 reduced. [69]

The cost effectiveness factors should only be used as a relative measurement for comparison. Table 12-~~3~~11 shows a comparison between the cost effectiveness derived for the 2009 SOx RECLAIM to the cost effectiveness of the 2005 NOx RECLAIM and other command-and-control rules.

As shown in this table, controlling SOx to the BARCT levels proposed by staff would result in cost effectiveness which mostly falls within, or lower than, the range of the rule cost effectiveness approved by the Governing Board in the past.

[68] Incremental cost effectiveness = (1,007 – 630) million dollars / ((6.53 – (6.20 - 0.85)) tpd x 365 days per year x 25 years) = $ 35,312 per ton.

[69] Staff used the following equivalency factor: 1 ton of SOx reduced will have the same effect as 15 tons of NOx reduced, or 1.5 tons of PM2.5 reduced (Appendix C of CARB's 2007 SIP Submittal.)

TABLE 12-~~3~~11
Cost Effectiveness Comparison

2009 SOx RECLAIM ($/ton SOx reduced)	Command-Control SOx Rule
Sulfuric acid plant: $2K per ton SOx reduced Glass melting furnace: $5K per ton SOx reduced Coke calciner: $10K per ton SOx reduced FCCUs: $20K per ton of SOx reduced Cement kilns: $19K per ton SOx reduced SRU/TGTUs: $26K per ton of SOx reduced Project Overall: $13K per ton SOx	Flares: $5K - $9K per ton of SOx reduced (Rule 1118 amended 11/4/05)
2009 SOx RECLAIM ($/equivalent ton NOx reduced) (1)	**2005 NOx RECLAIM**
Sulfuric acid plant: $133 per ton NOx reduced Glass melting furnace: $333 per ton NOx reduced Coke calciner: $700 per ton NOx reduced FCCUs: $2K per ton NOx reduced Cement kilns: $2K per ton NOx reduced SRU/TGTUs: $3K per ton NOx reduced Project Overall: $1K per ton NOx reduced	Metal melting/heat treating and miscellaneous combustion: $4K – $11K per ton of NOx reduced Industrial boilers: $9K - $10K per ton FCCUs, refinery boilers/heaters: $11K-$17K per ton
2009 SOx RECLAIM ($/equivalent ton PM2.5 reduced) (1)	**Command-Control PM Rules**
Sulfuric acid plant: $1K per ton PM2.5 reduced Glass melting furnace: $3K per ton PM2.5 reduced Coke calciner: $6.5 K per ton PM2.5 reduced FCCUs: $13K per ton PM2.5 reduced Cement kilns: $12K per ton PM2.5 reduced SRU/TGTUs: $17K per ton PM2.5 reduced Project Overall: $9K per ton PM2.5 reduced	FCCUs: $13K-$23K per ton filterable PM, $3-$5K per ton filterable and condensable (Rule 1105.1, adopted 11/7/03) Coke/Coal/Sulfur Handling: $3-$30K per ton PM10 (Rule 1158, amended 6/11/99)

1) The comparison in this table uses the following equivalency: of 1 ton of SOx reduced has an equivalent effect to 15 tons of NOx reduced, or 1.5 tons of PM2.5 reduced provided in Appendix C to CARB's 2007 SIP Submittal.

Chapter 13 – RTC Reductions & Implementation

13.1 RTC Reductions Estimated from 1997 Baseline

Staff applied the same methodology used for NOx RECLAIM to estimate the projected year 2019 SOx emissions for the entire SOx RECLAIM universe as follows:

Projected Emissions at New BARCT Levels = (1997 Baseline x Growth Factor$_{2019}$) x New BARCT Adjustment Factor (or Tier 1, if no new BARCT is recommended)

Where:

Projected Emissions at New BARCT Levels = Emissions in year 2019 at new BARCT levels.
1997 Baseline =Actual emissions from July 1, 1997 – June 30, 1998. [70]
Growth Factor$_{2019}$ = Growth factor from 1997 – 2019 for each facility
New BARCT Adjustment Factor = New BARCT Emission Factor / Starting Emission Factor (in Table 2 of Rule 2002)

Staff applied the 10% upward adjustment factor to the 2019 projected emissions at new BARCT levels, and calculated the year 2019 RTC reductions for each of the scenarios described in Chapter 13 as follows:

Programmatic RTC Reductions = 11.77 - [Projected Emissions at New BARCT Levels x 10% Compliance Margin]

Where:

Projected Emissions at New BARCT Levels = Remaining emissions of the entire SOx universe in year 2019

The entire SOx RECLAIM universe was captured in this approach. In this approach, it was assumed that the year 1997 emission rates were similar to the starting emission factors. Staff estimated the projected remaining 2019 emissions, the RTC reductions and the percent reductions for the scenarios outlined in Chapter 12: Scenario 1 represented the impacts of the most stringent control measures, Scenario 2 represented the impacts based on the consultants' recommendations, Scenario 3A reflected staff's recommendations, Scenario 3B and Scenario 4 are alternatives to staff's proposal, and the last Scenario 5 is to get the minimum of 3 tons per day reductions. The RTC reductions for Scenario 3A, 4 and 5 are summarized in Table 13-1. Scenarios 1 and 2 will result in more than 70% RTC reduction, and Scenario 3B will result in approximately the same shave as Scenario 3A.

[70] In this analysis, staff used the actual CEMS reported emissions from July 1, 1997 – June 30, 1998. The period used in the 2003 AQMP is from July 1, 1996 – June 30, 1997. According to the RECLAIM Annual Audit Reports based on the CEMS data, the inventory for the compliance year 1996 was 6,484 lbs (17.76 tpd), and the inventory for the compliance year 1997 was 6,464 lbs (17.71 tpd). Since there is very little difference between the two inventories, staff believes that the results presented here, even for the 1997-1998 period, would reflect the 1996-1997 period as well.

As a result of the current BARCT analyses, staff proposal is to reduce the RTC holdings by 6.14 tons per day (55% reduction of the current 11.77 tons per day RTC holdings) to ensure that the SOx market incentive program will *"achieve an equivalent or greater level of emission reductions at an equivalent or lower cost as would have been achieved under a command-and-control rule"* as required by California H&S Code §39616.

In addition, staff proposes a eight-year implementation program to get 6.1 tpd RTC reduction:

- 1.5 tons per day reductions in Compliance Year 2012
- 1.5 tons per day reductions in Compliance Year 2013
- 1.5 tons per day reductions in Compliance Year 2014
- 0.32 ton per day reductions in Compliance Year 2015
- 0.32 ton per day reductions in Compliance Year 2016
- 0.32 ton per day reductions in Compliance Year 2017
- 0.32 ton per day reductions in Compliance Year 2018
- 0.32 ton per day reductions in Compliance Year 2019

The first 4.5 tons per day reduction will meet and then exceed the commitment under the 2007 AQMP, to help the Basin achieve the federal annual average PM2.5 standard by 2014. The remaining reductions will help the Basin to achieve the federal 24-hour average standard by 2020.

It should be noted that the difference between the RTC holdings of 11.77 tons per day and the actual emissions of 9.22 tons per day in year 2008 is about 2.55 tons per day. This margin can be proven quite useful in meeting the proposed emission reductions during the initial phase of implementation. The remaining tons per day actual emission reductions in compliance year 2014 and beyond must be generated by implementing additional control measures. Assuming the rule is adopted in 2010, a 4 to 5-year window is likely needed to implement all control measures recommended by staff and the consultants. The consultants estimated about 2 - 3 years for implementation. An additional 2 years may be needed to reconcile the turn-around for some refineries in the District. To ease the implementation of this large project, especially to ease some environmental/energy impacts that may occur, staff recommends spreading the tons per day RTC reductions into eight years, from 2012 to 2019.

TABLE 13-1 - RTC Reductions Estimated From 1997 Baseline

Equipment Type	AQMP Method - Projected to 2019											
	Audited 97-98 Fiscal tpd	Growth Factor 1997-2019	2019 with growth	Scenario 3 - Staff's Proposal			Scenario 4 - Intermediate			Scenario 5 - AQMP		
				BARCT Adj Factor	ReM	ReD	BARCT Adj Factor	ReM	ReD	BARCT Adj Factor	ReM	ReD
FCCUs	**5.68**	1.00	5.68	0.06	0.34	5.34	0.06	0.34	5.34	0.26	1.48	4.20
SRU/TG	**2.03**	1.00	2.03	0.63	1.28	0.75	1.00	2.03	0.00	1.00	2.03	0.00
Coke Calciner	**1.31**	1.00	1.31	0.05	0.07	1.25	0.05	0.07	1.25	0.05	0.07	1.25
Sulfuric Acid	**1.06**	1.30	1.37	0.04	0.05	1.31	0.04	0.05	1.31	0.04	0.05	1.31
Glass Melting Furnace	**1.71**	1.45	2.48	0.01	0.02	2.45	0.01	0.02	2.45	0.01	0.02	2.45
Cement Kilns	**0.53**	2.58	1.36	0.74	1.01	0.35	0.74	1.01	0.35	1.00	1.36	0.00
Boilers/Heaters	**6.11**	1.00	6.11	0.20	1.22	4.88	0.20	1.22	4.88	0.20	1.22	4.88
Total Major Equipment	**18.42**	1.10	20.33		3.99	16.34		4.74	15.59		6.23	14.10
Others	**1.06**	1.11	1.18		1.18			1.18			1.18	
Total Remaining In Year 2019 With Growth (Minus 0.054 tpd reductions from R431.1 & R431.2 for AQMP Method)				**5.12**			5.87			7.36		
1.1 x (Total Remaining)				**5.63**			6.45					
RTC Reduction in Yr 2019 w 1.1 Factor = 11.77 - (1.1xTotal Remaining)				**6.14**			5.32					
For alternative shave, % reduction w 1.1 = (shave/11.09)				**55%**			48%					
RTC Reduction in Year 2019 w/o 1.19 Factor = 11.77 - (1.19*Remaining)										3.00		
% Reduction Across Universe w/o 1.1 to compare w AQMP = (shave/11.78)										25%		

13.2 Alternative Shave

As a result of staff's analysis in Section 13.1, the overall proposed shave is approximately 52% across the 32 facilities in the SOx universe. Staff received comments from the 22 facilities with no equipment subject to new BARCT indicating that the uniform shave was not equitable, and would create significant difficulties for them to stay in compliance, and indicated that they had limited ability to buy RTCs from large facilities

Because of the non-uniform characteristics (actual emissions and RTC distributions) of the SOx RECLAIM market (11 major facilities hold 87% RTCs and contribute more than 90% of emissions, and the remaining 21 facilities hold only 6% RTCs and contribute about 7% of emissions), uniform percent shave across the board is not the ultimate solution. The 21 facilities that have no equipment subject to the new BARCT cannot reduce their emissions further and cannot sustain operation and remain in compliance after the shave. To keep the 21 facilities active in the SOx market, staff is proposing to not shave the RTC holdings for these facilities if the RTC holdings are below their initial allocations provided to these facilities at the start of the RECLAIM program. However, the amount of RTC holdings above their initial allocations will be shaved at the same rate as other 11 facilities and investors. With this approach, staff estimated that instead of shaving across the board, the 11 facilities will have a shave of 55%, 18 of the 21 facilities will be exempt totally from the shave, and 3 of the 21 facilities that have RTC holdings above their initial allocations will be shaved to the initial allocation levels. Any traded RTCs from August 29, 2009 to the date of adoption will also be shaved at the rate of the 11 facilities.

The results of this analysis are presented in Table 13-2

13.3 RTC Reductions Estimated from 2005 Baseline

One of the elements included in the Work Plan presented to our Governing Board in January 2010 is the commitment for staff to work closely with the Western States Petroleum Associations (WSPA) and its members in evaluating its alternative proposal. Staff held numerous meetings with WSPA and its members on this subject. As part of its proposal, on July 30, 2010, WSPA and the refineries proposed the 2005 baseline to be used to estimate the RTC reductions arguing that the 2005 baseline has been used to estimate cost effectiveness by the consultants and the 2005 emissions represent the most current emission profile for SOx RECLAIM. In addition, WSPA and its members proposed to exclude RTCs converted from ERCs (1.98 tons per day) from any future shave. WSPA's proposal was obscure and did not show how the RTC reductions were related to actual emission reductions estimated from the 2005 baseline. It seems that WSPA's position was to treat RTC reductions as equivalent to actual emission reductions, ignoring the surplus RTCs in the market. Before July 2010, WSPA proposed a 25% shave characterized as an emission reduction shave. On August 18, 2010, WSPA revised its proposal agreeing to 33% shave (3.9 tpd) across the board by the end of 2019. On September 16, 2010, WSPA again revised its proposal agreeing to 40% shave (4.7 tpd) across the board by the end of 2019. [71] In order to fully understand WSPA's proposal and provide meaningful

[71] WSPA's presentation to staff on July 30, 2010 and August 18, 2010; WSPA's proposal to Barry Wallerstein on September 16, 2010; and WSPA's presentation at the Refinery Committee Meeting on September 22, 2010.

comments to WSPA, staff contacted WSPA several times since July 30 to ask for an explanation on its methodology, specifically how to calculate the percent shave and RTC reductions from actual emission reductions. Unfortunately, WSPA offered very limited explanation to staff. To keep the project moving in a positive direction, staff provides the following initial comments on WSPA's proposal.

SOx RECLAIM started in 1993 and the initial allocations (or RTCs) provided to the RECLAIM facilities were ample, generally more than the amount that they emitted. The surplus of RTCs in 2005 is about 1.73 tons per day and the surplus of RTCs in 2008 is about 2.55 tons per day. The amount RTCs converted from ERCs contributed to the size of the surplus. For the RECLAIM facilities to actually install BARCT and reduce "real" emissions, the surplus RTCs must be removed. RTCs reflect the "Potential to Emit" and thus even though RTCs carry the same unit (i.e. in lbs SOx) as actual emissions, they represent different "currencies" than actual emissions. To fully demonstrate command-and-control equivalency due to the implementation of BARCT, due to the surplus, the amount of RTC reductions should be more than the amount of actual emission reductions and the percent reduction estimated using RTCs should be higher than the percent reduction estimated using actual emission reductions.

It seems that the proposal by WSPA and its members calls for the calculation of the percent shave by taking the ratio of the actual emission reductions estimated off the 2005 baseline emissions over the RTCs held in the market excluding any RTC converted from ERCs (1.98 tpd) at the inception of the RECLAIM program for which WSPA argued that should be excluded from any future shave. Staff acknowledges that the 2005 year emissions were used as a baseline by the consultants to formulate their recommendation on feasibility and cost of controls because they reflected the most recent year emission profile available at the time. However, dividing the "emission reductions" estimated off the 2005 baseline by the RTCs to derive the percent reduction amounts to using two different "currencies" to compute a percent figure. This approach will not yield a result that can be used to demonstrate equivalency to command-and-control. Staff uses the "remaining emissions", a constant currency, to calculate the amount of shave and to compare with a command-and-control program.

Furthermore, WSPA and the refineries proposed to exclude RTCs converted from ERCs (1.98 tons per day) from any future shave which is inconsistent with the RECLAIM program. As explained above, the RTCs converted from ERCs (1.98 tons per day) is a layer of cushion added to the surplus. Integrating the shave through this layer of surplus is one of the RECLAIM approach since the start of the program in 1993. The RTCs converted from ERCs were shaved approximately 35% from Tier 1 to Tier 2 to match AQMP emission budgets for the RECLAIM program. It was clearly the Board's policy to achieve programmatic equivalency with command & control without providing a special status to ERC converted to RTCs. When NOx program was shaved in 2005, ERCs converted to RTCs were treated the same as regular RTCs. Future economic growth was included in the emission projection. The RTCs converted to ERCs have also been used by many of the RECLAIM facilities in lieu of their emission reductions requirements under Tier 1 BARCT, which is not allowed for non-RECLAIM facilities. Therefore, it would be appropriate to include these RTCs in the future shave, retain equivalency with command and control, and attain the air quality objectives of the region. In addition, for non-RECLAIM facilities, the emissions from shutdown equipment are required to be discounted to BACT level, before ERCs can be issued. Furthermore, new or modifying non-RECLAIM facilities undergoing New Source Review (NSR) are required to offset any emission increase for SOx and NOx by a 1.2 to 1.0 ratio. On the other hand, RECLAIM facilities undergoing

NSR are not subject to the 1.2 to 1.0 offset ratio that non-RECLAIM facilities are. The following table summarizes the comparison between ERC generation and use between RECLAIM and non-RECLAIM program. Considering all of the above facts plus the benefits incurred by the RECLAIM facilities utilizing such RTCs during the 17-year life of the program since 1993, staff believes that the 1.98 tons per day RTCs converted from ERCs do not deserve a special status, and thus the 1.98 tons per day RTCs converted from ERCs, which add to the RTC surplus, should be subject to the future RTC shave of 55%. In summary:

	Non-RECLAIM	RECLAIM
Usable in lieu of BARCT	Yes	No
BACT Discount	No	Yes
Offset Ratio 1.2 to 1.0	Yes	No

TABLE 13-2 – Shave Adjustment Factors for Staff's Proposal – 55% Shave in 2019

Year 2012 RTC Inventory as of August 29, 2009

11 major	21 others	investors	total
10.21	**0.73**	**0.83**	**11.77**

Three of 21 facilities have RTC holdings larger than initial allocations by a total of 0.05 tpd

Therefore, non-shaved portion for 22 facilities - 0.73 - 0.05 = 0.68 tpd

Estimation of Adjustment Factors for Rule 2002

	RTC subject to shave for 11 major facilities, 3 of the remaining 21 facilities, and investors	RTC Non-Shaved Portion	RTC Reduction for the following year	RTC for Shave	Adjustment Factor for next year	TOTAL (total for shave + non-shaved)
Start Year 2011	11.09	0.68		11.09		11.09+0.68=11.77
End Year 2011			1.5	11.09-1.5=9.59	9.59/11.09=0.865	
Start Year 2012	11.09x0.865=9.590	0.68		9.59		10.27
End Year2012			1.5	9.59-1.5=8.09	8.09/11.09=0.729	
Start Year 2013	11.09x0.729=8.090	0.68		8.09		8.77
End Year 2013			1.5	8.09-1.5=6.59	6.59/11.09=0.594	
Start Year 2014	11.09x0.594=6.590	0.68		6.590		7.27
End Year 2014			0.32	6.59-0.32=6.27	6.27/11.09=0.565	
Start Year 2015	11.09x0.565=6.27	0.68		6.270		6.95
End Year 2015			0.32	6.27-0.32=5.95	5.95/11.09=0.5365	
Start Year 2016	11.09x0.537=5.96	0.68		5.960		6.63
End Year 2016			0.32	5.96-0.32=5.635	5.635/11.09=0.508	
Start Year 2017	11.09x0.508=5.635	0.68		5.635		6.31
End Year 2017			0.32	5.635-0.32=5.315	5.315/11.09=0.479	
Start Year 2018	11.09x0.479=5.315	0.68		5.315		5.99
End Year 2018			0.32	5.315-0.32=4.995	4.995/11.09=0.45	
Start Year 2019	11.09x0.45=4.99	0.68		**4.99**		**5.67**
End Year 2019			0			
	Total reduction in 8 years (2012-2019)		**6.100**			

Summary

RTC HOLDINGS	RTC subject to shave	Non-shaved	Total
Starting	11.09	0.68	**11.77**
Ending (Remaining)	4.99	0.68	**5.67**
Reduction	6.10	0.00	**6.10**
% reduction	**55.0%**	**0%**	

This table includes the following RTC Holdings: 10.21 tpd from 11 major facilities, 0.05 tpd from 3 of the remaining 21 facilities, and 0.83 tpd from investors

Chapter 14 – Comments & Responses

Responses to WSPA's Comments Received in Refinery Committee Meeting on October 14, 2010

Comment #1:
At the Refinery Committee Meeting on October 14, 2010, WSPA commented that staff is required by the California H&SC §40406 to estimate the cost-effectiveness numbers by each class or category of source, and that staff should not pre-exclude the cost-ineffective scenarios of more than $50,000 per ton SOx reduced in estimating the weighted average cost effectiveness for the project.

Response #1
The California H&SC §40406 does not specifically dictate where in the calculation process staff should exclude the cost-ineffective scenarios. However, in response to WSPA's comment, staff estimated the weighted average cost effectiveness for each class or category of sources regardless of each of the individual cost-effectiveness numbers. Tables 1 and 2 below show the costs and cost-effectiveness for each individual class or category of sources and the overall weighted average cost-effectiveness for the project. The weighted average cost effectiveness for the project ranges between $19K per ton based on ETS/AEC and NEXIDEA data and $22K per ton based on NEC data (see Note 2 of Table 1) and does not alter staff's conclusions regarding proposed BARCT.

Table 1 - Present Values

		ETS/AEC and NEXIDEA		Norton Engineering (NEC)	
Equipment Category	Proposed Standard (ppmv)	Emission Reductions (tpd)	Present Values ($ Million)	Emission Reductions (tpd)	Present Values ($ Million)
Sulfuric Acid	10	1.03	19	1.03	32
Glass	5	0.19	8.83	0.19	8.83
Calciner	10	0.28	25.3	0.28	59
Cement	5	0.25	43.7	0.25	62
FCCU	5	3.07	567	3.07	590
SRU/TG	5	0.95 (note 1)	318	0.95	404 (note 2)
Total		5.76	981	5.76	1,156

Note: (1) Refinery 3 has three existing sulfur plants vented to two tail gas units. ETS/AEC recommended Emerachem technology for the first unit at a cost effectiveness of $12,880/ton and 0.15 tpd reductions, and a WGS for the second unit at a cost effectiveness of $32,109/ton and 0.12 tpd reductions. In the final report, ETS/AEC selected Emerachem for the first tail gas unit because it was more cost-effective than WGS for the second tail gas unit. In this exercise, staff included ETS/AEC's costs for both tail gas units at Refinery 3. (2) NEC did not re-estimate the costs for (i) the WGS for the second unit of Ref 3, (ii) the Emerachem for Ref 1 of which the emission reductions were already achieved, and the Emerachem for Ref 4, and (iii) the WGS for Ref 5 since. This task was not in the NEC's contract. To complete this analysis, staff substituted ETS/AEC information for these situations in which NEC did not provide a cost estimate.

Table 2 – Cost Effectiveness

Equipment Category	Proposed Standard (ppmv)	Cost Effectiveness ($/ton) Based on ETS/AEC/NEXIDEA	Cost Effectiveness ($/ton) Based on Input from NEC
Sulfuric Acid	10	2,016	3,431
Glass	5	5,198	5,198
Coke Calciner	10	9,902	23,036
Cement	5	19,300	27,402
FCCU	5	20,251	21,088
SRU/TG	5	36,734	46,709
Weighted Average		18,664	21,992

Responses to INTERCAT's Comments Received on October 10, 2010

INTERCAT®
Guido W. Aru
Director of Sales – North America

Dr. Laki Tisopulos
Assistant Deputy Executive Officer
Planning, Rule Development and Area Sources
South Coast Air Quality Management District
2185 E. Copley Drive
Diamond Bar, CA 91765-4182

October 10, 2010

Subject: Achieving 5ppm SOx emissions from FCC units with SOx additives.

Dear Dr. Tisopulos,

Comment #1

Thank you for the opportunity to comment on the ability of FCC SOx emissions reduction catalysts to meet the proposed new AQMD regulatory amendments requiring 5 ppm SOx emissions from refinery FCC units.

It is INTERCAT's opinion, based on analysis of the commercial use of our SOX reduction additives by refineries that the five FCC units operating in the district without wet gas scrubbers could use our Super SOXGETTER SOx reduction additive to achieve 5 ppm SOx emissions. We believe that this can be done without impact to FCC processing rates and yields or to PM emissions from the refinery ESP units – ammonia injection may be required in some units to maintain PM compliance. We base this opinion on our experience delineated below along with our understanding of the FCC units and their feed characteristics. Each refiner could and should conduct their own assessment, and we would recommend short-term trials of SOx reduction additives to measure their performance and prove their feasibility for meeting the proposed emission limits for each FCC unit.

We have also included comments on the proposed amendments to Regulation XX - RECLAIM along with our opinions and observations comparing and contrasting SOx reduction additives with wet gas scrubber technology.

INTERCAT is the leading supplier of SOx reduction catalysts used in FCC units, with over 70% market-share worldwide. INTERCAT's additives have been used in over 80% of the nearly 40 EPA Consent Decree SOx reduction demonstration tests conducted to date. We currently supply our SOx additives to over 50 FCC units, enabling these refiners to meet a variety of emissions limits, many as low as 25 ppm.

During the EPA Consent Decree testing program, many FCC units achieved SO_2 emissions of 5 ppm as the testing protocols required SOx additive additions at a minimum of 5% of catalyst makeup. This resulted in refiners using more additive than required to meet the 25 ppm SO_2 targets of the EPA process. Recently, three FCC units

PO Box 412, Sea Girt, NJ USA 08750 · +1 732-223-4644 · +1 732-223-3447 (FAX) · garu@intercatinc.com

have conducted short-term testing using our Super SOXGETTER additive to determine if 5 ppm SO_2 emissions can be achieved – all three met this target.

The Consent Decrees also required several refiners to add as much as 10% SOx reduction catalyst, and one refinery has been required to use 20% SOx additive (our Super SOXGETTER additive) for the past several years. No refiners have reported any impact to their FCC yields or feed processing rates – most Consent Decrees had clauses that would limit additive additions should either occur. Particulate Matter (PM) emissions limits have also been maintained by these refiners, with some requiring operational changes to their PM control equipment such as ammonia injection for ESP units.

It is important to understand that ammonia injection is required as a surrogate to the SO_3 that is being removed from the FCC flue gas when SOx emissions are reduced to low levels (< 25 to 50 ppm). SO_3 and NH_3 both act to reduce the resistivity of FCC base catalyst particles to the optimal level for collection in the ESP. Without these gases, the resistivity of these particles is too high for optimal ESP performance. Increases in PM emissions from units with ESPs operating at low SOx levels is the result of losses of FCC base catalyst, not SOx additives – SOx additives have optimal resistivity for collection in ESP units, especially as they exit the regenerator and are in the sulfated state.

With regard to the proposed amendments, we would offer the following comments:

1. Refinery Continuous Emissions Monitors (CEMs) measure SO_2, not SOx. Other forms of SOx in the FCC stack, such as SO_3, are minor components usually estimated at less than 5%. Measurement of such species on a continuous basis would be costly and likely unreliable. Therefore, we would recommend the applicable protocol be written as 5 ppm SO_2.
2. While both SOx additives and wet gas scrubbers would enable the refiners to meet 5 ppm, sudden feed changes, FCC unit upsets or problems with the wet gas scrubber could cause this limit to be exceeded on a short-term basis. The EPA accounted for this by specifying their 25 ppm limit as a 365 day rolling average and allowing a higher 7-day rolling average. We would recommend that the 5 ppm be specified as a 365 day rolling average, and the refiners be allowed a higher 7-day rolling average, such as 50 ppm, to account for any excursions.

Comment #2

As compared with wet gas scrubbers, we believe that our Super SOXGETTER SOx reduction additive offers a better solution for the refineries, the SCAQMD and the interests of the general public to meet the proposed 5 ppm SOx rule. Specifically:

1. All five refiners have facilities to inject SOx reduction catalyst at this time, thus no capital expenditures are required; this compared with estimates of $500 million to over $1 billion for wet gas scrubbers at all five refineries.
2. Because all the refiners have the capability to use additives now, they could begin compliance with lower SOx emissions levels virtually immediately and phase-in a

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5 ppm emissions level. Wet gas scrubbers will require significant time to permit and construct.

3. No additional plot space in the refinery will be required to use a SOx additive, whereas significant space is required to install a wet gas scrubber and the associated equipment.
4. Water consumption by the refineries will not increase with the use of SOx reduction additives, as compared with the significant water consumption required by wet gas scrubbers.
5. There will be no aesthetic changes to the refineries when using SOx reduction additives, compared with installation of wet gas scrubbers which will add visible equipment and large steam plumes.
6. Using SOx reduction additives creates a recoverable product, elemental sulfur, which is recovered and sold by the refinery, compared with wet gas scrubbers which convert an air pollutant into a water pollutant.
7. Using SOx reduction additives will not increase green house gas emissions from the refineries, compared with wet gas scrubbers that require power to operate and significant energy should reheat be required to eliminate the visible steam plume (as was required at Valero, Benicia).
8. Using SOx reduction additives will not orphan the significant investment the refiners have made in ESP units for compliance with SCAQMD Rule 1105.1, equipment which would likely be abandoned if the refiners install wet gas scrubbers.
9. SOx reduction additives will not require the transportation or use of hazardous materials, such as the over 13 tons/day of NaOH that would be transported to and used by the refineries if they all implement wet gas scrubbers.
10. SOx reduction additives continue to evolve and improve in their performance and cost for SOx removal. Wet gas scrubbers offer a fixed technology, and any performance improvement would likely require a significant capital investment.

Comment #3

Thank you again for the opportunity to comment on the proposed regulatory amendments. Please call me if you have any questions or require any further information.

Very Truly Yours,

Guido Aru
Director of Sales – North America
INTERCAT, Inc.

Response #1

Staff appreciates the commenter for informing staff that it is technologically feasible for INTERCAT SOxGETTER to achieve 5 ppm SOx without impacting adversely ~~to~~the FCC processing rates and yields or PM emissions from the refinery ESPs. Staff also appreciates the commenter for providing the information about the performance with INTERCAT SOxGETTER that 1) three refineries recently conducted short-term testing with INTERCAT Super SOXGETTER and all three refineries achieved 5 ppmv SO2, and 2) many other FCCUs have already achieved 5 ppmv demonstrated through the EPA testing protocols during the EPA Consent Decree testing program. Staff is in agreement with the commenter that each refiner should conduct short term testing to measure the performance of INTERCAT SOxGETTER (or Super SOxGETTER) prior to long term use. A short term testing was conducted at a refinery in the District in 2008, and during a three-month testing period, the refinery showed that their FCCU could achieve 7 ppmv SOx at about 6% - 7% catalyst addition rate without negative impacts to FCC processing rates, FCC yields, or PM emissions. Since this was a short-term testing and there were no legal requirements to achieve 5 ppmv, the refinery stopped the testing at 7 ppmv. Had this refinery continued the testing process, it would very likely demonstrate the proposed BARCT standard 5 ppmv level at a slightly higher addition rate than 6%-7%.

Furthermore, staff acknowledges that ammonia and SO3 can be used to reduce the resistivity of particulate matters and enhance the capture of particulate matters in the ESPs. However, please note that SCAQMD Rule 1105.1 contain two standards: (1) a filterable PM10 standard of 0.005 grain per dry standard cubic foot of flue gas corrected to 3% O_2 dry (or 3.6 lbs pounds per hour, or 2.8 pounds per thousand barrels of fresh feed); and (2) an ammonia slip standard of 10 ppmv, corrected to 3% O_2 dry, averaged over 60 consecutive minutes. The ammonia slip standard is to minimize the condensable particulate emissions from the FCCU. Therefore, using ammonia in the ESPs which results in a slip of more than 10 ppmv ammonia is not allowed. Staff would highly encourage the manufacturers of SOx reducing additives to continue their research to identify ways to reduce the resistivity of SOx reducing additives at the molecular level, and thus help optimizing the collection of the used catalysts in the ESPs, and minimizing the use of toxic enhancers such as ammonia in the ESPs.

Response #2

The definition #72 in Rule 2000 – General, amended May 6, 2005, states that "*SOx EMISSIONS means sulfur dioxides emitted.*" The BARCT level of 5 ppmv proposed by this rule is based on an annual average (i.e. averaged over 365 days of a compliance year. The compliance year for Cycle 1 facilities is from January 1 to December 31, and for Cycle 2 facilities is from June 1 to July 31.) The facility operator is not required to meet the "equipment-BARCT" level, equipment by equipment, however the facility is required to meet the "programmatic-BARCT" level, which means that the facility must comply with the annual facility cap (and RTC reductions), determined based on the equipment-BARCT level, by the end of the reconciliation period of any compliance year.

Staff does not propose a SOx limit for excursions. Excess emissions during these excursions may be excluded in determining compliance with the facility's annual cap if the facility meets all

the requirements specified under Rule 2004(i). The facility operator must be in compliance with the annual facility cap by the end of the reconciliation period of any compliance year.

Response #3

Staff appreciates the information provided by the commenter on the benefits of using SOx reducing catalysts. Staff is in agreement with the commenter that there are many benefits of using SOx reducing additives: 1) The refineries can use additives virtually immediately to reduce the SOx emissions from their FCCUs; 2) no additional plot space is required; 3) no increase in water consumption; 4) no steam plume; and 5) no increase in energy used and GHG associated with the use of SOx reducing additives.

Regarding the costs and cost-effectiveness, using SOx reducing catalysts will reduce capital expenditures but not necessarily annual operating costs. Staff estimates on costs and cost-effectiveness for SOx reducing catalysts and WGSs are provided in Chapter 12 of the Staff Report.[72] The weighted average cost-effectiveness for WGS to achieve 5 ppmv is approximately $20K per ton (average of 4 refineries that can cost-effectively install WGSs) and the weighted average cost-effectiveness for SOx reducing catalysts is approximately $19K per ton (average of 5 refineries that can cost-effectively use additional SOx reducing catalysts) to achieve 7 ppmv. With the competitiveness of the market and the improvement of SOx reducing technology, the cost-effectiveness numbers for SOx reducing catalysts may improve, and the present worth values of using SOx reducing catalysts may amount to only half the costs for installing WGSs as estimated by the commenter.

It should be noted that staff does not agree with the commenter that the use of WGSs would orphan the significant investment that the refiners had made in the ESPs. ESPs are required to control PM10 emissions while WGSs are to control SOx emissions. Further explanations are provided in Response #1 to WSPA's comment received from March 2010 – August 2010 under the topic discussing about whether or not there is stranded investment of Rule 1105.1.

In addition, staff does not agree with the commenter that the use of WGSs will convert air pollutant into water pollutant. Various types of absorbents (e.g. caustic or lime) can be used to absorb SOx and converts SOx to soluble sulfates (e.g. sodium sulfates) or non-soluble sulfates (e.g. calcium sulfates). These sulfates can be collected and reused, or treated and safely discharged to the waste water stream. As an example, the suspended solid waste and the used catalyst fines from a FCCU's WGS in the District are collected and sold to a cement plant to be reused.

[72] With limited information at this time on the amount of SOx reducing catalysts needed for each FCCU, staff used the information from a refinery in the District that tested SOx reducing catalysts and achieved 7 ppmv in a 3-month period in 2008 to estimate the cost-effectiveness for SOx reducing additives shown in Scenario 3B of Chapter 12. Please note that since this refinery did not use INTERCAT product in 2008, the costs of SOx reducing additives and the quantity needed may be different than those estimated by the commenter.

Furthermore, staff does not agree that the transportation of caustic solution would pose any new transportation hazards. If all five refineries would use SOx reducing additives in lieu of installing WGSs, the NaOH demand would be reduced from 13.24 tons per day to 8.79 tons per day for the SOx RECLAIM project, and as analyzed by CEQA staff, the transportation of additional NaOH would not pose any new transportation hazards: [73]

> *"All of the refineries (Facilities A through G) currently receive NaOH from local suppliers located in the greater Los Angeles area. For the remaining facilities that do not currently use NaOH, but will begin using it, the local suppliers are expected to be able to accommodate the additional demand. As is currently the case with existing NaOH deliveries, deliveries of additional NaOH would be made to each facility by tanker truck via public roads. NaOH is typically delivered in 6,000 gallon trucks, so the proposed project would not introduce any new transportation hazards for NaOH."*

[73] SCAQMD Program Environmental Assessment, Chapter 4, August 2010.

Responses to Owens-Brockway's Comments Received on October 21, 2010

Owens-Brockway Glass Container Inc.
2901 Fruitland Avenue
Vernon, CA 90058
+1 323 586 4200 tel

www.o-i.com

October 21 2010

Mr. Joe Cassmassi
Planning and Rules Manager
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Owens-Brockway Glass Container Inc. - Vernon, CA Facility (SCAQMD ID 7427)
Proposed Amended Regulation XX

Dear Mr. Cassmassi:

On behalf of my colleagues, I write to thank you for your time and attention to the compliance issues that Owens-Brockway Glass Container Inc. ("O-B") faces relative to Proposed Amended Regulation XX – SOx RECLAIM. As we discussed on Wednesday, this letter outlines the key technical issues that OB has identified based on our meeting and the engineering analyses that have been performed by ETS, Inc. and Norton Engineering Consultants (NEC), Inc. relative to further control of SOx emissions from the OB Vernon facility.

Comment #1

1. **The ETS report does not properly state Best Available Retrofit Control Technology (BARCT) level and estimated emission reductions:** The Vernon facility currently employs dry scrubber (Trona injection) coupled with electrostatic precipitators to control SOx and particulate matter, respectively. These controls were installed in 2002 and met District BACT at the time of permitting. As described by District staff, the proposed BARCT would have OB discontinue the use of the current dry scrubbing technology, continue to use the existing electrostatic precipitators, and install a new caustic wet scrubber that achieves 95% control of existing SOx emissions.. The ETS report estimates BARCT at 95 percent control, with sulfur emissions equal to or less than 5 parts per million (ppm). This is incorrect. Without a control device in place (i.e., dry scrubber), SOx emissions from Furnace B and C can range from 200 to 250 ppm. Application of wet scrubber controls with a 95% control efficiency would therefore realize an emission rate that ranges from 10-12.5 ppmv, not 5 ppmv as stated in the ETS report.

Comment #2

2. **Technical feasibility of wet scrubber controls.** As discussed at our meeting, there are no glass manufacturing operations that apply electrostatic precipitators combined with wet scrubber control technology. ETS recommends use of a pack tower as proposed by Vendor B; however, NEC "does not recommend" this technology, and recommends a wet scrubber technology that relies on a large bore injector or Reverse Jet Nozzle to introduce the caustic solution into exhaust gases. Neither report contains engineering evaluations to support the continued efficiency of the ESP to remove particulate, although the removal of the dry scrubber will substantially reduce PM concentrations.

October 21, 2010

Neither report contains an analysis of the new pressure drop introduced by the revised control configuration relative to the operating levels that must be maintained in the furnace. Neither report defines how wastewater streams generated in the new wet scrubber will be managed, although the ETS report suggests four different options and assigns a cost of $225,000 to complete implementation of these alternatives. Neither report provides an analysis of whether BARCT will comply with District New Source Review regulations (BACT for all pollutants, ambient impact analyses and Rule 1401 requirements). Neither report included reasonably anticipated costs such as relocation/recertification of the CEMS, construction of new exhaust/stack systems, permitting costs, etc. Our correspondence to you dated September 21, 2010 provides additional information on these NSR issues.

3. **Assistance in Securing District Approval for BARCT.** Given that no glass manufacturing operation currently applies BARCT as recommended by both engineering reports - ESP plus wet gas scrubbers - we ask for your assistance in securing permit NSR approvals to support BARCT retrofit at the Vernon facility. As I emphasized during our meeting, the OB Vernon facility is committed to compliance with environmental, customer and internal quality requirements. As detailed above and in prior correspondence, there are a number of issues associated with retrofit of BARCT at the OB Vernon. Your assistance will be critical for us to successfully address the proposed SOx shave absent new technology, and current trading prices cannot be accommodated with our cost structure.

Comment #3

Thank you again for the time, attention and courtesy that you and your colleagues extended to us on Wednesday. Please feel free to contact me or Sandra Guzmàn (323) 586-4207) if you have any questions or concerns.

Very truly yours,

Dean Harris

Dean Harris
Plant Manager

cc: Mark Tussing, OB
Wayne Nastri & Howard Berman, Dukto Worldwide
Randolph C. Visser, Esq., Shepard Mullin et al.
Everard Ashworth, ALG

Page 2 of 2

Response #1

Based on recommendations from its two technical consultants and information from other glass melting furnaces elsewhere, staff concluded that ~~T~~today's BARCT for container glass melting furnaces is 5 ppmv outlet concentration, or 95% control or more. This BARCT level is achieved in practice at Saint-Gobain glass container facility in Seattle, Washington. In addition, achieving this level of BARCT is cost-effective. In an effort to determine costs, ETS provided equipment vendors with flue gas flow rates, inlet concentrations, and other necessary parameters. Flue gas flow rate is an important parameter in determining equipment size and costs for the WGS, while inlet concentration is an important parameter in determining the amount of caustic sorbent needed to achieve 5 ppmv outlet SOx concentration and annual operating costs. The present value for two WGSs (25-year life) estimated by ETS was $8.8 million, in which the capital costs were $1.90 million, and the annual operating costs were $0.44 million. ETS estimated a cost-effectiveness of $4,988 per ton SOx reduced. Assuming that Owens-Brockway was correct in stating that their inlet concentration were 200 ppmv-250 ppmv without the use of the dry scrubbers, and assuming that it would need roughly 3 times more caustic solution to reduce a stream of flue gas at 250 ppmv down to a level of 5 ppmv than to reduce from 100 ppmv to 5 pmmv, then the present value of these two WGSs would be conservatively estimated to be $22.5 million and the cost-effectiveness would be $12,988 per ton.[74] At $12,988 per ton, it would still be cost-effective to control the SOx emissions from glass melting furnaces at Owens-Brockway to a BARCT level of 5 ppmv (95% control or more). Thus, the WGS is capable of controlling an exhaust stream at 250 ppm down to 5 ppm (i.e., 98% control efficiency).

Response #2

Staff's responses to the issues raised are as follows:

- Wet gas scrubber is used to control acid gas (SOx) emissions for many decades and there are many types of wet gas scrubber that can reduce 95% or more of SOx emissions from the glass melting furnaces – either a packed bed scrubber recommended by ETS and by Manufacturer A, or an open-throat scrubber recommended by NEC, or a Cloud Chamber scrubber as installed at Saint-Gobain glass facility in Seattle.

- The purpose of SOx RECLAIM is to implement BARCT for SOx, therefore ETS and NEC did not discuss about "primary particulate matter" control in their analyses. However, SOx is a precursor to particulate, and therefore reducing SOx will reduce "secondary particulate matter". Another added benefit of the **ETS**'s proposal is that ETS recommended the removal of the two dry scrubbers upstream of the ESPs. Reducing the Trona used in the two dry scrubbers to zero will substantially reduce the primary particulate loadings to the ESPs, save energy, and annual operating costs. These savings have not yet been factored in ETS's estimate of cost-effectiveness.

[74] Present Value estimated by ETS = $1.90 million + (15.62)(0.44 million) = $8.8 million. Present Value where annual operating costs are 3 times higher than estimated by ETS = $1.90 million + (3)(15.62)(0.44)(3) = $22.5 million and Cost Effectiveness = $22.5 million/((0.19 tpd)(365)(25)) = $12,988 per ton.

- The commenter complains that the consultants failed to address a variety of issues. This is incorrect.

- Wet gas scrubbers for acid gas removal are low-energy scrubbers with pressure drop of about 5 in – 10 in. Removing the two dry scrubbers in front of the ESPs will compensate for the pressure drop across the two wet scrubbers downstream of the ESPs. Manufacturer D also include a fan in their equipment package to compensate for any potential pressure drop.

- Owens-Brockway currently has a waste water treatment at their facility. Owens-Brockway discharges waste water to LACSD. The facility has a permit discharge limit of 250 gpm and the current discharge rate is below 100 gpm. A typical waste water stream from a caustic scrubber contains mostly soluble sodium sulfate.

- The costs for new stacks were included in Manufacturer D equipment costs. NEC did recommend ETS to add 50% contingency to cover other miscellaneous costs such as costs for CEMS relocation/recertification, permitting costs etc. Adding 50% contingency would result in a cost-effectiveness of about $5,607 per ton SOx reduced. [75] Thus WGS would be still be cost-effective to control emissions from a glass melting furnace.

- The consultant did not address NSR issues because they were not tasked to do so. However, NSR issues should not be significant since Owens-Brockway should not be increasing emissions due to the installation of WGS.

Response #3

Staff is committed to work with Owens-Brockway and all other impacted facilities to facilitate permitting and ensure the successful implementation of the staff proposal. However, NSR related issues are best handled during the permitting phase. Please be cognizant that while NSR issues related to NOx and SOx are covered in Rule 2005, NSR issues related to other criteria pollutants are covered in Regulation XIII. Both regulations provide that permit modifications that do not increase emissions do not trigger BACT.

[75] PV = ($1.9 million)(1.5) + (15.62)(0.44) = $9.72 million, CE = ($9.72 million) / ((0.19)(25)(365)) = $5,607 per ton.

Responses to Owens-Brockway's Comments Received on September 22, 2010

Owens-Brockway Glass Container Inc.
2901 Fruitland Avenue
Vernon, CA 90058
+1 323 586 4200 tel

www.o-i.com

September 22, 2010

Ms. Minh Pham, P.E.
Planning, Rule Development &Area Sources
SCAQMD
21865 Copley Drive
Diamond Bar, CA 91765

Re: Proposed Amended Regulation XX – Technical Comments - Owens-Brockway Glass Container Inc. Vernon Facility (SCAQMD ID 7427)

Dear Ms. Pham:

Comment #1

By this letter, Owens-Brockway Glass Container Inc. Vernon, California facility (Owens Vernon facility) provides its comments on the August 17, 2010 draft proposed amendments to Regulation XX as presented and discussed during the September 8, 2010 Public Consultation Meeting. Specifically, we provide to the District additional technical information that should be considered in setting Best Available Retrofit Control Technology (BARCT) for glass manufacturing. As summarized below, the Owens Vernon facility has already installed BARCT, which the District has recognized as Best Available Control Technology for the control of sulfur oxides. Our outside technical consultant has found no example of a glass container manufacturing facility with a control configuration as suggested by the December 2008 ETS, Inc. engineering evaluation and the December 2009 District draft staff report. In addition, we have identified numerous technical feasibility issues not considered in the District's analyses to date. Therefore, for the reasons outlined below, the Owens Vernon facility should be excluded from the facilities subject to the SOx shave proposed by the Rule 2002 revisions.

To put these technical issues in perspective, it is helpful to have an understanding of our plant's customers, employees, and our facility's role in sustainable manufacturing resources in the Los Angeles area. The Owens Vernon facility has been in business for over 70 years. Over the past 25 years, some six individual glass container manufacturing facilities have ceased to operate in the Los Angeles basin, such that the Owens Vernon facility is the only remaining container glass manufacturing facility located within the District. We produce between 2 and 3 million glass bottles per day on five production lines pulling from two furnaces and purchase approximately 330 tons/day of recycled glass. We have 260 employees that represent 15 different countries and territories of origin, over one third of whom have worked at the Owens Vernon facility for over 20 years. The average salary for Owens Vernon staff is three times the minimum wage,

Comment #2

with medical, dental and pension plan benefits. Our customers are here in Los Angeles; over 75% of our shipments are to customers within 25 miles of the of the Owens Vernon plant. Thus, the Owens Vernon Facility plays a vital role in maintaining sustainable container glass manufacturing in the Los Angeles area.

It is also important to put our environmental controls into proper perspective. Owens has been an innovator of emission controls on glass manufacturing. At significant cost, our company implemented oxygen-fuel fired glass manufacturing technology to reduce nitrogen oxide emissions from high temperature furnace exhaust. This innovative process control technology was installed to comply with NOx RECLAIM allocations. To comply with SOx RECLAIM, Owens Vernon first employed a SOx control system that injected a water-based sorbent into the exhaust stream prior to the existing electrostatic precipitators (ESPs). However, our facility experienced numerous problems with this technology [*Petition for an Ex Parte, Emergency, and a Short Variance*, Case No. 4472-9, Facility ID 007427, May 15, 1997, paragraphs 6-10]. We also note that the Ball-Foster El Monte facility experienced significant operating problems with its wet scrubber technology, which resulted in the company's decision to replace the wet scrubber with a dry scrubber followed by an electrostatic precipitator [*Petition for Modification and Extension of a Variance*, Case No. 108-20, Facility ID 108701, April 9, 1997, paragraphs 6-14].

Therefore, with the District's approval, Owens Vernon selected dry scrubbing technology (Trona injection) to reduce sulfur dioxide to comply with RECLAIM. It is important to note that this dry scrubbing technology was identified by the District as Best Available Control Technology (BACT) for the control of sulfur oxides. The dry scrubber controls are followed by the existing three ESPs that operate in parallel to remove entrained Trona sorbent and particulate emissions from the two glass melting furnaces. These technologies reduce sulfur oxide emissions by up to 90%. It is critical to note that the Owens Vernon facility actual SOx emission rate (approximately 0.6 pounds/ton of glass pulled) is significantly lower than the permitted SOx emission rate established for the container glass manufacturing facility in Seattle, Washington that is controlled by the wet scrubber technology evaluated by the District in its BARCT determination.

With this background, we now turn to consider technical issues raised by the District's BARCT analysis that supports the Rule 2002 revisions. As a threshold matter, we know of no container glass facility that currently operates the control configuration that is being proposed as BARCT:

- Dry scrubber/Trona injection, followed by
- Three separate electrostatic precipitators operating in parallel, followed by
- Two wet scrubber (50% NaOH) towers.

Comment #3

The December 2008 engineering evaluation suggests that this is technically feasible and cost effective for the Vernon facility. Owens retained Ashworth Leininger Group (ALG) to review this engineering evaluation, and the technical feasibility of installing retrofit wet scrubber technology at the Vernon facility. Their comments are attached for your review. We note the following:

- ALG is not aware of any glass manufacturing facility that currently operates with the BARCT control configuration recommended by staff for Owens Vernon: dry scrubbers followed by ESPs followed by wet scrubbers;
- To maintain the current redundancy of controls, which is essential as the glass melting operations cannot be temporarily shut down, it will be necessary to install three wet scrubbers instead of the two suggested in the ETS, Inc. report;
- The ETS, Inc. report does not consider/address how proper operating pressures will be maintained in both the oxy-fuel furnaces and existing ESP controls when the new wet scrubbers are added onto this system;
- The ETS, Inc. report does not address how the integrity of the wet scrubbers will be maintained should there be an upset condition in the ESPs, which will result in high particulate loadings directed to the wet scrubbers;
- The ETS, Inc. report does not properly consider site limitations associated with adding three wet scrubber towers that will be required to control the three existing ESP control systems;
- The ETS, Inc. report does not include all foreseeable costs associated with the wet scrubber retrofits;
- The ETS, Inc report provides no technical analysis of how wastewater discharges will meet RWQCB effluent limitations for selenium and other inorganic compounds;
- If retrofit with wet scrubber technology, the new exhaust gas will have a significantly lower temperature, and therefore significantly reduced plume buoyancy. No modeling analysis has been presented to demonstrate that ambient impacts from the Owens Vernon facility glass manufacturing operations will continue to comply with state and federal ambient air quality standards, including the new short term federal nitrogen dioxide standard; and

- The ETS, Inc. report and District draft staff report/evaluations do not properly consider the acute health risks posed by sodium hydroxide emissions from the wet scrubbers, as required by District Rule 1401.

Comment #4

Finally, the District's technical analysis does not consider what will happen should the Owens Vernon facility be unable to afford new, yet-to-be demonstrated control configurations, or secure adjusted RECLAIM Trading Credits in sufficient quantities to continue to operate. Should the Owens Vernon facility discontinue operations, over 100,000 tons/year of recycled glass will either have to be landfilled, or shipped out of the basin. Over two to three million glass containers per day will have to be shipped into the basin to our customers. We believe that this issue, along with the land use impacts associated with urban decay resulting from our plant's potential closure and adverse impact on environmental justice areas should be addressed in the District's Program Environmental Assessment for the proposed rule change. Our formal comments on that document will be provided by October 1, 2010.

We recognize that these comments are provided at the end of this public comment period for Rule 2002 modifications. If you think helpful, we would be willing to meet with you to clarify our comments. We look forward to working with the District to finalize Rule 2002 amendments.

Very truly yours,

Dean Harris

Dean Harris
Plant Manager

Attachment: Ashworth Leininger Group Comments on Proposed Amended Rule 2002 on Behalf of Owens-Brockway Glass Container Inc.

cc: Mark Tussing
Susan Smith, Esq.
Randolph Visser, Esq.

Ashworth Leininger Group Comments on Proposed Amended Rule 2002
On Behalf of Owens-Brockway Glass Container Inc.

Ashworth Leininger Group (ALG) was retained by Owens-Brockway Glass Container Inc. (Owens) Vernon facility to review the August 17, 2010 draft Rule 2002 rule modifications, and data provided by the South Coast Air Quality Management District (District) staff at the September 8, 2010 Public Consultation meeting[1]. Comments 1-3 address proposed amended Rule 2002 revisions; comments 4-8 address technical issues associated with the Best Available Retrofit Control Technology (BARCT) analysis.

Specific Comments on Proposed Amended Rule 2002:

Comment #5

1. Owens-Brockway should be included in the list of SOx RECLAIM holders exempted from proposed "shave". As discussed further below, Owens Vernon has already installed dry scrubbing technology considered by the District to be Best Available Control Technology (BACT). Further, there are unique site conditions that have not been fully evaluated in the December 2008 ETS, Inc. engineering report, and make installation of additional retrofit controls infeasible. Since additional SOx controls are infeasible (as discussed below), it is inappropriate to subject Owens to the same SOx shave requirements as the other ten SOx RECLAIM participants impacted by section (f)(1)(J). For these reasons, the Owens Vernon facility should be added to Table 5 that lists the RECLAIM facilities that are exempted from the proposed SOx RTC adjustments ("shave") described in section (f)(1)(J).

Comment #6

2. Table 4 should be revised to remove the Best Available Retrofit Control Technology level for container glass melting furnaces. As discussed in more detail below, Owens has already installed dry scrubbing technology equivalent to what should be considered as Best Available Retrofit Control Technology (BARCT) to reduce container glass furnace SOx emissions. As discussed below, the District's evaluation of wet gas scrubber (WGS) controls with respect to the existing Owens facility process and control configuration did not properly consider the technical and operational issues associated with installing retrofit WGS controls in conjunction with existing dry scrubbers and electrostatic precipitators. The evaluation did not consider the need to install three, not two, WGS units, nor physical site limitations with respect to installing three new WGS units (in addition to the existing two dry scrubbers and three ESPs.) The District's evaluation also

[1] The rule development history for the proposed amended Rule 2002 is somewhat complex and lengthy. Briefly, Table 4 of Proposed Amended Rule 2002 indicates that BARCT for container glass melting furnaces is a SOx emission rate of 5 ppm, equivalent to 0.03 pound of SOx per ton of glass pulled. The District's December 2009 *Draft Staff Report for Proposed Amended Regulation XX* identifies this as representing 95% control from Owens' 2005 SOx emission rate of 0.62 pound per ton of glass pulled. As the final BARCT study report indicates, emissions at the Owens facility are already controlled with two dry scrubbers, followed by three electrostatic precipitators (ESPs). Based on information presented by the District at its September 8, 2010 SOx RECLAIM Public Consultation Meeting, Tier I BARCT had previously been determined to be the 1993 average Reported Value of 2.51 pounds SOx per ton of glass pulled; therefore the proposed BARCT level represents a 99% reduction in SOx emissions.

Comment #6

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did not consider the severe operational difficulties encountered by another container glass manufacturer when it attempted to operate a WGS in conjunction with an oxy-fueled glass furnace. As described below, the engineering analysis did not fully calculate the cost of WGS retrofits and RECLAIM compliance modifications. Considering these issues, BARCT for container glass melting furnaces should not be established any lower than presently achieved at Owens with its dry scrubbers operated in conjunction with ESPs.

Comment #7

3. Section (f)(1)(Q) should be clarified to indicate that it applies only to new SOx RECLAIM program entrants. Rule 2002 section (f)(1)(Q) provides that:

"SOx Allocations for compliance years 2012 and after, for facilities that enter RECLAIM after (date of adoption) and for basic equipment listed in Table 4 shall be determined according to the BARCT level listed in Table 4 or the permitted emission limits, which ever is lower."

Section (f)(1)(Q) should be clarified to indicate that SOx allocations for facilities entering RECLAIM after rule adoption (new facilities) with equipment listed in Table 4 will receive allocations for 2012 and later based on the BARCT limits in Table 4 or based on permitted levels (whichever is lower). As written, section (f)(1)(Q) could be interpreted as also requiring allocations for existing facilities with basic equipment listed in Table 4 be reduced to Table 4 BARCT levels effective 2012, which runs contrary to the provisions of proposed sections (f)(1)(I) and (f)(1)(J).

Specific Comments on Best Available Control Technology:

Comment #8

The Owens Vernon facility operates two oxy-fuel furnaces (Furnace B, rated at 60 MMBtu/hr, and Furnace C, rated at 100 MMBtu/hr). These two process units are controlled by dry scrubber sorbent (Trona) injection, followed by three 3-field electrostatic precipitators (ESPs) which remove the sorbent and particulate emissions associated with glass melting. The use of three ESPs is required to provide redundancy in controls, as the underlying equipment (glass melting furnaces) cannot be shut down. Furnace B has a permitted SOx emission rate of 3.15 pounds SOx/ton of glass pulled; Furnace C has a permitted SOx emission rate of 2.4 pounds SOx/ton of glass pulled.

Following the adoption of RECLAIM, the facility first installed a United McGill semi-dry SOx scrubber on Furnace B in 1994. This control configuration proved infeasible in the long term due to maintenance and operational issues, as agreed to by the District Hearing Board, and was subsequently replaced by a dry scrubber, which was optimized through the use of Trona sorbent materials. Testing on the unit demonstrated up to 90% control efficiency relative to SOx; however, the systems typically operate at a 75-85% control level. With this general background, we provide specific comments related to the District's BARCT evaluation and proposed control level:

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4. The emission reductions associated with the specific combination of controls relied upon by the District to achieve its proposed BARCT level has not been achieved in practice. We know of no installation in which a facility relies upon dry scrubbing, dry ESPs, followed by wet scrubbing to achieve the emission reductions anticipated by the District. Further, we have talked to equipment vendors, engineering/environmental staff at glass manufacturing facilities, and independent consultants, and they are aware of no such control configurations. We anticipate such a combination of controls would encounter the following challenges:
   - There is no discussion as to why two wet scrubbers (with a combined capacity of 60,000 cfm) are to be applied to control emissions from three ESPs (with a combined capacity of 90,000 cfm). To maintain the quick dispatch, operating pressures (addressed further below) and current redundancy in the existing control configuration, a single wet scrubber is required to follow each ESP. Thus, three wet scrubbers will be required to support the Vernon facility, as opposed to the two units considered in the ETS, Inc. analysis.
   - Pressure drop over the dry scrubber and dry ESP stages could preclude the wet scrubber stage from achieving the anticipated SOx removal efficiencies, and unless properly managed, can adversely affect the operation of the oxy-fuel furnace itself. Management of the furnace operating pressures and pressure drop across all three controls (Trona injection, ESP, wet scrubber) would require use of variable fans/process controls that are not addressed in the December 2008 ETS, Inc. report. Failure to properly maintain pressures throughout the system will compromise the furnace operation (including potential catastrophic failure), particulate control and sulfur oxide control efficiencies. In addition to these technical issues, the costs for viable induction fan motors/drives and process controls do not appear to have been considered.
   - Injection of sodium sesquicarbonate (Trona) in the dry scrubber stage results in increased particulate loading that is removed by three ESPs operating in parallel. While there is redundancy in the use of three ESPs, the ESP control units break down and when this occurs, increased particle loading to be routed directly to the wet scrubbers would occur at an uncontrolled rate of 120-150 pounds/hour. No discussion is provided as to how the wet scrubber technology will be protected when there is an upset condition in the Trona injection/ESP operation. This is a significant issue as high particulate loading will foul and compromise the wet scrubber technology.
   - We note that the particulate loading design value provided by ETS to the various equipment vendors understated the particulate loading allowed by the permit by an order of magnitude (0.008 grains/dry standard cubic foot cited in the ETS report versus the permit limit of 0.08 grains/dry standard cubic foot). The ETS, Inc. analysis should be corrected, and vendors contacted to assure that increased particulate loading can be accommodated by the wet scrubber technology.
   - Selenium is present in Owens' exhaust gas. Large quantities of water will be required to cool the exhaust gas to the temperature range required for the wet scrubbers, as well as for operation of the wet scrubbers. This water will require

Comment #8

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Comment #8

treatment to remove the selenium prior to off-site disposal. There is no detailed analysis of the technical feasibility to treat this stream; rather the ETS, Inc. report assumes that one of four options is feasible at a cost of $225,000, which in our view ignores technical issues and simply throws money at the problem without solving this issue. As an example, one of the options proposed in the ETS report for treating wastewater (Option 3 on page 6 of the ETS report) is to send blowdown from the scrubbers to a storage tank and then spray it into the duct ahead of the precipitators to evaporate the water and collect the dry particulate in the ESPs. This does not account for the PM loading to the ESPs associated with Trona injection, does not address whether the exhaust temperature will be sufficient to support evaporation of the water, nor does it account for the potential issues associated with adsorption/absorption of the water by the Trona and particulate matter.

Owens encountered a nearly identical situation in 1997, when it experienced moisture buildup in the ESPs resulting in short-circuits within the units, as a result of water injection prior to the ESPs and insufficient temperatures to evaporate the water. At the time, Owens was operating a semi-dry scrubber on Furnace B, in which soda ash and water were injected into the furnace exhaust prior to the ESP. Previously, Owens had been operating three furnaces, and the combined exhaust temperature was sufficient to support evaporation of the injected water. However, once Furnace A was shut down, exhaust temperature dropped, resulting in condensation buildup in the ESPs. The condensation buildup, combined with the ESP dust, became acidic and corroded wiring within the ESPs. Acidic water also began leaking outside the ESPs, necessitating additional abatement efforts. Owens attempted to prevent heat loss by adding insulation on the ducting, which proved insufficient. Owens also considered raising the scrubber exhaust temperature, but recognized that this was infeasible since it would require reducing the exhaust gas residence time and reduce the scrubber control efficiency [*Petition for an Ex Parte, Emergency, and a Short Variance*, Case No. 4472-9, Facility ID 007427, May 15, 1997, paragraphs 6-10].

- We note that the Ball Foster El Monte facility was unable to achieve compliance with its selenium discharge permit limits when operating a wet scrubber. Based on discussions with former company staff, high selenium concentrations in wastewater discharge resulted in non-compliance penalties and was a key consideration in the decision by the company to switch to dry scrubber control technology.
- No analysis is provided of the acute health risk posed by emissions of 50% NaOH scrubber mist that will be released from the operation of the three wet scrubbers, and whether this incremental acute health risk is within District Rule 1401 requirements. The District's CEQA analysis improperly focuses on storage of sodium hydroxide, and fully ignores emissions from the wet scrubber stack. As indicated below, this toxics analysis is especially important, as the wet scrubber controls require that exhaust temperatures be reduced to ~150

degrees F. This lower exhaust temperature will reduce the buoyancy of the plume, and increase ambient concentrations near the facility.

- No analysis has been performed to show compliance with the new federal ambient standard for nitrogen dioxide. The wet scrubber technology requires that the temperature of the exhaust gas has to be reduced from 650 degrees F to ~150 degrees F. This significant reduction in exhaust temperature will significantly reduce the buoyancy of the plume, and thus increase ambient concentrations of exhaust gases, including nitrogen dioxide, particulate, air toxics, and combustion gases. This refined analysis must be performed as it will be required by the District.
- As we will comment as part of the CEQA documentation, the District has not evaluated the ability to introduce a new hazardous material (50% sodium hydroxide solution) into a manufacturing process consistent with the California Legislature's directive under the new Green Chemistry Initiative, which will be in effect when SOx emission reduction process modifications will be made.

5. Adding a wet scrubber stage to the Owens SOx emissions control system is technically infeasible. Beyond the technical issues identified in the immediately preceding comment, Owens will encounter the following issues which preclude addition of a wet scrubber stage:
   - There is insufficient space next to the existing controls to install three wet scrubbers, stacks, and necessary support equipment adjacent to the existing facility. As explained to ETS at the time of their site visit, there is a single 14'x22' pad proximate to the existing three ESPs. In our experience, this is insufficient to locate three wet scrubber towers rated at 30,000 cfm each, and associated pumps/Continuous Emissions Monitoring Systems (CEMS) and related process equipment.
   - Owens would have only two options for installing the required wet scrubber controls: 1) installing the control systems in its parking lot located to the east of the existing ESPs and running ducting over the top of a building (which would pose unacceptable safety issues); or 2) tearing down a building. No cost/feasibility analysis was provided for these two options.

Comment #8

6. Costs associated with BARCT for container glass melting furnaces is understated. Costs are underestimated for the following reasons:
   - As previously stated, BARCT for container glass melting furnaces is currently established at a level of 2.51 pounds of SOx per ton of glass pulled. Based on the District's evaluation of BARCT, achieving the proposed BARCT level of 0.03 pound SOx per ton of glass pulled would require a combination of dry scrubbers, dry ESPs, and wet scrubbers. Therefore, at a minimum, the costs for all three technologies need to be incorporated into the cost-effectiveness analysis.
   - The BARCT cost estimates need to account for three wet scrubbers and associated ducting/support equipment as each ESP will require a dedicated wet scrubber to maintain needed control redundancy for the oxy-fuel furnaces.

- As indicated above, the ETS report provides no basis for the estimated $225,000 in capital costs associated with wastewater treatment, which can be significant as selenium is especially hard to treat to RWQCB discharge limits.
- No costs are provided for the construction of three new exhaust stacks, for relocation and installation of the CEMS on each of these three stacks, for permitting of the CEMS with the District's RECLAIM group, for the new Relative Accuracy Test Audits that must be performed, or for the costs of RTCs to cover the missing data that will be recorded by the new CEMS. Our prior experience on CEMS monitoring systems indicates that costs for three such systems can exceed $250,000 for each CEMS.
- No technical data are provided to support the estimated 25-year useful life of a caustic wet scrubber. Our experience with caustic wet scrubbers suggests a shorter useful life (10-15 years), which is also typical of useful life assumptions based on EPA and other local air district control technology analyses.

Comment #8

7. The District did not consider the implementation challenges faced by Ball-Foster when attempting to utilize a wet scrubber to control SOx emissions from an oxy-fueled glass furnace in the mid-1990s. In February 1995, Ball-Foster converted its regenerative glass furnace to oxy-fuels operation at its El Monte facility. Previously, the furnace had utilized a venturi wet scrubber to control PM emissions. After the conversion, Ball-Foster reconnected the furnace to the wet scrubber. Starting one month later, the scrubber began experiencing numerous equipment failures, including component overheating and damage, plugging, and excessive solids buildup – prompting numerous emergency breakdowns. After struggling with the scrubber operational problems for a year, Ball-Foster informed the District Hearing Board that it intended to replace the wet scrubber with an ESP to control particulate emissions, and a dry scrubber to control SOx emissions. By mid-1997, the wet scrubber had been removed and replaced by a dry scrubber and ESP [*Petition for Modification and Extension of a Variance*, Case No. 108-20, Facility ID 108701, April 9, 1997, paragraphs 6-14]. Like the Ball-Foster furnace, both of Owens' glass furnaces are oxy-fuel fired.

8. BARCT for container glass meting furnace SOx emissions should be established as the emission rate achievable by Owens' current dry scrubber/ESP control system. Based on information presented in the District's December 2009 Draft Staff Report, this would be a level of between 0.62 and 1.05 pounds SOx per ton of glass pulled, and represent the combination of process modifications and control technology. Notably, this SOx emissions limit is below the permitted SOx emission rate (1.6 pounds SOx/ton of glass pulled) established for the Seattle, Washington container glass plant that that is controlled by the wet scrubber technology evaluated by the District in its BARCT determination.

Response #1

Staff appreciates the efforts that your facility operators have made to lower SOx emissions and your position that BARCT for glass manufacturing should be the controls currently operating at your facility. However, the application of wet gas scrubbers still remains the recommended BARCT for glass manufacturing furnaces as explained in Response #2.

Furthermore, Owens-Brockway Glass Container Inc. (Vernon Branch) is a subsidiary of Owens-Illinois, Inc. According to website for Owens-Illinois, the parent company of Owens-Brockway, in 2009 Owens-Illinois had 22,000 employees in 21 countries with net sales of $7.1 billion[76]. SCAQMD records confirm that Owens-Brockway is the only glass container facility in the District.

Response #2

Control technology has improved over time. The dry scrubbers with 80 percent to 90 percent control efficiency were considered as BARCT for SOx in 1994. However, in between 2008 and 2010, two consultants (ETS and NEC) expressed agreement that non-regenerative wet scrubbers can achieve 1 ppmv - 5 ppmv SOx outlet concentration (95 percent control efficiency or more from the 2005 emissions baseline, 99% from the uncontrolled level assuming that the dry scrubbers operated at 80% control) and thus, should be considered as BARCT for SOx for glass melting furnaces. While these two consultants recommended different types of WGSs, they both concurred that WGSs would be cost-effective and staff concurs with the consultants' recommendations. The two consultants both recommended keeping the existing ESPs in place for particulate control and placing the wet scrubbers downstream of the ESPs.

In addition, the proposed BARCT level for glass melting furnaces has been achieved in practice. Specifically, the Puget Sound Clean Air Agency in Seattle, Washington provided SCAQMD staff with source test and CEMS data from Saint-Gobain, a glass container facility, that demonstrates compliance with 5 ppmv SOx levels (96 percent control) via Tri-Mer's Cloud Chamber scrubber. The furnace at Puget Sound has a permit limit of 1.6 pound of SOx per ton of glass pulled but tested at 0.0062 pounds of SOx per ton of glass pulled.[77,78] Staff had multiple conversations with Tri-Mer about their WGS technology, and Tri-Mer indicated to staff that they provided many types of WGS that can be used to achieve 5 ppmv SOx outlet concentration, either packed bed, open throat, venturi, or Cloud Chamber scrubber. The Cloud Chamber scrubber can also be used as particulate control device.

[76] O-I Announces Third Quarter Earnings Conference Calland Webcast, September 20, 2010. http://www.o-i.com/nth_us.aspx?id=400

[77] Horizon Engineering, "Source Test Evaluation Report for Saint-Gobain, Seattle, Washington, Glass Melting Furnace No. 5 with Cloud Chamber Scrubber," September 18, 2009.

[78] CEMS Summary Report from Saint-Gobain to Puget Sound Clean Air Agency, for a period from October 1, 2009 to October 31, 2009.

Furthermore, staff believes that the problems occurred at Owens-Brockway and Ball-Foster Glass Container between 1994-1997would not occur with the two WGSs proposed by ETS Inc. because ETS proposed to place the two WGSs downstream of the ESPs. The ESPs located upstream of the wet scrubbers will collect particulate matter and prevent excessive particulate buildup in the wet scrubbers. In addition, ETS proposed to remove the two dry scrubbers located upstream of the ESPs. Trona injection in the dry scrubbers would no longer be needed, and thus Trona leakage to the ESPs would drop to zero, and the particulate loading to the ESPs would be reduced significantly.

To put the problems occurred at Owens-Brockway and Ball-Foster Glass Container into perspective, staff provides the following explanations:

Owens-Brockway

Previously, Owens-Brockway operated three furnaces (Furnace A, B and C). In 1994, Owens-Brockway installed a United McGill semi-dry/wet scrubber using soda ash as the scrubbing agent to control SOx. The particulate matter emissions from the three furnaces are controlled by three ESPs located downstream of the semi-dry scrubber (any two ESPs are in operation at one time, while one ESP is standby.) One of the furnaces (Furnace A, non-oxy fuel furnace) was shutdown in December 1996. During this period, the exhaust temperature dropped, resulting in condensation buildup and corrosion within the ESPs. Because of this reason, Owens-Brockway had to seek several variances from the SCAQMD Hearing Board in 1997 and finally decided to remove the semi-dry scrubber and replaced the semi-dry scrubber with the two dry scrubbers using Trona, a very fine powder, as absorbent.

Staff believes that the problems with the semi-dry/wet scrubber and ESPs were not caused by equipment capability but equipment operation. Condensation problems would not have occurred in the ESPs if Furnace A were not shut down and the temperature of the flue gas entering the ESPs was high enough to prevent moisture condensation in the ESPs. The following, excerpted from Owens-Brockway Glass Container Corp.'s May 14, 1997 Petition for an Ex Parte, Emergency, and a Short Variance (Case No. 4472-9) supports this belief:

> *"Prior to discontinuing the operation of Furnace A, the temperature of the combined exhausts from Furnaces A and C, when mixed with Furnace B exhaust, was high enough to keep the exhaust moisture content as vapor in the ESP. Since Petitioner has only been operating Furnaces B and C, the volume of exhaust has been reduced and the combined exhaust temperature has not been high enough to keep exhaust mixture in the form of vapor as exhaust enters the ESPs. Consequently, moisture condenses in the ESPs."*

Staff believes that the problem with the semi-dry/wet scrubber and ESPs would not occur with the ETS's proposal where the wet scrubbers would now be located downstream of the ESPs. The temperature of the exhaust gas stream from the furnaces would remain high enough to prevent condensation in the hot ESPs.

Ball-Foster Glass Container

The problem occurred at Ball-Foster Glass Container (aka Saint-Gobain Containers) was very different in nature than the problem occurred at Owens-Brockway. Ball-Foster Glass Container did not use ESPs to control particulate matter. They operated a wet venturi, variable throat scrubber using soda ash as absorbent to control both SOx and particulate matter. In 1993, they converted their existing glass furnace to an oxy-fuel furnace which was operated with significantly less combustion air, which subsequently resulted in reducing the volume of exhaust flue gas from the furnace to the venturi scrubber and increasing the particulate loading to the scrubber. Staff believes that the excessive solids build-up in the scrubber system was due to failure to redesign the venturi wet scrubber to handle the excessive particulate loading after the conversion to the oxy-fuel furnace. In 1999, Ball-Foster Glass Container removed the venturi wet scrubber and replaced with a dry scrubber to control SOx and an ESP to control particulate matter.

Staff believes that the problem with excessive particulate buildup in the Ball-Foster Glass Container's scrubber would not occur with ETS's proposal since ETS proposed to place the wet scrubbers downstream of the ESPs. The ESPs reduces particulate matter emissions substantially and thus prevents particulate entrainment to the packed bed scrubbers.

It should be pointed out that Owens-Brockway and ALG had incorrectly assumed the configuration of ETS's proposal. ETS proposed the removal of the two dry scrubbers upstream of the ESPs and replace those with two WGSs located downstream of the ESPs.

Response #3

First, to put this matter into perspective, it should be noted that two sets of consultants, ETS and NEC, visited the Owens-Brockway facility, collected data, interviewed facility representatives and then independently ascertained that WGSs are technically and economically feasible for this facility's furnaces. Both ETS and NEC have direct experiences in DGS, WGS technology as well as ESPs as applied to furnace operations at Owens-Brockway facility. Because of these reasons, staff has forwarded Owens-Brockway's comment letters and staff responses to the consultants for their input, and their input are incorporated in this response.[79]

Second, the timing issue should also be mentioned. It has been almost two years since the consultant's (ETS) analysis of the Owens-Brockway facility was finalized in December 2008. During this time, representatives from Owens-Brockway rarely participated in the SOx RECLAIM Working Group meetings or provided staff with any questions or feedback on the

[79] SCAQMD staff sent Owens-Brockway comment letter and staff's responses to the consultants for review, and received confirmation back that they were in agreement with staff's assessment. The consultants' feedback is included in this response. E-mails from James Norton of NEC to Minh Pham on October 12, 2010, Marshall Bell of NEXIDEA to Minh Pham on October 12, 2010, and John McKenna of ETS to Minh Pham on October 27, 2010.

consultant's report. Staff recently received three comment letters from Owens-Brockway submitted on September 22, October 1 (addressed in Program Environmental Assessment), and October 21, 2010. The letters contain several incorrect assumptions and technical errors relative to ETS's analysis as outlined below:

- (1st bullet) The commenter incorrectly assumes that the proposed BARCT configuration contains the dry scrubbers. In actuality, ETS proposed to remove the two dry scrubbers upstream of the ESPs and replace them with two new WGSs downstream of the ESPs.

- (2nd bullet) Owens-Brockway current setup shows that redundancy is needed for particulate control but not for SOx control. Owens-Brockway operates two dry scrubbers and has three ESPs connected by piping/valves, but only two are in operation at any one time and one remains in standby mode. ETS recommended the removal of the two dry scrubbers and the discontinue use of Trona, a very fine powder, in the two dry scrubbers will reduce the particulate loading and Trona entrainment to the ESPs. ETS recommendation may improve the reliability of the two on-line ESPs substantially and reduce the need to use the stand-by ESP. Owens-Brockway operates sufficiently with two dry scrubbers for SOx control without a need for redundancy. For these reasons, ETS recommended replacing the two existing dry scrubbers with two new WGSs to improve control efficiency but not necessarily redundancy.

- (3rd bullet) Additional pressure drops were a concern for ALG since ALG incorrectly assumed that the BARCT control configuration recommended by ETS included both the two dry scrubbers and the two wet scrubbers. With ALG's incorrect assumption, there would be additional pressure drops across the wet scrubbers that would need to be taken into consideration. However, ETS recommended the removal of two dry scrubbers upstream of the ESPs, and to replace those with two wet scrubbers downstream of the ESPs, and there would be no significant increase in pressure drop. In addition, if additional pressure were needed, it could be supplied with a fan. In ETS's analysis, ETS had included the costs for a system fan in the vendor's budgetary quote:

  > *"Each system comes complete with all necessary pumps, reagent storage tanks,* ***system fan****, and stack."*

  ETS made a determination based on their extensive knowledge and experiences with ESPs, wet gas scrubbers, and also dry gas scrubbers that the pressure drop would not be a concern in this situation. An additional fan or blower to push or pull the flue gas through the WGS would not make the control system recommended by ETS cost-ineffective since it has already been included in existing cost calculation.

- (4th bullet) The three ESPs (two in operation and one stand-by) were designed to ensure that if one ESP experiences operational difficulties, the stand-by ESP will take its place. ETS recommended removing the dry scrubbers, and without Trona injection, the particulate loading to the two ESPs is expected to be reduced substantially and will improve the ESP reliability. ETS however did not recommend the removal of the stand-by ESP, but recommended Owens-Brockway to keep one stand-by ESP to handle upset conditions, and

thus maintain the integrity of the two wet scrubbers downstream of the ESPs. ETS did not view that building redundancy for SOx control by adding a third scrubber was necessary because monitoring the pH level and increasing the use of caustic may work as efficiently.

- (5th bullet) As explained above, only two WGSs would be needed. Two consultants, ETS and NEC, both identified suitable, separate locations for placement of the WGSs, Owens-Brockway is not expected to have site limitations associated with the placement of two WGSs within their facility.

- (6th bullet) The commenter failed to specifically identify what foreseeable additional costs that the consultants might not include in their analyses. ETS estimated a cost effectiveness of about $5,000 per ton SOx reduced and both ETS and NEC concurred that WGS technology is cost-effective.

- (7th bullet) Owens-Brockway reported that the facility is currently sending wastewater to the LACSD and the City of Vernon to be treated at a rate of 41.89 million gallons per year which equates to approximately 80 gallons per minute (gpm). Owens-Brockway has a maximum discharge limit of 131.4 million gallons per year (250 gpm). The increase in discharge due to the two wet gas scrubbers (WGSs) is 10 gpm which is expected to mainly contain soluble sodium sulfate that would result from using caustic solvent as the scrubbing agent. With an additional discharge of 10 gpm, Owens-Brockway is far below their permitted threshold of 250 gpm. In addition, on October 26, 2010, following staff's request, Owens-Brockway provided staff with their facility's industrial wastewater discharge permit issued by the LACSD which shows that currently LACSD has effluent concentration limits for Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Silver, Zinc, Cyanide, and total dissolved sulfides. There is no effluent discharge concentration limit for Selenium on Owens-Brockway's industrial discharge permit. Furthermore, staff estimated the concentration of selenium that potentially could present in the waste water stream of Owens-Brockway facility based on their annual emission reports from 2002-2009. Selenium concentrations in their waste water stream would be around 0.022 mg/L,[80] much less than the threshold set in CFR, Part 268 – Land Disposal Restrictions for wastewater and non wastewater. For these reasons, staff believes that both the LACSD and the City of Vernon will be able to receive and treat an additional 10 gpm waste stream that contains trace of selenium and other inorganic compounds. The consultant (ETS) also allocated $225,000 into the scrubber equipment cost to handle the waste stream from the scrubbers (e.g. selenium). The amount of $225,000 was estimated based on information provided by Manufacturer D which has expert knowledge of WGS technology and WGS effluent waste treatment, and this amount was based on relevant experience with the waste stream from a glass manufacturing facility located in Seattle, Washington.[81] In addition, ETS provided four options for Owens-Brockway to treat the waste stream onsite in the Final Report:

[80] E-mail from Kevin Orellana to Minh Pham on October 26, 2010.

[81] E-mail from ETS, Inc. to Minh Pham on October 27, 2010.

1) *"The liquid blowdown from the scrubbers could be sent to a storage tank and recycled back to the furnaces for the batch wetting process.*
2) *The blowdown could be sent to a storage tank and then to an energy efficient dryer for liquid evaporation. The solid waste could then be placed in a hopper and recycled back to the furnaces.*
3) *The blowdown could be sent to a storage tank and then sprayed into the duct ahead of the precipitators to evaporate the water and collect the dry particulate in the ESP's.*
4) *The blowdown could be sent to a storage tank and ran through a small skid-mounted (app. 6'x 6') filtration system prior to discharge to the local sanitary sewer system."*

Further, since technology for selenium treatment is available, SCAQMD staff recommends that Owens-Brockway operators conduct their own evaluation of these recommended options to find an appropriate method to treat any selenium in the WGS wastewater. There are no significant environmental impacts expected with the options quoted above. While the commenter criticized Option 3 (the comments were based on the incorrect assumption about the continued use of dry scrubbers and Trona injection), no comments were submitted relative to Options 1, 2 and 4.

- (8th bullet) One WGS for a FCCU has been installed and is currently operating at a refinery in the District. The exhaust gas stream from this existing WGS is expected to have similar characteristics (i.e. lower temperature, reduced plume buoyancy, caustic mist) as the proposed WGSs for Owens-Brockway. The WGS at the aforementioned refinery was evaluated to assure that it complies with all state and federal ambient air quality standards and a Permit to Operate was issued by the SCAQMD. If applications for the proposed WGSs are submitted by Owens-Brockway, the WGSs scrubbers will undergo an equivalent or similar evaluation. Moreover, there is no evidence of potential slip of caustic from WGS.

Response #4

As a matter of maintaining perspective, it is important to note that Owens-Brockway currently holds 0.31 ton per day of RTCs and the remaining RTCs allocated to Owens-Brockway would be 0.14 ton per day after the proposed 55 percent shave. Owens-Brockway's SOx emissions in 2005 were approximately 0.2 ton per day. Owens-Brockway indicated that the control efficiency of their dry scrubbers was demonstrated at 90 percent, but that they are operated at 75 percent to 80 percent.[82] If Owens-Brockway can operate their dry scrubbers at 90 percent, then the facility will be in compliance without any additional controls with the 55 percent shave since their emissions at 90 percent control would be 0.1 ton per day, [83] below the 0.14 ton per day allocation after the shave. Under this scenario, Owens-Brockway will have surplus credits of 0.04 ton per day, which can be made available in the open market and could generate a substantial revenue

[82] SCAQMD Engineering Evaluation, A/N 288744, March 1994.

[83] 80% control of 1 ton per day = 0.2 ton per day, and 90% control of 1 ton per day = 0.1 ton per day

stream to the company. This revenue stream can be even larger if Owens-Brockway elects to install higher efficiency WGSs.

However, if Owens-Brockway elects not to operate their dry scrubbers at 90 percent control, then the facility operators can purchase 0.06 ton per day (0.2 ton per day 2005 baseline – 0.14 ton per day = 0.06 ton per day) to be in compliance with 55 percent shave. The RTCs can be purchased from investors or from other SOx RECLAIM facilities that have surplus RTCs. The surplus pool has approximately 1.73 tons per day of unused RTCs in 2005, and 2.55 tons per day of unused RTCs in 2008. For these reasons, SCAQMD staff did not assume that Owens-Brockway would shut down their facility because of the proposed 55 percent shave for SOx RECLAIM.

Response #5

Staff disagrees with ALG's recommendation, BARCT technology is improving over time. For example, dry scrubbers operating at 80% control efficiency were considered as BARCT in 1994. Today's control technologies routinely demonstrate 95+% control efficiencies and can achieve control levels of 5 ppmv or better. Therefore, Owens-Brockway should not be included in the list of exempt facilities in Table 5 of the PAR 2002.

Response #6

Staff and the consultants[84] disagree with ALG's technical assessment in a number of areas:

- ALG incorrectly assumed configuration of the proposed BARCT to contain the dry scrubbers. Monitoring pH and sufficient use of caustic solvent for SOx control and having ESPs upstream for particulate control would prevent excessive particulate loading and catastrophic failure to the WGSs located downstream of the ESPs.

- Three WGSs are not required for redundancy as each can be sized to handle the entire flue gas flow from the ESPs, therefore plot space limitations should not be a problem. Both consultants visited the site, evaluated the situation, and concurred that space would not be a problem.

- Operational problems are site- and equipment-specific, particularly in cases where process changes are made upstream of existing systems (e.g. the problem at Ball-Foster was due to excessive particulate loadings to the venturi scrubber after they converted their furnace to oxy-fuel furnace. The venturi scrubber should be redesigned to handle a lower flow with higher particulate loading from the oxy-fuel furnace. As new equipment would be designed for a specific installation, the design would take into account all operating modes and

[84] SCAQMD staff sent Owens-Brockway comment letter and staff's responses to the consultants for review, and received confirmation back that they were in agreement with staff's assessment. The consultants' feedback is included in this response. E-mails from James Norton of NEC to Minh Pham on October 12, 2010, and Marshall Bell of NEXIDEA to Minh Pham on October 12, 2010.

upstream conditions. Therefore, staff finds the problems which occurred at a different facility, which reused control equipment without being redesigned, would not apply to the Owens-Brockway facility. In addition, Owens-Brockway has three ESPs located upstream of the scrubbers to control particulate matter and thus will help prevent excessive buildup of particulate in the WGSs.

- Most importantly, dry scrubbers operating at 80 percent control efficiency is not today's BARCT. Current state-of-the-art systems can reliably achive 95% or more SOx reductions and achieve SOx emission levels of 5 ppmv or lower. Staff therefore recommends the BARCT level for glass melting furnaces at 5 ppmv.

Response #7

Regarding the commenter's suggestion to clarify the language in subparagraph (f)(1)(Q) of Rule 2002, staff believes that the language, as currently stated, makes it clear that any facility entering the RECLAIM program after the date of adoption and that operates the basic equipment in Table 4 shall have its SOx allocations determined according to the BARCT level listed in Table 4 or the permitted emission limits, whichever is lower. Existing facilities that operate the basic equipment listed in Table 4 will have their allocations adjusted in accordance with Rule 2002, subparagraphs (f)(1)(I) and (f)(1)(J) at the Table 4 BARCT levels, effective 2012.

Response #8

The background on Owens-Brockway's furnaces and control equipment provided by ALG is consistent with the information documented by ETS (i.e. testing on the dry scrubber demonstrated up to 90% control efficiency, however the systems typically operate at a 75 percent to 80 percent control.) In addition, staff knows of no installation in which a facility relies upon using dry scrubbers, dry ESPs, followed by wet scrubbers to achieve the emission reductions recommended by the consultants. However, staff believes that the level of 5 ppmv SOx (95 percent control efficiency or more) can be achieved in practice using WGSs, is cost-effective and is not expected to create the severe problems alleged by the commenter's technical assessment. SCAQMD staff's responses to the individual comments are summarized as follows:

- Regarding the control efficiency of the dry scrubbers, it is interesting to note that the 2005 emissions from the Owens-Brockway's glass furnaces were about 0.2 ton per day. Owens-Brockway reported that their dry scrubbers were demonstrated to achieve 90 percent control efficiency, but that they were typically operated at a 75 percent to 85 percent control efficiency. If the dry scrubbers are operated at 90 percent control efficiency level, then Owens-Brockway would emit approximately 0.1 ton per day and as such, would be in compliance with the proposed 55 percent shave without additional control.

- (Response to point #4 of ALG's assessment) The proposed BARCT level for glass melting furnaces has been achieved in practice. Specifically, the Puget Sound Clean Air Agency in Seattle, Washington provided SCAQMD staff with source test and CEMS data that demonstrates compliance with 5 ppmv SOx levels at 96 percent control efficiency via Tri-

Mer's Cloud Chamber scrubber for a furnace with a permit limit of 1.6 pound of SOx per ton of glass pulledbut tested at 0.0062 pounds of SOx per ton of glass pulled.[85,86] Staff received information directly from the vendors and also from ETS (e.g. guarantee letters) demonstrating that the Cloud Chamber scrubber as well as packed bed scrubber, venturi scrubber, or open throat type of scrubber can be used to achieve 5 ppmv SOx level when appropriately designed and operated. The Cloud Chamber scrubber is functionally identical to other types of WGS in controlling acid gas (SOx). In addition, the commenter's assessment about the control configuration recommended by ETS is incorrect. The control configuration recommended by ETS (which was proposed by Manufacturer A) consists of three existing ESPs followed by two new wet scrubbers. Manufacturer A and ETS recommended the removal and replacement of the two existing dry scrubbers with two WGSs downstream of the three existing ESPs.

- (Response to 1st bullet under Point #4 of ALG's assessment) The commenter assumes that three WGSs would be needed to correspond with the three ESPs units. Even though the three ESPs are connected by piping/valves, only two are in operation at any one time and the one remains in standby mode. Thus, there is no need to install three WGSs when there are only two operational ESPs at any one time. In addition, removing the dry scrubbers upstream of the dry ESPs and stopping the use of Trona would reduce the excessive particulate loadings to the ESPs, and consequently would reduce the likelihood of future loadings to the WGSs downstream of the ESPs. For these reasons, ETS recommended replacing the two existing dry scrubbers with two new WGSs. Owens-Brockway may choose to build a larger system for redundancy (e.g. 90,000 acfm instead of 60,000 acfm), which will cost more but will not make the BARCT recommended by the consultants become cost-ineffective (i.e. larger than $50,000 per ton) since the cost-effectiveness for the 60,000 cfm system was estimated to be only about $5,000 per ton, and the capital costs are proportional to the $(90{,}000/60{,}000)^{\exp 0.6} = 1.28$ factor.

- (Response to 2nd bullet under Point #4 of ALG's assessment) Additional pressure drops were a concern for ALG since ALG incorrectly assumed that the BARCT control configuration recommended by ETS included both the two dry scrubbers and the two wet scrubbers. However, ETS recommended the removal of two dry scrubbers upstream of the ESPs, and to replace those with two wet scrubbers downstream of the ESPs. There would be no pressure drop across the dry scrubbers. If indeed, additional pressure drop is needed, a fan and a blower can be used to provide the required energy. Manufacturer A did include the fan into their proposal, therefore the concern of pressure drop seems irrelevant.

- (Response to 3rd bullet under Point #4 of ALG's assessment) The commenter incorrectly assumes that Trona will still be needed. Since ETS recommended removing the dry scrubbers with Trona injection upstream, and placing the WGSs downstream of the

[85] Horizon Engineering, "Source Test Evaluation Report for Saint-Gobain, Seattle, Washington, Glass Melting Furnace No. 5 with Cloud Chamber Scrubber," September 18, 2009.

[86] CEMS Summary Report from Saint-Gobain to Puget Sound Clean Air Agency, for a period from October 1, 2009 to October 31, 2009.

particulate loading to the ESPs. There will no longer be any need for Trona, and the proposed configuration is expected to reduce substantially the amount of particulate loading to the ESPs.

- (Response to 4th bullet under Point #4 of ALG's assessment) There are several types of WGSs: 1) quench, vertical packed bed scrubbers as recommended by Manufacturer A; 2) simple open-throat scrubbers as recommended by Manufacturer D; or, 3) fluidized rotating scrubber as offered by Manufacturer B. NEC recommended Manufacturer D's open-throat type and ETS recommended Manufacturer A's packed bed scrubber. Manufacturer A indicated that the packed bed scrubber can tolerate up to 20 mg/Nm3 of insoluble particulate without clogging; and if the particulate is soluble (e.g. sodium sulfate), then the packed bed scrubber would not have a problem with plugging. [87] Since ETS proposed to use caustic which would form soluble sodium sulfate, plugging problem is not likely to occur. The SOx RECLAIM program does not require Owens-Brockway to install any particular type of scrubber. In fact, Owens-Brockway is encouraged to further conduct study and research to determine the type of WGSs and solvent that best fit their operation and emission profiles.

- (Response to 5th and 6th bullet under Point #4 of ALG's assessment) Please refer to Response #3 (7th bullet). Owens-Brockway reported that the facility is currently sending wastewater to the LACSD and the City of Vernon to be treated at a rate of 41.89 million gallons per year which equates to approximately 80 gallons per minute (gpm). Owens-Brockway has a maximum discharge limit of 131.4 million gallons per year (250 gpm). The increase in discharge due to the two wet gas scrubbers is 10 gpm which is expected to mainly contain soluble sodium sulfate that would result from using caustic solvent as the scrubbing agent. With an additional discharge of 10 gpm, Owens-Brockway is far below their permitted threshold of 250 gpm. For these reasons, SCAQMD staff believes that both the LACSD and the City of Vernon will be able to receive and treat an additional 10 gpm waste stream for selenium. However, in the event that the LASCD or City of Vernon would reject the additional 10 gpm in the waste stream, ETS provided four options for Owens-Brockway to treat the waste stream onsite and allocated $225,000 for this treatment in response to Owens-Brockway's comment received on December 2, 2008.[88] Further, since technology for selenium treatment is available, SCAQMD staff recommends that Owens-Brockway operators conduct research to find the solution for their particular facility if the problem would occur if WGSs were installed. While the commenter criticized Option 3 (the comments were based on the incorrect assumption about the continued use of dry scrubbers and Trona injection), no comments were submitted relative to Options 1, 2 and 4 implying that the commenter did not disagree with the consultant. In addition, please refer to Response #2 for discussion related to the breakdown variances at Owens Brockway and Ball Foster El Monte facility.

[87] Email from Manufacturer A to Minh Pham – Solution Based Absorbents for Scrubbers, January 29, 2010.

[88] ETS's responses to Comment letter from Owens-Brockway. E-mail from Mark Tussing of Owens-Brockway to Minh Pham on December 2, 2008

- (Response to 7th, 8th and 9th bullet under Point #4 of ALG's assessment) There are hundreds of scrubbers operating across the nation that currently utilize caustic solution (NaOH, 50 percent by weight) as a scrubbing agent. The commenter has failed to provide evidence to support the claim that the use of caustic solution will create additional environmental impacts, other than what was already identified and analyzed in the Draft PEA. While caustic solution is a very common scrubbing agent, it is not the only solvent that can be used in Manufacturer A's scrubber. Owens-Brockway may select other solvents such as soda ash, a common element at a glass plant, as an alternative scrubbing agent

- (Response to Point #5 of ALG's assessment) Three WGSs are not required for redundancy as each can be sized to handle the entire flue gas flow from the ESPs in the existing facility. Both ETS and NEC were in agreement that three WGSs are not needed and space is not a problem. They identified two different separate locations at the site for the scrubbers.

- (Response to Point #6 of ALG's assessment) ETS analysis included all of necessary costs. NEC recommended raising ETS's costs to include contingencies, costs for additional ducting and valves for an alternative location; and the commenter indicated that additional costs for CEMS upgrade were also needed. Including all of the additional costs suggested by NEC and the commenter would not make the BARCT recommended by ETS cost-ineffective. NEC concurred that the control costs for WGSs would be cost-effective for glass melting furnaces.

- (Response to Point #7 of ALG's assessment) Refer to Response #2. The commenter refers to a site-specific problem (clogging problem) that occurred at Ball Foster, El Monte facility which is not applicable to their particular facility.

- (Response to Point #8 of ALG's assessment) Refer to Response #2.

Responses to WSPA's Comments Received from March 2010 to August 2010

Stranded Investments of Rule 1105.1

Comment #1
Actual cost information from refineries has been submitted to the District. We understand that Staff has initially reviewed the information and still feel that the documented costs seem "high" compared to District expectations.

The District Staff's position is a concern to WSPA and our members, because the affected refineries documented actual costs incurred to comply with previous SCAQMD rules. WSPA members have been open and factual in providing this documentation.

The result is entirely consistent with WSPA's previous Rule 1105.1 cost-survey that showed implementation costs were 3-5 times (or more) greater than the preliminary cost estimates made by District Staff and District consultants. We believe the documented actual installation costs are superior to any pre-rule cost estimates.

The District should accept the cost data provided by the refineries and acknowledge the fact that the actual costs are higher than the District's pre-implementation estimates. As we move forward, the District should consider these actual costs in establishing future cost estimates for control technology.

Response #1
The cost information submitted by the refineries to comply with Rule 1105.1 has varied considerably in content and level of detail. On this basis, it has been very difficult for staff to ascertain costs that were directly attributable to the Rule 1105.1 and the costs that were the result of corporate decisions or those that extend to other facility operations (e.g., augmentation of substations).

However, there was a reasonable agreement relative to the equipment cost estimates and actual equipment cost incurred but large divergence relative to the actual installation costs asserted by the refinery and original estimates by the AQMD consultant and even WSPA's consultant. The industry's delay in implementation (due to the litigation initiated by WSPA) had a direct impact on the increased costs on construction materials and labor. As reported by the refineries, all refineries selected to use the same ESP's manufacturer (Hamon Research Cottrell) and same contractors (Jacobs Engineering/ Hamon Research Cottrell) during a short construction/installation period from the mid of 2007 – mid of 2008. This compressed construction schedule had a strong negative impact on the union labor costs and the management costs, and thus inflated the implementation costs of the projects. In addition, all refineries selected to build extra redundancy to their ESPs, and upgrade other systems (e.g. substation, NOx and SOx monitoring) that may not be directly related to the FCCUs. Furthermore, the market experienced a surge in steel prices in 2008. These facts together explain the differences in the costs estimated pre- and post- rule development by staff and AQMD consultants as well as

those that were provided by industry. Please also note that all of the cost figures submitted significantly varies with the costs incurred by Chevron for their ESP installation in the early nineties, even when adjusted to current dollars. Detailed analysis is shown in Appendix E.

It is very important to note that in several meetings with the District, WSPA members indicated that if they installed wet gas scrubbers, they need to remove the ESPs and thus the installation costs for the ESPs would be stranded. None of the consultants supported the perspective that there is a stranded investment issue. In other words, based on the feedback received, the installation of the SOx control technology under consideration to meet the proposed BARCT levels will not necessitate removal of previously installed equipment to control PM. It is understandable that there would be certain costs associated with such equipment alterations as augmenting the exhaust flow to overcome increased pressure differentials. However, the potential problem of a stranded investment, according to the consultants, does not exist.

Legal Mandates and SOx Shave Methodology

Comment #2

In a meeting with the District on March 5, 2010, one WSPA's member cited H&S Code 39616(b)(2) – "A market-based incentive program ..... may substitute for current command and control regulations and future air quality measures that would otherwise have been adopted as part of the district's plan for attainment, and may be implemented in lieu of some or all of the control measures adopted by the district pursuant to Chapter 10 (commencing with section 40910) of Part 3." This person asked whether the District has legal authority to make BARCT more stringent for SOx, a primary pollutant that is already in attainment, solely because SOx is a precursor of PM2.5 and the Basin is not in attainment of PM2.5/PM10.

Response #2

The cited provision does not limit the market incentive program to pollutants listed under Chapter 10. Indeed, Section 39616(b)(1) provides that the District Board may adopt a market incentive program as an element of the district's plan for attainment of the state or federal ambient air quality standards. Thus, the District has legal authority that goes beyond controlling primary pollutants stated in Chapter 10. Chapter 10 covers pollutants such as NOx, SOx, and CO. In this case, the District is in non-attainment for PM2.5 and PM2.5 is a pollutant that is not covered under Chapter 10. One of the reason staff is amending Regulation XX is to reduce SOx in order to help the Basin attain the PM2.5 standards in 2015 and 2020.

It should be noted that SOx is a significant building block of PM2.5. Chemical speciation of PM2.5 samples indicated that in the South Coast Air Basin 25% of the ambient PM2.5 is attributed to contribution from sulfates. Furthermore, SOx reductions are highly effective in reducing ambient PM2.5 levels as compared to other primary and secondary contributors to PM2.5 formation (1 ton SOx = 1.5 tons PM2.5 = 15 tons NOx). Therefore, considering the level of NOx reduction needed to meet future ambient standards of PM2.5 and ozone and the fact that much of the needed NOx reductions are in the "black box", the reductions of SOx are essential for the basin to meet the federal annual standard of PM2.5 by 2015 and the federal 24-hour average standard of PM2.5 by 2020.

As indicated in the 2007 AQMP, the control strategies included in the Plan to meet the annual PM2.5 standard when fully implemented will fall short meeting the 24-hour standard by approximately 30%. Therefore, additional reductions above and beyond the control strategies committed in the 2007 AQMP for meeting the 2015 annual PM2.5 standard are necessary to meet the 24-hour PM2.5 standard in 2020. For further information, please refer to Chapter 5 of the 2007 AQMP. It should be noted that EPA is in the process of revising the PM2.5 standard.

Comment #3

In a meeting with the District on March 5, 2010, one WSPA's member cited H&S Code 39616(c)(1) "The program will result in an equivalent or greater reduction in emissions at equivalent or less cost compared with current command and control regulations and future air quality measures that would otherwise have been adopted as part of the district's plan for attainment". This person indicated that RECLAIM universe changed substantially from 1993 from 42 facilities to 32 facilities today with a very different emission profile. Why can't the district use the most current emissions distribution (e.g. 2005-2009) to estimate future RTC reductions and demonstrate attainment (or equivalency)? Why is there a need to base the estimation of RTC reductions on 94 or 97 baseline and emission profile? Does the H&S Code (or Regulation XX) restrict the district to use current emission profile?

Response #3

For a market based incentive program, staff is required by the H&S codes to conduct periodic BARCT reassessment and demonstrate equivalency with command-and-control rules which would otherwise be developed as a result of BARCT reassessment:

> *"…achieve an equivalent or greater level of emission reductions at an equivalent or lower cost as would have been achieved under a command-and-control rule"*

The H&S codes do not ~~restrict staff in using the current emission profile in 2005 to estimate RTC shave~~ specify a specific compliance year that staff must use to estimate the RTC reductions. The H&S code requires staff to apply BARCT when it is available and cost-effective, and demonstrate equivalency with command-and-control rules. Staff selected to use the 1997 baseline to be consistent with the NOx RECLAIM approach which was also recommended by WSPA's members in 2008-2009. The 1997 baseline reflects the emission profile at the time frame where no significant SOx control effort were undertaken by the RECLAIM facilities and therefore reflects equitable capture for future control efforts than the 2005 baseline. Please refer to Section 13.3.

Comment #4

District Staff has proposed a SOx RECLAIM shave methodology that was designed to be consistent with the method used for the NOx RECLAIM shave. WSPA feels, however, that the District's proposed methodology inappropriately overstates the required reduction (i.e., % shave) in the RTC allocations, thereby making the shave extremely cost-ineffective. This holds true for both the BARCT adjustment as well as the market-adjustment that was recently proposed.

WSPA only recently (June 18) received the RTC allocation data that we requested at our meetings with Staff on March 5 and again on April 7. While the allocation data report forwarded to us by District Staff does not provide the level of detail we requested, we have begun a detailed review of the information. Having this information is a key to understanding how a reduction in RTC allocations can affect compliance costs and, indeed, the RTC market.

Response #4
WSPA is correct that the SOx shave methodology proposed by staff is consistent with the methodology used for the NOx RECLAIM shave. The idea of keeping the shave methodologies consistent was a theme that was repeatedly requested by WSPA and its members during our extensive dialogue over the last several months as well as through several comment letters. Staff believes that the proposed methodology for SOx RECLAIM, as in the case of NOx RECLAIM, reduced RTC allocations fairly and equitably, remaining true to the design principles of RECLAIM.

As mutually agreed upon in the Work Plan, staff was open to alternative proposals, and as such, when asked by WSPA, staff provided WSPA with initial allocation data that was highly resource intensive to produce. At the March 5, 2010 meeting WSPA and its members did not request the RTC allocations. At the April 7, 2010 meeting such a request was made with very little input on the level of detail. In response, staff explained that the information requested would be a very resource intensive undertaking and would take several weeks to assemble. To that end staff spent a considerable amount of time assembling the allocation tables and meeting with each of the refineries, explaining their particular allocation profile line-by-line or equipment-by-equipment specification. The level of detail and the form of the information presented was, in part, staff's effort to be sensitive to WSPA's concerns regarding confidentiality and anti-trust issues.

Comment #5
WSPA proposed methodology (WSPA's presentation in the Refinery Committee Meeting on August 18, 2010) is summarized as follows: 1) use the 2005 actual emissions as baseline, 2) no new BARCT for boilers/heaters, SRU/TGs and cement kilns, 3) no shave for 1.98 tons per day unused RTCs converted from ERCs and Clean Fuel adjustments, 4) consider 10% - 20% compliance margin consistent with the operating requirements at some facilities and past practice. WSPA's proposal results in 3.86 tpd shave. WSPA proposes 3 tpd shave by December 2014 and the remaining no sooner than December 2019. WSPA also proposes across-the-board shave.

Response #5
Please see Responses to Comment #3 and #4. Using the 2005 baseline will result in 59% shave, not 55% shave as using 1997 baseline. BARCT for heaters/boilers will remain as Tier 1, and staff did not claim any reductions from 2005 from boilers/heaters category. Staff believes that a new BARCT can be set for SRU/TGs and cement kilns at 5 ppmv because retrofit control technologies are available. A 10% compliance margin is used to be consistent with NOx RECLAIM. The 1.98 tons per day RTCs converted from ERCs should be shaved in a similar fashion than other RTCs. Currently, in RECLAIM program, the 1.98 tons per day was shaved at a rate of 35% from Tier 1 to Tier 2. In comparison, ERCs of non-RECLAIM facilities do not

inherently hold their values to eternity, non-RECLAIM ERCs are often recalled and reduced per Regulation XIII. It should be noted that unused RTCs are abundant in the market (in 2005, the unused RTCs were 11.77 – 10.04 = 1.73 tpd, and in 2008, the unused RTCs were 11.77 – 9.22 = 2.55 tpd.) As such, WSPA's proposal of 3.86 tpd for future RTC shave comes short, will not result in the necessary actual emission reductions in order to provide protection to the 17 million people in the Basin against the harmful effects of PM2.5.

BARCT Determination

Comment #6
The Norton Engineering Report (released by the District on June 17 2010) has called into question the cost analyses previously performed by the District and its consultants. It appears that the ultimate conclusion of Norton Engineering is that the District's RECLAIM cost-effectiveness analysis should be revised.

Response #6
It is true that the Norton Engineering Report identified some areas of disagreement related to the cost estimates and recommendations provided by the previous consultants. However, these were limited in scope, primarily reflecting the differential cost of reassessing control equipment and their placement on the refinery property. Staff provides a thorough comparison of the approaches by the two sets of consultants in this revised draft staff report.

Comment #7
While NEC only relied upon the analysis and data provided by the initial consultants, NEC found numerous instances where the District's initial consultants erred by identifying unproven or untested technology and underestimating construction, labor or materials costs.

Response #7
We need to be clear on the term "unproven or untested" technology. In some instances, NEC indicated that the control technologies have not yet been proven or tested in the petroleum refinery and cement industry areas. However, these are not "unproven or untested" in the sense of not being commercially available or in use in other applications. These types of controls would be better characterized as transferrable technologies. NEC incorporated increased costs in order to compensate for uncertainty relative to technology transfers.

Staff did not agree with WSPA that NEC found the initial consultants severely underestimated construction, labor and materials costs. NEC has used a different approach than the initial consultants to estimate the project costs. For example, for FCCU's wet gas scrubbers, NEC indicated that: "*The NEC workup for the TIC[89] for four of the five plants agreed reasonably well with that of the original estimates, being within +8%/ -3%. The NEC estimate for Refinery #3 was 25% higher due to the necessity to design for particulate collection…..*" Staff has estimated the project costs based on NEC's input as shown in Chapter 12. The project costs based on the

[89] TIC = Total Installed Costs

initial consultants' input are $630 millions, and the project costs based on NEC's input are $738 millions, within 20% of the initial consultants' estimates.

Comment #8
Norton Engineering Report cites examples that would raise compliance costs in all source categories, which in turn would raise the District Staff's cost estimate for the District's proposed shave significantly above the current level of $745 million.

Response #8
When one considers the capital investment to comply with staff's proposal there is about a 21 percent cost differential between Norton Engineering and the previous consultants. Such differential are within the margin of error for the analysis conducted and cannot be viewed as significant and in fact reflect different approaches along with newly acquired data. In contrast, staff has difficulties in justifying the cost figures from WSPA which are 200 to 300 percent higher than the estimates presented by the consultants.

Comment #9
The Norton Engineering Report sheds new light on the issue of what technology is technically feasible, achieved in practice and cost-effective; therefore, it directly affects BARCT determination and should cause the District to rethink its proposed reductions in the RTC market.

Response #9
As mentioned above, the cost differential between the two sets of consultants is within the margin of error of the analysis conducted and in staff's view does not materially affect staff's earlier BARCT determination. Please also see response #7.

Comment #10
As a follow-up to the release of the Norton Engineering Report, we request that the District make the Norton Engineering staff available to meet with WSPA members individually so they can understand the details associated with the Norton Engineering Report.

Response #10
In the spirit of being sensitive to WSPA's confidentiality and anti-trust concerns, facilities and vendors in the final report by Norton Engineering are de-identified. Staff would be happy to meet with each of your members to let them know about their facility-specific information meeting with representatives of Norton Engineering may not be necessary after all.

Comment #11
WSPA requests the District to re-estimate the cost effectiveness based on Norton Engineering's estimates and make the report available to WSPA's members for comments. WSPA estimated the total costs to comply are about $2.7 billion as shown in WSPA's presentation at the Refinery Committee Meeting on August 18, 2010. On April 7, 2010, WSPA also provides staff cost estimates based on ENVIRON's report (WSPA hired ENVIRON to collect data and perform analysis with the results aggregated and de-identified). The aggregated cost estimates provided by WSPA on April 7, 2010 include: 1) Total compliance costs are about $2.85 billion for a 60%

shave, and $550 million for 25% shave; 2) Distribution of the total costs for 60% shave: $1.45 billion for FCCUs' controls, $436 million for SRU/TGs' controls, and $960 million for other improvements; and 3) Distribution of the total costs for 25% shave: $84 million for FCCUs' controls, $342 million for SRU/TGs' controls, and $127 million for other improvements. WSPA estimates $60,811.68 per ton for 60% shave scenario and $28,165 per ton for 25% shave scenario for refineries as of April 7, 2010.

Response #11
Staff is very sensitive about the costs estimated by WSPA, and plan to work in concert with WSPA to understand WSPA's estimate of almost 3 billion dollars for the proposed project. It seems that WSPA may include other costs above and beyond the scope of SOx RECLAIM. While the refineries can modernize and upgrade their facilities to respond to market demand and other regulatory requirements, it is not justifiable to attribute all of these project costs to SOx RECLAIM project.

Market Viability

Comment #12
District staff has committed to considering the use of compliance margin and non-tradable RTC accounts as tools to alleviate shortage of tradable RTC and ultimate failure of the SOx RTC market. WSPA is not aware of any progress to date.

Response #12
Staff has used 10% compliance margin in the Draft Staff Report released on January 8, 2009. Staff is proposing additional safety valves to retain market viability, for example the proposed rule language for Rule 2002 (PAR 2002(f)(1)(O)) establishes non-tradable RTC accounts starting in 2015 to be made available in the event the market price of "discrete" RTCs is higher than $50 K per ton. More specifically, in the event that the SOx RTC prices for "discrete" RTCs exceed $50,000 per ton based on the 12-month rolling average, staff will report to the Governing Board at a public hearing to be held no more than 60 days from staff's determination, which will be posted on District's web site. At the public hearing, the Governing Board will decide whether or not to convert any portion of the non-tradable/non-usable RTCs to tradable/usable RTCs. The portion of non-tradable/non-usable RTCs available for conversion will not include any portion of non-tradable/non-usable RTCs that are designated for previous compliance years and has not already been converted by the Governing Board, or any portion that has been included in the State Implementation Plan.

Water Demand & Wastewater Discharge

Comment #13
District Staff indicated they will invite representatives from water regulatory agencies, purveyors and wastewater treatment facilities "to the next Refinery Committee meeting." These representatives will be given the opportunity to provide their insights on the impact the Staff proposal will have on water supply and wastewater treatment. District Staff will also explore the extent to which the water demand can be offset by groundwater from wells owned and

operated by refineries, by recycled water, or by other means. Associated costs will also be examined.

Response #13
Representatives from water regulatory agencies, purveyors and wastewater treatment facilities were invited and attended the Refinery Committee Meeting on August 18, 2010. Representatives of the water purveyors attended the meeting confirmed that recycled water would be made available for the refineries in a near future. In addition, CEQA staff has sent the Draft Program CEQA document to the representatives of state water regulatory agencies, purveyors and wastewater treatment facilities for their comments on this issue. District Staff believes that the water demand can be offset by groundwater from wells owned and operated by refineries, by recycled water, or by other means. Furthermore, the consultants did include the associated costs of water (e.g. they used the costs provided to them by the refineries, $900 per acre-foot recycled water) in their cost effectiveness analysis.

CEQA Implications and Permitting

Comment #14
Specifically with respect to permitting and CEQA compliance, WSPA members have not yet been contacted by District Staff for information related to construction, project emissions or any other environmental impacts. We encourage the District to address the program's effects as specifically and comprehensively as possible, so that subsequent activities at RECLAIM facilities are addressed within the scope of the EIR.

Response #14
Staff has been in direct contact with WSPA members over the last several months for information related to construction, project emissions or any other environmental impacts. Based on this information, as well as information from other sources, staff did and will continue to do their best to address the program's effects as specifically and comprehensively as possible, so that subsequent activities at RECLAIM facilities are addressed within the scope of the EIR.

Comment #15
WSPA appreciates the District's willingness to prepare a comprehensive CEQA programmatic DEIR document to help streamline the permitting process for individual projects carried out in response to the requirements of PAR XX. However, WSPA feels that several projects to reduce SOx emissions will require modification to existing Title V/RECLAIM permitted equipment, may involve changing the existing process units by adding process vessels, enlarging existing process vessels and replacing one type of chemical solution with another type. These activities will be subject to various District regulations, particularly Regulation XIII – New Source Review, Rule 1401 – New Source Review of Toxic Air Contaminants, and PSD for criteria pollutants and perhaps green house gas (GHG) emissions, as well as public review. Other projects may need offset exemption and in the absence of a SIP-approved Rule 1315, we suggest that the SCAQMD begin implementation of this element of the Work Plan as soon as possible. The first tasks would be to review issues such as the availability of offset credits, qualification for Rule 1304 offset exemption, new or larger releases to the flares, NSR and Subpart Ja applicability to flare

modifications, Best Available Control Technology (BACT), Toxics – BACT, and analysis of potential risk increase under Rule 1401.

Response #15
Staff acknowledges WSPA's comments and will plan to work with Engineering & Compliance to address these elements related to permitting as soon as possible.

Comment #16
WSPA met with staff on April 7 and 15, 2010. WSPA hired Environ to collect data from the refineries and perform analysis with the results aggregated and de-identified. The total costs and cost effectiveness provided by WSPA for 25% shave and 60% shave scenarios are summarized below.

Total Costs ($Million) for
SOx RECLAIM Project Summarized by WSPA/ENVIRON

	For 25% Shave	*For 60% Shave*
FCCUs Contribution	*83.57 million*	*1,454.51 million*
SRUs Contribution	*341.79 million*	*436.10 million*
Others	*127.11 million*	*960.20 million*
Total Costs	*550.00 million*	*2,850.00 (2.85 billion)*
Cost Effectiveness	*$28, 165 per ton*	*$60,812 per ton*

Response #16
WSPA did not provide specific information that could be used for meaningful analysis. In addition,WSPA's cost estimates were very different than the costs that staff received from the refineries directly. Furthermore, WSPA's estimates did not reflect the 55% shave scenario that staff currently proposed. Staff identified three scenarios in WSPA's estimates that were substantially different from the consultants' estimates. Staff believes that these three estimates were exaggerated. The table below shows how staff could explain the gap between WSPA's estimates and the cost estimates based on NEC/ETS/AEC and NEXIDEA's recommendations.

Estimates	Explanation
$2,850 million	WSPA's estimate for 60% shave
-$700 million	Remove costs for boilers/heaters control options
-$101 million	Remove costs for early controls already in place
-$467 million	Remove costs for cost-ineffective units
$1,562	
-$700 million	Remove overestimated costs for FCCU's WGSs (2 outliers)
+$196 million	Add consultants' estimated for FCCU's WGSs
-$459 million	Remove overestimated costs for SRU/TG's WGS (1 outlier)
+$73 million	Add consultants' estimated for SRU/TG's WGS
Total $672 million	This compares reasonably well with the consultants' estimates of $630 - $750 million for the SOx RECLAIM project

Responses to WSPA's Comments Received on July 14, 2009

- **BARCT, Cost Effectiveness Analysis, and RTC Reduction Estimates**

Comment #1
A methodology for making the BARCT determination and calculation of the SOx reduction should be developed by the District, and understood by the stakeholders, prior to conducting any analysis or any study. Staff must stay consistent with the 2005 NOx shave methodology. The identification of baseline year, starting emission factors, control factors, etc. has been lacking.

Response #1
The methodology for BARCT determination and RTC reduction estimates is transparent, has been provided to the stakeholders as early as in April 2008, and has been discussed at the June 2009 Public Workshop, and many Working Group meetings since then.

BARCT Determination
SOx RECLAIM program is required by H&S Code 39616 code to:

> "…achieve an equivalent or greater level of emission reductions at an equivalent or lower cost as would have been achieved under a command-and-control rule"

To fulfill this requirement, staff has followed a traditional, transparent, BARCT determination methodology that is similar to the methodology used in any command-and-control rule development. The step-by-step BARCT determination process was summarized in the Draft Staff Report, Part III, released in June 2009.

It should be noted that staff is not required to focus only on achieved-in-practice and fully commercialized available control technology (i.e. technology that either is being offered commercially by vendors, or is in commercial demonstration or licensing). Staff is obligated to find technology that can potentially reduce maximum amount of pollution and meet the requirement sated in H&S Code §40406:

> "… an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, & economic impacts by each class or category of source."

Thus technology that is both feasible and cost effective must be considered BARCT even they are not yet proven achieved-in-practice. A feasible technology is a technology that has been previously installed and operated successfully at a similar type of source, or has practical potential for application to the source, i.e. has been successfully applied to similar sources with similar gas stream characteristics.

The potentially proposed BARCT levels for 7 categories of sources were first introduced to the public and the stakeholders in early April 2008, and have become the source of discussion in many Working Group meetings since then. Please refer to the Preliminary Draft Staff Report

dated April 3, 2008 and subsequent Working Group meetings on April 3 and April 30, 2008 as well as in many separate task force meetings with WSPA and WSPA's members since then.

In late September 2008 to April 2009, the consultants carefully conducted another independent feasibility analyses for all of the potential BARCT identified by staff. They estimated the cost effectiveness factors for these technologies on a facility-by-facility basis. In their final reports, the consultants concluded that the proposed BARCT levels were feasible, available, and cost effective.

Subsequent to the release of the consultant studies, their recommendations were carefully evaluated by staff and subject to another step of refinement. The objective of this refinement was to optimize the effectiveness of the subsequent staff proposal by removing certain control technology recommendation with the lowest favorable cost effectiveness that allowed optimizing the emission reductions to be obtained relative to the capital investment to be incurred.

RTC Reductions Estimates & Shave Methodology

Staff followed the commenter's recommendation to stay consistent with the NOx shave methodology that was developed by the District's staff and agreed upon by WSPA and WSPA's members in 2005. Even though staff was in agreement in principal with the desire to stay consistent with the 2005 NOx shave methodology, designing a shave methodology that is workable for the SOx RECLAIM program, but remains fair and equitable is not a trivial and simple task.

To use the 2005 NOx shave methodology, staff invested tremendous amount of time and efforts to recover the 1997-1998 emissions baseline and the starting emission factors in 1993. Using the 1997-1998 emissions baseline and the 1993 starting emission factors, staff estimated the control factors and RTC reductions as shown in Part III of the Draft Staff Report presented in the June 9, 2009 Public Workshop. The RTC reductions shown in the June 2009 Staff Report (i.e. 7.09 tpd – 7.68 tpd) were very similar to the emission reductions estimated by staff in April 2008 (i.e. 6.73 tpd – 6.77 tpd.)

Comment #2
Part I of the Staff report contains premature technology recommendations by the District. The attempt to identify these candidate technologies in advance was in conflict with the concept of utilizing third party consultants to conduct a study to determine potential technology recommendations. Any proposed BARCT should be eliminated from Part I and reserved for discussion in Part III.

Response #2
Staff disagrees with the commenter's recommendation. Utilizing the third party consultants to conduct additional independent studies on BARCT from September 2008 – April 2009 should not be viewed as relinquishing the authority or obligation by staff from conducting their own independent research on BARCT and release any relevant information to the stakeholders. Part I, II and III of the Staff Report reflect the progression in the thought and evaluation process

leading to the most recent staff proposal during this rule making process. Specifically, Part III of the Staff Report has utilized the information presented in Part I of the Staff Report (i.e. feasible control technologies) and Part II (i.e. cost information) in conjunction with other information (e.g. starting emission factors, 1997-1998 emissions baseline, growth factor) to estimate the RTC reductions. This approach is consistent with the requirements in H&S Code §40406 and §39616. Staff is now retaining all the information in Part I, and combining Part III and Part IV into Part I as a complete report. Part II is reserved to serve as a summary of the consultants' analyses.

Comment #3

In the 2005 NOx Shave, District staff established the following specific criteria used to evaluate BARCT. Staff should use these criteria in evaluating measures for this SOx shave rule:

- *Does another air pollution control district or agency have BARCT that we have not identified, or have a more stringent BARCT level than the SCAQMD? WSPA's opinion: No*
- *Is the proposed BARCT level achieved in practice as retrofits? WSPA's opinion: No*
- *Is technology available and feasible for retrofits? WSPA's opinion: Feasibility must take into account environmental, economic and energy impacts, based on this NO*
- *Do manufacturers offer guarantees for achieving proposed emission levels? WSPA's opinion: Guarantee letters were all prospective - contractor has not issued, or presented evidence of, guarantees at the recommended levels and corresponding demonstrated equipment operation functioning under those guaranteed letters.*
- *Is retrofit technology cost-effective? WSPA's opinion: No*
- *Based on the above criteria, could a command and control BARCT rule have been proposed in the absence of the RECLAIM program? WSPA's opinion: No*

Response #3

Staff has examined the criteria listed above; however, staff disagrees with most of the commenter's responses to these criteria. Staff's responses are as follows:

- Does another air pollution control district or agency have BARCT that we have not identified, or have a more stringent BARCT level than the SCAQMD? Staff's response: No. Because of the severity of air pollution its seventeen (17) million residents have to endure, SCAQMD usually sets the most stringent BARCT emission standards in the nation. The more stringent BARCT standards are needed for the Basin to achieve the annual average and 24-hour PM2.5 and ozone federal and state air quality standards in 2015, and 2020, and post 2020, respectively.

- Is the proposed BARCT level achieved in practice as retrofits? Staff's response: Yes. The proposed 5 ppmv BARCT limits are achieved-in-practice for FCCUs (Valero Delaware Refinery, ConocoPhillips Refinery) and SRU/TGTUs (Sinclair Refinery, Casper Refinery.) The proposed technologies (e.g. wet/dry gas scrubbers) are commercially available, feasible to achieve 5 ppmv in all 7 equipment applications identified by staff, and they are cost effective to implement.

- Is technology available and feasible for retrofits? Staff's response: Yes. Wet/dry gas scrubbers are commercially available, feasible and cost effective for retrofits. Emerachem oxidation and absorption catalyst technology is commercially available, has been used in

power plant application, but has not been used in a refinery application and the consultants' conclusion is that the technology is transferable to refinery application.

- Do manufacturers offer guarantees for achieving proposed emission levels? Staff's response: Manufacturers have provided guarantee letters to the consultants and these letters were distributed directly to the refineries, as well as the Governing Board members and the public in the Stationary Source Committee meeting June 2009.

- Is retrofit technology cost-effective? Staff's response: Yes. Please refer to the consultants' analyses.

- Based on the above criteria, could a command and control BARCT rule have been proposed in the absence of the RECLAIM program? Staff's response: Yes. It should be noted that if a command and control BARCT rule would be proposed, they individually could have more stringent reduction requirements than the 55% RTC reduction proposed for SOx RECLAIM.

Comment #4
There is no evidence to support the assertion that RECLAIM sources have the highest possibility to achieve the 3 ton/day target reduction compared to other SOx sources in the basin. Substantial reductions in SOx emissions have been made from refinery flares but are not properly credited in the 2007 AQMP.

Response #4
Staff acknowledges that significant progress has been made in reducing SOx from refinery flares. However, significant additional reductions are needed above and beyond those committed in the 2007 AQMP to meet the federal and state 24-hour PM2.5 standard. A reduction of 3 tons per day is achievable for SOx RECLAIM facilities taken from the following categories:

- 1.76 tons per day RTC surplus for RECLAIM sources (11.76 tpd available RTC – 10 tpd of 2005 emissions = 1.76 tpd RTC surplus)
- Refinery boilers/heaters can reduce approximately 0.89 tpd reduction to meet Tier I standard applicable since year 2000
- FCCU category alone can reduce approximately 3 tpd reduction estimated from the 2005 emissions baseline.

Contrary to the commenter's observation, the 2007 AQMP properly credited the emissions reduction from the refinery flares in estimating the remaining emissions in future years.

Comment #5
WSPA believes that the BARCT analysis should be conducted on a source category by source category basis per the H&S code requirement and past practice of NOx 2005 RECLAIM shave, not on a facility-by-facility basis as performed by the consultants.

Response #5
BARCT analysis was done on a source-by-source basis. In addition to that, staff asked the consultants to conduct a facility-by-facility analysis. Conducting a detailed facility-and unit-specific analysis was very time consuming and not required by the H&S code.

Mindful of the implementation costs of control, staff instructed the contractors to conduct facility-by-facility site specific analysis to ensure that the proposed technology can be implemented cost-effectively at each facility. The BARCT analysis (e.g. use a top-down approach in the selection for BARCT, use of discount cash flow (DCF) method in calculating the cost effectiveness factor) was clearly written in the contracts' Statement-of-Work.

There are at least two reasons that make the facility site specific analysis possible for SOx RECLAIM but not for NOx RECLAIM:

- The universe of sources in SOx RECLAIM is much smaller than the universe of sources in NOx RECLAIM. The NOx RECLAIM universe contains hundreds of boilers, heaters, furnaces, and ovens, which makes unit-by-unit analysis impractical.
- The main control technology for NOx in refineries is low NOx burners which can be installed without the analysis of available plot space. The main control technology for SOx sources is a wet gas scrubber for which a unit-specific analysis was needed to assess available plot space.

Comment #6
WSPA believes that a BARCT determination must consider only technologies that are truly "available" and have been proven successful for an adequate period of time in commercial-scale applications. Even the District's definition in Rule 1302(h) (1) of BACT (apparently intended to be more stringent that BARCT) includes the principle of a control technology having been "achieved in practice for such category or class of source"

Response #6
Because BACT is a permitting requirement, it must be achieved in practice to be available at time of permitting. BARCT however can be more stringent than BACT because additional time can be provided to allow technology to mature.

Comment #7
Proposed BARCT emission levels lack proper substantiation (e.g. six months of operation at a certain performance level). This was not done for any of the source categories examined for the refinery. In fact, it cannot be done for the SRU systems proposed as BARCT because none have been used in refineries, much less sulfur plants.

Response #7
A technology does not have to be achieved-in-practice with 6 months of operation at a certain performance level to be defined as BARCT. A technology can be defined as BARCT if it is technologically feasible and cost effective. Wet gas scrubbing technology however is proven achieved-in-practice, and commercially available for refinery FCCUs and SRU/TGTUs.

Comment #8
The cost effectiveness analyses are undermined because they do not include all of the true associated costs, including additional equipment needed to provide additional heat and steam. These gaps have created a significant problem for evaluating potential emission reduction technology applications, their cost effectiveness, and also the logistical applicability to specific facilities. It is inappropriate for the District to make technology recommendations based on incomplete or incorrect data.

Response #8
The consultants have carefully conducted facility and unit specific cost analysis. A contingency factor has been added to cover miscellaneous costs. This procedure is common to all cost estimates. The commenter did not specifically indicate in what applications the additional heat and steam were needed for, so the comment cannot be addressed .

Comment #9
Analyses of plot space requirements were performed 'at the last minute' and were incomplete and did not include equipment required outside the scope of vendor supplied equipment. This example of incomplete analysis and considerations for a "total application solution significantly understates potential costs and cost effectiveness.

Response #9
The commenter has incorrectly characterized the contractors' analysis related to plot space. Plot space analysis was one of the key elements described in the contracts.

The contractors conducted their plot space analysis early on in the project, not at 'the last minute'. As stated in Task #1 of the Statement-of-Work, the contractors were required to conduct field visits at each RECLAIM facility to:

> "assess both physical and operational factors that would impact the feasibility and the cost of additional emission control equipment."

The contractors did not limit their analysis just to the vendor supplied equipment (e.g. wet gas scrubbers) but extended their analysis to cover 'the total application' and they thoroughly discussed the plot space issues with the facilities. As stated in the contractors' reports:

> "Infrastructure items were discussed extensively. These include available areas for a scrubber for the FCCU, room on existing pipe racks, piling, Electrical Substation..…..., control systems, steam, water, available sewer allocation….."

Comment #10
The "average cost effectiveness" ratio presented in the staff report is not an appropriate representation of the cost effectiveness of available SOx reduction technologies and has the potential to mislead policy makers. A clear cost-effectiveness threshold should have been established upfront. An incremental cost effective analysis should have been completed to provide a clear relationship between incremental SOx reductions, cost and the associated

emission reduction technology employed. At a minimum, incremental cost effective analysis at 4tpd, 6tpd and 8tpd SOx reductions should be completed to satisfy the following requirements in the State H&S Code.

Response #10
Cost effectiveness factors are process and facility-specific. To present all possible information on cost effectiveness factors to the policy makers and the public, staff has provided four types of cost effectiveness factors in Step 3 of Section 17.2 of Chapter 17 of Part III of the Draft Staff Report:

1. Individual cost effectiveness for a specific emitting source (e.g. cost effectiveness for each FCCU);
2. Average cost effectiveness for the category of source (e.g. average cost effectiveness for five FCCUs in the Basin);
3. Average cost effectiveness for the entire project; and
4. Incremental cost-effectiveness for the entire project

The cost effectiveness factors in this project ranged from $2K to $47K per ton. The individual cost effectiveness factors for each control at each facility (e.g. $14K per ton for Refinery 1's FCCU wet gas scrubber), the average cost effectiveness factor across a class of equipment (e.g. $25K per ton for all FCCUs' wet gas scrubbers); and the average cost effectiveness factor for the entire SOx RECLAIM project (e.g. $17K per ton) were shown in Appendix III-A of the Draft Staff Report.

Staff did not select a clear threshold for cost effectiveness at the time the draft staff report was released. After further consideration, staff selected a cutoff threshold of $50K per ton as a means of removing the least cost-effective control technology recommended by the consultants and optimizing the effectiveness of the most recent staff proposal.

At the time the draft staff report was released, staff estimated the incremental cost effectiveness between the consultant's proposal (Scenario 2: 6.5 tpd) and staff's proposal (Scenario 3: from 6.1 tpd to 6.4 tpd) as shown in Section 18.1 of Chapter 18 of the Draft Staff Report. Even though the overall cost effectiveness of the consultants' proposal was within a reasonable range, the incremental cost effectiveness compared to staff's proposal was significantly large ($300 million per incremental SOx reduced), and because of this reason, staff did not select the consultants' proposals.

Comment #11
There is no evidence in this document that staff considered environmental, energy, economic impacts in any of the proposed scenarios. Until all of these analyses and considerations are completed, making a BARCT determination is premature and arguably invalid.

Response #11
Staff is in the process of conducting additional analysis for environmental, energy and economic impacts to support the proposed BARCT determination in the draft staff report released at the Public Workshop in June 2009.

Comment #12
In all cases, the BARCT recommendations are based on technology forcing emission levels. It is unlikely that under command and control, all of these BARCT proposals would become rules - particularly for those source categories that have only a single facility. It would be more appropriate to have a mix of more and less aggressive levels equivalent to a programmatic BARCT to allow the RECLAIM program to be viable.

Response #12
Staff disagrees with the commenter. Wet gas scrubbing achieving 5 ppmv – 10 ppmv outlet concentrations is not a technology forcing technology. It is a mature, commercially available, and achieved-in-practice technology for many of the affected equipment categories (e.g. FCCUs, SRU/TGs, glass furnace, coke calciner).

For SOx RECLAIM, staff estimated a programmatic RTC reduction of 60%-65%. If AQMD would pursue and "single out" a facility for command-and-control rule, the reduction could be in the neighborhood of 80% - 95% or higher based on the feasibility of wet gas scrubbing technology.

Comment #13
The reliance on guarantee letters provided by the manufacturers is faulty and should not be relied upon to validate or support the emission reduction sustainability.

Response #13
Guarantee letters provided by the manufacturers are only one piece of information that staff relied on to judge the feasibility of the control equipment. In addition to the guarantee letters, staff also relied on achieved-in-practice information, source tests data, CEMS data, and expert consultants' analyses. Furthermore, the sustainability of the emission reductions relies heavily on how the facilities operate and maintain their control equipment. If staff develops command-and-control rules, good engineering practices (e.g. annual maintenance, annual testing) would normally be crafted in the rule requirements to assure continuous compliance with the BARCT levels and guarantee the achievability of emission reductions estimated.

Comment #14
There is no BARCT determination for de-SOx additive, therefore it is inappropriate to consider de-SOx additives as an alternative feasible and available control technology

Response #14
In late August 2008, staff developed a testing protocol for de-SOx catalysts with the participation of WSPA and the refineries. Only one of the refineries volunteered to participate in the short-term source testing from September 2008 – November 2008. From this short-term testing, this refinery was able to achieve approximately 7 ppmv SOx at 0% O2 and at the same time also met the PM10 emission level in Rule 1105.1.

Comment #15

Several data requests have been made of the SCAQMD: 1) clarification of how certain emission factors (starting and new) for FCC's, SRU's and boilers were derived for individual facility process units, 2) facility specific data/calculations be sent directly to the six individual WSPA member facilities, 3) derivation of the emission factors referenced in Appendix III-A of the Staff Report SOX RECLAIM Part III, and 4) 1997/2002/2005 baseline.

Response #15
The following information was provided to WSPA and the refineries:

- Clarification of how certain emission factors (starting and new) for FCC's, SRU's and boilers were derived for individual facility process units was explained and provided in the Working Group meetings on July 30, August 13, and August 27, 2009
- Derivation of the emission factors referenced in Appendix III-A of the Staff Report SOX RECLAIM Part III was explained and provided in the Working Group meetings on July 30, August 13, and August 27, 2009
- Facility specific data/calculations were e-mailed directly to the six individual WSPA member facilities on July 17, 2009
- The 1997 and 2005 baselines were presented in the Staff Report released at the June 2009 Public Workshop. Staff did not provide the 2002 baseline, because there was no demonstrated need for that baseline.

- **Water & Wastewater**

Comment #16
There is no information regarding the total water related impacts of the dozen potential scrubber installations. The report provides a broad impact: for fresh water – between 1 and 90 million gallons per year for each scrubber, and for waste water – between 1 and 40 million gallons per year for each scrubber. Thus, the total impact could be as high as one billion gallons per year of fresh water (90 million gallons and 12 installations), and an increased wastewater load to Publicly Owned Treatment Plants (POTWs) as high as 440 million gallons per year (40 million gallons and an assumed eleven systems that would discharge to a POTW).

Response #16
The above estimated water usage and wastewater generated provided by the commenter (1 billion gallons per year water usage and 40 million gallons waste water generated) are incorrect.[90]

In July 2009, staff developed a Survey Questionnaire to gather information on the current usage of water, the current amount of wastewater and solid waste generated, and the existing practice (e.g. ground water capacity and current pumping rate, recycled water usage) at the 11 top emitting facilities. The facility's responses to staff's Survey Questionnaire are summarized in

[90] The reported water usage and waste water generated for the SRU//TGTUs' scrubbers estimated by the consultants in their final reports were not the same as estimated in the draft staff report. Perhaps, there was a typo in the figures (e.g. misplacing the decimal point). Staff has revised these figures based on the numbers provided by the wet gas scrubbers' manufacturers.

Table XX, Chapter XX of the Staff Report. Based on the facility's responses, the impacts of the project on water and waste water are as follows:

- The total current water usage for the 11 facilities is 18,842 million gallons per year. This project would require 364 million gallons water per year. This impact reflects an estimated 2% increase in water demand from these facilities relative to their current water usage.

- The total current wastewater discharged by the 11 facilities is 10,556 million gallons per year. This project would generate about 160 million gallons per year, or about 1.5% increase in wastewater generated from these facilities relative to their current wastewater discharge.

Comment #17
The consultants admitted that there are a number of disadvantages to wet gas scrubbing: 1) Fresh reagent and fresh water must be fed to the unit to replace the water lost as waste water and the reagent consumed in the reaction, 2) The reaction products are generally salts that must be carried away with a waste water stream, 3) Sodium sulfite and sodium bisulfite salts are created and these salts increase the chemical oxygen demand (COD) of the waste water, 4) A large visible plume usually forms as water is evaporated, which is an aesthetic concern and constitutes a loss of water for the refinery.

Response #17
Wet gas scrubbing technology is a mature technology. As any other control technology, wet gas scrubbing also has its own advantages as well as disadvantages. Regardless of the disadvantages cited, many facilities in the U.S. and in the District have chosen to install and successfully operate wet gas scrubbers to control SOx and particulate matter from various types of stationary sources. Clearly, those facilities believe the advantages of the technology outweigh any disadvantages. As written in the Module 3A report, the consultants objectively commented on both the advantages and disadvantages of wet gas scrubbers and cited the following advantages:

> "*There are a number of advantages to wet gas scrubbing. Operation of the package is not particularly complex, and the process hazards that accompany it are typically manageable in a refining environment. In addition, such units are very effective at removing SOx $_{from}$ gas streams and can also reduce emissions of particulate matter into the air.*"

- **Fluid Catalytic Cracking Units, SRU/TGTUs, Boilers/Heaters**

Comment #18
There are no records to support the performance of the wet gas scrubber on the FCCU at the Valero Delaware City Refinery.

Response #18
The Delaware Department of Natural Resources and Environmental Control (DNREC) provided staff with approximately 18-months 1-hour CEMS data (a total of 10,386 records). The average concentration of this 18-months period of operation was 1.2 ppmv at 0% O2, well below the proposed BARCT level of 5 pmv. In addition, there is a wet gas scrubber installed and operated

at a refinery in the District since August 2008. The performance of this wet gas scrubber (i.e. mass emissions from CEMS for a period of 265 days and a performance source test result) was listed in Appendix III-D of the draft Staff Report.

Comment #19
It is inappropriate for the consultants to make a BARCT recommendation.

Response #19
Staff did not view the consultants' action as inappropriate. As shown in the Statement of Work, the consultants were required to present various levels of feasibility and estimate the emission reductions and cost effectiveness at each level. They indicated in their report that wet gas scrubbing technology could achieve a level as low as 1 ppmv and they provided emission reductions and cost effectiveness associated with this level as required by the contract. However, they also concluded that a level of 5 ppmv is more realistic to implement. Therefore, they recommended that level be BARCT even though they were not required to do so by the contract. This is only a recommendation and should not be viewed as inappropriate. During the process of formulating its final BARCT proposal, staff will review, verify and use all technical information provided by the consultants as well as information from other sources. Staff is ultimately responsible to make a final BARCT recommendation to the Governing Board for its consideration, and the Governing Board will ultimately make a final decision on what are the appropriate BARCT levels.

Comment #20
In the report, the contractors stated that "... it is the recommendation of the ETS team that non-regenerative wet scrubbing be considered on a purely technical basis (emphasis added) as BARCT ...with an overall BARCT level of 5 ppmv." It is apparent, that the contractor made their unauthorized recommendation solely on a technical basis, and therefore it is not a defensible BARCT determination.

Response #20
The consultants' recommendation was not purely based on technical information. The consultants conducted a detailed engineering evaluation and cost analysis assessment strictly adhered to the Statement of Work:

> *".....visit each of the six local refineries in the Basin to gather site specific information (e.g. operating conditions) and to conduct site-specific feasibility assessment analysis….evaluate the existing commercially viable control technologies, starting with the most effective control technology, and make recommendations to the District on various technologies that could potentially be used to achieve additional emission reductions, on various concentration targets that could be achieved with each technology, the estimated emission reductions, the multimedia pollutant impacts (e.g. water, waste), energy impacts of the technologies, and the associated cost effectiveness associated with the control technology."*

On a purely technical basis, the consultants recommended a level as stringent as 1 ppmv. However, after carefully considering costs and other impacts, the consultants recommended a

level of 5 ppmv for FCCUs with the use of wet gas scrubbing technology, 5 ppmv for SRU/TGTUs with wet gas scrubbing technology or oxidation catalysts, and 40 ppmv for boilers/heaters with various types of fuel gas treatment techniques. As mentioned in previous responses, in formulating its BARCT proposal, staff carefully evaluated the consultants' recommendations and introduced several refinements to improve and optimize the effectiveness of staff proposal.

Comment #21

The contractors claimed that it was impossible to address every one of the individual cases and therefore the team made use of generic, but representative quotations and published cost studies. Because there are only five FCCUs in the Basin, and because the estimated present worth of implementing the proposal for FCCUs alone is $493 million, it is a flawed practice to attempt to use a "generic" approach.

Response #21

The consultants did not use a "generic" approach to estimate the total costs of $493 million for FCCUs' wet gas scrubbers. As required under the Statement of Work, the consultants conducted site specific analysis for each FCCU at the six refineries and gathered costs information for each individual FCCUs from the manufacturers. As shown in the final report of Module 3A, the consultants included the following items in their cost estimation:

- Categorized costs include:
  - Demolition and decommissioning
  - Civil/concrete
  - Structure
  - Equipment
  - Piping and Mechanical
  - Electrical and controls
- Miscellaneous line items include:
  - Contractor overhead, typically 8 % of direct field labor (DFL)
  - Contractor field supervision, typically 12 % of DFL
  - Mobilization/demobilization, typically 10 % of DFL
  - Overtime/productivity factor, typically 12 % of DFL
  - Freight and shipping, typically 8 %, of materials
  - Sales tax, typically 7 % of materials
  - Commissioning and operating spares, typically 5 % of materials
  - Startup/initial fill material, typically 2 % of materials
  - On-site training/startup assistance, depends on project
  - Front-end engineering design, depends on project size
  - Project management, depends on project size
  - Design development allowance, 10% of total
  - Contingency, 25-40% applied against the bottom-line capital cost estimate

The "generic" approach that the consultants followed was the Discounted Cash Flow (DCF) methodology provided by SCAQMD staff to estimate the cost effectiveness factor. This cost

effectiveness methodology is consistently used in the AQMPs and in all the rules and regulations developed by the SCAQMD.

Comment #22

Adequate consideration needs to be given for plot space concerns.

Response #22

Plot space concerns were addressed in the consultants' report, section H:

> "Wet gas scrubber equipment footprints and space requirements for the FCCUs and the SRU/TGTUs are shown in the confidential appendices for each refinery where measures have been selected. These specifications have been compared with the plot plans provided by the respective refineries, and where applicable, are presented in the costing workbooks."

Comment #23

Regarding Emerachem technology, the fact that the precious metal (presumably a platinum group metal) can be reclaimed at the end of the useful life of the catalyst does not in any way suggest that this is an "investment". Reclaiming the metal is a significant cost and the reclaimed material only exists as a partial "credit" against the purchase of fresh catalyst. The initial purchase price of the metal is only actually recovered when the plant is shut down for good, and the value of the metal can be higher or lower than the original purchase price.

Response #23

Staff is not clear on the term "investment" used by the commenter and is not certain about the purpose of the comment. In Measure M13, the costs to purchase the fresh catalyst system ($1,800,000) are included in the quote from Emerachem. The consultants also included the costs for catalyst change ($420,000) quoted by Emerachem. The consultants gave a salvage value (credit) of merely $50,000 to the Emerachem control system at the end of the equipment life. In lieu of Emerachem, the facility may select to install a wet gas scrubber. In Measure M17, a wet gas scrubber would initially cost approximately $5 million but has a salvage value of $300,000. (Measure M13 and Measure M17 were not to control the same SRU/TG however the costs cited above can only be used qualitatively)

Comment #24

Project timing estimates made by the contractor do not reflect realistic logistical and/or market pressures resulting from multiple refineries and other industries pursuing similar technologies during a closely concurrent timeline.

Response #24

Such timing estimates will be given further consideration as part of the staff analysis.

Comment #25

Inadequate information to substantiate the 5 – 10 ppm performance of the wet gas scrubbers designed for the SRUs/TGTUs. The lack of substantiation beyond the vendor sales literature is highly questionable.

Response #25
Staff recently received the most recent CEMS data (6 months of 1 hour average data) from the Wyoming Department of Environmental Quality which indicated that the DynaWave wet gas scrubbers installed and operated since 2004 at Sinclair Refinery in Wyoming can achieve the performance levels recommended by staff.

Comment #26
The cost effectiveness for this source category (SRU/TG) is on average high (> 30k$/ton) in comparison to the FCCU source category and appears to include higher variability, making a comprehensive review all that more important. WSPA requested and did not receive specific data used by the consultants to arrive at the cost effective conclusions reported. In some cases it appears that the technology vendor has provided promises of very high control efficiency and what appear to be artificially low capital cost estimates – all at no risk whatsoever to themselves. This is particularly true of this source category where the proposed BARCT vendors have no experience
with installation in refineries, which makes their cost estimates highly suspect.

Response #26
Staff has recently removed the emission reductions and associated costs for Refinery #4 and #5 because of the unfavorable cost effectiveness (>$50K per ton). The cost data and performance levels proposed by the consultants for the wet gas scrubbers for Refinery #2 and #6 are reliable, substantiated by the achieved-in-practice performance of the wet gas scrubbers at Sinclair refinery in Wyoming. Staff currently does not have any achieved-in-practice data from Emerachem catalysts technology for Refinery #3 but Emerachem provided the consultants with a guarantee letter and the consultants also considered a wet gas scrubber for Refinery #3 in their confidential analysis.

Comment #27
WSPA would agree that the proposal to maintain the existing 40 ppm limit on the sulfur content of fuel gas is appropriate. Further WSPA notes that the current US-EPA New Source Performance Standard (adopted in April 2008) has a limit that is approximately four times higher.

Response #27
Staff appreciates the comment and continues to maintain that the 40 ppm on the sulfur content of fuel gas is appropriate.

Responses to Chevron's Comments Received on July 14, 2009

Comment #1
It is inappropriate for the District to aggressively pursue SOx shave for PM2.5 attainment. The current trend of PM2.5 is declining and does not warrant a SOx shave that is estimated to cost industry over one billion dollars.

Response #1
For a market based incentive program, staff is required by the H&S codes to conduct periodic BARCT reassessment and demonstrate equivalency with command-and-control rules which would otherwise be developed as a result of BARCT reassessment:

> *"…achieve an equivalent or greater level of emission reductions at an equivalent or lower cost as would have been achieved under a command-and-control rule"*

It should be noted that SOx is a significant building block of PM2.5. Chemical speciation of PM2.5 samples indicated that in the South Coast Air Basin 25% of the ambient PM2.5 is attributed to contribution from sulfates. Furthermore, SOx reductions are highly effective in reducing ambient PM2.5 levels as compared to other primary and secondary contributors to PM2.5 formation (1 tons SOx = 1.5 tons PM2.5 = 15 tons NOx). Therefore, the reductions of SOx are essential for the basin to meet the federal annual standard of PM2.5 by 2015 and the federal 24-hour average standard of PM2.5 by 2020. As indicated in the 2007 AQMP, the control strategies included in the Plan to meet the annual PM2.5 standard when fully implemented will fall short meeting the 24-hour standard by approximately 30%. Therefore, additional reductions above and beyond the control strategies committed in the 2007 AQMP for meeting the 2015 annual PM2.5 standard are necessary to meet the 24-hour PM2.5 standard in 2020. For further information, please refer to Chapter 5 of the 2007 AQMP.

In addition, it is worth mentioning that the U.S. EPA is proposing to set a new, more stringent, one-hour standard for SO2 between 50 – 100 parts per billion (ppb) and revoke the current 24-hour of 140 ppb and the current annual standard of 30 ppb to further protect public health.

In addition, the percent reduction in RTCs (60%-65% prior to January 2010, currently revised to 55%) that staff estimated for the SOx RECLAIM universe as a whole is still much less stringent than the percent reduction in emissions (90% - 98%) that staff could impose to specific categories of sources such as FCCUs, SRU/TGs, sulfuric acid plant, cement plant, coal fired boiler, and glass melting furnaces if staff pursues the command-and-control approach.

Staff however is sensitive to the costs of the current proposal (approximately $745 million). To reduce the cost impacts, staff proposes to spread the potential emission reductions into 6 years starting from 2012. Staff also proposes to submit only 3 tons per day reductions to satisfy the SIP commitment in Phase 1 (i.e. 3 tpd reductions by 2014). The remaining reductions will be submitted later.

Comment #2
Staff proposal does not reflect a comprehensive environmental impact. A negative impact to other environmental media such as water and waste were not discussed. Capital investment to manage additional volumes of water demand, wastewater and solid waste generated were not included. In addition, the proposal did not include the complexities of attaining necessary permits (e.g. NPDES Discharge Permit.)

Response #2
Staff is in the process of analyzing the environmental impact for this proposal. In July 2009, staff sent a Survey Questionnaire to the effected facilities to gather information on current usage of water, wastewater and solid waste generated. A summary of the information received was presented to the stakeholders in the August 2009 Working Group Meeting (please see Table 11-1 in the revised draft staff report).

In general, there will be an increase in total water demand (264 million gallons per year, or less than 1 million gallons per day, for all six refineries)[91] due to the proposed control technologies. On a relative scale, however the increase however will be small (below 2%) compared to the current total water usage at the refineries (16,936 million gallons per year, or 46 million gallons per day). Ground water pumping capacity is available for four out of six refineries. Three out of six refineries have used recycled water. All 6 refineries are not subject to any cap from the water suppliers. The water suppliers indicated to staff that they can supply the additional amount of water to the refineries. In addition, the increase in total water demand is 80% below the current CEQA threshold of 5 million gallons per day for significance. However, in a spirit of taking abundance of caution, CEQA staff classified this project as significant in terms of potable water demand. Please refer to the Program Environmental Assessment for further explanation.

This proposal will generate an additional amount of wastewater ranging from 15 – 50 gallons per minute, (or a total of 94 million gallons per year at 6 refineries). The increase in wastewater discharge will be small (less than 1%) compared to the current discharge at each refinery which varies from 1,000 – 5,000 gpm. Typically, an increase in wastewater discharge in excess of 25% would trigger a discharge permit revision. However, since the increase in wastewater discharge is significantly less than 25%, the refineries will not need to revise their NPDES discharge permits. Staff also believes that the refineries can handle this amount of increase in their current wastewater treatment system. Therefore, the impacts on wastewater are less than significant.

This proposal will generate an additional amount of solid waste depending on how effectively the scrubbers are in controlling particulate matters. The consultants estimated about 2,560 tons per year increase. The current FCCU fines classified as non-hazardous waste generated from the six refineries are approximately 3,348 tons per year. This 67% increase may be trucked to several cement facilities in and around the basin (CPCC in Colton, CEMEX in Victorville, TXI-Riverside in Oro Grande, National Cement in Kern County, CPCC in Mohave Desert, and Lehigh in Tehachapi).

[91] In August 2009, staff revised the water demand reported by the consultants for the SRUs/TGTUs using the information submitted directly by the manufacturers of the wet gas scrubbers.

As shown in the consultants' report, and as quoted below, the consultants did include additional capital costs for waste and wastewater treatment. In addition, the consultants did include additional annual operating costs for additional water, wastewater treatment, and solid waste disposal.

> *"Added charges for waste or wastewater treatment equipment are included in equipment costs unless treatment is performed outside of the boundary limits for the control measure. In these cases, the treatment costs have been calculated according to the treatment requirements and site-specific unit costs provided by the refineries."*

Comment #3
Emerachem technology is not a proven technology. The contractor report does not offer any strategy for dealing with the concentrated SO2 stream captured and released later from the catalysts, therefore this technology cannot be considered as SOx reduction technology.

Response #3
It is true that Emerachem technology has not yet been installed and used in a refinery, and therefore there is no achieved-in-practice data available. However, this argument does not negate the feasibility of this technology in a refinery application. For BARCT, additional time can be provided to allow technology to mature in refinery applications. Furthermore, in addition to the Emerachem technology, the consultants provided three additional options to reduce the SOx emissions from the three SRU/TGTUs at this refinery that reflect achieved-in-practice technologies. In summary:

- Emerachem technology resulted in about 53 tons/year reduction for SRU#10 and SRU#20 and a cost effectiveness of $13K per ton,
- Wet gas scrubbing resulted in about 41 - 44 tons/year reduction for SRU #70 and a cost effectiveness of $32K per ton - $45K per ton (data from 2 WGS vendors were considered),
- Additional 3rd stage Claus units resulted in about 20 tons/year reduction for SRU#10 and SRU#20 and a cost effectiveness of $24K per ton.

If for the sake of an argument, the current scenario (Emerachem for SRU#10 and SRU#20) is replaced with other scenarios (3rd Claus units for SRU#10 and SRU#20 & WGS for SRU#70), it will result in 64 tons per year reductions instead of 53 tons per year reductions at a cost effectiveness of approximately $30K per ton. Implementation of these scenarios will not significantly change the overall cost effectiveness of the proposed overall program.

Comment #4
The shave methodology was not transparent, was disclosed very late in the process, and did not appear to be consistent with the 2005 NOx shave.

Response #4
Staff followed recommendations by WSPA and WSPA members to stay consistent with the NOx shave methodology that was developed by the District's staff and agreed upon by WSPA and WSPA's members in 2005. However, there is no requirement to do so.

While there is an agreement in principal to stay consistent with the 2005 NOx shave methodology, developing an actual shave methodology that will work for the SOx RECLAIM market and is fair and equitable is not a trivial task. To use the 2005 NOx shave methodology, staff invested tremendous amount of time and effort to recover the 1997-1998 emissions baseline and the starting emission factors in 1993. Using the 1997-1998 emissions baseline and the 1993 starting emission factors, staff estimated the control factors and RTC reductions as shown in Part III of the Draft Staff Report presented in the June 9, 2009 Public Workshop. The RTC reductions presented in the June 2009 Staff Report (i.e. 7.09 tpd – 7.68 tpd) were very similar to the emission reductions estimated by staff in April 2008 (i.e. 6.73 tpd – 6.77 tpd) based on the 2005 emission inventory baseline. Staff expects the proposed shave methodology to continue being refined throughout the rule making process.

It should also be noted that the shave methodology was disclosed sooner than in the NOx RECLAIM rulemaking effort in 2004-2005.

Comment #5
The methodology for development of emission factors was not clear in the report, and the background for some of the initial emission factors was not clearly explained.

Response #5
The following information was provided to WSPA and the refineries:

- Clarification of how certain emission factors (starting and new) for FCC's, SRU's and boilers were derived for individual facility process units was explained and provided in the Working Group meetings on July 30, August 13, and August 27, 2009
- Derivation of the emission factors referenced in Appendix III-A of the Staff Report SOX RECLAIM Part III was explained and provided in the Working Group meetings on July 30, August 13, and August 27, 2009
- Facility specific data/calculations were e-mailed directly to the six individual WSPA member facilities on July 17, 2009.
- Staff is always available for additional explanation.

Responses to Tesoro's Comments Received on July 14, 2009

Comment #1
The current proposal goes far beyond what is called for in the AQMP.

Response #1
In addition to the 3 tons per day reduction by 2014 SIP commitment stated in the 2007 AQMP, for a market based incentive program such as RECLAIM, staff is required by the H&S codes to conduct periodic BARCT reassessment and demonstrate equivalency with command-and-control rules which would otherwise be developed as a result of BARCT reassessment:

> *"…achieve an equivalent or greater level of emission reductions at an equivalent or lower cost as would have been achieved under a command-and-control rule"*

As a result of this BARCT reassessment and equivalency demonstration, staff estimates that the SOx RECLAIM program can be amended to provide 6.2 tons per day emissions reduction (or approximately 64% of RTC reductions)

Comment #2
The process for determining BARCT was not well defined. The consultants BARCT determinations appear to be generally based on vendor guarantees. The reports do not contain adequate information to substantiate the BARCT emission limits that are proposed for each source category.

Response #2
The consultants and staff followed the BARCT selection process outlined in Part III of the Staff Report. The BARCT selection process included five steps: 1) identify technology that can achieve maximum degree of reduction, 2) evaluate control effectiveness, 3) conduct a top-down cost analysis, 4) conduct an impact analysis for environment, energy and economic, and 5) select BARCT. Vendor guarantees are important information for Step 2. In evaluating the consultants' recommendation for BARCT and arriving at the staff proposal for BARCT, in addition to vendor guarantees, staff relied on source test data, CEMS data, permitting data, and engineering evaluation. Staff believes that adequate information have been provided to substantiate the proposed BARCT for all source categories.

Comment #3
An analysis of the impact of the proposed shave on the RECLAIM market has not been conducted. Because of the potentially dramatic impact that this shave will have on the RECLAIM SOx market, Tesoro supports a phased approach to the SOx shave. Since the 2007 AQMP did not analyze for attainment with the PM2.5 24-hour standard, we recommend that further analysis be completed during the PM2.5 Plan Update to determine if additional tons are needed for the 2020 attainment.

Response #3
Additional reductions in SOx emissions beyond and above those committed in the 2007 AQMP are needed to meet the federal 24-hour PM2.5 standard in 2020. Although the District has not yet developed the control strategies for the 24-hour PM2.5 standard, it analyzed the input of the standard as part of the 2007 AQMP. This analysis revealed that the PM2.5 control strategies included in the 2007 AQMP will fall short by 30% in meeting the PM2.5 24-hour standard. Staff is in the process of conducting a market analysis for the SOx RECLAIM program. To reduce the impacts to the SOx market, staff is in agreement with Tesoro and proposes to phase in the proposed reduction beginning 2012 through 2017. Staff further proposes that at least 3 tons per day of the reductions be phased in by 2014 to meet the SIP, and the remaining emission reductions submitted into the SIP at a later date.

Comment #4
The costs for implementing the chosen technologies are not adequately considered in the consultant reports or in the Staff reports. The report bundles all the measures into an "average cost effectiveness" ratio. This "average cost effectiveness" ratio is not an appropriate representation of the true cost of the SOx reduction technologies and is misleading.

Response #4
Please refer to Response #10 to WSPA's comment letter received on July 14, 2009

Comment #5
There is a significant increase in water demand, wastewater discharge levels and hazardous waste generation resulting from use of wet gas scrubber technology. Further analysis of these significant environmental impacts should be conducted in the BARCT evaluation.

Response #5
Please see Response #2 to Chevron's comment letter received on July 14, 2009

Comment #6
There are a number of unanswered questions concerning the origin of certain assumptions and numbers used to calculate the current BARCT numbers and shave recommendations.

Response #6
The answers were provided to WSPA and the refineries in the Working Group meetings on July 30 and August7. Refinery specific data were e-mailed to each refinery on July 17, 2009. Staff is always available if further explanations are needed. A summary is provided below:

Derivation of the starting emission factors

FCCUs
Starting emission factor = Total emissions (lbs/year) / Total throughput (barrels/year)
= (6,033,327 lbs/year) / (115,893 thousand barrels refinery feed) = 52.06 lbs/Mbarrels

Sulfur Recovery Units
Starting emission factor = Total emissions (lbs/year) / Total hours operation (hours/year)
= (1,122,050 lbs/year) / (133,764 hours/year) = 8.39 lbs/hrs

Boilers/Heaters

Starting emission factor = Total emissions (lbs/year) / Total fuel usage (mmscft refinery gas/year)

= (3,738,879 lbs/year) / (112,105 mmscft/year) = 33.35 lbs/mmscft

Derivation of the proposed new BARCT level for FCCUs

Consultants' proposed level:

Remaining emissions = 3.52 – (0.58+0.19+0.28+0.20+0.87+0.94) = 3.52–3.07 = 0.45 tpd

Emission rate = (0.45 tpd x 2000 lbs/ton)/(396 thousand barrels feed/day)

= 2.27 lbs/thousand barrels

Staff's proposed level:

Remaining emissions = 3.52 – (0.58+0.28+0.20+0.87+0.94) = 3.52–2.88 = 0.64 tpd

Emission rate = (0.64 tpd x 2000 lbs/ton)/(396 thousand barrels feed/day)

= 3.25 lbs/thousand barrels

Derivation of Tier I factor for heaters and boilers

Tier I factor for boilers and heaters (external combustion Equip/Incinerator using refinery gas) is on Table 2 of Rule 2002 = 6.76 lbs/mmcf = 40 ppmv

Why is the remaining inventory for heaters and boilers different in Part I and Part III of the staff report (1.42 tpd vs. 0.89 tpd)?

The Tier I allocations shown in Table 4-1, Part I of the Staff Report (0.89 tons per day) were for 6 refineries in the basin. The remaining inventory shown in Appendix III-B, Part III of the Staff Report (1.42 tons per day) were derived from the 1997-1998 inventory of all boilers/heaters at all active refineries in 1997-1998.

Responses to BP's Comments Received on July 14, 2009

Since BP requested the opportunity to review and highlight the comments for confidentiality before the comments are printed in public document, staff will not print BP's comments or responses to BP's comments at this time.

Responses to Paramount's Comments Received on July 14, 2009

Comment #1

Unlike the NOx universe, the SOx universe is small enough that the District could come up with a plan for the SOx shave that would take into account the technology employed and individual opportunities for SOx reductions that are available at different facilities. For the rule to be equitable, only facilities that operate certain source categories and do not yet meet the BARCT standard should be required to take the BARCT adjustment. Facilities that do not operate FCCUs should not be responsible for emission reductions from FCCUs.

Response #1

Staff is in agreement with the commenter. The SOx market is very different than the NOx market. Eleven facilities in the SOx market are responsible for 94% of the emissions and hold about 86% of the RECLAIM Trading Credits. The preliminary draft Staff Report released in 2008 focused in finding BARCT and emission reductions from the top eleven facilities and seven categories of sources. It would be difficult for a facility with no equipment subject to new BARCT to reduce SOx emissions. Staff is examining two alternatives: 1) provide an alternative percent shave for these facilities, or 2) not shave these facilities at all. For facilities that have the 2012 RTC holdings higher than the 2012 initial allocations provided to the facilities at the start of the RECLAIM program, staff may shave the surplus up to the 2012 initial allocations. Further discussions are needed to finalize the proposal.

Comment #2

The implementation for the District's proposal can take 3 years to complete, yet the District scheduled for implementing the SOx shave starts with reductions in 2012, which is only 2 years from the planned adoption date. Refineries must make modifications during turnarounds that typically occur every 3 – 5 years. The implementation date should be moved back to 2014 to enable facilities time to pursue these major modifications

Response #2

Staff proposed a first shave of 1.5 tpd at the end of compliance year 2012. This 1.5 tpd comes from the surplus RTC (Total RTC holdings = 11.7 tpd & actual emissions = 10 tpd). Wet gas scrubbers may take may take up to three years to install, therefore staff proposed a second shave of 1.5 tpd at the end of compliance year 2013. The remaining shave was proposed to be distributed in additional four years from 2014 to 2017.

Comment #3

Paramount has been significantly left out of recent developments in this rule making process. Paramount did not have an opportunity to participate in the consultants' study and evaluated the findings along with major refiners. Paramount suggests that a concerted outreach effort be conducted to ensure that all impacted facilities are given the opportunity to understand and comment on the District's SOx shave proposal.

Response #3

The recent developments were all publicly notice. The Request-for-Proposals was also posted on the District's web site. Staff conducted a bidder's conference on July 16, 2008 which was posted on District's web site. Staff's recommendations were presented to the Governing Board at two public meetings on July 11, 2008 and September 5, 2008. There are subsequent public consultation meetings, workshops, and working group meetings held where the consultants' recommendations and suggested amended proposals were further discussed. There were ample opportunities for the commenter to participate. However, staff did not receive any comments, suggestions, or indications of interest from the commenter during this period of time until after the consultants' study was finalized. In addition, it should be noted that most of the information and analysis was conducted on a facility-by-facility confidential basis and cannot be discussed with the commenter. Staff did send copies of the consultants' non-confidential reports to the commenter as requested on September 2, 2009.

Responses to WSPA's Comments Received on July 2, 2008

Western States Petroleum Association
Credible Solutions • Responsive Service • Since 1907

Jodie Muller
Manager, External Affairs and South Coast Region

July 2, 2008 Via E-Mail and First-Class Mail

Joe Cassmassi
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, CA 91765-4182

WSPA Comments on the Preliminary Draft Part I Staff Report - RECLAIM SOx

WSPA appreciates the opportunity to comment on the "Preliminary Draft Staff Report Sox RECLAIM Part I Allocations, Emissions & Control Technologies" (the "Report"), and we appreciate your patience while we were addressing the other priorities that you had established (e.g., the RFP for the contractor project, FCCU SOx reduction catalyst additives, etc.). WSPA's detailed comments are attached to this transmittal email, in the form of comments and suggested edits provided directly on the draft Staff Report.

WSPA's attached detailed comments speak for themselves, and we need not summarize them in this transmittal. However, there are a few overarching issues that we would like to specifically call to your attention:

Comment #1

1. The draft Report references 2007 AQMP Control Measure CMB-02 as being the impetus for the BARCT reassessment, but the Report does not accurately describe the legal basis for this rulemaking effort, nor does it address the process by which the BARCT reassessment will be conducted. While the Report provides an overview of existing control technologies and suggests new, potentially feasible emission rates or limits, it does not provide detail regarding the process the District will use to identify new 2010 facility annual allocations, does not indicate how the District will determine the feasible reductions to be achieved by the "shave", and does not address the need for a reasonable compliance margin.

An understanding of, and agreement with, the methodology for developing BARCT levels, and the resultant potential shave, needs to precede most of the other work. The facilities that will be subject to any SOx shave need to know exactly how proposed revised allocations and the proposed shave will be calculated. Only once the process has been agreed to should the District move ahead with reassessing the BARCT levels.

Comment # 2

2. The report alludes to the possibility of incorporating both the reassessment of the BARCT levels under the SOx RECLAIM program (as proposed in 2007 AQMP CM CMB-02) and the concept of facility modernization (from 2007 AQMP CM MCS-01) into a combined overall effort to reduce SOx emissions. However, the Report does not explain the process for doing so or why it might be appropriate to include a facility modernization analysis with this effort. WSPA is concerned about the potential for blurring the distinction between a BARCT reassessment and the possibly similar assessment of facility modernization. Since there will likely be overlapping issues, it is very important that the District independently develop, and reach consensus on, the process for implementing each control measure. If both measures are to be considered simultaneously, then the Report must clearly show how each measure will work in tandem with the other (and the feasibility of such an approach) before allocation levels are established.

Comment #3

3. The Report attempts to tie the potential reduction of RECLAIM SOx allocations (i.e., a reduction of SOx emissions) to PM air quality but does not establish the necessary basis for a linkage between the two. The Report cannot be based on an assumed relationship between SOx emissions and ambient PM_{10} or $PM_{2.5}$ levels; rather, it must describe and provide evidence for how SOx emissions contribute to ambient particulate matter concentrations and how the anticipated SOx emission reductions will affect ambient air quality.

Comment #4

4. The "Proposed BARCT Levels and Emission Reductions" section of chapters three through nine includes detailed conclusions with respect to the applicability of various emission control technologies and the resultant BARCT levels for the various source categories in the SOx RECLAIM program. These conclusions are premature and unsubstantiated, and their inclusion in the report is not appropriate given that the District is planning to hire one or more expert third-party contractor(s) to conduct thorough engineering evaluations and cost estimates of potential SOx emission reduction technologies. WSPA is very concerned that the Report's preliminary, and largely unsubstantiated, conclusions will become benchmarks against which the contractors' work products might be evaluated and effectively prejudge the expected conclusions rather than foster an independent analysis.

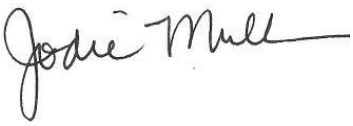
Comment #5

5. Due to the significance of this SOx BARCT reassessment program and the issues that we have identified with the draft Report, WSPA believes that the Report must be substantially re-written. The issues WSPA raises here and in the attached detailed comments cannot (and should not) be handled though responses to comments or preparation of a supplement Report, either of which would require the reader to read and understand two or more separate and likely conflicting documents. WSPA has tried to present its detailed comments in a way that can serve as a useful guide for rewriting the draft Part I Report, and hopes that District staff take advantage of our suggestions in that manner.

Again, WSPA appreciates the opportunity to submit these comments on this important effort. We ask that our detailed comments and this transmittal letter be included in the record for this rulemaking. WSPA looks forward to working with the District as this effort progresses, and we look forward to commenting on future drafts of the Part I and Part II Staff Reports for this rulemaking, as well as on any proposed rule amendments and other related regulatory materials.

Please do not hesitate to contact me if you have any questions.

Sincerely,



Jodie Muller
Enclosure -- WSPA Comments
cc: Gary Quinn, P.E.
Laki Tisopulos, Ph.D., P.E.
Minh Pham, M.S., P.E.

Staff's Responses to WSPA's Comments

Response #1

Staff appreciates WSPA's comments and suggested edits on Part I of the Preliminary Draft Staff Report. Staff will respond to all WSPA's comments, review WSPA's edits, and if appropriate, will revise the Draft Staff Report.

Regarding WSPA's detailed comments, staff will respond to the key issues and retain the detailed comments in the Administrative Records of this amended rule. This approach is taken to reduce the bulk of the detailed comments/responses portion of the Draft Staff Report.

First, staff would like to direct WSPA to the legal basis of this rule making effort described in Section 1.1 of the Draft Staff Report – Legislative Authority. Secondly, with all due respect, staff disagrees with the sequence of approaches recommended by WSPA for this rule amendment. Staff 's seven-step approach for this rule amendment is described below, in sequence:

1. Conduct an assessment of allocations and emission baselines;
2. Conduct a review of control technologies;
3. Identify areas of potential emission reductions, focusing on these areas with greatest potential reductions;
4. Conduct site-specific evaluation of control technology feasibility and costs
5. Assess BARCT
6. Re-examine the potential emission reductions in Step 3, taking into consideration the final emission reductions, and the amount of allocation shave while maintaining the integrity, equity, and operational characteristics of the SOx RECLAIM program; and
7. Amend appropriate rules in Regulation XX.

The first three steps were presented in Part I of the Preliminary Draft Staff Report and several of staff's presentations at the SOx RECLAIM Working Group Meetings. The last four steps are presented in Part II of the Draft Staff Report, and will be developed in parallel with the contractors' work on the proposals

Response #2

For this rule amendment, BARCT reassessment will be the basis that used to assess the emission reductions and the allocation shaves. The concept of facility modernization, if used, may only

influence the timing of the allocation shave. However, at this stage, staff expects that the facility modernization concept will not play a significant role in this rule amendment effort.

Response #3
Please refer to Appendix 5 of the 2007 AQMP for the evidence of how SOx emissions contribute to ambient particulate matter concentrations, and how the anticipated SOx emission reductions will affect ambient air quality.

Response #4
Staff 's seven-step approach for this rule amendment is described in Response #1. The first three steps were presented in Part I of the Preliminary Draft Staff Report and several staff's presentations at the SOx RECLAIM Working Group Meetings. To assist staff in the BARCT assessment, expert third-party contractor(s) conduct a thorough, independent, site-specific engineering evaluations and cost estimates of potential control technologies in Step 4. The results of the contractors' analysis will be used in Step 5 and Step 6. Staff will develop Part III of the Draft Staff Report Staff to cover the information in the last four steps in parallel with the contractors' work in Step 4.

Response #5
Staff will respond to all comments received and revise the Draft Staff Report appropriately. Regarding WSPA's detailed comments, staff will response to the key issues and retain the detailed comments in the Administrative Records of this amended rule. This approach was selected to reduce the bulk of the detailed comments/responses portion of the Draft Staff Report.

Responses to BP's Comments Received July 1st, 2008

BP West Coast Products, LLC
6 Centerpointe Drive

La Palma, Ca 90623

Telephone: +1 (714) 670-5493

VIA E-Mail
July 1st, 2008

CONFIDENTIAL BUSINESS INFORMATION

Ms. Minh Pham
Air Quality Specialist
Planning, Rule Development and Area Sources
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765

Subject: **2nd Round of Comments on RECLAIM SOx Shave Staff Report Part 1**

Dear Ms. Pham

BP appreciates the opportunity to comment on the draft Part 1 of the staff report for the RECLAIM SOx shave. I provided some initial comments on this report back on April 29th. Below are some additional company specific comments for these facilities that are not appropriate to share with WSPA. Please note that some of this information is to be treated as business confidential.

Refinery

Comment #1

- I suggest removing the sentences related to the CanSolv scrubbing system installed at the Cherry Point SRU mentioned in Section 5.3.3.2 of the report. It is true that the unit was started in July of 2006, but it only operated for about 4 months due to equipment problems outside of the CanSolv system. It is still not operating. It was also not designed to achieve 10 ppm as stated. In fact, the unit is designed to meet what the state regulatory agency determined to be **BACT** – 250 ppm SO2 12-hour rolling average (same as NSPS Subpart J/Ja) and it has a 135 tpy mass limit annually which I believe translates to 150 ppm. The following is an excerpt from the from the Marsulex Agreement for the design of the unit:
  SO_2 Removal. The concentration of SO_2 in the treated gas (stack gas) shall be less than 250 ppmv, oxygen fee, dry basis, (no nitrogen adjustment).

Calciner

Comment #2

- Similar to the request above, we respectfully ask that you eliminate the brief discussion about the BP Cherry Point Calciner control system in section 8.3.2 of the report. There are two reasons for this request. First, much of the basic information is inaccurate such as the permit chronology and statements suggesting that SO2 was reduced as a result of the installation of a wet ESP (specifically designed for particulate and acid mist removal, not SO2). Any apparent SO2 reduction was likely coincident with this change but due to something else. The likely cause of inaccuracies in the chronology is the result of having multiple calciners undergoing modifications at different times, but none of the dates mentioned line-up correctly with the specified modifications. To clarify all the permit history would require an expansive discussion without any real value added to the report. There is also 'test' data presented that the unit met 10-12 ppm SO2 in the stack. I did not see any such test data when I reviewed source test results.

  Secondly, the data from the Cherry Point calciner does not necessarily support the conclusion that the Wilmington calciner emission performance could be improved. While it is true that the stack concentration is consistently lower at Cherry Point, the removal efficiency is not any better. You list an inlet concentration range at Cherry Point of between 1125 and 1425 ppm. This information appears accurate based on some tests and translates into an inlet mass of 1200 – 1500 lbs/hr. However, as provided in our survey to SCAQMD, our analyzer data for 2007 shows inlet mass ranging at about 5200 lb/hr (2700 ppm) at Wilmington. I am not sure why the different levels of sulfur in the inlet exist, but this explains the slightly higher removal efficiency reported at Wilmington mentioned previously in my comments.

  None of this information suggests that wet scrubbing, as an option to the existing dry scrubbing system at Wilmington, should not be explored in the 3rd-party engineering analysis in Part II of the staff report or discussed generically in this section. I also do not have a concern if it is mentioned that such a system is installed and operating at the BP Cherry Point refinery. However, to avoid having to rewrite the complex permit history and trying to explain why Cherry Point has a consistently lower stack concentration while Wilmington has higher removal efficiency, I suggest removing the discussion of the Cherry Point performance in its entirety.

If you have any questions regarding these comments, do not hesitate to call me at (714) 670-5493 or reply to this e-mail.

Sincerely,
Miles Heller
Air Issues Specialist

Staff's Responses
Note that the commenter did not specifically identify or justify which information was confidential; therefore the comments will be treated as non-confidential.

Response #1
Staff does not agree with BP's suggestion to remove Section 5.3.3.2 of the Preliminary Draft Staff Report related to the Cansolv scrubbing system installed at Cherry Point Refinery's Sulfur Recovery Units.

Staff acknowledges the information provided by BP that 1) the Cansolv scrubber has been designed to a level *less than* 250 ppmv, 0% O2, currently required by NSPA Subpart J/Ja or MACT II, and 2) is subject to a mass annual limit of 135 tons per year, translated to 150 ppmv SOx, as BP. However, staff believes that it is not uncommon for a system to achieve levels below the designed levels. This fact is supported by the following examples:

- Two Cansolv scrubbers were designed for a FCCU and a FCU at Valero's Delaware City Refinery. The designed outlet SOx concentration is 25 ppmv. These scrubbers have been in operation for more than a year, and have actually achieved levels of 2 ppmv SOx outlet concentration on a continuous basis.

- Two DynaWave scrubbers were installed at Sinclair oil refineries in Wyoming and designed to meet less than 250 ppmv limit of MACT II and NSPS Subpart Ja. These scrubbers have been in operation more than a year and actually achieved a level below 1 ppmv (e.g., 0.3 ppmv which represents the lower detection limit of stack testing.)

Staff has provided accurate information in Section 5.3.3.2 related to the Cansolv system in the Preliminary Draft Staff Report, and as such, will not remove this section. However, staff will add a footnote to reflect the current non-operational status of the system as indicated by BP.

Response #2
Staff does not agree with BP's suggestion to eliminate Section 8.3.2 of the Preliminary Draft Staff Report related to the Cansolv scrubbing system at Cherry Point Refinery's coke calciners. Staff's responses to several issues stated in Comment #2 are as follows:

- **Permit Chronology**
  Following BP's suggestion, staff will not discuss the operational history and permit chronology of the calciners at BP Cherry Point Refinery. As such, staff removed the dates (e.g. 1984, 1994, 2001) mentioned in this section.

- **Accuracy of Emissions and Performance Information**
  Staff believes that it is important to state relevant public information related to the performance of the wet scrubbers/wet ESPs for the calciners at Cherry Point Refinery accurately. The information provided in the Preliminary Draft Staff Report was all correct and accurate, and will be repeated below with specific references provided:

Information	Reference
The inlet SOx concentration from the calciners at Cherry Point Refinery ranges from 1125 ppmv – 1425 ppmv	November 1, 1977 PSD Applicability Determination – ARCO Petroleum
Permit limit concentration of 160 ppmv and 90% control efficiency previously given to the wet scrubber	Northwest Clean Air Agency, Notice of Construction Worksheet for BP Cherry Point Refinery (NOC #985), dated December 2006
Permit limit concentration of 35 ppmv	Northwest Clean Air Agency, Air Operating Permit of BP Cherry Point Refinery
Control efficiency of the control system including wet scrubber and wet ESP	Estimated from inlet and permitted levels: (1 – (35 ppmv / 1125 ppmv))*100 = 96.9% (1 – (35 ppmv / 1425 ppmv))*100 = 97.5%
Test results showing 10 – 12 ppmv	From a paper titled "Eliminating a Sulfuric Acid Mist Plume from a Wet Scrubber on a Petroleum Coke Calciner", Brown & Hohne. This paper indicated an average annual SOx concentration of 18 ppmv and a SO2 removal efficiency of 99%.

Staff acknowledges that the main function of the wet ESP is to further control sulfuric acid mist emissions and eliminate visible plume. This fact was already mentioned in Section 8.3.2 of the Preliminary Draft Staff Report. However, the permit limit for SOx was reduced from 160 ppmv to 35 ppmv, and this fact speaks for itself about the concurrent effect on SOx removal efficiency.

- **Stack Concentration (ppmv), Removal Efficiency (%), and Emission Rate (lbs/ton)**
  The control efficiencies (98% - 99%) for Wilmington's coke calciners were based on actual outlet concentrations (27 – 52 ppmv) and inlet concentration (2700 ppmv). The control efficiencies (96.9% - 97.5%) for Cherry Point Refinery's coke calciners were based on *permitted* outlet concentration (35 ppmv) and inlet concentrations. When the actual outlet concentrations are used (10-12 ppmv), the control efficiency for Cherry Point Refinery's coke calciners will approach 99% or more.

  The emission rate of Cherry Point Refinery's coke calciner (0.14 lbs/ton) is lower than those at BP Wilmington (0.56 lbs/ton – 0.89 lbs/ton). The Tier I emission rate for BP Wilmington calciner was set high at 2.47 lbs/ton. In addition, the current reported production rate of Wilmington's coke calciner is approximately 22% higher than the past production rate reported by BP and used in Tier I allocation calculation. To balance the increase in production rate and to meet a potential lower BARCT level, staff strongly believes that BP should improve the performance of its control system at Wilmington's coke calciner.

Responses to Valero's Comments Received July 1st, 2008

-----Original Message-----
From: Gonzales, Susan [mailto:Susan.Gonzales@valero.com]
Sent: Tuesday, July 01, 2008 1:26 PM
To: Minh Pham
Subject: FW: Valero Del City
Importance: High

Hi Minh -listed below are the comments on the preliminary draft report. The comments are from our Valero Delaware City environmental department.

I've attached the document portion that I had them review. Thanks. Sue

Valero Delaware City Refinery Comments:

On page 1, in addition to Valero DE City, Motiva DE City is listed. The Motiva entry is a duplicate. We are the old Motiva DCR. The Valero DCR entry contains two footnotes (#2, #5). #5 footnoted below the table has an (a) and a (b). The (b) references a scrubber on an HF Alkylation Unit...and I don't know what this is referring to (some other Premcor refinery?) because we do not have an HF Alkylation Unit. I'm also not sure what the 65% reduction is referring to. The two regenerative WGS units on the FCCU and FCU here in DE City were designed to reduce emissions by 99% at the FCU and 97% from the FCCU.

Page 3 mentions inlet flow volume to the WGS. The design inlet volumes from the final permit applications are 258,200 scfm for the FCU and 442,400 scfm for the FCCU. These values are not on a moisture corrected (dry) basis. I also have no knowledge of the statement in the last sentence about the FCCU being "twice bigger than the largest refinery in the District."

Staff's Responses to Valero's Comments

Staff contacted Delaware Department of Natural Resources and Environmental Control (DNREC)'s Division of Air Waste Management to clarify about the name of the refinery and the status of operation. DNREC's staff confirmed that Valero had recently bought Delaware City Refinery from Motiva. DNREC's staff also indicated that there have been several ownership changes for this Delaware City Refinery; however this refinery is still referred to as "Premcor Refinery" on various documents such as permits.

Based on the information provided by Valero and DNREC, staff has:1) deleted the duplicate entry for Motiva in Table 3-3; 2) made a clarification in footnote #5 that Premcor Delaware City Refinery is now owned by Valero; 3) deleted several wordings in footnote #5 which referred to HF alkylation unit and 65% reduction (which was the estimated overall facility emission

reduction from DNREC;) 4) included the two flow rates for FCCU and FCU in Paragraph 3.3.2.3 of the Staff Report; and 5) included additional information provided by DNREC that the two scrubbers have indeed achieved SOx levels of 1 ppm - 2 ppmv, corrected to 0% O2, on a continuous basis. The scrubber system for the FCCU is in operation for about 1.5 years, and the scrubber system for FCU is on line for more than 2 years. Based on a comparison on the exhaust flow rates from the FCCUs and feed rates, Delaware Refinery's FCCU is about twice larger than the largest FCCU in the District.

Responses to Rhodia's Comments Received April 29th, 2008

Rhodia Inc. provided comments and edits on Chapter 6 of the Preliminary Draft Staff Reports – Sulfuric Acid Manufacturing Process on April 20, 2008. Staff appreciates the comments and has incorporated many of Rhodia's edits in the newly revised version of the Draft Staff Report.

Responses to Rhodia's Comments Received November 25th, 2008

Comment #1

State law prohibits the District from setting BARCT levels without considering the relative environmental and economic impacts on each affected source category. The Draft Report fails to make any findings at all concerning (1) the relative cost-effectiveness of requiring the proposed SO2 controls at a sulfuric acid plant like Rhodia instead of requiring more reductions from sectors responsible for greater PM2.5 and/or SO2 contributions; (2) relative PM2.5 reductions available from tighter controls on sulfuric acid plants versus other sectors/sources; (3) relative costs and environmental benefits of imposing more aggressive controls directly on PM2.5 sources rather than on sources of SO2 (which is only a precursor to PM2.5); or (4) whether imposing stricter PM2.5 and/or SO2 controls on other sectors may cause less overall adverse economic impact than imposing those controls on Rhodia. For example, requiring additional reductions from highly emissive direct sources of PM2.5 very well could result in a greater and more cost-effective reduction of PM2.5 than driving down BARCT levels for sulfuric acid regenerators, who are a very small source of PM2.5 in the South Coast Air Basin. In any event, reciting control costs and cost-per-ton figures in a vacuum tells the District nothing about whether tighter regulation of other sources may be less economically burdensome and/or more effective at producing PM2.5 attainment by 2015. Accordingly, the Draft Report fails to provide a complete BARCT analysis.

Response #1

Staff recognizes that for a BARCT assessment to be made state law requires an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of sources. (H&S Code §40406) However, it should be noted that the results provided in the subject report is not the BARCT assessment but rather input for the staff to generate a recommended BARCT for the various equipment subject to SOx RECLAIM.

Comment #2

Since the District began its effort to investigate and redefine BARCT for SOx from sulfuric acid plants and other sources, both the credit markets and the broader economy have suffered major downturns. Financing for major projects is extremely difficult to secure, and most economic analysts predict that these credit issues will extend into 2009 and potentially 2010. The Draft Report makes no mention of these changed economic circumstances, and fails to discuss the potential impacts of tightening BARCT levels at a time when sources could find it difficult or impossible to complete the required capital projects by 2015.

Response #2
Addressing the current economic situation's impact on financing major projects is outside the scope of this report. Such dialogue has transpired as part of the SOx Working Group. Staff will try to schedule implementation of these projects with the lowest possible financial impacts while maintaining the 2015 emission reduction goals as presented in the 2007 AQMP.

Comment #3
AQMP Control Measure CMB-02 is a measure designed to secure appropriate SOx reductions pursuant to RECLAIM, primarily (as the AQMP describes) from refineries. It is not a control measure designed to achieve PM2.5 reductions required for District wide attainment. While the District certainly has an interest in achieving PM2.5 attainment in the South Coast Air Basin, Control Measure CMB-02 makes no mention of requiring SOx reductions as a PM2.5 reduction strategy. If the District's aim is to secure sufficient PM2.5 reductions to achieve PM2.5 attainment by 2014, it must fairly compare the costs and benefits of securing PM2.5 reductions from the universe of PM2.5 sources throughout the Basin, not disproportionately from a handful of SOx RECLAIM sources.

Response #3
The staff report will address the relationship between SOx and PM2.5. However, the commenter is referred to such documents as Appendix V of the 2007 AQMP for a much more detailed discussion of this relationship.

Comment #4
The capital cost estimates in the Draft Report (summarized in Table 3 on page 8 and in Table R-2 in Section V.L. of the confidential appendices) appear to be inaccurate, and vary from each other by over $6 million. Rhodia has been unable to verify the sources of these equipment cost estimates, both of which are well below the likely installed equipment costs of installing a caustic scrubber. Recent experience within our company and throughout the market suggests to us that the installed cost of a scrubber is approximately $15 million. For these reasons, the cost effectiveness values in Table 4 on page 9 are also too low, and do not reflect real world costs. Moreover, in Section V.M., Table R-3., the operating cost estimates for caustic makeup also appear to be too low, given that current market value for caustic is approximately $1,000 per ton (100% NaOH). These data errors undermine the Draft Report's cost effectiveness conclusions on page 10, and suggest that actual capital and operational costs may be significantly higher than the numbers cited. Because California law mandates that the District make proper cost-effectiveness findings before setting or changing BARCT, Rhodia strongly recommends that the District take the PDSR off the December calendar, ask its vendors to document the sources for all of the cited cost data, and work with Rhodia to resolve the data discrepancies before moving forward.

Response #4
The consultant has conducted a very thorough analysis with respect to the cost analysis of the subject equipment. However, given the very low cost effectiveness derived by the consultant the

costs would have to be several-fold greater than assessed in order for the cost-effectiveness to no longer being attractive.

Comment #5
The Draft Report assumes that Rhodia could install a new caustic scrubber as soon as 2011. Rhodia estimates that, if it were required to install a new scrubber, it would not be ready for operation for at least 2 to 3 years after initial funding of the project. Even in a best-case scenario, emissions reductions from any new scrubber installed at Rhodia may not be available to help PM2.5 attainment until 2012 or later, depending on when the District approves the BARCT revision. The Draft Report fails to address the relative costs and benefits of requiring SO2 emissions reductions that would not yield PM2.5 reductions until those years, nor does it address whether reductions in other sectors may be more timely and cost-effective.

Response #5
The SOx emission reduction goal of at least 2.9 tons per day needs to be made prior to 2015. Staff will assess the feasibility of achieving this emission reduction in the indicated timeframe as part of the rulemaking process, taking into consideration the time needed to install control equipment.

Comment #6
In the first paragraph of page 4 of the Draft Report, we would recommend adding the following underlined language: "Historically double absorption plants have needed no further SO2 reduction before the tail gas is emitted to the atmosphere, because their emissions are typically well below the New Source Performance Standard of 99.7% conversion or 4 lbs. per ton." In the second paragraph on page 4, we would recommend deleting the word "pentoxide" from the catalyst description. Extensive research conducted by Rhodia's catalyst supplier indicates that the vanadium is in a form of complex salts rather than vanadium pentoxide.

Response #6
The consultant opted not to include the language in the subject report. If appropriate staff may include such language in the staff report.

Comment #7
In Figure 1 on page 6, "Facility 1, 2, 3", should be changed to "Facility A, B, C," respectively, to be consistent with the rest of the Draft Report. In the confidential section of the Draft Report

Response #7
The consultant corrected the facility identification as indicated by the commenter.

Comment #8
Finally, though Rhodia provided extensive comments and edits to the last draft of the PDSR, none of those comments appear to have been incorporated into the version that was posted on the District's website. Rhodia also provided comments to an earlier version of the PDSR, but only a fraction of those comments appears to have been incorporated into the current version. Indeed, the District has failed to provide any response at all to most of Rhodia's comments on the PDSR. Rhodia is concerned that the District may be on a path to adopting a new and stricter

set of BARCT requirements without sufficiently considering or incorporating Rhodia's written comments.

Response #8
Staff will respond to such comments as part of the staff report development.

Responses to WSPA's Comments Received April 29th, 2008

Comment #1
Part I, as drafted, contains numerous examples of the topics that are apparently intended to be covered in Part II. In addition to being premature, the discussion of these items in Part I is largely unsubstantiated and lacking adequate detail. WSPA strongly suggests that contents of the Part I Staff Report should conform to the scope specified in the above paragraph.

The methodology by which the District will actually develop the recommended RECLAIM SOx allocations shave is a critical discussion that should be included up-front, in the Part I Staff Report. (There is currently no mention of this essential topic.)

WSPA notes that the revised draft RFP for the third-party contractor project mentions that the Part II Staff Report will include "... a discussion on the process for reassessing BARCT, appropriate BARCT levels, emission reductions (aka allocations shave) and cost effectiveness for RECLAIM program (sic)." However, we submit that an understanding of, and agreement with, the methodology for developing a recommendation for an allocations shave – along with the necessary compliance margin – needs to proceed most of the other work (e.g., the third-party contractor project). In fact, arguably, we have already gotten "ahead of ourselves".

The methodology for the NOx shave proved to be very complex. Because we would expect a similar level of complexity with regard to SOx, the discussions regarding process cannot wait for a Phase II Staff Report. We should not delay those discussions any further – they need to commence now.

Response #1
Staff appreciates the concerns raised by WSPA in having an understanding of the SOx shave methodology. In recent meetings with the refineries and as requested by the refinery task force, staff has agreed to provide an estimate of SOx RTC reductions following the methodology that was used in the January 2005 NOx RECLAIM amendment. However, as in the January 2005 NOx RECLAIM amendment, further discussions are warranted (e.g. BARCT assessment) prior to finalizing the RTC reductions.

Comment #2
The decrease in the number of RECLAIM SOx facilities warrants some discussion and analysis. In particular, there would be interest in knowing whether or not any facilities have ceased operations, and, if so, why they did.

Response #2

Please refer to the Annual RECLAIM Audit Reports presented to the AQMD Governing Board on an annual basis in March. The most recent reports were presented to the Governing Board for the 2007 compliance year. These reports provide information pertaining to the number of RECLAIM facilities. Such a discussion would be outside of this proposed SOx RECLAIM amendment.

Comment #3
WSPA understands that BARCT reassessments for the District's RECLAIM program are required by the California Health and Safety Code rather than by the Federal Clean Air Act. The discussion should clarify that advancements in control technology may or may not have actually occurred. Further, it is the RECLAIM program itself that dictates the timing for the planned reductions in emissions – a BARCT reassessment does not, by itself, impact implementation timing.

Response #3
A BARCT reassessment and the timing for this process (e.g. as expeditiously as practicable) is required by both the federal and California Clean Air Act, namely Section 172(c)(1) of the federal CAA, and Health and Safety Code (H&SC) Section 40913, 40914 and 40920.5, 40440(b)(1), 40406, and 39616. Staff conducts a BARCT reassessment every three years which realign well with the frequency for amending the Air Quality Management Plan.

Comment #4
The relationship of the Federal Fine Particulate Implementation Rule is this current effort to reassess BARCT for source categories that emit SOx needs to be clearly explained. The District's Rule and Control Measure Forecast item that describes this RECLAIM effort refers only to AQMP Control Measure CMB-02, and CMB-02 is a measure to achieve a proposed 2.9 ton per day reduction of SOx emissions.

Response #4
SOx is a key precursor of particulate matter (PM2.5). Reducing SOx is very important since it would help the Basin to meet the annual PM2.5 standard in 2014, the 24-hour PM2.5 standard in 2010, and ready to face a potential revision of the PM2.5 standard in a near future. Other than mentioning the importance at reducing SOx because it is a key precursor to PM2.5, there is no real need to provide detailed information regarding this phenomenon. The commenter is referred to such documents as the Appendix V of the 2007 AQMP for more details on this subject.

Comment #5
The value of the target SOx reduction in the final version of CMB-02 is "2.9 tons per day" (and that was a change from the initial estimate of "3.0"). The regulated community needs to know, and fully understand, the District's goals with respect to MCS-01, and the process for potentially combining "facility modernization" with this current effort to reassess BARCT for RECLAIM sources. These issues need to be included in the Part I Staff Report.

Response #5
As stated in Control Measure CMB-02, the minimum target emission reductions are expected to be 2.9 tons per day (~ 3 tpd) from 2010 through 2014 and are expected to remain constant after

2014. Such reduction in allocations can be across-the-board shaved or source specific reductions. As stated in CM CMB-02, staff may need to explore the feasibility to incorporate the concepts of Control Measure MCS-01 - Facility Modernization, to achieve reductions beyond 2014. If needed, staff will discuss the concepts in Part II of the Staff Report.

Comment #6

It would be appropriate to include discussion and analysis of the following topics:

- *The appropriateness of using CY 2005 as a "baseline" year.*
- *The methodology for calculating CY 2005 emissions since RECLAIM facilities are found in both calendar year and fiscal year cycles (i.e., there are both Cycle 1 and Cycle 2 facilities).*
- *The 2 ton per day differential between RECLAIM SOx allocations and actual SOx emissions. (For example, how much was allocated to operating facilities compared to third-parties who do not operate facilities. This information goes to establishing an appropriate compliance margin, and determining how deep a hypothetical shave would cut into facility operations.*

Response #6

Staff provides the following explanations:

- The development process for the amended SOx RECLAIM rules started in late 2007. At that time, the most recent set of emission data that has been available and audited is the 2005 emission data, therefore staff used this set of data in the analysis of the Staff Report. For further information, please refer to the "Annual RECLAIM Audit Reports for 2005 Compliance Year" published in March 2, 2007.

- Staff did not "calculate" any emissions for RECLAIM facilities. Cycle 1 and Cycle 2 facilities are required to report emissions according to the same reporting protocol in Rule 2012 for SOx (e.g. major SOx sources must report emissions on a daily basis and process SOx sources must report emissions on a quarterly basis.) Following are the reporting emissions group by compliance year (e.g. Emissions for compliance year 2002 means emissions reported from January 1, 2002 – December 31, 2002 for Cycle 1 facilities, and July 1, 2002 – June 31, 2003 for Cycle 2 facilities. Emissions for calendar year 2002 means emissions reported from January 1, 2002 – December 31, 2002 for both Cycle 1 and Cycle 2 facilities.)

- The 12 tons per day corresponds to allocations and also emissions reported in APEP for compliance year 2002 (from Jan – Dec 2002 for Cycle 1 facilities and from July 2002 – June 2003 for Cycle 2 facilities). The 10 tons per day emissions are the emissions reported for 2005 calendar year. The difference in 2 tpd between year 2002 & 2005 is mainly the result of shrinkage in SOx universe from 41 facilities since the start of the RECLAIM program to 33 facilities in 2005 including 12 facility shutdowns, 8 inclusions and 4 exclusions is only about 10%.

Comment #7

The calculations above do not appear to be correct. Because the seven highest emitting source categories had CY 2005 emissions of 7.53 tons per day out of a total of 10 tons per day, their contribution is 75 percent (10 tons per day x 95 percent x 90 percent = 8.6 tons per day [or, 86 percent] – but that does not agree with 7.53/10).

Response #7
The following values need to be part of the calculation in order to derive the correct product:
9.92 tpd x 93.95% x 80.79% = 7.53 tpd (for the top 11 facilities)
9.92 tpd x 95.46% x 81.09% = 7.68 tpd (for the top 12 facilities, where Saint Gobain Containers Inc has ceased operation).

Comment #8
WSPA believes that SOx allocations, which are held by entities other than RECLAM facilities, need to be noted and that Table EX-1 should show possibly those allocations if they are significant.

Response #8
Staff added Table A-2 in Appendix A to provide information (RECLAIM Trading Credits) that is held by entities other than RECLAIM facilities.

Comment #9
Notwithstanding staff's efforts in this regard, WSPA believes that the discussion of potentially applicable control technologies must be a work product of the third-party contractor study that the District has proposed. The discussion and analysis of control technologies should be included in the Part II Staff Report – not in this Part I.

It is both premature and inappropriate to present this list of candidate potential control technologies as being proposed technologies. The candidate control technologies will need to be evaluated against the BARCT criteria, and that analysis needs to take place in Part II of the staff report. More appropriately, the analysis needs to occur within the scope of the potential third-party engineering contractor project, on which, WSPA would expect, Part II of the staff report will be based.

Response #9
There is nothing premature and inappropriate in presenting information in Table EX-2 based on staff's research presented in Part I of the Staff Report. Staff views most rulemaking efforts as an iterative process. Staff expects that the independent work of the third party contractors will not result in much of a difference to the information presented in Table EX-2. However, if there is a difference, staff will consider the difference in the BARCT assessment process for SOx RECLAIM.

Comment #10
It is highly speculative to propose combinations of control technologies for these various sources because, in many cases, the technologies are essentially mutually-exclusive[92]*. There would need to be a robust demonstration of the feasibility, the effectiveness, and the cost-effectiveness of potentially combining multiple control technologies for these source categories.*

[92] For example, it is extremely unlikely that, due to "diminishing returns", anyone would: Combine wet scrubbing of FCCU flue gas with any other SOx-reduction technology, or, combine enhanced fuel gas treating for fuel gas combustion devices with stack scrubbing, or, combine enhanced SRU/TGU efficiency with stack scrubbing, etc.

Response #10
Under certain situations, control technologies are mutually-exclusive. It is, however, not highly speculative that control technologies would be used in combination. For example, it is quite possible for a facility to combine wet scrubbers with SOx reducing additives. Table EX-2 provides possible control technologies, not the proposed BARCT. In addition to the information provided in Part I, the BARCT analysis will be made with the results provided by the third-party contractors as well as additional input from the regulated community.

Comment #11
As noted previously, the actual target emission reduction in CMB-02 is 2.9 tons per day (not 3 tons per day). The claim that the listed control technologies "would be employed to generate at least 3 tpd" suggests that the staff has already reached important conclusions regarding the potential BARCT reassessments and the amount of the potential reduction of SOx allocations, respectively. Given the facts that the proposed third-party engineering study has not yet begun, and that Part II of the Staff Report has not been written, all such conclusions are premature and inappropriate for inclusion in the Part I Staff Report.

Response #11
Staff conducted a first estimate of emission reductions of 2.9 tons per day shown in Control Measure BCM-02. A more refined estimate of emission reductions (4.7 tpd – 6.7 tpd from the 2005 baseline inventory) was conducted during the development of Part I of Staff Report and was provided in the April 3 and April 30 Working Group Meetings. A subsequent estimate of emission reductions (6.5 tpd from the 2005 baseline inventory) were provided by the third-party contractors.

Comment #12
WSPA submits that the definition of BARCT is critical to this current effort. BARCT is not BACT or LAER. BARCT applies on a retrofit basis and it must consider environmental, energy and economic impacts.

Response #12
Staff agrees with the commenter. However, it should be noted that it is not unusual in which the levels of BARCT are equal to the levels for BACT (or LAER), especially for add-on control devices such as wet/dry scrubbers. In some situations (e.g. PAR 1146 and 1146.1), the BARCT level for certain categories of equipment may be more stringent than the corresponding BACT level. The primary reason for this difference was that the BACT assessment has not been conducted for 8 years, not taking into recent advancements on control technologies. In addition, BARCT may anticipate future technological development.

Comment #13A
Although WSPA recognizes the precursor relationship between SOx emissions and ambient PM 2.5, as a practical matter, the discussion in the following section is confusing – largely because it fails to establish a clear and understandable relationship between PM and this effort regarding the RECLAIM SOx program.

Comment #13B
First, the two statements in the preceding paragraph, taken together, are not clear. Second, the statistic regarding the exposure of Southern California residents to PM 2.5 needs to be substantiated. For example, there needs to be some discussion regarding the nation-wide monitoring for PM 2.5, etc. (if PM monitoring data for the rest of the nation is sparse, then PM monitoring in a densely populated area such as Southern California would skew the result).

Comment #13C
Without establishing the basis, the discussion in the paragraph above is seemingly unrelated to SOx RECLAIM.

Response #13A-13C
Please refer to the 2007 AQMP and specifically Appendix 5, for further explanations.

Comment #14
WSPA is concerned that the discussion in the paragraph above implies that the District intends to use RACM and RACT as two barometers for evaluating potential SOx reduction technologies rather than using BARCT, as discussed earlier in the staff report.

As stated previously, the preliminary draft Part I report has not established a basis for linking SOx reductions to improvements in PM air quality. The discussion regarding the effectiveness of controlling SOx and/or NOx for PM air quality improvement needs to be substantiated.

Response #14
RACM and RACT call out for a minimum level of control required by the U.S. EPA in their Clean Air Fine Particle Implementation Rule. The District is required to establish BARCT for this proposed SOx RECLAIM rule amendment as discussed earlier in the Staff Report. BARCT would more likely be more stringent than the levels presented in RACM/RACT.

This Staff Report incorporates other documents which establish a basis for linking SOx reductions to improvements in PM air quality as part of the rule making documents. This linkage is well documented and substantiated in other public documents such as the 2007 AQMP, and documents that were used as the basis to develop the Clean Air Fine Particle Implementation Rule.

Comment #15
WSPA suggests that the staff report should list the SOx facilities that have exited RECLAIM, and should indicate the reason for their leaving the program (and, if due to plant closure, did the business claim that the decision to close was in any way related environmental regulations, or, the RECLAIM program in particular).

Response #15
Please refer to the District's annual RECLAIM audit reports published annually in March for this information. Typically plant closure is the result of several factors. Staff believes that discussions on plant closures, or facilities opt-in into SOx RECLAIM is better placed in the RECLAIM annual audit reports.

Comment #16
The first two sentences are unclear (e.g., were the decreasing allocations based on BARCT that was initially in place or, that would likely be implemented in the future?).

The statement assumes that advancements in control technology are occurring constantly but, as a practical matter, that is not the case. The sentence should read, "capture any advancement ...".

The concept of declining emissions allocations, which were a basic design element of the RECLAIM program, already incorporate the goal of expeditious emissions reductions. The sentence could report a more accurate number – the actual reduction was 22.5 percent.

Response #16
The decreasing allocations were based on, in part, the levels of BARCT that would be implemented as expeditiously as possible in the future.

Staff did not intend to imply the control technologies are "constantly" being improved. Rather staff is alerted at technology advancements, or retrospectively leads back to ascertain if control technology improvements warranted a BARTC assessment. Either approaches recognized progress made by the regulated industry, vendors and contractors in control technology advancements.

The concept of declining emission allocations indeed incorporates expeditious emission reductions. The facility allocations since 2003 remain constant based on a BARCT assessment in 1993. A BARCT re-assessment today will in all likelihood establish further declines in SOx emission allocations in order to reach PM2.5 attainment in 2015.
Since its initial rule making effort, there have been several amendments to the RECLAIM rules. In January 2005, a BARCT analysis was re-conducted for NOx, and as a result of this analysis, the RECLAIM rules were amended and the NOx annual allocations previously given to the NOx RECLAIM facility were further reduced by approximately 20% to reflect BARCT.

Comment #17
WSPA recalls that the 2003 allocations included an extra "shave". Tier 1 represented BARCT at the time; Tier 2 was an additional 34 percent shave

The BARCT analysis for SOx is being re-evaluated through the current staff effort. It would be more correct to state that an amendment is (or, will be) based on the BARCT reassessment.

Response #17
A BARCT assessment in 1993 established the declining Tier 1 and Tier 2 allocations. BARCT is undergoing a reevaluation in this Staff Report and will in all likelihood set another reduction for SOx allocations.

Comment #18
WSPA strongly believes that, as was the case for the RECLAIM NOx program shave, any SOx shave must apply to the universe of RECLAIM SOx facilities.

Although the estimated SOx reductions in the AQMP control measure are accurately stated, the AQMP control measure did not contain any documentation regarding the basis for the numbers. Because it is not possible to verify, or even comment on, the reasonableness of the estimates, they must not become benchmarks for evaluating the potential outcome of the BARCT reassessment and SOx-shave.

As previously stated, there needs to be an explanation of the process for evaluating the possible secondary goal of including MCS-01 with this BARCT reassessment. WSPA is concerned that potentially combining two the goals will make it difficult to conduct their respective analyses.

Response #18
The paragraph written in Section 1.4 correctly stated the information presented in the Control Measure CMB-02.

Staff first conducted an analysis for emission reductions in 2006 during the development of Control Measure CMB-02 which resulted in a minimum of 2.9 tpd (approximately 3 tpd) emission reductions. Staff conducted a follow-up analysis in April 2008, resulting in a range of emission reductions from 4.7 tpd – 6.7 tpd from the 2005 emissions baseline. This range was presented in the April 3 and April 30 Working Group Meetings. Expert contractors conduct a third independent analysis of emission reductions and cost effectiveness in September 2008 to assist staff in making its final determination of BARCT. They estimated about 6.5 tpd emission reductions from the 2005 emissions baseline. The final results of potential RTC reductions and how the reduction would be distributed to maintain the integrity, equity and characteristics of the RECLAIM program will be discussed in Part III of the Staff Report. If needed to achieve addition emission reductions for 2014, staff will incorporate the concepts of Control Measure MCS-01 as stated in CM CMB-02, and will discuss the process in Part III of the Staff Report.

Comment #19
In view of the potential review of BARCT to be conducted by an engineering contractor, the staff's recent effort can only be regarded as preliminary. Further there is an important distinction between identifying technologies that might be applicable to a particular source category, and making an assessment that any technology or combination of technologies represents BARCT.

Response #19
Staff has conducted an extensive engineering research to identify the control technologies and assess the possible potential emission reductions that can be achieved. The third party contractors will conduct their own engineering assessment on control technologies, and cost estimates to assist staff in making the final decision on BARCT and emission reductions.

Comment #20
It is premature to state that the SOx reductions technologies, which are described in the staff report, are "applicable" – those determinations have not yet been made, and can only be made at the conclusion of the proposed engineering contractor study.

Reports of installed costs and resultant cost-effectiveness, as reported in the "literature", are usually for uncontrolled sources. The reports are rarely applicable to sources that are already well-controlled, as is the case for facilities in the South Coast Basin.

Generally speaking, reliance on cost or cost-effectiveness values from "the literature" would be a serious mistake. In many cases the District has access to information regarding the actual costs of installations at local refineries. In other cases, site-specific engineering estimates need to be made because this entire BARCT reassessment exercise has to focus on potential retrofit installations.

Response #20
As pointed out in previous responses, the technical feasibility and cost analysis is developed over the entire rule making process. Relying upon data from literature is acceptable in the earlier stage of the rule development process.

Comment #21
WSPA notes that, in the absence of specific documentation regarding the reason that a facility installs emissions control equipment, it cannot be assumed that such installations have been determined to be cost effective. Many installations of emission control equipment have nothing whatsoever to do with cost-effectiveness considerations – rather, they might be part of negotiated Consent Decrees, they might be based on need to provide emissions offsets, etc. Where any determinations regarding cost-effectiveness might have been made, and when those determinations are quoted in the Staff Report, they need to be documented.

It is premature to suggest any definitive conclusions with respect to the amount of SOx emission reductions that might be expected. If various control technologies are ultimately determined to be feasible and cost effective, then the resulting reductions will be used in calculating the specific amount of the allocation shave for SOx RECLAIM sources.

Response #21
In CM CMB-02, staff estimated a range cost effectiveness from $10,000 - $16,000 per ton SOx reduced. The third party contractors will assist staff in conducting detailed cost estimates for this rule amendment and the results will be presented in Part II of the Staff Report.

Comment #22
The discussion in the preceding paragraph should reflect the proposed engineering contractor study.

Response #22
Staff will revise the Preliminary Draft Staff report accordingly when new information surfaces. The third party contractors' analyses will be summarized and presented in Part II of the Staff Report.

Comment #23
WSPA believes that the 12 ton per day value represents SOx allocations, not actual emissions. We also note that not all of the allocations are held by RECLAIM facilities (some allocations are held by third-party investors, etc.). WSPA cautions that care needs to be taken to distinguish between SOx allocations and actual emissions.

It is also important to show the SOx allocations held by facilities compared to those held by investors for both current and future years because the amount of allocations held by investors will increase proportionally in 2012 (compared to 2008) while the amount held by facilities will decrease.

Response #23
As shown in Table 3-4 of the "Annual RECLAIM Audit Report for the 2002 Compliance Year", dated March 5, 2004, the actual emissions for compliance year 2002 was 4,374 tons (12 tpd). The total RTCs (allocations and converted ERCs) were reported to be 4,924 tons (13 tpd).

The RTCs held by investors and by facilities may change on a daily basis. As of March 11, 2009, the RTCs held by the investors were 295 tons for compliance year 2009, 207.5 tons for compliance year 2010 (a decrease compared to year 2009), and 339.9 tons for 2011 and beyond.

Comment #24
Because Table 2-1 makes a comparison between the RECLAIM NOx and SOx programs, respectively, it is important to note the following:
- *The NOx shave applied equally to all facilities in the RECLAIM NOx universe.*
- *The NOx shave recognized the need for, and included, a compliance margin.*

These two characteristics of the NOx shave must also apply to the present consideration of a SOx shave.

Although the data show that, with respect to SOx, RECLAIM facilities represent a greater portion of the emissions inventory, they do not by themselves support a claim of any unusual importance for the current BARCT reassessment exercise for SOx. As stated above, WSPA believes that the 12 ton per day number represents allocations not emissions.

Response #24
In the NOx universe, 87% of the total emissions (24.02 tpd out of 27.61 tpd for compliance year 2003) are generated from the top 16% (54 out of 346 facilities) of the facilities. Yet the NOx shave is divided equally (by percentage) across the NOx universe. Therefore, similarly in the SOx universe, even though 95% of the total emissions (9.47 tpd out of 9.92 tpd) is generated from the top 12 facilities out of 33, the SOx RTC reductions will probably be divided equally (by percentage) across the SOx universe. As indicated in Control Measure CMB-02, however, the shave may be divided equally to 33 facilities, or may be restricted to specific facilities. As

indicated in Part III of the Draft Staff Report, additional analyses will be conducted to provide more information on how the RTC reductions should be executed to maintain the integrity and operational of the SOx RECLAIM program.

See Response #3 regarding the requirement of BARCT reassessment. The 12 tpd is actual emissions in compliance year 2002.

Comment #25
Projected emissions for future years 2014 and 2023 are speculative at best. The staff report should indicate whether or not future year emission projections include the effect of allocation shaves. The precursor relationship of SOx to ambient PM should not simply be described as a "given" because there is no foundation for this claim in the staff report.

Response #25
The future estimated emissions for 2014 and 2023 (11.7 tpd and 11.8 tpd, respectively, without allocation shaves; and 8.8 tpd and 8.9 tpd, respectively, with allocation shaves) are clearly shown in CM CMB-02. The foundation and explanation for a relationship between SOx emissions and ambient PM can be found in Appendix 5 of the 2007 AQMP.

Comment #26
WSPA is not aware of any refineries in the South Coast basin that are not in the RECLAIM program. The staff report should clarify this issue.

Response #26
For clarification, the wording "Non-RECLAIM Refineries" are changed to "Non-RECLAIM Sources". In 2002, the refineries reported 6.9 tpd SOx emissions for flares and upset conditions. Flares and upset conditions were not counted in "RECLAIM Sources", which was ranked #2 in Table 2-2.

Comment #27
The language in the staff report consistently (and, perhaps, misleadingly) suggests that a 3 ton per day (the correct value is 2.9 tons per day) reduction in SOx allocations is a virtual certainty. It is not – primarily because the origin of the 2.9 ton per day goal has not been substantiated. The purpose of the BARCT reassessment is to determine the level of the SOx allocations reduction, if any, that is appropriate and can justified on the basis of available retrofit technology, cost effectiveness, etc. Further, it should be noted that other source categories in Table 2-2 might be reasonable candidates for SOx emissions reductions.

Response #27
As shown in the 2007 AQMP (Table 3-8 of Chapter 3 of the 2007 AQMP), RECLAIM sources were ranked #2 in SOx emissions in 2002, and were expected to rank #2 in 2014 and 2023. Among other stationary sources, RECLAIM sources have the highest possibility to achieve 3 tons per day reductions in 2014 cost effectively, substantiated by staff's analysis in CM CMB-02 and the analysis in Part I of Staff Report. The cost effectiveness ranking of all stationary source control measures in the 2007 AQMP is shown in Table 6-5.

Comment #28
As noted previously, the staff report should address the significance of using CY 2005 as a reference:

- What is the significance of CY 2005?
- Is CY 2005 a representative year? (Some analysis and discussion is needed.)

There needs to be some discussion regarding why the analysis was cut off at twelve facilities. There needs to be some discussion of the reason for, and implication of, including a facility that is shut down in this analysis.

Response #28
Please refer to Response #6.

Comment #29
The derivation of the claimed 80 percent value needs to be presented. (See the comments regarding Table EX-1.)

Response #29
Please refer to Response #7.

Comment #30
There needs to be some demonstration regarding the selection of 2005 as the baseline year.

Response #30
As presented in the April 3 Working Group Meeting (slide #4), the 2005 emissions were selected to be used in this rule amendment because they are within the range of emissions from other current years. The emissions from these top emitting categories of equipment were reported to be 7.5 tpd for 2005, 7.9 tpd for 2006, and 7.3 tpd for 2007. Staff also will estimate RTC reductions using other baseline year (1997) as shown in the 2005 NOx RECLAIM amendment.

Comment #31
There should be some discussion regarding the characterization of a source as "major", and it should be noted that this description has a specific meaning within the context of Regulation XX.

Response #31
The definition for major SOx source is in Rule 2011 (c).

Comment #32
It should be noted that many of the FCCUs at refineries in the South Coast basin are also equipped with expander turbines, which are used to recovery energy from the flue gas leaving the regenerator. An expander turbine, and its associated third-stage separator (used to reduce filterable PM in the FCCU flue gas stream entering the turbine) are additional elements in the flue gas train, which collectively complicate the task of maintaining the required pressure balance within the FCCU.

Response #32
Staff acknowledges this component of the FCCU operation. However, Figure 3-1 is a generic flow diagram that was never intended to show every single piece of equipment included in the

FCCU at each refinery. Any components which would complicate the reductions of SOx emissions should be captured in the third party consultants' analysis.

Comment #33
An electrostatic precipitator and an SCR unit (where one is employed) occupy considerable refinery plot space, and limit the potential use of other systems such as wet gas scrubbers.
The title of the Figure should be "Typical Fluid Catalytic Cracking Unit". A block representing expander turbines should be added because these are common. The block representing SCR should be deleted or labeled as "Optional", because SCRs are uncommon.

Response #33
See Responses #32.

Comment #34
RECLAIM allocations were not issued to process units or individual pieces of equipment but, rather, to the facility as a whole.

Response #34
RECLAIM allocations were issued to the facility as a whole. However, total facility allocations were estimated for each SOx source at the facility according to the methodology described in Rule 2002.

Comment #35
The average value for the three years, 2005, 2006 and 2007 is 3.33 tons per day. There should be an explanation regarding why the highest year was used. Further, there needs to be an analysis regarding the impact of FCCU turnarounds, if any, on the mass emission estimates. (Also see comment for Table 3-2 below.)

Response #35
Staff started the development of this SOx RECLAIM amendment in November of 2007. The most recent set of RECLAIM emissions audited at that time was the 2005 emissions (Ref: *Annual RECLAIM Audit Report for 2005 Compliance Year*, March 2, 2007). Staff will provide two sets of estimation: 1) "real" emission reductions expected from the 2005 actual emissions baseline; and 2) RTC reductions based on the 1997 and the 2005 actual emission baselines. (The RTC reductions estimated from the 1997 baseline will be conducted as suggested by the refinery task force in several meetings with the District following the methodology outlined in the analysis for the 2005 NOx RECLAIM amendment.)

Comment #36
The statement regarding the lack of specific SOx concentration or mass limits for FCCUs is not correct. FCCUs can be subject to Federal New Source Performance Standards, provisions of Consent Decrees, etc.

As noted above, RECLAIM SOx allocations are provided to the facility not to a process unit (e.g., an FCCU). The amount of a facility's SOx allocations have been steadily declining since they were first granted at the start of the RECLAIM program.

Commercial availability is only one issue that needs to be considered when evaluating BARCT – other considerations are environmental, energy and economic impacts.

WSPA is not aware of any basis for the statement implying a hypothetical increase in capacity, and a corresponding need to upgrade any control device. The statement is unsubstantiated and should be deleted.

Response #36
The statement regarding the lack of specific SOx concentration or mass limits for FCCUs was meant for AQMD RECLAIM regulations, not EPA regulations.
The facility's SOx allocations are the summation of all allocations estimated for each SOx source/process category at the refinery. The facility's SOx allocations were steadily declining since 1993 to 2003, and remaining constant after 2003.
In the analysis of BARCT, staff will include only commercial availability technologies but not the technologies in development or at the research phase, and will evaluate BARCT considering environmental, energy and economic impacts as governed by federal/state rules.

The commenter may not be aware of any increase in FCCU capacity since it is confidential information.

Comment #37
WSPA submits that it is unlikely that each refinery had the same FCCU SOx emissions factor. That does not seem reasonable. We wonder if 13.7 lbs/1000 bbls might have been the Tier 1 shave target, not what was actually being emitted in the so-called peak years?

Response #37
The 13.7 lbs/1000 bbls is the emission factor used to calculate Tier I emissions for FCCUs.

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Appendix A – Emissions, RTC Holdings, and Initial Allocations

TABLE A-1
2005 SOx Emissions at SOx RECLAIM Facilities

Facility ID	Facility Name	Cycle	Emissions (tons per year)	Emissions (tons per day)	Cumulative Percentage
131003	BP WEST COAST PROD.LLC BP CARSON REFINERY	2	679.4	1.86	0.19
800363	CONOCOPHILLIPS COMPANY	2	421.2	1.15	0.3
114801	RHODIA INC.	1	410.7	1.13	0.42
800370	EQUILON ENTER., LLC, SHELL OIL PROD. U S	1	363.6	1	0.52
800030	CHEVRON PRODUCTS CO.	2	362.5	0.99	0.62
800089	EXXONMOBIL OIL CORPORATION	1	333.5	0.91	0.71
800026	ULTRAMAR INC	1	312.8	0.86	0.8
800362	CONOCOPHILLIPS COMPANY	1	210.7	0.58	0.85
131249	BP WEST COAST PRODUCTS LLC,BP WILMINGTON	1	130.1	0.36	0.89
800181	CALIFORNIA PORTLAND CEMENT CO	2	100.5	0.28	0.92
7427	OWENS-BROCKWAY GLASS CONTAINER INC	1	74.7	0.2	0.94
108701	SAINT-GOBAIN CONTAINERS, INC.	1	55.9	0.15	0.95
8547	QUEMETCO INC	1	37.3	0.1	0.96
124838	EXIDE TECHNOLOGIES	1	36.9	0.1	0.97
117247	EQUILON ENTERPRISES, LLC	1	31.2	0.09	0.98
800183	PARAMOUNT PETR CORP	1	22.6	0.06	0.99
35302	OWENS CORNING ROOFING AND ASPHALT, LLC	2	7.6	0.02	0.99
800264	EDGINGTON OIL COMPANY	2	6.7	0.02	0.99
115389	AES HUNTINGTON BEACH, LLC	2	6.4	0.02	1
40196	GUARDIAN INDUSTRIES CORP.	2	6.1	0.02	1
16642	ANHEUSER-BUSCH INC., LA BREWERY	1	5.4	0.01	1
42775	WEST NEWPORT OIL CO	1	2.3	0.01	1
119104	CALMAT CO	1	1.1	0	1
800182	RIVERSIDE CEMENT CO	1	0.7	0	1
21887	KIMBERLY-CLARK WORLDWIDE INC.-FULT. MILL	2	0.4	0	1
45746	PABCO BLDG PRODUCTS LLC,PABCO PAPER, DBA	2	0.1	0	1
800372	EQUILON ENTER. LLC, SHELL OIL PROD. US	2	0.1	0	1
	Total		**3621**	**9.92**	

(Note: There are 27 facilities out of total 33 facilities listed in this table. The remaining four facilities reported zero emissions in 2005.)

Total 2005 reported emissions = 9.92 tons per day
Total 2005 audited emissions = 10.04 tons per day

TABLE A-2
RTC Holdings and Initial Allocations for Compliance Year 2012 As Of August 29, 2009

11 Major Facilities

Count	Facility ID	Facility Name	RTC Holdings (tpd) CY2012	Initial Alloc (tpd) Int12alloc
1	131003	BP WEST COAST PROD.LLC BP CARSON REF.	1.47	0.86
2	800030	CHEVRON PRODUCTS CO.	1.21	0.86
3	800362	CONOCOPHILLIPS COMPANY	0.59	0.21
4	800363	CONOCOPHILLIPS COMPANY	1.38	0.78
5	800089	EXXONMOBIL OIL CORPORATION	1.15	0.50
6	800026	ULTRAMAR INC (NSR USE ONLY)	0.72	0.57
7	800436	TESORO REFINING AND MARKETING CO	1.20	0.52
8	131249	BP WEST COAST PRODUCTS LLC,BP WILMINGTON	0.84	0.84
9	800181	CALIFORNIA PORTLAND CEMENT CO (NSR USE)	0.27	0.22
10	7427	OWENS-BROCKWAY GLASS CONTAINER INC	0.31	0.68
11	114801	RHODIA INC.	1.07	1.12
		TOTAL	**10.21**	**7.16**

21 Remaining Facilities

12	115389	AES HUNTINGTON BEACH, LLC	0.02	0.01
13	148236	AIR LIQUIDE LARGE INDUSTRIES U.S., LP	0.00	
14	16642	ANHEUSER-BUSCH INC., (LA BREWERY)	0.02	0.02
15	119104	CALMAT CO	0.00	
17	800264	EDGINGTON OIL COMPANY	0.02	0.02
18	800372	EQUILON ENTER. LLC, SHELL OIL PROD. US	0.00	1.04
19	124838	EXIDE TECHNOLOGIES	0.14	0.14
20	124808	INEOS POLYPROPYLENE LLC	0.00	
21	21887	KIMBERLY-CLARK WORLDWIDE INC.-FULT. MILL	0.00	0.00
22	800080	LUNDAY-THAGARD COMPANY	0.00	0.00
23	35302	OWENS CORNING ROOFING AND ASPHALT, LLC	0.03	0.03
24	45746	PABCO BLDG PRODUCTS LLC,PABCO PAPER, DBA	0.02	0.02
25	800183	PARAMOUNT PETR CORP (EIS USE)	0.13	0.11
26	8547	QUEMETCO INC	0.14	0.14
27	800182	RIVERSIDE CEMENT CO (EIS USE)	0.06	0.12
28	14944	TECHALLOY CO., INC.	0.01	0.01
29	151798	TESORO REFINING AND MARKETING CO	0.08	0.06
31	12185	US GYPSUM CO	0.01	0.01
32	42775	WEST NEWPORT OIL CO	0.03	0.86
		TOTAL	**0.73**	**2.60**

*CENCO & P.Q.CORP have Zero RTC Holdings

TABLE A-2 (Cont.)

Inactive Facilities				
33	40196	GUARDIAN INDUSTRIES CORP.	0.00	0.10
34	99588	DOMTAR GYPSUM INC	0.01	0.01
37	106797	SAINT-GOBAIN CONTAINERS, INC.	0.00	
38	108701	SAINT-GOBAIN CONTAINERS, INC.	0.00	
39	117247	EQUILON ENTERPRISES, LLC	0.00	
51	800184	GOLDEN WEST REF CO	0.00	0.21
52	800223	TEXACO REF & MARKETING INC	0.00	
		TOTAL	**0.01**	**0.32**
Investors				
35	101337	NATIONAL OFFSETS	0.00	
36	104017	AERA ENERGY LLC	0.03	
40	139796	CITY OF RIVERSIDE PUBLIC UTILITIES DEPT	0.02	
41	140540	CALIFORNIA LNG PROJECT CORPORATION	0.00	
42	152857	GEORGIA-PACIFIC GYPSUM LLC	0.00	
43	700004	CANTOR FITZGERALD BROKERAGE, L.P.	0.00	
44	700058	U S TRUST COMPANY, NATIONAL ASSOCIATION	0.00	
45	700062	BRIAN ANDERSON	0.14	
46	700122	GREY K ENVIRONMENTAL FUND, L.P.	0.49	
47	700123	APEX PLASTICS & TOOLING, INC.	0.00	
48	700128	GREY K FUND LP	0.00	
49	700144	OLDUVAI GORGE, LLC	0.15	
50	700153	TAUBER OIL COMPANY	0.00	
		TOTAL	**0.83**	
		Total for active RECLAIM facilities	**11.77**	**10.08**

TABLE A-3
RTCs Available for RECLAIM Market from Shutdown Facilities

Facility ID	Name	Shutdown Compliance Year	Initial Allocations 2010+	2010+ Holding as of 8/26/2010	IYB RTC Available to Market (lbs)	IYB RTC Available to Market (tpd)
6281	US GOVT,MARINE CORPS AIR STATION,EL TORO	2000	1,892	0	1,892	0.00
6394	ANAHEIM FOUNDRY INC	1996	7,782	0	7,782	0.01
9141	CANNERS STEAM CO INC	2007	8,596	0	8,596	0.01
12912	LIBBEY GLASS INC	2004	71,816	0	71,816	0.10
18984	ANCHOR GLASS CONTAINER CORP	1994	136,016	0	136,016	0.19
40196	GUARDIAN INDUSTRIES CORP.	2007	71,882	0	71,882	0.10
60942	GAF BUILDING MATERIALS CORPORATION	1994	70,052	0	70,052	0.10
67945	GREAT WESTERN MALTING CO., INC.	2002	125,326	0	125,326	0.17
79397	OWENS-BROCKWAY GLASS CONTAINER INC	1996	102,445	0	102,445	0.14
99588	DOMTAR GYPSUM INC	1999	8,572	8,572	0	0.00
106797	SAINT-GOBAIN CONTAINERS, INC.	2004	235,558	0	235,558	0.32
108701	SAINT-GOBAIN CONTAINERS, INC.	2007	0	0	0	0.00
800047	FLETCHER OIL & REF CO	2000	42,094	0	42,094	0.06
800184	GOLDEN WEST REF CO	2001	150,557	243	150,314	0.21
800232	HUNT-WESSON INC	1996	9,564	0	9,564	0.01

Total from shutdown facilities (tons per day) 1.42

From Glass Facilities (tpd) 0.85

TABLE A-4
2005 SOx Emissions of Top Seven Groups of Equipment

Group	Fac Name	Description	Fuel Type	2005 Emissions (lbs)	2005 Emissions (tpd)
1	B	REGENERATOR, FCCU		755399.17	1.03
1	F	REGENERATOR, FCCU		447175.34	0.61
1	A	REGENERATOR		281211.84	0.39
1	D	REGENERATOR		195964.32	0.27
1	D	BOILER		30445.34	0.04
1	C	REGENERATOR		703085.36	0.96
1	E	REGENERATOR, FCCU		0	0.00
1	E	BOILER, CO WASTE HEAT, FCCU		181757.45	0.25
Total for 6 FCCUs					**3.55**
2	B	HEATER, CRUDE OIL DISTILLATION	REF_GAS	57649.9	0.08
2	D	BOILER	REF_GAS	25516.55	0.03
2	D	HEATER	REF_GAS	47760.79	0.07
2	D	FURNACE	REF_GAS	32123.51	0.04
2	C	HEATER	REF_GAS	76489.74	0.10
2	C	HEATER	REF_GAS	64590.83	0.09
2	C	BOILER	REF_GAS	45844.81	0.06
2	C	BOILER	REF_GAS	43162.12	0.06
2	C	HEATER	REF_GAS	30440.13	0.04
2	C	HEATER	REF_GAS	28672.09	0.04
2	C	HEATER	REF_GAS	27970.11	0.04
2	E	HEATER, COKING PROCESS	PROCESS GAS, REF GAS	48332.59	0.07
2	E	HEATER, CRUDE UNIT	PROCESS GAS, REF GAS	39770.77	0.05
2	E	HEATER, COKING PROCESS	PROCESS GAS, REF GAS	39577.84	0.05
2	E	BOILER, HYDROGEN GENERATION	REF GAS, NAT GAS	28868.34	0.04
2	E	BOILER, STEAM GENERATION	REF GAS, PROCESS GAS FROM SCRUBBER	26484.59	0.04
Total for 16 boilers/heaters (1 currently not in operation)					**0.91**
3	EE	INCINERATOR (C54), CONTROL EQUIP FOR ABSORBER OF SULFUR RECOVERY UNIT	REF GAS, NAT GAS, PROCESS GAS	32995.62	0.05
3	EE	INCINERATOR (C56), CONTROL EQUIP FOR ABSORBER OF SULFUR RECOVERY UNIT	REF GAS, NAT GAS, PROCESS GAS	11974.31	0.02
3	B	CONTROL DEVICE (C-910) THERMAL OXIDIZER	REFINERY GAS, NATURAL GAS, WASTE GAS	114337.58	0.16
3	B	CONTROL DEVICE, THERMAL OXIDIZER	REFINERY GAS, NATURAL GAS, WASTE GAS	111676.16	0.15
3	F	OXIDIZER		116994.68	0.16
3	A	THERMAL OXIDIZER (D927), TAIL GAS IN SULFUR PRODUCTION UNIT	NATGAS, REF GAS	75220.2	0.10
3	A	THERMAL OXIDIZER (D927), TAIL GAS IN SULFUR PRODUCTION UNIT	NATGAS, REF GAS	62774.65	0.09

TABLE A-4 (Continued)

Group	Fac Name	Description	Fuel Type	2005 Emissions (lbs)	2005 Emissions (tpd)
	A	THERMAL OXIDIZER (D911), TAIL GAS IN SULFUR PRODUCTION UNIT	NATGAS, REF GAS	47309.99	0.06
	D	OXIDIZER		112186.65	0.15
	C	INCINERATOR (C456), SULFUR RECOVERY UNIT NO 2, TAIL GAS INCINERATOR	REF GAS, NAT GAS	7518.47	0.01
	C	INCINERATOR (C436), SULFUR RECOVERY UNIT NO 1, TAIL GAS INCINERATOR	REF GAS, NAT GAS	7005.95	0.01
Total for 11 SRU/Tail Gas Units					**0.96**
	B	FURNACE, SULFURIC ACID PLANT	FUELOIL, NAT_GAS, SULFUR	821456.88	1.13
	A	REACTOR, SULFURIC ACID PRODUCTION, COMBUSTION CHAMBER	PROCESS GAS	28304	0.04
	A	REACTOR, SULFURIC ACID PRODUCTION, COMBUSTION CHAMBER	REFGAS, NATGAS	443.05	0.00
Total for 3 Sulfuric Acid Manufacturing Reactors/Furnace					**1.16**
	BG	FURNACE	NAT_GAS	55242.68	0.08
	BG	FURNACE, MELTING	NAT_GAS, OXY-FUEL, PROPANE, GLASS	61637.19	0.08
	BG	FURNACE, MELTING	NAT_GAS, OXY-FUEL, PROPANE, GLASS	26411.28	0.04
	SG	FURNACE, MELTING	FUEL OIL, NAT_GAS, OXY FUEL, GLASS	93706.37	0.13
Total for 4 Container Glass Melting Furnaces					**0.32**
	BW	KILN, ROTARY, CALCINER PET COKE	NATURAL GAS, DIESEL FUE:	257392.34	0.35
Total for 1 coke calciner					**0.35**
	CC	KILN	COAL, COKE, FUEL OIL, NAT GAS, TIRE	140815.54	0.19
	CC	KILN	COAL, COKE, FUEL OIL, NAT GAS, TIRE	54045.06	0.07
	CC	BOILER, STEAM GENERATION, CIRCULATING FLUIIZED BED	COAL, COKE, NAT GAS	1561.82	0.00
Total for 2 cement kilns					**0.27**
TOTAL 7 CATEGORIES OF EQUIPMENT					**7.53**

Appendix B – Summary of Federal, State and Local SOx Rule Requirements

(Summarized by Kevin Orellana)

Fluid Catalytic Cracking Units

Rule/Regulation	Applicability	Emission Limits	Compliance Date	Monitoring **
SCAQMD R1105	FCCU	132 lbs SO_2 per 1000 bbl feed (60-minute average)	1/1/1987	
BAAQMD 9-1	FCCU	1000 ppmv SO_2	3/15/1995	CEMS
San Diego County APCD R53	Other sources of gaseous sulfur emissions where sulfur compounds emitted are not products of fuel combustion	0.05 % by volume dry, sulfur as SO_2	1/22/1997	
NSPS 40 CFR Part 60 Subpart Ja	FCCU	25 ppmv SO_2 dry basis, 365-day rolling average	5/14/2007	CEMS

Sulfur Recovery Units/Tail Gas Units

Rule/Regulation	Applicability	Emission Limits	Compliance Date	Monitoring **
SCAQMD R468	SRU	500 ppm sulfur compounds (calculated as SO_2 dry) over 15 minute average; and 10ppm H_2S over 15-minutes (dry); and 198.5 lbs./hr sulfur compounds as SO_2	10/8/1976	
BAAQMD 9-1	SRU	250 ppmv SO_2 dry @ 0% O_2	3/15/1995	CEMS
San Diego County APCD R53	Sulfur recovery plants	0.05% by volume dry, sulfur as SO_2	1/22/1997	
NSPS 40 CFR Part 60 Subpart Ja	SRU with capacity >20 long tons/day, followed by incineration	250 ppmv SO_2 dry @ 0% O_2	5/14/2007	CEMS
NSPS 40 CFR Part 60 Subpart Ja	SRU with capacity >20 long tons/day, followed by incineration, with multiple trains or release points	250 ppmv SO_2 dry @ 0% O_2 for each process train or release point; or comply with a flow-weighted average of 250 ppmv for all release points	5/14/2007	CEMS
NSPS 40 CFR Part 60 Subpart Ja	SRU with capacity >20 long tons/day, not followed by incineration	10 ppmv H_2S and 300 ppmv of reduced sulfur compounds (H_2S, COS, and CS_2), each calculated as ppmv of SO_2 dry @ 0% O_2	5/14/2007	CEMS

Refinery Boilers/Heaters

Rule/Regulation	Applicability	Emission Limits	Compliance Date	Monitoring **
NSPS 40 CFR Part 60 Subpart Ja	Fuel gas combustion devices	162 ppmv H_2S in fuel gas determined hourly on a 3-hour rolling average basis or 60 ppmv in fuel gas determined daily on a 365 successive calendar day rolling average basis	5/14/2007	CFGMS
NSPS 40 CFR Part 60 Subpart Ja	Fuel gas combustion devices	20 ppmv flue gas SO_2 (dry @ 0% O_2) determined hourly on a 3-hour rolling average basis, and 8 ppmv flue gas SO2 (dry @0% O2) determined daily on a 365 successive calendar day rolling average basis	5/14/2007	CEMS
SCAQMD R431.1	Fuel gas combustion devices	40 ppmv averaged over 4 hours, calculated as H_2S	5/4/1994	CFGMS or CEMS
SJVUAPCD R4301	Fuel burning equipment	200 lb/hr sulfur compounds, calculated as SO_2	12/17/1992	

Coke Calciners

Rule/Regulation	Applicability	Emission Limits	Compliance Date	Monitoring **
SCAQMD R1119	Coke Calcining	At least 80% reduction of uncontrolled SOx emissions	7/1/1983	
BAAQMD 9-1	Coke Calcining kilns	400 ppmv or 250 lb/hr SO_2	3/15/1995	
San Diego County APCD R53	Other sources of gaseous sulfur emissions where sulfur compounds emitted are not products of fuel combustion	0.05 % by volume dry, sulfur as SO_2	1/22/1997	

Sulfuric Acid Plants

Rule/Regulation	Applicability	Emission Limits	Compliance Date	Monitoring **
SCAQMD R469	Sulfuric Acid	500 ppm sulfur compounds (calculated as SO_2 dry) over 15 minute average; 198.5 lbs./hr sulfur compounds as SO_2	2/13/1981	
BAAQMD 9-1	Sulfuric acid plant equipment	300 ppmv SO_2 @12% O_2	3/15/1995	CEMS
San Diego County APCD R53	Other sources of gaseous sulfur emissions where sulfur compounds emitted are not products of fuel combustion	0.05 % by volume dry, sulfur as SO_2	1/22/1997	
NSPS 40 CFR Part 60 Subpart H	Sulfuric Acid production units	4 lb SO_2 per ton of acid produced (as 100% H_2SO_4)	6/14/1974	CEMS

Cement Kilns

Rule/Regulation	Applicability	Emission Limits	Compliance Date	Monitoring **
San Diego County APCD R53	Other sources of gaseous sulfur emissions where sulfur compounds emitted are not products of fuel combustion	0.05 % by volume dry, sulfur as SO_2	1/22/1997	
SJVUAPCD R4801	Any equipment that discharges gaseous sulfur compounds	0.2% by volume SO_2 dry, over 15 min-average	12/17/1992	

Glass Manufacturing

Rule/Regulation	Applicability	Emission Limits	Compliance Date	Monitoring **
San Diego County APCD R53	Other sources of gaseous sulfur emissions where sulfur compounds emitted are not products of fuel combustion	0.05 % by volume dry, sulfur as SO_2	1/22/1997	
SJVUAPCD R4354	Glass melting furnaces	0.90 lb SOx per ton glass produced (rolling 30-day average)	1/1/2011	CEMS

Information related to the U.S. EPA Consent Decree for FCCUs are summarized below:

Emission Limits	Compliance Date	Monitoring
BP: 50 ppmv SO_2 @ 0% O_2, 365-day rolling average; 150 ppmv SO_2 @ 0% O_2, 7-day rolling average	7/11/2005	CEMS
Tesoro: 36.2 ppmv SO_2 @ 0% O_2, 365-day rolling average; 69.1 ppmv SO_2 @ 0% O_2, 7-day rolling average	2/2/2006	CEMS
Valero: No set limit at this time due to an ongoing demonstration project with SO_2 reducing catalysts due by the compliance date.	4/30/2011	CEMS
ExxonMobil: 25 ppmv SO_2 @ 0% O_2, 365-day rolling average; 50 ppmv SO_2 @ 0% O_2, 7-day rolling average	12/13/2005	CEMS
Chevron: 25 ppmv SO_2 @ 0% O_2, 365-day rolling average; 50 ppmv SO_2 @ 0% O_2, 7-day rolling average	12/31/2005	CEMS
ConocoPhillips: 25 ppmv SO_2 @ 0% O_2, 365-day rolling average; 50 ppmv SO_2 @ 0% O_2, 7-day rolling average	3/1/2011	CEMS

Appendix C – CEMS Information & Source Test Data

Table C-1: CEMS Data from a Refinery in the District – FCCU with Wet Gas Scrubber

SOx Emissions lbs/day	Day	SOx Emissions lbs/day	Day	SOx Emissions lbs/day	Day	SOx Emissions lbs/day	Day	SOx Emissions lbs/day	Day	SOx Emissions lbs/day	Day	SOx Emissions lbs/day	Day
111.09	9/13/08	145.23	10/21/08	122.9	11/30/08	150.46	1/10/09	144.16	2/19/09	134.63	3/31/09	149.71	5/11/09
111.02	9/14/08	143.99	10/22/08	125.16	12/1/08	150.58	1/11/09	143.64	2/20/09	136.42	4/1/09	149.85	5/12/09
110.09	9/15/08	143.19	10/23/08	124.33	12/2/08	153.81	1/12/09	144.62	2/21/09	136.65	4/2/09	149.85	5/13/09
109.51	9/16/08	143.22	10/24/08	123.61	12/3/08	155.46	1/13/09	145.55	2/22/09	138.37	4/3/09	149.82	5/14/09
110.36	9/17/08	143.55	10/25/08	123.43	12/4/08	157.15	1/14/09	149.61	2/23/09		4/5/09	149.47	5/15/09
119.47	9/18/08	143.89	10/26/08	123.25	12/5/08	157.49	1/15/09	155.25	2/24/09	181.74	4/6/09	149.11	5/16/09
129.49	9/19/08	143.61	10/27/08	122.44	12/6/08	157.24	1/16/09	156.9	2/25/09	182.97	4/7/09	149.16	5/17/09
130.41	9/20/08	143.3	10/28/08	123.13	12/7/08	158	1/17/09	153.88	2/26/09	174.53	4/8/09	149	5/18/09
130.88	9/21/08	143.92	10/29/08	125	12/8/08	149.89	1/18/09	156.03	2/27/09	152.39	4/9/09		5/19/09
130.75	9/22/08	143.73	10/30/08	123.15	12/9/08	147.05	1/19/09	155.04	2/28/09	127.02	4/10/09	150.05	5/20/09
130.93	9/23/08	139.91	10/31/08	122.73	12/10/08	145.6	1/20/09	143.39	3/1/09	126.22	4/11/09	150.46	5/21/09
131.86	9/24/08	130.97	11/1/08	122.37	12/11/08	146.31	1/21/09	139.42	3/2/09	130.46	4/12/09	150.32	5/22/09
130.62	9/25/08	131.45	11/2/08	123.49	12/12/08	145.74	1/22/09	141.21	3/3/09	149.2	4/13/09	149.93	5/23/09
130.69	9/26/08	133.77	11/3/08	123.68	12/13/08	150.03	1/23/09	141.9	3/4/09	152.12	4/14/09	149.89	5/24/09
125.6	9/27/08	131.73	11/4/08	135.92	12/15/08	158.61	1/24/09	141.2	3/5/09	150.03	4/15/09	150.07	5/25/09
132.65	9/28/08	131.32	11/5/08	139.17	12/16/08	157.7	1/25/09	142.64	3/6/09	150.28	4/16/09	149.87	5/26/09
131.76	9/29/08	130.27	11/6/08	134.89	12/17/08	158.07	1/26/09	143	3/7/09	148.51	4/17/09	149.28	5/27/09
128.53	9/30/08	132.76	11/7/08	135.66	12/18/08	158.49	1/27/09	142.89	3/8/09	147.04	4/18/09	149.69	5/28/09
127.41	10/1/08	137.1	11/8/08	129.8	12/19/08	157.81	1/28/09	142.7	3/9/09	145.98	4/19/09	149.55	5/29/09
129.48	10/2/08	138.25	11/9/08	130.95	12/20/08	154.73	1/29/09	141.86	3/10/09	146.36	4/20/09	149.49	5/30/09
131.67	10/3/08	138.12	11/10/08	138	12/21/08	153.98	1/30/09	111.54	3/11/09	147.47	4/21/09	148.77	5/31/09
132.49	10/4/08	137.22	11/11/08	132.16	12/22/08	155.43	1/31/09	48.03	3/12/09	148.87	4/22/09	147.92	6/1/09
131.92	10/5/08	137.09	11/12/08	125.81	12/23/08	157.58	2/1/09	118.74	3/13/09	148.24	4/23/09	148.77	6/2/09
131.33	10/6/08	137.11	11/13/08	134.23	12/24/08	155.16	2/2/09	36.04	3/14/09	149.37	4/24/09	148.87	6/3/09
131.02	10/7/08	136.91	11/14/08	155.32	12/25/08	156.07	2/3/09	136.91	3/15/09	143.4	4/25/09	148.31	6/4/09
119.64	10/8/08	135.62	11/15/08	156.05	12/26/08	155.67	2/4/09	143.78	3/16/09	125.06	4/26/09	148.7	6/5/09
154.21	10/9/08	135.75	11/16/08	156.06	12/27/08	156.76	2/5/09	142.9	3/17/09	125.5	4/27/09	149.28	6/6/09
154.71	10/10/08	135.71	11/17/08	157.29	12/28/08	156.1	2/6/09	125.63	3/18/09	131.39	4/28/09		
155.74	10/11/08	136.19	11/18/08	157.07	12/29/08	158.64	2/7/09	118.51	3/19/09	138.27	4/29/09		
156.58	10/12/08	137.07	11/19/08	155.95	12/30/08	159.41	2/8/09	119	3/20/09	138.9	4/30/09		
146.18	10/13/08	137.4	11/20/08	157.3	12/31/08	155.14	2/9/09	122.27	3/21/09	147.53	5/1/09		
128.23	10/14/08	137.14	11/21/08	160.33	1/1/09	160.87	2/10/09	130.06	3/22/09	148.7	5/2/09		
132.85	10/15/08	137.25	11/22/08	155.22	1/2/09	157.97	2/11/09	133.4	3/23/09	149.37	5/3/09		
140.19	10/16/08	137.81	11/23/08	141.5	1/3/09	151.77	2/12/09	134.39	3/24/09	149.34	5/4/09		
139.43	10/17/08	134.1	11/24/08	144	1/4/09	148.28	2/13/09	136.13	3/25/09	148.97	5/5/09		
140.03	10/18/08	125.09	11/25/08	147.65	1/5/09	143.42	2/14/09	136.69	3/26/09	148.51	5/6/09		
140.16	10/19/08	122.53	11/26/08	143.59	1/6/09	145.05	2/15/09	136.46	3/27/09	148.66	5/7/09		
143.02	10/20/08	122.32	11/27/08	141.79	1/7/09	150.44	2/16/09	136.49	3/28/09	149.02	5/8/09		
		122.14	11/28/08	154.11	1/8/09	149.17	2/17/09	138.11	3/29/09	149.51	5/9/09		
		122.55	11/29/08	156.96	1/9/09	145.34	2/18/09	136.85	3/30/09	149.32	5/10/09		

The concentration during 265 days (8.83 months) is 3.80 ppmv, however this refinery reported emissions based on a level of 5 ppmv.

Table C-2: Source Test from a Refinery in the District - FCCU with Wet Gas Scrubber

Test/Run ID		1	2	3	Average	
Date Tested	NA	10/8/2008	10/9/2009	10/9/2008		
Stack Oxygen	%	1.30	1.28	1.27	1.28	
Stack Carbon Dioxide	%	17.8	17.7	17.9	17.82	
Average Stack Volumetric Flow (Methods 5 and 6)	dscfm	128,982	128,276	124,384	127214	
Stack Temperature (Methods 5 and 6)	oF	134	132	132	132.88	
Stack Moisture Concentration (Methods 5 and 6)	%	15.29	14.53	14.39	14.73	
FCC Feed	MBPD	49.19	48.93	48.93	49.02	
FCC Feed	MBPH	2.05	2.04	2.04	2.04	
Coke Make (Burn)	lb/hr	39,274	39,389	39,389	39,351	
Coke Make (Burn)	Mlb/hr	39.27	39.39	39.39	39.35	
Catalyst Circulation Rate	ton/min	45.41	46.25	46.25	45.97	
Gas Flow to Scrubber/Circulation Ratio	gal/MACF	26.23	25.94	25.94	26.04	
Total WESP Power	KW	7.49	8.06	8.06	7.87	
#2 Lower WESP Spark Rate	spk/min	1.34	1.30	1.30	1.31	
#1 Lower WESP Spark Rate	spk/min	2.37	4.08	4.08	3.51	
#2 Upper WESP Spark Rate	spk/min	0.00	0.00	0.00	0.00	
#1 Upper WESP Spark Rate	spk/min	0.00	0.00	0.00	0.00	
Oxides of Nitrogen as NO_2 - Method 100.1						LIMIT(S)
as found	ppmv	12.1	18.4	17.8	16.08	
at 3% O_2	ppmv	11.0	16.8	16.2	14.7	
at 0% O_2%	ppmv	12.9	19.6	18.9	17.1	20
emission rate	ppmv	11.3	17.2	16.1	14.9	
Carbon Monoxide – Method 100.1						
as found	ppmv	40.9	39.6	43.5	41.3	
at 3% O_2	ppmv	37.4	36.1	39.7	37.7	
emission rate	lbs/hr	23.4	22.5	24.0	23.3	
VOC as Total Gaseous Non-Methane Organic – Method 25.3						
VOC as TOC in Impinger Vial - Sample A	ppmv	0.63				
VOC as TGNMO in Canister - Sample A	ppmv	50.1				
Combined Vial and Canister Conc. - Sample A	ppmv	50.73				
VOC as TOC in Impinger Vial - Sample B	ppmv	0.28				
VOC as TGNMO in Canister - Sample B	ppmv	65.9				
Combined Vial and Canister Conc. - Sample B	ppmv	66.18				
as found-Average	ppmv	**58.46**				
at 3% O_2	ppmv	53.39				
emission rate	lbs/hr	19.07				
Sulfur Oxides as SO_2– SCAQMD Method 6.1						
Stack Volumetric Flow	dscfm	128.071	123.830	121.962	124.621	
Isokinetic Sampling Rate (I)	%	98	93	92	94	90<=I<=110
Stack Moisture Concentration	%	15.97	15.44	15.18	15.53	
Stack Temperature oF	ºF	135	132	132	133	
Corrected Gas Volume Collected	dscf	68.622	52.361	50.731	57.238	
SOx Conc. in Gas Sample	ppmv	1.270	0.810	0.706	0.929	
SOx Conc. in Gas Sample at 3% O_2	ppmv	1.160	0.739	0.644	0.848	
SOx Conc. in Gas Sample at 0% O_2	**ppmv**	**1.354**	**0.863**	**0.752**	**0.990**	25
SOx Emission Rate	lb/hr	1.65	1.02	0.87	1.18	
SOx Emission (lb/1000 coke burn)	lb/MB	0.04	0.03	0.02	0.03	9.80
Stack Particulate Matter (PM) – EPA Method 5 (Front ½)SCAQMD Method 5.2 (Back ½)						
Stack Volumetric Flow	dscfm	129,892	132,722	126,806	129,807	
Isokinetic Sampling Rate (I)	%	103	104	102	103	90<=I<=110
Stack Moisture Concentration	%	14.60	13.61	13.59	13.93	
Stack Temperature oF	ºF	134	132	133	133	
Corrected Gas Volume Collected	dscf	183.457	189.314	177.602	183.458	
Stack Total PM Mass	mg	42.60	34.55	34.45	37.20	
Stack Total PM - as found	gr/dscf	0.00358	0.00282	0.00299	0.00313	
Stack Total PM at 3% O_2	gr/dscf	0.00327	0.00257	0.00273	0.00286	
Stack Total PM emission rate	lb/hr	3.99	3.20	3.25	3.48	
Stack Solid PM Mass	mg	42.60	31.80	31.95	35.45	
Stack Solid PM - at found	gr/dscf	0.00358	0.00259	0.00278	0.00298	
Stack Solid PM at 3% O_2	gr/dscf	0.00327	0.00236	0.00253	0.00272	
Stack Solid PM Emission Rate	lb/hr	3.99	2.95	3.02	3.32	
Stack PM Emission (lb/1000 bbl of feed)	lb/MB	1.96	1.57	1.60	1.70	2.80
Stack PM Emission (lb/1000 coke burn)	lb/MB	0.10	0.08	0.08	0.09	1.00

Table C-2: Source Test from a Refinery in the District - FCCU with Wet Gas Scrubber (Cont.)

Inlet Particulate Matter (PM) – EPA Method 5						
Inlet Volumetric Flow	dscf	102,640	108,052	116,160	108,951	
Isokinetic Sampling Rate (I)	%	92	103	92	96	90<=I<=110
Inlet Moisture Concentration	%	16.39	16.10	10.20	14.23	
Inlet Temperature	ºF	561	570	567	566	
Corrected Gas Volume Collected	dscf	27.307	32.356	30.980	30.214	
Inlet Total PM Mass	mg	169.90	229.75	330.30	243.32	
Inlet Total PM - as found	gr/dscf	0.09602	0.10958	0.16454	0.12338	
Inlet Total PM at 3% O_2	gr/dscf	0.08770	0.09996	0.15006	0.11257	
Inlet PM emission rate	lb/hr	84.47	101.49	163.82	116.59	

Appendix D – Survey Questionnaires

Staff developed two Survey Questionnaires to collect information for this rule making process. The first Survey was sent out in 2008, and the second set of Survey was sent out in 2009. Please see below.

SOx RECLAIM - SURVEY QUESTIONNAIRE
July 23, 2009

Please provide the following information by August 7, 2009.

Water

1. What is the current water usage and distribution at your facility (e.g. xx gal/year (xx%) used in cooling tower, xx gal/year (xx%) used in refinery processes)?

2. Who is the water supplier for your facility? Does your facility have a maximum cap on the amount of water (fresh and recycled) that the facility can purchase from the supplier? If yes, please specify.

3. How many groundwater wells does your facility have? How much is your facility permitted to pump and how much is your facility currently pumping? Please provide a copy of the groundwater permit for your facility.

Wastewater

1. Your facility may own and operate its own wastewater treatment facility. What is the maximum capacity of this wastewater treatment facility? What is the normal rate of wastewater that your facility is currently handling? Please provide a brief description and schematic of the process.

2. After treating the wastewater within your facility, where does the facility discharge the wastewater to?

3. Does the facility send the wastewater to a third party for further treatment? If yes, who is this third party and what are the average and maximum amount sent to this third party treatment facility? Is there any limit to the amount that your facility can send?

4. Does your facility purchase recycled water to use in the processes at your facility? If yes, who is the supplier and what are the average and maximum amount that can be purchased?

5. Who is the wastewater regulator for your facility? Please provide us a copy of your facility's wastewater discharge permits.

Solid Waste

1. How does the refinery currently handle the catalyst fines from the ESPs? Where are they shipped (or sold) to and what is the quantity? Are they considered hazardous waste?

2. Who is the solid waste regulator for your facility? If your facility is subject to certain requirements on solid waste discharge, please provide a copy of the permits.

South Coast Air Quality Management District

SURVEY QUESTIONNAIRE
FOR PROPOSED AMENDED REGULATION XX
FURTHER SOx REDUCTION FOR RECLAIM
(Request Due Date – February 21, 2008)

Facility Contact

1. Please provide the facility contact for this project:

Name: _____
Title: _____
Phone Number: _____
Email Address: _____

Facility Top SOx Emitters

2. Please list the top 10 SOx emitters at your facility and provide the following information.

- Device description and device identification number
- Emissions (tons per day) in 2005, 2006, 2007
- SOx control technology used

Operational Data

3. Please provide the following information for the following seven specific equipment categories if they are on your facility's list of top ten SOx emitters.

Fluid Catalytic Cracking Units (FCCUs)

a) Please provide the following information:

- Feed rate, average and range (thousands barrels per day)
- Sulfur content of feed, average and range (percent by weight)
- Coke burn-off rate, average and range (thousand pounds per hour)
- FCCU catalyst manufacturer and catalyst recirculation rate (tons per hour)
- Average and range of flue gas exhaust flow rate from regenerator (millions dry standard cubic feet) and exhaust temperatures (degree Fahrenheit)
- Average and range of SOx concentration in the exhaust flue gas from the FCCU regenerator (ppmv at $\%O_2$)

b) Does the facility currently use FCCU SOx reduction catalysts? If yes, please provide the following information:

- Name of catalyst manufacturer and name of SOx reduction catalyst
- Usage rate (pounds of catalysts added per day, or pounds of catalyst per pound of FCCU catalyst)
- Baseline SOx emissions and control efficiency. If available, please submit a copy of manufacturer's quote including specifications and guarantee
- Costs of SOx reduction catalysts. Please provide annual operating costs and any modification costs to the FCCU if needed in order to use the SOx reduction catalysts.
- When were the SOx reduction catalysts first used in the FCCUs and how long has the facility been using SOx reduction catalysts?

c) Does the facility currently use, or plan to use, post combustion control device (e.g. wet scrubber)? If yes, please provide the following information:

- Brief description of the technology (e.g. scrubber)
- Design parameters (e.g. maximum flue gas flow rate, type of absorbent, absorbent flow rate, control efficiency, inlet and outlet ppmv, emission rate)
- Capital costs and annual operating costs for the control technology
- Installation date (or age of equipment)

d) Please provide the most current source testing information (e.g. inlet and outlet ppmv, control efficiency, flue gas flow rate, emission rate, and test method). Please submit a copy of test reports or results if possible.

Refinery Boilers, Refinery Heaters & Coal-Fired Fluidized Bed Boilers

a) Please provide the following information:

- Type of fuel used and fuel usage rate, range and average
- Sulfur content of fuel, range and average (percent by weight or ppmw)
- Flue gas exhaust flow rate, range and average (millions dry standard cubic feet)
- Annual average and range of the SOx concentrations in the exhaust flue gas (ppmv at 3%O2)

b) Does the facility currently use any SOx control technology for the boiler/heater? If yes, please provide the following information:

- Brief description of the technology (e.g. scrubber)
- Design parameters (e.g. maximum flue gas flow rate, absorbent flow rate, control efficiency, inlet and outlet ppmv, emission rate)
- Capital costs and annual operating costs for the control technology
- Installation date (or age of equipment)

c) Please provide the most current source testing information (e.g. inlet and outlet ppmv, control efficiency, flue gas flow rate, emission rate, and test method). Please submit a copy of test reports or results if possible.

Sulfur Recovery & Tail Gas Treatment Units

a) Please provide the following information on the current operational data of the sulfur recovery and tail gas treatment units, including the thermal oxidizers, if appropriate:

- Brief description of the sulfur recovery & tail gas treatment unit including device identification number of the units in the system
- Current design and actual capacity of the sulfur recovery & treatment unit, range and average
- Sulfur content of feed, range and average (percent by volume or ppmv)
- Current sulfur removal efficiency of the system, and method used to determine the sulfur removal efficiency
- Flue gas exhaust flow rate, range and average (millions dry standard cubic feet)
- Annual average and range of the SOx concentrations in the exhaust flue gas
- Installation date (or age of equipment)

b) Please provide the most current source testing information (e.g. inlet and outlet ppmv, control efficiency, flue gas flow rate, emission rate, and test method). Please submit a copy of test reports or results if possible.

Sulfuric Acid Manufacturing Process

a) Please provide the following information:

- Brief description of the basic and control technique/equipment in the sulfuric acid manufacturing process (e.g. furnace, waste heat boiler, catalytic converter, ESP, absorber, scrubber etc) including device identification number
- Design and actual production rate (tons of acid produced)
- Type and input rate of raw materials (e.g. spent sulfuric acid, sulfur)
- Flue gas exhaust flow rate, range and average, (millions dry standard cubic feet)
- Range and average of SOx concentrations in the exhaust flue gas (ppmv)
- Annual average SOx emission rate (lbs SOx per ton of acid produced)

b) Does the facility currently use SOx control technology for the process? If yes, please provide the following information:

- Brief description of the technology (e.g. dual absorption, wet gas scrubber)
- Design parameters (e.g. maximum flue gas flow rate, absorbent flow rate, control efficiency, inlet and outlet ppmv, emission rate)
- Capital costs and annual operating costs for the control technology
- Installation date (or age of equipment)

c) Please provide the most current source testing information (e.g. inlet and outlet ppmv, control efficiency, flue gas flow rate, emission rate, and test method). Please submit a copy of test reports or results if possible.

Container Glass Manufacturing Process – Melting Furnace

a) Please provide the following information:

- Design and actual capacity of each furnace (mmbtu/hr and tons of glass pulled)
- Type and input rate of raw materials (e.g. limestone, soda ash, cullet)
- Flue gas exhaust flow rate, range and average (millions dry standard cubic feet)
- Annual average and range of SOx concentrations in the exhaust flue gas (ppmv)
- Annual average emission rate for SOx (lbs SOx per ton of glass pulled)

b) Does the facility currently use SOx control technology for the process? If yes, please provide the following information:

- Brief description of the technology (e.g. scrubber)
- Design parameters (e.g. maximum flue gas flow rate, absorbent flow rate, control efficiency, inlet and outlet ppmv, emission rate)
- Capital costs and annual operating costs for the control technology
- Installation date (or age of equipment)

c) Please provide the most current source testing information (e.g. inlet and outlet ppmv, control efficiency, flue gas flow rate, emission rate, and test method). Please submit a copy of test reports or results if possible.

Coke Calcining Kiln

a) Please provide the following information on the current operational data of the coke calciner (kiln):

- Maximum and average feed rate (tons per year and per day of green coke)
- Maximum and average production rate (tons per year and per day of calcined coke)
- Type of fuel used, and maximum and average fuel usage rate
- Maximum and average flue gas exhaust flow rate (millions dry standard cubic feet and) and stack temperatures (degree Fahrenheit)
- Range of outlet SOx concentrations (ppmv at % O_2) and annual average
- Annual average SOx emission rate (lbs SOx per ton of glass pulled)

b) Does the facility currently use SOx control technology for the process? If yes, please provide the following information:

- Brief description of the technology (e.g. dry scrubber)
- Design parameters (e.g. production rate, maximum treated flue gas, absorbent flow rate, control efficiency, inlet and outlet ppmv, emission rate in lbs SOx per ton coke)
- Capital costs and annual operating costs for the control system
- Installation date (or age of equipment)

c) Please provide the most current source testing information (e.g. inlet and outlet ppmv, control efficiency, flue gas flow rate, emission rate, and test method). Please submit a copy of test reports or results if possible.

Portland Cement Kiln

a) Please provide the following information on the current operational data of the Portland cement kiln

- Maximum and average feed rate of raw materials (tons per year and per day)
- Maximum and average production rate (tons per year and per day of calcined coke)
- Type of fuel used, and maximum and average fuel usage rate
- Maximum and average flue gas exhaust flow rate (millions dry standard cubic feet and) and stack temperatures (degree Fahrenheit)
- Range of outlet SOx concentrations (ppmv at % O_2) and annual average

b) Does the facility currently use any SOx control technology for the process? If yes, please provide the following information:

- Brief description of the technology (e.g. dry scrubber)
- Design parameters (e.g. production rate, maximum treated flue gas, absorbent flow rate, control efficiency, inlet and outlet ppmv, emission rate in lbs SOx per ton coke)
- Capital costs and annual operating costs for the control system
- Installation date (or age of equipment)

c) Please provide the most current source testing information (e.g. inlet and outlet ppmv, control efficiency, flue gas flow rate, emission rate, and test method). Please submit a copy of test reports or results if possible.

Reports Submitted Under the U.S. EPA Consent Decree

4. If the facility must implement any control technology to further reduce SOx under a consent decree with the U.S. Environmental Protection Agency (EPA), please provide the District a copy of all reports and test results that the facility has been submitted to EPA on this subject.

Other Feasible Control Technology

5. Please provide the following information on any feasible control technology that could further reduce SOx from the above seven categories of equipment.

- A brief description of the technology, manufacturer's name, and control efficiency
- If available, estimated equipment costs, annual operating costs, cost effectiveness analysis, manufacturer's specifications, and guarantee
- If available, the facility's name that currently uses or will use this technology.

If you have any questions on the Survey Questionnaire, please contact:
Minh Pham, P.E.
Air Quality Specialist
Phone: (909) 396-2613
Email: mpham@aqmd.gov

Appendix E – Analysis for Rule 1105.1 Costs.

Note that to protect confidentiality, staff used different letters/numbers to refer to the different refineries and these are not the same as the letters/numbers used in the Staff Report of SOx RECLAIM and the Staff Report of Rule 1105.1.

After Rule 1105.1 was adopted in November 3, 2003, the refineries installed control equipment to meet the PM10 and ammonia emission standards of Rule 1105.1. Four refineries selected to install dry electrostatic precipitators (ESPs) and one refinery installed a combination of a wet gas scrubber and a wet electrostatic precipitator (WGS/WESP). A summary of the control equipment manufacturers, contractors, construction period, and reported costs by the refineries is shown in below. Staff's analysis comparing the reported costs and the estimated costs during the rule development is summarized below.

Refinery		Manufacturers	Contractors	Construction Period	Reported Costs
K	ESP	Hamon Research Cottrell	Davenport Engineering	12/2007 – 05/2009	$ 44 M
Y	ESP	Hamon Research Cottrell	Jacobs Engineering	10/2007 – 01/2009	$ 340 M
M	ESP	Hamon Research Cottrell	Hamon Research Cottrell	1993	$ 23 M
W	ESP	Hamon Research Cottrell	Hamon Research Cottrell	2007 - 2008	$ 121 M
X	WGS/WESP	ExxonMobil	Jacobs Engineering	07/2007 – 09/2008	$ 59 M
L	ESP	Hamon Research Cottrell	Jacobs Engineering	11/2006 – 08/2008	$ 102 M
				Total	$ 666 M

Refinery K

During the development of Rule 1105.1 in 2003, Refinery K indicated that they did not have enough space to install dry ESPs but planned to install a WGS to comply with the proposed rule. Refinery K developed a cost estimate for the project including a BELCO WGS, a purge treatment unit, and induced draft fan to overcome pressure drop, a gas-to-gas heat exchanger to reheat the plume, and a wastewater treatment unit to handle the waste. The estimated costs for the project were $68 million dollars. A consultant hired by WSPA, NEXANT, reviewed the costs estimated by Refinery K, and added additional costs for demolition, modification of the SRU/TGs, electrical substation, and wastewater treatment, tie-in costs for NOx control, paving, and opportunity lost costs for extended turnaround. The result was an estimate of $78.7 million dollars capital costs as shown in Table 1.[93]

In 2007-2008, Refinery K decided to install ESPs, and they reported that the project cost was $43.8 million as shown in Table 1. Fifty five percent of that cost, or approximately $36.8 million, was attributed to installation costs without identifying specific details. Refinery K indicated that they selected to install ESPs to save costs. The reported capital costs for the ESPs were about one halve of the estimated costs for the WGS project.[94]

[93] An Evaluation of the Feasibility and Costs for Control of PM-10 Emissions at South Coast Refinery FCCUs (SCAQMD Proposed Rule 1105.1), NEXANT, Inc. for The Western States Petroleum Association, May 2003.

[94] E-mail communication from Refinery K to SCAQMD on February 10, 2010 and at March 18, 2010 site visit.

TABLE 1
Cost Estimates and Reported Capital Costs (Million Dollars)

	Cost Estimates for WGS	Reported Costs for ESPs	Difference
Equipment Cost	68	7.0	10 times lower (68/7 = 9.7)
Demolition	0.5	36.8	3 times higher (36.8/10.7 = 3.4)
Electrical Substation	0.8		
Paving/Pile Driving	0.5		
Modification to wastewater treatment & SRU/TGs	1.1	Not needed	
NOx control tie-in	0.3		
Extended downtime	7.5		
Total Capital Costs	**78.7**	**43.8**	**2 times lower** (78.7/43.8 = 1.8)

Refinery Y

During the development of Rule 1105.1 in 2003, Refinery Y indicated that they would install a dry ESP to comply with the proposed rule. Refinery Y developed a cost estimate for the project including a Hamon Research Cottrell's ESP. There were also extensive costs for ducting/piping and site modification since Refinery Y planned to install the ESP far away from the FCCU. WSPA's consultant reviewed Refinery Y's cost estimates and added costs for additional ducting and supports, insulation, asbestos abatement, SCR/stack relocation, new foundations and paving, electrical instrumentation and controls, piping relocation, and demolition. The estimated capital costs were $48.9 million.[95] In 2007-2008, Refinery Y installed ESPs. Refinery Y reported that the total cost of the project was $340 million. The estimated costs and reported costs are presented in Table 2.[96]

The substantial differences in the reported costs and the cost estimates are shown in Table 2. The reported equipment costs are 35% higher than the estimated costs. The site preparation costs are almost the same as estimated. There are substantial differences in the installation costs including ducting, supports, electrical substation modification, and engineering/management costs. The reported installation costs are 30 times higher than estimated, and the overall reported costs are 7 times higher than estimated.

[95] An Evaluation of the Feasibility and Costs for Control of PM-10 Emissions at South Coast Refinery FCCUs (SCAQMD Proposed Rule 1105.1), NEXANT, Inc. for The Western States Petroleum Association, May 2003

[96] E-mail communication from Refinery Y to SCAQMD on July 7, 2010. Refinery Y reported the following: equipment/materials ($54 million), installation/demolition ($5 million), civil ($25 million), mechanical - steel/piping/ESP assembly ($109 million), electrical and instrumentation ($17 million), support crafts - cranes, scaffolding etc. ($60 million), and engineering and construction management ($75 million).

TABLE 2
Cost Estimates and Reported Capital Costs (Million Dollars)

	Cost Estimates	Reported Costs	Difference
Equipment Cost	40	54	35% higher (54/40=1.35)
Ducting/Support/ Insulation	4.8	186 [97]	30 times higher (186/5.55=30.5)
Induced fans	0.35		
Electrical Substation	0.4		
Demolition	2	25	Almost the same (25/23=1.1)
Asbestos Removal	0.15		
Contaminated Soil Disposal	0.1		
Foundations/Paving	0.75		
Site Upgrade	20		
Engineering/Management	Included above	75	---
SCR relocation	0.35	Not needed	---
Total Capital Costs	**48.9**	**340**	**7 times higher** (340/48.9 = 6.95)

Refinery # M

Refinery M installed a new ESP in 1993. Total capital costs were $13.6 million.[98] At a 3% inflation rate, the capital costs would be approximately $23 million in current dollars.[99]

TABLE 3
Reported Capital Costs (Million Dollars)

	Reported Costs
Equipment Costs	5.83
Installation Costs	7.80
Total Capital Costs	**13.63 (about 23 today)**

[97] The actual costs of $186 million = 109+60+17

[98] Fax communication from Refinery M to SCAQMD on March 9, 1995: Materials = $5,837,000; Engineering = $1,946,000; Construction labor = $4,610,000; Miscellaneous = $1,240,000; and Total Costs = $13.6 million.

[99] The Chemical Engineering Plant Cost Annual Index and the Marshall & Swift Cost Index show that there was a 3% inflation rate from 1993 to 2005. With a 3% inflation rate, the costs in current dollars would be (14) (1.03) exp (2010-1993) = (14) (1.03) exp (17) = (14) (1.65) = $23 million. In a recent e-mail communication with the SCAQMD on February 19, 2010, Refinery M used a 7% inflation rate to estimate the costs at (14)(1.07) exp(2010-1993) = $45 million and claimed the costs would be $60 million with extra compliance flexibility.

Refinery W

During the development of Rule 1105.1 in 2003, Refinery W indicated that they would install a dry ESP to comply with the proposed rule. Refinery W and WSPA's consultant developed a cost estimate for the project including a large ESP and extensive costs for ducting, relocation of a roadway, underground sewers and drains, piling, disposal of contaminated soil, new electrical substation, SCR, engineering/management, and extended shutdown. The estimated capital costs were $38 million. [100] In 2007-2008, Refinery W installed 3 ESPs and reported that the total cost of the project was $121.3 million. [101] The estimated costs and reported as actual costs by Refinery W are presented in Table 4.

The reported equipment costs and engineering costs are about 2 times higher than estimated. However, there are substantial differences in the construction and installation costs including ducting, supports, electrical substation modification etc., which cause the reported installation costs to rise up to 9 times higher than estimated, and the overall reported costs 4 times higher than estimated.

TABLE 4
Cost Estimates and Reported Capital Costs (Million Dollars)

	Cost Estimates	Reported Costs	Difference
Equipment Cost	8 – 12	15	2 times higher (15/8=1.9)
SCR	10	Not specified	---
Site preparation and Construction	9.1[102]	95.4	9 times higher (95.4/10.5=9.1)
Electrical Substation	1.4		
Engineering/Management	4.8	10.9	2 times higher (10.9/4.8=2.3)
Extended turnaround	2.7	Not needed	
Total Capital Costs	**38.0**	**121.3**	**4 times higher** (121/33=3.67)

[100] An Evaluation of the Feasibility and Costs for Control of PM-10 Emissions at South Coast Refinery FCCUs (SCAQMD Proposed Rule 1105.1), NEXANT, Inc. for The Western States Petroleum Association, May 2003. NEXANT estimated ESP costs from $8 - $12 million. Site preparation costs included relocating a refinery road ($400,000), relocating sewers/drains/piping ($650,000), disposal of contaminated soil ($100,000), piling ($350,000), and 35% contingency ($7.6 million). New electrical substation was added ($800,000) and existing distribution system was modified ($600,000). Engineering and management costs were estimated ($800,000) and owners costs ($4 million)

[101] E-mail communication from Refinery W to SCAQMD on March 30, 2010. Refinery W reported the following costs: equipment/materials ($15 million), construction ($62.6 million), material ($21.3 million), incentive ($1.2 million), pre-capital expense ($2.9 million) + demolition ($2.9 million), engineering ($10.9 million) and owner's costs ($4.5 million)

[102] This footnote is to estimate the estimations in Table 4. Site preparation = 0.4+ 0.65+0.35+0.10+ 7.6 = 9.1. Electrical substation = 0.8+0.6 = 1.4. Engineering Management = 0.8+4.0 = 4.8. Construction costs = 62.6+21.3+1.2+4.5+2.9+2.9=95.4. In Table 5, Construction costs = 24.4+ 7.9+ 1.0 = 33.3. In Table 6,

Refinery X

In 2003, Refinery X planned to install 2 ESPs and 2 SCRs to meet R.1105.1 limits at the costs of $43 million.[103] However, in 2007-2008, Refinery X decided to install a WGS at the costs of $58.9 million.[104] The estimated and reported costs are provided in Table 5.

TABLE 5
Cost Estimates and Reported Capital Costs (Million Dollars)

	Cost Estimates	Reported Costs	Difference
Equipment Cost	28	18.9	35% higher (18.9/14 = 1.35)
CO boiler or SCR	10	Not included	
Ducting/Support & Insulation	3.1	33.3	6 times higher (33.3/5.3 = 6.3)
Electrical Substation	0.8		
Asbestos Removal	0.1		
Contaminated Soil Disposal	0.1		
Owner's Costs	1.2	6.7	6 times higher (6.7/1.2 = 5.6)
Total Capital Costs	**43.3**	**58.9**	**2 times higher** (58.9/33.3 = 1.8)

Comparing the two estimates, the costs for the WGS/WESP ($18.9 million including a $5 million cost for a fin fan cooler) is about the same as a single, large ESP ($14 million).
The major differences in the 2010 reported as actual costs and the 2003 estimates are in the installation and owner's costs. The reported installation costs including construction, demolition, and engineering and the reported owner's costs are approximately 6 times higher than 2003 estimates. The overall 2010 reported costs are approximately 2 times higher than the 2003 estimates (not including the SCRs), and three times higher than the ESP costs.

Refinery L

During the development of Rule 1105.1, Refinery L indicated that they would install ESPs to meet the requirements of Rule 1105.1. Refinery L hired a consultant (Jacobs Engineering) to develop a feasibility and cost estimate to comply with the proposed Rule 1105.1 limit for both ESPs and WGS. Jacobs Engineering recommended Refinery L to select dry ESPs, and they designed the ESPs with 25% larger collecting area. In their estimates, they assumed the costs of project engineering and

[103] An Evaluation of the Feasibility and Costs for Control of PM-10 Emissions at South Coast Refinery FCCUs (SCAQMD Proposed Rule 1105.1), NEXANT, Inc. for The Western States Petroleum Association, May 2003. The costs were estimated for two new ESPs in parallel, 200% capacity total, with two new SCRs.

[104] E-mail from Refinery X to SCAQMD on March 19, 2020. Refinery X reported the following: equipment/materials ($18.9 million), construction ($24.4 million), engineering ($7.9 million), demolition ($1 million), and owner's costs ($6.7 million).

services averaged 18.7% of the total capital costs. The total estimated costs are $57 million dollars.[105] The cost estimates are presented in Table 12-3-6.

In 2007-2008, Refinery L installed ESPs. The costs of $102 million dollars reported as the actual costs for this project provided by Refinery L are presented in Table 6. [106]

TABLE 6
Cost Estimates and Reported Capital Costs (Million Dollars)

	Cost Estimates	Reported Costs	Difference
Equipment Cost	10	17.547	2 times higher (17.5/10 = 1.8)
Project Management	10.66	6.23	
Engineering		9.27	2 times higher (15.5/10.66 = 1.5)
Construction Indirects	36.34	15.60	2 times higher (69.1/36.3 = 1.9)
Construction Directs		45.202	
Start –Up		2.269	
Demolition		0.378	
Other Costs		5.635	
Total Capital Costs	**57**	**102.135**	**2 times higher** (102/57 = 1.8)

The differences in the 2010 reported costs and the 2003 estimates are shown in Table 6. The reported equipment costs, installation costs, and capital costs are consistently about 2 times higher than the 2003 estimates.

Summary & Staff's Analysis

A comparison of the costs reported by the refineries as actual costs, and the estimated costs during the rule development process are provided in Table 7 and staff's analysis is as follows.

Equipment Costs

The reported equipment costs are not much different than estimated. The reported costs are about 35% higher for Refinery Y and Refinery X, 2 times higher for Refinery W and L, and 10% lower for Refinery K. The differences are due to inflation (about 3% between 2003 and 2010), extra capacity for redundancy built in the design, and the price surge of steel in 2007-2008 time frames.

[105] An Evaluation of the Feasibility and Costs for Control of PM-10 Emissions at South Coast Refinery FCCUs (SCAQMD Proposed Rule 1105.1), NEXANT, Inc. for The Western States Petroleum Association, May 2003. The costs were estimated for a large ESP with 25% more capacity.

[106] E-mails communication from Refinery L to SCAQMD on January 27, 2010 and February 08, 2010 provide detailed information in cost breakdown. Staff combined the costs provided into these following categories a) Project Management includes contractor costs ($5.760 million) and owner costs ($0.471 million); b) Engineering costs include contractor costs ($9.264 million) and owner costs ($0.01 million); c) Construction Indirect Owner Costs of $1.050 million is for temporary facilities/services/utilities. Construction Indirect Contractor Costs of $14.549 million includes construction management ($6.349 million), equipment not provided by sub-contractors ($4.303 million), and temporary facilities/services/utilities ($3.898 million); d) ISBL Construction Directs of $62.719 million include equipment ($17.547 million); civil/site ($0.419 million), concrete ($0.901 million), steel ($6.331 million), piping ($3.915 million), process air ($2.479 million), electrical ($19.120 million), process control ($5.719 million), paint/insulation/fireproofing ($6.317 million)

WGS/WESP versus ESPs

Refinery X planned to use ESPs but installed a WGS. Refinery K planned to use WGS but installed ESPs. Refinery X data shows that there is no difference in the equipment costs of a WGS/WESP/fin fan cooler system versus two ESPs to meet the requirement of Rule 1105.1 and also to mitigate the plume if necessary. Refinery K data shows that the equipment costs for ESPs are 10 times lower than the costs for a WGS system. It seems that Refinery K over-estimated the costs of their WGS system by building a larger unit than necessary, adding a new wastewater treatment to handling the waste that could be handled by the purge treatment system, and using a gas-to-gas reheat exchanger instead of a fin-fan cooler.

TABLE 7
Cost Estimates and Reported Costs (Million Dollars)

	Ref M	Ref K	Ref Y	Ref W	Ref X	Ref L	Total
Estimated Capital Costs	---	78.7	48.9	38.0	43.3	57.0	**266.0**
Reported Equipment Costs	*7.0*	*7.0*	*54.0*	*15*	*18.9*	*17.5*	***119.4***
Reported Capital Costs [107]	23.0	43.8	340.0	121.3	58.9	102	**666.0**
Reported Capital Costs / Estimated Capital Costs	---	0.6	7.0	4.0	1.8	1.8	**2.5 (average)**
Reported Capital Costs (2010) / Reported Equipment Cost (2010)	*2.0*	*6.3*	*6.2*	*8.1*	*3.1*	*5.8*	***5.6 (average)***

Installation Costs

There are substantial differences in reported installation costs versus estimated installation costs: 2 times higher for Refinery L, 3 times higher for Refinery K, 6 times higher for Refinery X, 9 times higher for Refinery W, and 30 times higher for Refinery Y. Note that site preparation did not cause this substantial difference in Refinery Y case. The vast differences originate from ducting, supports, electrical substation modification, engineering, management, and labor costs. Refinery L provided the following explanations which may apply to other refineries as well: [108]

— Materials Costs. The reported cost includes a) steel, concrete, site excavation, painting, fireproofing for foundation and buildings, b) insulation for ducting/piping, c) substantial amount for wiring/conduit for substation and power distribution, and d) substantial amount for instrument/controls. These categories are underestimated in 2003, especially the costs for steel, electrical wiring, and instrument/controls. Costs of steel increased by at least 2 in 2008 time frame.

[107] WSPA's estimates are in the neighborhood of $750 million based on a wrong estimate for Refinery M at $60 million using 7% inflation rate and $70 million AFE costs for Refinery X. That is, 43.8 + 340 + 60 + 121.3 + 70 + 102.1 = $742 million. Refinery X actual installation costs are only $58.9 million.

[108] E-mail communication from Refinery L to SCAQMD on May 27, 2010.

— Inflation. Construction was completed in 2008, and during 2008, there was a period of hyper inflation in heavy industrial construction equipment and labor costs.

— Union Labor Costs. Due to the volume of construction activity in late 2007 to early 2008, union construction resources were used while the estimate in 2003 was based on non-union construction labor. There is an overall cost differential of over 30% between non-union and union labor forces.

— Compressed Construction Schedule. To meet a FCCU turnaround date, the construction schedule was accelerated. It is important to note that the litigation filed by WSPA immediately after Rule 1105.1 was adopted in November 2003, and subsequent appeal of the original judgment, contributed significantly in further compressing the construction schedule. All five refineries delayed the construction of the control equipment until WSPA finally lost the law suit in late 2006. This scheduling constraints in conjunction with the limited number of control equipment vendors/manufacturers and contractors that the refineries selected to contract with for this project contributed substantially to the price escalation.

— Redundancy. In order for the vendor to guarantee R1105.1 level of particulate capture, the vendor had to add extra capacity to the ESP, larger than estimated in 2003.

Capital Costs

Overall, the reported capital costs are higher than estimated: 2 times higher for Refinery K, X and L, 4 times higher for Refinery W, and 7 times higher for Refinery Y. On average, the reported capital costs are 2.5 times higher than estimated.

Refinery Y and W are the two outliers from the average with reported costs about 2-3 times higher than other refineries:

— Refinery Y's total gas flow rate (540,111 acfm reported in 2003) is about 25% higher than Refinery L's (436,035 acfm total gas flow)[109] however the equipment costs of Refinery Y ($54 million) is about 3 times higher than that of Refinery L ($17.5 million), and their reported capital costs ($340 million) is also about 3 times higher than Refinery L's ($102 million).

— Refinery W's total gas flow rate (218,628 acfm reported in 2003) is about the same as Refinery K's (212,514 acfm total gas flow) however the reported equipment costs of Refinery W ($15 million) is about 2 times higher than Refinery K's ($7 million), and their capital costs ($121 million) is about 3 times higher than Refinery K's ($43.8 million).

— Refinery Y and #4 did seem to add extraordinary capacity to their ESPs and upgrade other systems at their sites along with installing the ESPs.

[109] SP Environmental Report, August 2003.

Comparison between Costs Reported As Actual Capital Costs and Equipment Costs

The costs reported by the refineries as actual capital costs are 2 times higher than the equipment costs for Refinery M, 3 times higher for Refinery X, 6 times higher for Refinery K, Y, and L, and 8 times higher for Refinery W. It is interesting to note that there are two distinct groups: Refinery M and X, with a ratio between 2 and 3, and Refinery K, Y, W and L with a ratio between 6 and 8. It appears that Refinery K, Y, W and L may have spent additional money on upgrading other existing systems (ducting, supports, electrical substation modification, NOx/SOx CEMS) and used more in engineering and management compared to Refinery X and L. However, on average, the reported capital costs are about 5-6 times higher than the equipment costs. **It is important to note that the consultants hired to assist staff with the BARCT and cost analysis of the proposed amended Regulation XX (SOx RECLAIM), namely ETS, Inc., AEC and NEC, have used a ratio of 5x in their cost analyses for refineries.**

Appendix F – U.S. Refineries Operable Capacities

(Reference: U.S. Energy Information Administration)

RANK	CORPORATION	COMPANY	STATE	SITE	Barrels per Calendar Day
1	EXXON MOBIL CORP	EXXONMOBIL REFINING & SUPPLY CO	Texas	BAYTOWN	560,640
2	EXXON MOBIL CORP	EXXONMOBIL REFINING & SUPPLY CO	Louisiana	BATON ROUGE	504,500
3	BP PLC	BP PRODUCTS NORTH AMERICA INC	Texas	TEXAS CITY	437,080
4	MARATHON OIL CORP	MARATHON PETROLEUM CO LLC	Louisiana	GARYVILLE	436,000
5	PDV AMERICA INC	CITGO PETROLEUM CORP	Louisiana	LAKE CHARLES	429,500
6	BP PLC	BP PRODUCTS NORTH AMERICA INC	Indiana	WHITING	405,000
7	WRB REFINING LLC	WRB REFINING LLC	Illinois	WOOD RIVER	362,000
8	EXXON MOBIL CORP	EXXONMOBIL REFINING & SUPPLY CO	Texas	BEAUMONT	344,500
9	SUNOCO INC	SUNOCO INC (R&M)	Pennsylvania	PHILADELPHIA	335,000
10	CHEVRON CORP	CHEVRON USA INC	Mississippi	PASCAGOULA	330,000
11	DEER PARK REFINING LTD PTNRSHP	DEER PARK REFINING LTD PARTNERSHIP	Texas	DEER PARK	327,000
12	KOCH INDUSTRIES INC	Flint Hills Resources LP	Texas	CORPUS CHRISTI	290,078
13	VALERO ENERGY CORP	PREMCOR REFINING GROUP INC	Texas	PORT ARTHUR	287,000
14	MOTIVA ENTERPRISES LLC	Motiva Enterprises LLC	Texas	PORT ARTHUR	285,000
15	ACCESS INDUSTRIES	HOUSTON REFINING LP	Texas	HOUSTON	280,700
16	KOCH INDUSTRIES INC	Flint Hills Resources LP	Minnesota	SAINT PAUL	280,500
17	CHEVRON CORP	CHEVRON USA INC	California	EL SEGUNDO	265,500
18	BP PLC	BP West Coast Products LLC	California	LOS ANGELES	265,000
19	CONOCOPHILLIPS	CONOCOPHILLIPS COMPANY	Louisiana	BELLE CHASSE	247,000
20	CONOCOPHILLIPS	CONOCOPHILLIPS COMPANY	Texas	SWEENY	247,000
21	CHEVRON CORP	CHEVRON USA INC	California	RICHMOND	245,271
22	CONOCOPHILLIPS	CONOCOPHILLIPS COMPANY	Louisiana	WESTLAKE	239,400
23	EXXON MOBIL CORP	EXXONMOBIL REFINING & SUPPLY CO	Illinois	JOLIET	238,600
24	CONOCOPHILLIPS	CONOCOPHILLIPS COMPANY	New Jersey	LINDEN	238,000
25	MOTIVA ENTERPRISES LLC	Motiva Enterprises LLC	Louisiana	CONVENT	235,000
26	MOTIVA ENTERPRISES LLC	Motiva Enterprises LLC	Louisiana	NORCO	234,700
27	TOTAL SA	TOTAL PETROCHEMICALS INC	Texas	PORT ARTHUR	232,000
28	BP PLC	BP West Coast Products LLC	Washington	FERNDALE	225,000
29	KOCH INDUSTRIES INC	FLINT HILLS RESOURCES ALASKA LLC	Alaska	NORTH POLE	219,500
30	VALERO ENERGY CORP	VALERO REFINING CO TEXAS LP	Texas	TEXAS CITY	214,000
31	MARATHON OIL CORP	MARATHON PETROLEUM CO LLC	Kentucky	CATLETTSBURG	212,000
32	MARATHON OIL CORP	MARATHON PETROLEUM CO LLC	Illinois	ROBINSON	206,000
33	CONOCOPHILLIPS	CONOCOPHILLIPS COMPANY	Oklahoma	PONCA CITY	198,400
34	CHALMETTE REFINING LLC	Chalmette Refining LLC	Louisiana	CHALMETTE	192,500
35	VALERO ENERGY CORP	VALERO REFINING NEW ORLEANS LLC	Louisiana	NORCO	185,003

36	CONOCOPHILLIPS	CONOCOPHILLIPS COMPANY	Pennsylvania	TRAINER	185,000
37	VALERO ENERGY CORP	PREMCOR REFINING GROUP INC	Tennessee	MEMPHIS	180,000
38	SUNOCO INC	SUNOCO INC	Pennsylvania	MARCUS HOOK	178,000
39	VALERO ENERGY CORP	VALERO ENERGY CORPORATION	Texas	SUNRAY	171,000
40	PDV AMERICA INC	PDV Midwest Refining LLC	Illinois	LEMONT	167,000
41	TESORO CORP	TESORO REFINING & MARKETING CO	California	MARTINEZ	166,000
42	PDV AMERICA INC	CITGO REFINING & CHEMICAL INC	Texas	CORPUS CHRISTI	163,000
43	SUNOCO INC	SUNOCO INC	Ohio	TOLEDO	160,000
44	VALERO ENERGY CORP	VALERO REFINING CO NEW JERSEY	New Jersey	PAULSBORO	160,000
45	ROYAL DUTCH/SHELL GROUP	Shell Oil Products US	California	MARTINEZ	156,400
46	HUSKY ENERGY INC	LIMA REFINING COMPANY	Ohio	LIMA	150,000
47	EXXON MOBIL CORP	EXXONMOBIL REFINING & SUPPLY CO	California	TORRANCE	149,500
48	WRB REFINING LLC	WRB REFINING LLC	Texas	BORGER	146,000
49	ROYAL DUTCH/SHELL GROUP	Shell Oil Products US	Washington	ANACORTES	145,000
50	VALERO ENERGY CORP	VALERO REFINING CO CALIFORNIA	California	BENICIA	144,000
51	VALERO ENERGY CORP	VALERO REFINING CO TEXAS LP	Texas	CORPUS CHRISTI	142,000
52	CONOCOPHILLIPS	CONOCOPHILLIPS COMPANY	California	WILMINGTON	139,000
53	FRONTIER OIL REFINING & MKTG	FRONTIER EL DORADO REFINING CO	Kansas	EL DORADO	130,000
54	BP HUSKY REFINING LLC	BP-HUSKY REFINING LLC	Ohio	TOLEDO	125,700
55	WESTERN REFINING INC.	WESTERN REFINING COMPANY LP	Texas	EL PASO	122,000
56	CONOCOPHILLIPS	CONOCOPHILLIPS COMPANY	California	RODEO	120,200
57	MURPHY OIL CORP	MURPHY OIL USA INC	Louisiana	MERAUX	120,000
58	TESORO CORP	Tesoro West Coast	Washington	ANACORTES	120,000
59	CVR ENERGY INC	COFFEYVILLE RESOURCES RFG & MKTG LLC	Kansas	COFFEYVILLE	115,700
60	MARATHON OIL CORP	MARATHON PETROLEUM CO LLC	Michigan	DETROIT	106,000
61	HOLLY CORP	NAVAJO REFINING CO	New Mexico	ARTESIA	105,000
62	CONOCOPHILLIPS	CONOCOPHILLIPS COMPANY	Washington	FERNDALE	100,000
63	PETROLEO BRASILEIRO SA	PASADENA REFINING SYSTEMS INC	Texas	PASADENA	100,000
64	TESORO CORP	TESORO REFINING & MARKETING CO	California	WILMINGTON	96,860
65	TESORO CORP	TESORO HAWAII CORP	Hawaii	EWA BEACH	93,500
66	VALERO ENERGY CORP	VALERO ENERGY CORPORATION	Texas	THREE RIVERS	93,000
67	VALERO ENERGY CORP	VALERO REFINING CO OKLAHOMA	Oklahoma	ARDMORE	87,400
68	CHS INC	NCRA	Kansas	MCPHERSON	85,500
69	HOLLY CORP	HOLLY REFINING & MARKETING CO	Oklahoma	TULSA WEST	85,000
70	VALERO ENERGY CORP	VALERO REFINING CO TEXAS LP	Texas	HOUSTON	83,000
71	VALERO ENERGY CORP	VALERO REFINING CO CALIFORNIA	California	WILMINGTON REFINERY	80,887
72	ALON ISRAEL OIL COMPANY LTD	ALON REFINING KROTZ SPRINGS INC	Louisiana	KROTZ SPRINGS	80,000
73	CHEVRON CORP	CHEVRON USA INC	New Jersey	PERTH AMBOY	80,000
74	ROYAL DUTCH/SHELL GROUP	SHELL CHEMICAL LP	Alabama	SARALAND	80,000
75	TRANSWORLD OIL USA INC	CALCASIEU REFINING CO	Louisiana	LAKE CHARLES	78,000

76	MARATHON OIL CORP	MARATHON PETROLEUM CO LLC	Ohio	CANTON	78,000
77	MARATHON OIL CORP	MARATHON PETROLEUM CO LLC	Texas	TEXAS CITY	76,000
78	ERGON INC	LION OIL CO	Arkansas	EL DORADO	75,000
79	MARATHON OIL CORP	MARATHON PETROLEUM CO LLC	Minnesota	SAINT PAUL	74,000
80	SINCLAIR OIL CORP	SINCLAIR WYOMING REFINING CO	Wyoming	SINCLAIR	74,000
81	TESORO CORP	TESORO ALASKA PETROLEUM CO	Alaska	KENAI	72,000
82	HOLLY CORP	HOLLY REFINING & MARKETING CO	Oklahoma	TULSA EAST	70,300
83	GARY WILLIAMS CO	WYNNEWOOD REFINING CO	Oklahoma	WYNNEWOOD	70,000
84	ALON ISRAEL OIL COMPANY LTD	ALON USA ENERGY INC	Texas	BIG SPRING	67,000
85	SUNCOR ENERGY INC	SUNCOR ENERGY (USA) INC	Colorado	COMMERCE CITY WEST	67,000
86	WESTERN REFINING INC.	WESTERN REFINING YORKTOWN INC	Virginia	YORKTOWN	66,300
87	FLYING J INC	BIG WEST OF CALIFORNIA	California	BAKERSFIELD	66,000
88	UNITED REFINING INC	UNITED REFINING CO	Pennsylvania	WARREN	65,000
89	EXXON MOBIL CORP	EXXONMOBIL REFINING & SUPPLY CO	Montana	BILLINGS	60,000
90	CHS INC	Cenex Harvest States Coop	Montana	LAUREL	59,600
91	CONOCOPHILLIPS	CONOCOPHILLIPS COMPANY	Montana	BILLINGS	58,000
92	DELEK GROUP LTD	DELEK REFINING LTD	Texas	TYLER	58,000
93	TESORO CORP	Tesoro West Coast	North Dakota	MANDAN	58,000
94	TESORO CORP	Tesoro West Coast	Utah	SALT LAKE CITY	58,000
95	CALUMET LUBRICANTS CO	CALUMET SHREVEPORT LLC	Louisiana	SHREVEPORT	57,000
96	PLACID OIL CO	PLACID REFINING CO	Louisiana	PORT ALLEN	57,000
97	ARCTIC SLOPE REGIONAL CORP	PETRO STAR INC	Alaska	VALDEZ	55,000
98	ROYAL DUTCH/SHELL GROUP	SHELL CHEMICAL LP	Louisiana	SAINT ROSE	55,000
99	CHEVRON CORP	CHEVRON USA INC	Hawaii	HONOLULU	54,000
100	ALON ISRAEL OIL COMPANY LTD	PARAMOUNT PETROLEUM CORPORATION	California	PARAMOUNT	53,000
101	FRONTIER OIL REFINING & MKTG	FRONTIER REFINING INC	Wyoming	CHEYENNE	47,000
102	CHEVRON CORP	CHEVRON USA INC	Utah	SALT LAKE CITY	45,000
103	COMPAGNIE NATIONALE AÂ PORTEFEUILLE	US OIL & REFINING CO	Washington	TACOMA	37,850
104	HUNT CONSLD INC	HUNT REFINING CO	Alabama	TUSCALOOSA	36,000
105	SUNCOR ENERGY INC	SUNCOR ENERGY (USA) INC	Colorado	COMMERCE CITY EAST	35,000
106	MURPHY OIL CORP	MURPHY OIL USA INC	Wisconsin	SUPERIOR	34,300
107	NUSTAR ENERGY LP	NUSTAR ASPHALT REFINING LLC	New Jersey	PAULSBORO	32,000
108	ALON ISRAEL OIL COMPANY LTD	EDGINGTON OIL CO INC	California	LONG BEACH	31,500
109	FLYING J INC	BIG WEST OIL CO	Utah	NORTH SALT LAKE	29,400
110	NUSTAR ENERGY LP	NUSTAR ASPHALT REFINING LLC	Georgia	SAVANNAH	28,000
111	COUNTRYMARK COOP INC	COUNTRYMARK COOPERATIVE INC	Indiana	MOUNT VERNON	26,500
112	KERN OIL & REFINING CO	KERN OIL & REFINING CO	California	BAKERSFIELD	26,000
113	HOLLY CORP	HOLLY REFINING & MARKETING CO	Utah	WOODS CROSS	25,050
114	SINCLAIR OIL CORP	LITTLE AMERICA REFINING CO	Wyoming	EVANSVILLE	24,500

115	ERGON INC	ERGON REFINING INC	Mississippi	VICKSBURG	23,000
116	WESTERN REFINING INC.	WESTERN REFINING SOUTHWEST INC	New Mexico	GALLUP	20,800
117	ERGON INC	ERGON WEST VIRGINIA INC	West Virginia	NEWELL	20,000
118	ARCTIC SLOPE REGIONAL CORP	PETRO STAR INC	Alaska	NORTH POLE	19,700
119	WESTERN REFINING INC.	WESTERN REFINING SOUTHWEST INC	New Mexico	BLOOMFIELD	16,800
120	CONOCOPHILLIPS	CONOCOPHILLIPS ALASKA INC	Alaska	PRUDHOE BAY	15,000
121	SAN JOAQUIN REFINING CO INC	SAN JOAQUIN REFINING CO INC	California	BAKERSFIELD	15,000
122	AGE REFINING & MARKETING INC	AGE REFINING INC	Texas	SAN ANTONIO	14,021
123	WYOMING REFINING CO	WYOMING REFINING CO	Wyoming	NEW CASTLE	14,000
124	CALUMET LUBRICANTS CO	CALUMET LUBRICANTS CO LP	Louisiana	COTTON VALLEY	13,020
125	BP PLC	BP EXPLORATION ALASKA INC	Alaska	PRUDHOE BAY	12,780
126	VENTURA REFINING AND TRANSMISSION LLC	VENTURA REFINING & TRANSMISSION LLC	Oklahoma	THOMAS	12,000
127	HUNT CONSLD INC	HUNT SOUTHLAND REFINING CO	Mississippi	SANDERSVILLE	11,000
128	SILVER EAGLE REFINING INC	Silver Eagle Refining	Utah	WOODS CROSS	10,250
129	AMERICAN REFINING GROUP INC	AMERICAN REFINING GROUP INC	Pennsylvania	BRADFORD	10,000
130	CONNACHER OIL & GAS LTD	MONTANA REFINING CO	Montana	GREAT FALLS	10,000
131	GREKA ENERGY	Greka Energy	California	SANTA MARIA	9,500
132	WORLD OIL CO	LUNDAY THAGARD CO	California	SOUTH GATE	8,500
133	CALUMET LUBRICANTS CO	CALUMET LUBRICANTS CO LP	Louisiana	PRINCETON	8,300
134	MARTIN RESOURCE MANAGEMENT GRP	MARTIN MIDSTREAM PARTNERS LP	Arkansas	SMACKOVER	7,500
135	VALERO ENERGY CORP	VALERO REFINING CO CALIFORNIA	California	WILMINGTON ASPHALT PLANT	6,300
136	MIDSOUTH ENERGY LLC	SOMERSET ENERGY REFINING LLC	Kentucky	SOMERSET	5,500
137	GOODWAY REFINING LLC	GOODWAY REFINING LLC	Alabama	ATMORE	4,100
138	GARCO ENERGY LLC	GARCO ENERGY LLC	Wyoming	DOUGLAS	3,600
139	SILVER EAGLE REFINING INC	Silver Eagle Refining	Wyoming	EVANSTON	3,000
140	OIL HOLDING INC	TENBY INC	California	OXNARD	2,800
141	FORELAND REFINING CORP	FORELAND REFINING CORP	Nevada	ELY	2,000

*Only Refineries with Atmospheric Crude Oil Distillation Capacity.
Source: Refinery Capacity Data by individual refinery as of January 1, 2010

Appendix G – FCCU Capacity of California Refineries

Reference: U.S. Energy Information Administration "Capacity of Operable Petroleum Refineries by State as of January 1, 2010"

CORPORATION	COMPANY_NAME	SITE	PRODUCT	QUANTITY (Barrels Per Calendar Day)
BP PLC	BP WEST COAST PRODUCTS LLC	LOS ANGELES	CAT CRACKING: FRESH FEED	101,500
EXXON MOBIL CORP	EXXONMOBIL REFINING & SUPPLY CO	TORRANCE	CAT CRACKING: FRESH FEED	83,500
CHEVRON CORP	CHEVRON USA INC	RICHMOND	CAT CRACKING: FRESH FEED	80,000
VALERO ENERGY CORP	VALERO REFINING CO CALIFORNIA	BENICIA	CAT CRACKING: FRESH FEED	72,000
TESORO CORP	TESORO REFINING & MARKETING CO	MARTINEZ	CAT CRACKING: FRESH FEED	68,000
CHEVRON CORP	CHEVRON USA INC	EL SEGUNDO	CAT CRACKING: FRESH FEED	66,500
ROYAL DUTCH/SHELL GROUP	SHELL OIL PRODUCTS US	MARTINEZ	CAT CRACKING: FRESH FEED	61,800
VALERO ENERGY CORP	VALERO REFINING CO CALIFORNIA	WILMINGTON REFINERY	CAT CRACKING: FRESH FEED	52,200
CONOCOPHILLIPS	CONOCOPHILLIPS COMPANY	WILMINGTON	CAT CRACKING: FRESH FEED	48,700
TESORO CORP	TESORO REFINING & MARKETING CO	WILMINGTON	CAT CRACKING: FRESH FEED	31,958

Appendix H – List of World's Largest Corporations

Reference: Fortune Global 500, Fortune Magazine, July 26, 2010

Rank 2009	Rank 2008	Corporation	Country	Revenues ($ millions)	% change from 2008
1	3	Wal-Mart Stores	U.S.	408,214.0	+0.6
2	1	Royal Dutch Shell	Netherlands	285,129.0	-39.5
3	2	ExxonMobil	U.S.	284,650.0	-35.7
4	4	BP	Britain	246,138.0	-32.9
5	1	Toyota Motor	Japan	204,106.1	-0.1
6	11	Japan Post Holdings	Japan	202,196.1	+1.8
7	9	Sinopec	China	187,517.7	-9.8
8	15	Stategrid	China	184,495.8	+12.4
9	73	AXA	France	175,257.4	+118.4
10	13	China National Petroleum	China	165,496.5	-8.6
11	5	Chevron	U.S.	163,527.0	-37.9
12	8	Ing Group	Netherlands	163,203.8	-28.0
13	12	General Electric	U.S.	156,779.0	-14.4
14	6	Total	France	155,887.1	-33.6
15	37	Bank of America Corp.	U.S.	150,450.0	+33.0
16	14	Volkswagen	Germany	146,204.7	-12.2
17	7	ConocoPhillips	U.S.	139,515.0	-39.5
18	24	BNP Paribas	France	130,708.1	-4.0
19	47	Assicurazioni Generali	Italy	126,012.5	+22.2
20	20	Allianz	Germany	125,999.0	-11.5

The top 20 corporations are listed in the table above. The table above contains information listed in the list of "Fortune Global 500", Fortune magazine, dated July 26, 2010. As explained in the Fortune magazine, Fortune Global 500 ranks 500 corporations that have the largest revenues in the world, in descending order, according to their total revenues for their respective fiscal years ended on or before March 31, 2010. All companies on the list of Fortune Global 500 must publish financial data and report part or all of their figures to a government agency. Figures in the lists are as reported, and comparisons are with the prior year's figures as originally reported for that year. The list shows that general global economy is down for almost all corporations in 2008-2009. However, several of the corporations such as ExxonMobil, BP, Chevron, and ConocoPhillips still remain as the top 20 richest corporations in the world.

Appendix I – Projected 2019 Emissions & Growth Factors

(Authors: Susan Yan, Kathy Hsiao, and Ali Ghasemi)

2019 RECLAIM SOx Baseline Emissions and Reductions Calculation

The AQMD's Annual Emission Reports (AER) team used the FY97-98 audited and revised SOx emissions provided by the AQMD's RECLAIM Engineering & Compliance team on February 23, 2010 as the base. The AQMD's AER team refined and distributed the audited data by rule, by facility and by equipment types. The distributed 97-98 SOx baseline emissions with a total of 19.48 tons per day are then grown to 2019. Staff used composite growth factors from 2002 to 1997 and forecast growth factors from 2002 to 2019 of the 2007 AQMP to project SOx emissions in 2019. There were two existing SOx rules, R431.1 and R431.2, and seven new rules impacting the SOx universe. For this analysis, there should be no overlapping controls among rules. Therefore, overlapping controls from R431.1 & R431.2 are being overridden by the new rules. Sources not impacted by the new rules reflect controls from R431.1 & 431.2 when appropriate. The seven new rules with 2019 control factors impacting the SOx universe are:

Rule#	Description	2019 Control Factor*
R468	Sulfur Recovery Units (SRUs)	0.63
R469	Sulfuric Acid Units	0.04
R1105.1	FCCU	0.06
R1109	Refineries Boilers & Heathers	0.20
R1117	Glass Melting Furnace	0.01
R1119	Coke Calciner	0.05
R1156	Portland Cement Mfg	0.74

*Draft Staff Report, page I-95 to I-99, Agenda#27 of 1/8/10 Board meeting.

The 2019 growth only emissions and the 2019 remaining SOx emissions are calculated to reflect controls from all rules. The 2019 SOx baseline with growth only, reductions and remaining emissions by rule are listed below:

Number	Description	97-98 Audited Emissions	2019 Growth only Emissions	Reductions from Rules	2019 Remaining Emissions
R468	Sulfur Recovery Units	2.03	2.03	0.75	1.28
R469	Sulfuric Acid Units	1.06	1.37	1.31	0.05
R1105.1	FCCU	5.68	5.68	5.34	0.34
R1109	Refineries Boilers & Heaters	6.11	6.11	4.88	1.22
R1117	Glass Melting Furnaces	1.71	2.48	2.45	0.02
R1119	Coke Calciner	1.31	1.31	1.25	0.07
R1156	Portland Cement Mfg	0.53	1.36	0.35	1.01
R431.1&2	Others	1.06	1.18	0.05	1.12
	Total (tons per day)	19.48	21.51	16.40	5.12

The above resulting table with more details is sent to the Rule Staff for further analysis.

Composite Growth Factors (2005-2019)

Rule Staff requested 2005-2019 composite growth factors for R469 (Sulfuric Acid Units), R1117 (Glass Melting Furnace) and R1156 (Cement Mfg.). Using growth factors in the 2007AQMP by county and by facility, the FY97-98 audited SOx values provided by the RECLAIM group are projected to 2005 and 2019. The projected emissions are then grouped by rule by facility. To calculate the composite growth factors from 2005 to 2019 by rule, staff divides sum of 2019 growth-only emissions by sum of 2005 growth-only emissions for each rule.

Appendix J – Socioeconomic Analysis

(Author: Shah Dabirian. The Socioeconomic Analysis is a stand-alone document attached by reference.)

- End of Document -

South Coast Air Quality Management District
Planning, Rule Development & Area Sources

Final Staff Report
SOx RECLAIM

Part 2
Summary of Consultants' Analyses

November 2, 2010

Deputy Executive Officer
Elaine Chang, DrPH

Assistant Deputy Executive Officer
Laki Tisopulos, Ph.D., P.E.

Planning and Rules Manager
Joe Cassmassi

Author
Minh Pham, M.S., P.E., Air Quality Specialist

Contributor
Kevin Orellana, Air Quality Specialist

Reviewers
Gary Quinn, P.E., Program Supervisor
Joe Cassmassi, Planning & Rule Manager
Laki Tisopulos. Ph.D., P.E., Assistant DEO
William Wong, Principal Deputy District Counsel

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NOTE

Final Staff Report, Part 2, includes a summary of ETS, Inc./AEC's analyses and NEXIDEA's analyses in 2008-2009 time frame. In 2010, staff contracted Norton Engineering Consultants (NEC) to review the first set of consultants' analyses, and conducted a cost effectiveness analysis based on NEC's recommendations, which is described in Section 12.2, Chapter 12 of the Final Staff Report, Part 1. The non-confidential reports of ETS, Inc./AEC, NEXIDEA and NEC are available for public information and are posted on the AQMD website. The biographies of the consultants Marshall Bell, Robert Kunz, John McKenna, and James Norton are included in Appendix B of this Final Staff Report, Part 2.

Chapter 1– Request for Proposals & Contract Awards

1.1 Request for Proposal (RFP)

On July 11, 2008, the Governing Board approved a release of Request for Proposal (RFP) to obtain proposals from qualified contractors to conduct an engineering study on existing commercially viable control technologies to further reduce SOx emissions from RECLAIM facilities to assist staff in identifying Best Available Retrofit Control Technologies (BARCT) to be implemented within the 2011-2014 time frame which would help the Basin attain the PM2.5 ambient air quality standards by the 2015 deadline. The project consisted of three (3) modules with a total budget of $375,000.00 as shown in Table 10-1: [1, 2]

1. Module 1 was to seek an engineering evaluation and cost analysis assessment on SOx reducing additives used in fluid catalytic cracking units.

2. Module 2 was to seek an engineering evaluation and cost analysis assessment on SOx control technologies for refinery fuel gas and sulfur recovery/tail gas treatment units.

3. Module 3 was to seek an engineering evaluation and cost analysis assessment on wet/dry scrubbing technologies for seven categories of equipment identified in Part I of this report: 1) FCCUs, 2) refinery SRU/tail gas systems, 3) refinery heaters/boilers, 4) coke calciner, 5) sulfuric acid plant, 6) container glass melting furnaces, and 7) cement kilns & a coal fired boiler located at a cement manufacturing facility.

[1] South Coast Air Quality Management District Board Meeting July 11, 2008, Agenda # 29, Report of RFPs and RFQs Scheduled for Release in July. July 11, 2008.

[2] South Coast Air Quality Management District, Request for Proposal, RFP #P2009-01, Evaluation of Emission Control Technologies for Further Reducing Sulfur Oxides Emissions from Stationary Sources in the South Coast Air Quality Management District's RECLAIM Program. July 11, 2008.

Table 1-1
List of Modules and Estimated Budget for SOx RECLAIM RFP

Project Modules	Budget
Module 1- FCCU DeSOx Additives	$36 K
Module 2 – Refinery SRU/Tail Gas and Fuel Gas Systems	$124 K
Module 3 – Wet/Dry Scrubbers for	
FCCUs, SRU/Tail Gas Systems, Boilers/Heaters	$133 K
Coke Calciner	$14 K
Sulfuric Acid Mfg Plants (w or w/o Cesium)	$24 K
Container Glass Melting Furnaces	$14 K
Cement Plant (Kilns & Coal fired boiler)	$15 K
Total	$360 K (+ $15 K for meetings)

The contractor was asked to complete five specific tasks for each module (or submodule):

1. Identify promising existing commercially viable SOx control technologies/manufacturers;
2. Conduct field assessment and site-specific engineering evaluations;
3. Perform independent costs and cost effectiveness analysis;
4. Prepare reports describing the methodology, findings and recommendations; and
5. Attend in person and give testimony at the AQMD Governing Board hearings for the proposed amended rule as expert witness if asked by staff.

1.2 Contract Awards

After receiving approval from the AQMD Governing Board in July, staff released the RFP and conducted an extensive 1-month outreach in accordance with the District's Procurement Policy and Procedure. In addition, since this project is highly technical in nature, staff contacted eighteen (18) highly specialized contracting firms/contractors recommended by vendors and manufacturers of air pollution control equipment and the Western State Petroleum Association (WSPA). As a result of this effort, within a short time frame, staff received and accepted a total of six (6) technical proposals submitted by the contractors on August 15, 2008.

A four member panel was convened to evaluate the proposals including: one AQMD Assistant Deputy Executive Officer from Planning, Rule Development, and Area Sources Division; one AQMD Supervisor of the Best Available Control Technology team; one AQMD Supervisor of the Refinery Team; and one representative from WSPA. The evaluation process completed in August and staff drafted a proposal to present to the Board.

At the Board meeting on September 5, 2008, the Governing Board approved staff's proposal and awarded the contracts to two consultants, ETS, Inc. and Nexidea, Inc., to conduct the study for this project at their bidding costs shown in Table 10-2. The total amount of awards provided for

this project was $334,860. [3, 4, 5] Note that no contract was awarded to any of the proposals to conduct the Module 1 evaluation.

Table 1-2
List of Contracting Firms and Awards

Project Modules	Consultant Firm	Awards
SRU/Tail Gas & Fuel Gas Systems	ETS	$123,933
Wet/dry scrubbers for FCCUs, SRU/tail gas, boilers/heaters	ETS	$130,107
Wet/dry scrubbers for glass melting furnaces	ETS	$13,910
Wet/dry scrubbers for kilns & coal fired boiler	ETS	$13,910
Attending meetings as requested by AQMD staff	ETS	$7,500
	Total for ETS	*$289,360*
Wet/dry scrubbers for coke calciner (module 3-B)	Nexidea	$14,000
Wet/dry scrubbers for sulfuric acid plants	Nexidea	$24,000
Attending meetings as requested by AQMD staff	Nexidea	$7,500
	Total for Nexidea	*$45,500*
	Total	**$334,860**

Note: Since only one refinery voluntarily participated in the short-term testing with FCCU DeSOx additives, staff decided to conduct the analysis for Module 1 in-house.

The consultants started the projects immediately after receiving the awards. First, the consultants and staff scheduled and conducted site visits at BP, Chevron, ConocoPhillips, Tesoro, Valero, ExxonMobil, California Portland Cement Corp., Owens Brockway, and Rhodia Inc. in September - October 2008. During these site visits, the consultants gathered all necessary technical information on equipment and operating conditions, discussed with the facilities on operational characteristics of the equipment, observed the physical layout of the equipment, as well as listened to any concerns or foreseen constraints provided by the refinery technical experts related to future prospective add-on control devices.

After the site visits, the consultants conducted their own independent research, contacted the control manufacturers and vendors, gathered cost information, and performed their own independent engineering analysis on commercially available control technologies and cost effectiveness. In October 2008, the consultants developed the draft reports which were distributed to the affected facilities and AQMD staff for comments.

[3] South Coast Air Quality Management District Board Meeting September 5, 2008, Agenda # 3, Execute Contract to Evaluate Emission Control Technologies for Further Reducing Sulfur Oxides Emissions from Stationary Sources in the SCAQMD SOx RECLAIM Program. September 5, 2008.

[4] South Coast Air Quality Management District, Contract# C09104 with Nexidea, Inc., Evaluation of Emission Control Technologies for Further Reducing Sulfur Oxides Emissions from Stationary Sources in the SCAQMD's RECLAIM Program. September 5, 2008.

[5] South Coast Air Quality Management District, Contract# C09105 with ETS, Inc., Evaluation of Emission Control Technologies for Further Reducing Sulfur Oxides Emissions from Stationary Sources in the SCAQMD's RECLAIM Program. September 5, 2008.

After addressing all comments received from the facilities, as well as AQMD staff, the consultants finalized their analyses and reports for coke calciner, cement kilns, coal fired boiler, glass furnaces, and sulfuric acid plant on December 16, 2008 as planned in the contracts.

Because of the complexity associated with the refinery systems and extensive communications between the consultants and the refineries, the consultants finalized their engineering analyses for FCCUs, SRU/tail gas, and fuel gas treatment systems in April 20, 2009, four months after the anticipated dates specified in the contract.

A summary of the consultants' recommendations in these engineering studies are provided in Chapter 11 through Chapter 16.

Chapter 2 – Nexidea's Analysis for Coke Calciner & Sulfuric Acid Plant

Nexidea, Inc. (Marshall Bell) [6, 7] was awarded the contract to study the control technologies for a coke calciner and two sulfuric acid plants in the District (named as Facility A, B and C in the consultant's reports). Nexidea Inc.'s analysis and results are summarized this chapter.

2.1 Recommended BARCT Levels

Nexidea's final conclusions in this study are summarized below:

- It is feasible and cost effective to reduce SOx emissions to a level of 5 ppmv using wet scrubbing with caustic solution from coke calciner and sulfuric acid plants. However, the consultant recommended the District to set BARCT at 10 ppmv due to process control related issues. For sulfuric acid plants, the consultant recommended a BARCT level of 0.14 lbs per ton acid, and for the coke calciner, the consultant recommended a BARCT level of 0.25 lbs per ton coke. Excerpts from the consultant's study are presented below:

  "*The results of the study show that simple caustic treating can cost effectively reduce SO2 emissions to less than 5 ppmv for the all of the units in the study; however, the recommended BARCT level is 10 ppmv due to control issues at near-zero SO2 levels. It is recommended that Facility B Acid Plant and Facility C Calciner add a caustic scrubber to meet the 10 ppmv SO2 level. Facility A Acid Plant already uses an SO2-selective amine to reduce SO2 to 20 ppmv. That unit can be revamped at low cost to meet a 10 ppmv SO2 level, thus addition of a caustic treater to that unit is not recommended.*

  Table 1 presents a summary of the key findings of this study. Recommended BARCT is 10 ppmv SO2, limited by process control issues…..

  Table 1: Summary of Recommendations

Equipment	***BARCT Level***	***Emission Reductions***	***Cost Effectiveness***
Facilities A and B	*0.14 lbs SOx/ton acid (10 ppmv)*	*<0.1 tpd (A)* *1.1 tpd (B)*	*$1.4K - $5.6K*
Facility C	*0.25 lbs SOx/ton coke (10 ppmv)*	*1 tpd*	*$2.5K - $5.0K*

  "

[6] A biography of Mr. Marshall Bell is attached in Appendix II-B of this report.

[7] SOx RECLAIM Final Report – Wet/Dry Scrubbing Technology for Sulfuric Acid Plants and Coke Calciner, Nexidea Inc., December 2008.

2.2 Control Technology & Costs

To arrive at the conclusions presented above, Nexidea, Inc. conducted a literature research on wet/dry scrubbing control technology, both regenerative and non-regenerative. The consultant contacted four (4) vendors identified in Part I of the Staff Report and listed below for basic sizing and cost information to achieve 5, 10, and 20 ppmv SOx.

- Cansolv Technologies, Inc.
- Monsanto Envirochem Systems (MECS)
- Belco Technologies
- Tri-Mer

As stated in Nexidea's report:

> "*All four companies were sent requests for basic sizing and cost information for gas treating facilities that can reduce SO2 emissions. Each was asked to supply designs to meet 5, 10 and 20 ppmv SO2 in the treated gas streams. Belco, Tri-Mer and MECS responded with proposals. Cansolv Technologies responded with a letter stating that their technology is not economically attractive as a polishing unit, and they will not bid on Facility B or coke calciner. They will support the necessary upgrades to Facility A's Cansolv Unit to allow it to meet a 10-ppmv SO2 level*."

All four vendors responded that they could achieve 5 ppmv SOx if all process variables are carefully controlled and monitored. Three out of four vendors provided sizing and cost information to achieve 5 ppmv SOx. All four vendors indicated that they could easily treat the existing gas streams from the sulfuric acid plants and the coke calciner to 10 ppmv, and all four vendors provided sizing and cost data for this scenario:

> *"Both Sulfuric Acid Plants and the Coke Calciner start with relatively low levels of SO2 in the current discharge streams: 20 to 145 ppmv. Treating down to 10 ppmv SO2 is easy and straightforward with caustic treating. Belco, Tri-Mer and MECS all state that they can provide designs that will achieve SO2 levels down to 1-2 ppmv with caustic treating for Facilities B and C. Cansolv can achieve 10 ppmv SO2 with minor upgrades to the Facility A Acid Plant, and believe that 5 ppmv is possible if all process variables are carefully controlled."*

Accurate process control at all load changes is critical to achieve 5 ppmv SOx outlet concentration. The consultant recommended 10 ppmv as BARCT to provide the operators some room to respond to plant load changes and to reduce possible scaling of the absorber unit, usage of caustic, and load to the effluent treatment plant:

> *"The recommended treatment level is 10 ppmv for all three facilities. The reason for this slightly higher value is that treating to 5 ppmv is essentially treating to zero. At this extremely low level, control over caustic injection becomes difficult. Refer to Figure 1, which shows caustic addition versus SO2 in the treated gas. Note that the caustic injection rate is given in gallons per hour. A very small change in caustic addition rate*

has a large impact on SO2 level. Even if the caustic is diluted to 20%, the injection rate is still very small, and normal load changes in the units can make constant control difficult. Belco warns that control at <5 ppmv requires an increase in the pH of the caustic solution. As the pH rises, the tendency towards scaling the absorber tower and its internals increases, and the composition of makeup water to the unit must be carefully watched. If the pH is raised too high, it is possible to start absorbing CO2, which can produce a hard, insoluble sodium carbonate scale in the tower. Control at <5 ppmv almost certainly will result in over-injection of caustic, which is both wasteful and adds to the treating load in the effluent treatment plant. Control at 10 ppmv gives the operator more control room to respond to plant load changes without undue attention to the unit."

BELCO and Tri-Mer provided the consultant the inside battery limit (ISBL) equipment costs for caustic scrubbers, whereas MECS supplied the total installed equipment (TIC) for caustic scrubber. It should be noted that the costs for the caustic scrubbers were the same regardless of the SOx desired outlet concentrations (5, 10 or 20 ppmv). Cansolv supported the revamping costs of existing control at Facility A estimated by the contractor.

The estimated installed equipment costs provided in the consultant report were listed in the table below included 1) a 20% location factor increase to account for the difference in labor costs between the U.S. Gulf Coast and the Los Angeles area; and 2) a 35% contingency factor increase to account for other outside battery limit costs that might be needed for the project (e.g. utility upgrade and upgrade for effluent treating system.) added to the base costs.

"*Table 1: Estimated Installed Equipment Costs*

	Facility A	*Facility B*	*Facility C*
Belco	*$3,090,131*	*$6,579,231*	*$13,302,633*
Trimer	*$2,999,249*	*$13,316,664*	*$21,059,914*
MECS	*$4,043,137*	*$7,497,015*	*$16,826,926*
Cansolv	*$500,000*		

The vendors provided the consultant the following information to estimate the operating costs of the equipment:

- Electric power, kilo-watt
- Makeup water, gallons per minute
- Caustic solution (50% grade), gallons per hour
- Waste water treating, gallons per hour
- Operating/Maintenance man-power, # of people

The major differences in the operating costs for the three desired outlet SOx concentrations 5, 10, 20 ppmv were simply the costs of more caustic solution and increased effluent to the waste water treatment.

2.3 Emission Reductions & Cost Effectiveness

The estimated emission reductions from the 2005 actual reported emissions[8] to the feasible levels (5, 10, and 20 ppmv) were presented in the table below from the consultant's final report:

"*Table 3: Estimated Emissions Reductions*

	TPD SO2 Reduction
Facility A @ 5 ppmv	*0.050*
Facility A @ 10 ppmv	*0.033*
Facility A @ 20 ppmv	*NA*
Facility B @ 5 ppmv	*1.192*
Facility B @ 10 ppmv	*1.149*
Facility B @ 20 ppmv	*1.064*
Facility C @ 5 ppmv	*1.122*
Facility C @ 10 ppmv	*0.997*
Facility C @ 20 ppmv	*NA"*

The consultant estimated the following cost effectiveness numbers assuming a 25-year life of caustic scrubbers, 4% interest rate, and using a cost effectiveness equation provided by staff:

"*Table 2: Cost Effectiveness*

	Cansolv	*Tri-Mer*	*Belco*	*MECS*
Facility A @ 5 ppmv	*NA*	*$16,682*	*$17,596*	*$18,675*
Facility A @ 10 ppmv	*$5,556*	*$24,906*	*$26,273*	*$27,892*
Facility A @ 20 ppmv	*NA*	*NA*	*NA*	*NA*
Facility B @ 5 ppmv	*NA*	*$2,158*	*$1,594*	*$1,458*
Facility B @ 10 ppmv	*NA*	*$2,229*	*$1,644*	*$1,503*
Facility B @ 20 ppmv	*NA*	*$2,388*	*$1,77*	*$1,605*
Facility C @ 5 ppmv	*NA*	*$3,375*	*$2,469*	*$2,624*
Facility C @ 10 ppmv	*NA*	*$3,768*	*$2,749*	*$2,923*
Facility C @ 20 ppmv	*NA*	*$4,946*	*$3,589*	*$3,821*

[8] The consultant indicated in his report that the following existing average SOx concentrations were provided which the consultant later used in his estimated emission reductions:

"Facility A Acid Plant: 20 ppmv SOs
Facility B Acid Plant: 145 ppmv SO2
Facility C Coke Calciner: 50 ppmv SO2
.....the potential reduction in SO2 from Facility C based on the 50 ppmv level is higher than reported... suggests that ...this study may overstate the potential emission reduction from Facility C."

The consultant indicated that the current levels reported to the District "…..*are in the 20 - 30 ppmv range*".

2.4 Plot Space

The spaces for caustic scrubbers and associated equipment (e.g. ID fan) provided by the vendors and estimated by the consultant were summarized below:

	Facility A	Facility B	Facility C
BELCO	15 ft L x 20 ft W	20 ft L x 25 ft W	30 ft L x 40 ft W
Tri-Mer	18 ft L x 18 ft W	46 ft L x 28 ft W	70 ft L x 52 ft W
MECS	20 ft L x 20 ft W	25 ft L x 25 ft W	30 ft L x 30 ft W
Cansolv	No additional change in plot space	Not available	Not available

For Facility A, the consultant concluded that:

> "*If the Cansolv Unit is revamped to meet a 10 ppmv treated gas SO2 concentration, the existing equipment will be reused in its current location and current plot space will be sufficient. If a caustic polishing system were to be required, the new unit would have to be located some distance away from the Acid Plant. This would make ducting of the gas steam very difficult, and result in a much larger ID fan, as well as a higher capital cost.*"

For Facility B, the consultant concluded that:

> "*There appears to be sufficient plot space ..... to accommodate all three designs."*

For Facility C, the consultant concluded that:

> *"In all three designs, it appears that some existing equipment will have to be relocated to make room for a new scrubber system……. There appears to be sufficient plot space on the south and west sides of the cooling tower .... to accommodate the Belco and MECS designs, which use a single tower; however, space to locate the proposed Tri-Mer design is questionable."*

In addition, the consultant provided several suggestions to reduce the footprint of the Tri-Mer scrubber should that becomes the choice for the facilities.

2.5 Project Timing

The consultant estimated that the total project time needed to install the new caustic scrubbers at Facility B and Facility C was about 24 – 30 calendar months, and to revamp the existing control system at Facility A was about 12 months.

Chapter 3 – ETS's Analysis for Glass Manufacturing Plant

ETS, Inc. (John McKenna)[9, 10] was awarded the contract to study the control technologies for two container glass melting furnaces located at a container glass manufacturing facility in the District. ETS Inc.'s analysis and results are summarized in this chapter.

3.1 Recommended BARCT Levels

ETS, Inc.'s final conclusion in this study is that it is feasible and cost effective to reduce SOx emissions to a level of 5 ppmv or less using wet scrubbing with caustic solution for container glass melting furnaces. The consultant recommended the District to set BARCT at 0.0058 lbs/ton glass pulled (or 99% control.)

Excerpts from ETS Inc.'s study are presented below:

> "*ETS has conducted a top down analysis of alternative commercially feasible control technologies for the control of SO_x emissions from the glass plant. This analysis considered the technology which was found to be the most effective in terms of sulfur dioxide removal and which can potentially be installed or retrofitted at O-I. Four vendors (Manufacturer A, Manufacturer B, Manufacturer C, and Manufacturer D) submitted quotes and performance claims and one vendor (Manufacturer E) submitted a description of suggested process improvements on the existing system with a rough budgetary equipment cost. Given the higher removal efficiency (99%), the Manufacturer A wet scrubber was selected as BARCT for the glass furnaces.*
>
> *A cost-effectiveness determination was executed for the BARCT case and a summary of the results is provided in the following table:*

Summary of Recommendations

Equipment	*BARCT Level*	*BARCT Emission Level*	*Emission Reductions*	*Cost-Effectiveness*
Owens-Brockway A, B & C CEMS	*99% control (≤1 ppmv)*	*0.0058 lbs/ton glass pulled*	*0.19 tpd*	*$ 5.0 K/ton SOx*

Note: Baseline SO_x emissions used in calculations were from 2005 (SCAQMD database for the period from January 2005 – December 2005)"

[9] ETS, Inc. team in this project included Dr. John McKenna, John Mycock, Dr. James Turner, Christina Clark and Jeff Smith. (AEC Engineering Inc. was a subcontractor for ETS, Inc. in the refinery study discussed in Chapter 14 – Chapter 16. AEC Engineering Inc. was not subcontracted for the analyses for glass in Chapter 12 and cement in Chapter 13.) The consultants' biographies are included in Appendix II-B of this report.

[10] SOx RECLAIM Study - Final Report – Module 3-D: Wet/Dry Scrubbing Technology for Container Glass Manufacturing Plant, ETS, Inc., December 16, 2008.

3.2 Control Technology & Costs

To arrive at the conclusions presented above, ETS Inc. conducted a literature research on wet scrubbing (non-regenerative) and dry scrubbing control technologies. Sources for their literature research included Air Waste Management Association (AWMA), McIlvaine, U.S. EPA, Industrial Clean Air Companies (ICAC), Glass Manufacturing Industry Council, and the Council of Industrial Boilers Association (CIBA). ETS Inc. contacted seventeen (17) vendors in the field of wet/dry gas scrubbing. The following five (5) vendors responded to their request for information:

- Tri-Mer
- Monsanto Envirochem Systems (MECS)
- McGill Clean Air Technologies
- Dustex
- PPC, Industries

As stated in the ETS Inc.'s report:

> "*These vendors were contacted and supplied with a request for a technical response to the RFP shown in Table 6. The vendors were asked to provide a Budgetary Equipment Cost and Estimated Annual Operating Cost at the following three levels of performance:*
>
> 1) *Lowest achievable level of efficiency with guarantee*
> 2) *Next lowest achievable level of efficiency with guarantee*
> 3) *Most comfortable achievable efficiency with guarantee…"*
>
> *"Four vendors (Manufacturer A, Manufacturer B, Manufacturer C, and Manufacturer D) submitted quotes and performance claims, and one vendor (Manufacturer E) submitted a description of suggested process improvements on the existing system with a rough budgetary equipment cost…….*"

	Control Technology	*Efficiency*	*SOx Outlet Conc.*
Manufacturer A	*wet scrubber with 50% NaOH*	*99%*	*Less than 5 ppmv*
Manufacturer B	*wet scrubber with 25% NaOH*	*95%*	*5 ppmv*
Manufacturer C	*dry gas scrubber*	*90%*	*10 ppmv*
Manufacturer D	*wet scrubber with 20% NaOH*	*90%*	*Less than 10 ppmv*

After carefully reviewing the information collected from the literature research and submitted by the vendors, ETS Inc. concluded:

> "*Given the higher removal efficiency (99%), the Manufacturer A Wet Scrubber was selected as BARCT for the glass furnaces...*"

Regarding vendors' cost estimates, ETS Inc. indicated:

".....they were asked to provide a budgetary cost estimate for the supply and installation of their equipment. The vendor was also requested to identify any utilities needed and their expected rate of usage. The vendor was also asked to identify the amount and type of waste generated by the process. If the vendor's approach was to modify or retrofit existing hardware, he was requested to supply a cost estimate for those activities. For example, if the proposed approach was that of dry or wet injection upstream of the baghouse, the proposal should have included an estimate for all required equipment hardware, reagent storage vessels, reagent feed control instrumentation, engineering, construction and installation, etc., as well as pre-engineering costs such as site testing activities to locate the reagent injection site to optimize system performance with respect to SO_2 control and reagent utilization."

The basis for equipment costs was different from each vendor (e.g. two vendors provided total installation costs including freight, and the other two provided just equipment costs without installation costs and freight.) The consultants applied their engineering knowledge and judgment to reconcile all vendors' costs to the same basis. In addition, the consultants included specific costs to cover areas that had been identified by the subject facility in the District (e.g. costs were added to cover additional treatment of the waste stream from the scrubber & additional ducting to the space available at the facility.)

ETS Inc. included the following categories in estimating the capital cost:

"*Demolition and Decommissioning*
Civil/Concrete
Structural
Equipment
Piping & Mechanical
Electrical & Controls
Misc. Direct & Indirect Costs:
- *Contractor overhead and misc. rentals*
- *Contractor field supervision*
- *Mobilization/Demobilization*
- *Overtime/productivity factor*
- *Freight/shipping*
- *Sales Tax*
- *Commissioning and operating spares*
- *Start-up/initial fill material*
- *On-site training/start-up assistance*
- *FEED engineering through detailed design*
- *Project management"*

ETS, Inc. included the following categories in estimating the annual operating and maintenance costs:

"*Annual Maintenance Costs*
Periodic Maintenance Costs
Additional Operating Costs
Utilities:

Natural Gas
Electricity
Water
Wastewater
Cooling Water
Compressed Air
Solid Waste Disposal"

3.3 Emission Reductions & Cost Effectiveness

A summary of emission reductions, cost estimates, and cost effectiveness using 25-year life for a wet gas scrubber and 4% interest rate estimated by ETS, Inc. is shown below:

" 2005 Baseline Emissions	*0.195 tpd*
Emission Reductions	*0.19 tpd (99% efficiency)*
Equipment Costs	*$1.10 million*
Capital Costs	*$1.90 million*
Annual Operating Costs	*$0.44 million*
Present Worth Value (25-year life)	*$8.80 million*
Cost Effectiveness Factor	*$4,988 per ton SOx reduced* "

ETS, Inc. did not estimate emission reductions and cost effectiveness associated with other levels of control (95%, 90%). ETS, Inc. indicated that:

> *"In considering a curve of cost-effectiveness versus level of control there are two considerations. Firstly, will the control device capital cost vary with improved efficiency and secondly, will the operating cost increase with increasing efficiency. Since the capital cost is driven largely by the gas volume and since the volume is essentially constant there is little if any change in the capital cost over the considered range of efficiencies. With respect to operating cost versus efficiency, in the case of sodium hydroxide, while the utilization does increase with increasing efficiency, the cost of the sodium hydroxide was low enough to minimize the impact of efficiency on cost. Thus the merit of plotting a curve of cost versus efficiency seemed of little value."*

3.4 Plot Space

Two vendors provided overall footprint (below) and two provided dimensions for individual components of the control systems. Manufacturer A estimated a footprint of 32 ft L x 10 ft W, and Manufacturer D estimated a footprint of 20 ft L x 20 ft W. In the analysis for available space, the consultant indicated that:

> "*The plant has limited space available for additional equipment, approximately a 14' x 20' footprint between two existing scrubbers. In addition O-I personnel indicated that the height of any new equipment could not exceed 30 feet above the top of the existing scrubbing vessels. A request was made of O-I to provide us with dimensional information pertaining to available space for the Manufacturer A equipment footprint. They stated that*

there is space available. Horizontal distance is 63' depending on the location of the ducting out of the pieces of equipment. This does not take into account the vertical distance which will depend on location of entry to the stream."

3.5 Project Timing

The consultant estimated that startup of the control equipment could occur 12 months after the project begins.

Chapter 4 – ETS's Analysis for Cement Plant

ETS, Inc. (John McKenna) [11, 12] was awarded the contract to study the control technologies for two cement kilns and a coal-fired boiler located at California Portland Cement Co. (CPCC). ETS Inc.'s analysis and results are summarized in this chapter.

4.1 Recommended BARCT Levels

ETS, Inc.'s final conclusion in this study is that it is feasible and cost effective to reduce SOx emissions to a level of 5 ppmv or less using wet scrubbing with caustic solution for two cement kilns and a coal-fired boiler. The consultant recommended the District to set BARCT at 0.03 lbs/ton clinker (or 95% control efficiency) for the two cement kilns, and 95% control efficiency for the coal fired boiler.

Excerpts from ETS Inc.'s study are presented below:

> "*ETS has conducted a top down analysis of alternative commercially feasible control technologies for the control of SO_x emissions from the cement plant. This analysis considered the technology which was found to be the most effective in terms of sulfur dioxide removal and which can potentially be installed or retrofitted at CPCC. In the case of the two kilns, three vendors (Manufacturer A, Manufacturer B, and Manufacturer C) submitted quotes and performance claims. Given the higher removal efficiency (95%), the Manufacturer B $CaCO_3$ Scrubber was selected as BARCT for the kilns.*
>
> *Similarly top down analysis was done for the coal-fired fluidized bed boiler emission control at the cement plant. Four vendors (Manufacturer A, Manufacturer B, Manufacturer C, and Manufacturer D) submitted quotes and performance claims. Given the 95% removal efficiency, both the Manufacturer D Venturi Reactor & the Manufacturer B $CaCO_3$ Scrubber can be considered BARCT for the coal-fired fluidized bed boiler.*
>
> *Cost-effectiveness determinations were executed for the BARCT cases and a summary of the results are provided in the following table.*

[11] ETS, Inc. team in this project included Dr. John McKenna, John Mycock, Dr. James Turner, Christina Clark and Jeff Smith. (AEC Engineering Inc. was a subcontractor for ETS, Inc. in the refinery study discussed in Chapter 14 – Chapter 16. AEC Engineering Inc. was not subcontracted for the analyses for glass in Chapter 12 and cement in Chapter 13.)

[12] SOx RECLAIM Study - Final Report – Module 3-E: Wet/Dry Scrubbing Technology for Cement Kilns and Coal-Fired Fluidized Bed Boiler, ETS, Inc., December 16, 2008.

Summary of Recommendations

Equipment	*BARCT Level*	*BARCT Emission Level*	*Emission Reductions*	*Cost Effectiveness*
Kilns	*95% control (≤2 ppmv)*	*0.03 lbs SO_x/ton clinker*	*0.25 tpd SO_x*	*$18.9 K/ton SOx*
Coal-Fired Boiler	*95% control (≤5 ppmv)*	---	*0.36 tpd SO_x*	*$ 3.8 K/ton SOx*

Note: Baseline SO_x emissions used in calculations were from 2005 (SCAQMD database for the period from January 2005 – December 2005)"

4.2 Control Technology & Costs

To arrive at the conclusions presented above, ETS Inc. conducted an independent literature research on wet scrubbing (non-regenerative) and dry scrubbing control technologies. Sources for their literature research included Air Waste Management Association (AWMA), McIlvaine Co., U.S. EPA, Industrial Clean Air Companies (ICAC), Portland Cement Association (PCA), and Northeast States for Coordinated Air Use Management (NESCAUM). ETS, Inc. research confirmed the information provided by staff in Part I of Staff Report that scrubbing technology had been used to control SOx for existing as well as new cement kilns and coal fired boilers.

After the literature research, ETS Inc. contacted and asked sixteen (16) vendors in the field of wet/dry gas scrubbing to provide a budgetary equipment cost and estimated annual operating cost at the following three levels of performance:

1) Lowest achievable level of efficiency with guarantee
2) Next lowest achievable level of efficiency with guarantee, and
3) Most comfortable achievable efficiency with guarantee

For the vendors to size and estimate the costs associated with the control device, ETS, Inc. provided the vendors some of the following critical operational parameters:

	Kilns	*Coal-Fired Boiler*
Gas Flow Rate	*170,000 – 200,000 acfm*	*60,000 acfm*
Temperature	*275 ^oF*	*300 ^oF*
Inlet SOx Concentration	*5 ppmv – 25 ppmv* [13, 14]	*100 ppmv* [13]
Combustion fuel	*Coal, coke, oil, nat gas, and used tires*	*Coal*
Raw feed material	*Limestone, silica, and clay*	

[13] ETS, Inc. reviewed several RATA tests for the two kilns and the cogen, and in addition, conducted a statistical analysis on the 2005 and 2008 CEMS data for the two kilns, and the 2001 CEMS data for the cogen, and determined that a range of SOx concentrations between 5 ppmv – 25 ppmv would reflect a reasonable range of SOx concentrations from the two kilns, and approximately 100 ppmv would reflect a reasonable range of SOx concentration from the coal-fired boiler. These ranges of concentrations were provided to the vendors for quotes and cost estimates.

[14] ETS, Inc. reported that "*In general, the vendors questioned the low SO_2 levels, stating that 200-400 ppm was more typical of long dry kiln operations. Several also indicated that before guaranteeing performance level, they would require pilot testing to confirm design information and to optimize operational parameters."*

The following four (4) vendors responded to ETS, Inc.'s request of information:

- Dustex
- BoldEco
- Monsanto Envirochem Systems (MECS)
- Solios

Three vendors proposed SOx emission control, submitted quotes, and performance claims for the cement kilns:

- The first vendor (Vendor C) proposed wet scrubbers using 20% NaOH solution to achieve 90% guaranteed control for the two kilns

- The second vendor (Vendor A) proposed a hybrid technology, a dry fluid bed scrubber (reaction tower) following by a pulse jet fabric filter, using hydrated lime (Ca(OH)2) as absorbent reagent to achieve 90% guaranteed reduction for SOx

- The third vendor (Vendor B) proposed two different approaches for emission control:
  - a moving bed reactor where the gas is contacted and absorbed on a bed of limestone granules (CaCO3) to achieve 95% reduction ; and
  - a hybrid technology including a reactor and a polished fabric filter using hydrated lime (Ca(OH)2) as absorbent reagent to achieve 85% reduction

Vendor	*Control Technology*	*Control Efficiency*	*SOx Outlet Concentration*
A	*Hybrid (reactor/scrubber/pulse-jet filter) using Ca(OH)2*	*90%*	*< 5 ppmv*
B	*Hybrid (reactor/scrubber/pulse-jet filter) using Ca(OH)2*	*85%*	*< 5 ppmv*
B	*Dry scrubber/reactor using limestone CaCO3*	*95%*	*< 5 ppmv*
C	*Wet scrubber using NaOH*	*90%*	*< 10 ppmv*

Four vendors proposed SOx emission control, submitted quotes, and performance claims for the coal-fired boilers:

- The first vendor (Manufacturer C) proposed wet scrubbers using NaOH solution to achieve 90% guaranteed control (<10 ppmv SOx)

- The second vendor (Vendor A) proposed a hybrid technology, a dry fluid bed scrubber (reaction tower) following by a pulse jet fabric filter, using hydrated lime (Ca(OH)2) as absorbent reagent to achieve 90% guaranteed reduction for SOx

- The third vendor (Vendor B) proposed two different approaches for emission control:
  - a moving bed reactor where the gas is contacted and absorbed on a bed of limestone granules (CaCO3) to achieve 95% reduction ; and
  - a hybrid technology including a reactor and a polished fabric filter using hydrated lime (Ca(OH)2) as absorbent reagent to achieve 80% reduction

- The fourth vendor (Vendor D) proposed a dry injection system utilizing a venturi reactor and sodium bicarbonate (NaHCO3) to achieve 95% removal efficiency.

Vendor	*Control Technology*	*Control Efficiency*	*SOx Outlet Concentration*
A	*Hybrid (reactor/scrubber/pulse-jet filter) using Ca(OH)2*	*90%*	*< 5 ppmv*
B	*Hybrid (reactor/scrubber/pulse-jet filter) using Ca(OH)2*	*80%*	*< 5 ppmv*
B	*Dry scrubber/reactor using limestone CaCO3*	*95%*	*< 5 ppmv*
C	*Wet scrubber using NaOH*	*90%*	*< 10 ppmv*
D	*Venturi reactor using NaHCO3*	*95%*	*< 5ppmv*

After carefully reviewing all the information collected from the literature research and submitted by the vendors, ETS Inc. concluded:

> *"Given the higher removal efficiency (95%), the Manufacturer B Dry Scrubber was selected as BARCT for the kilns."*
>
> *"Given the 95% removal efficiency, both the Manufacturer D Venturi Reactor & the Manufacturer B Scrubber can be considered BARCT for the coal-fired fluidized bed boiler."*

Regarding vendors' cost estimates, ETS Inc. indicated:

> *".....they were asked to provide a budgetary cost estimate for the supply and installation of their equipment. The vendor was also requested to identify any utilities needed and their expected rate of usage. The vendor was also asked to identify the amount and type of waste generated by the process. If the vendor's approach was to modify or retrofit existing hardware, he was requested to supply a cost estimate for those activities. For example, if the proposed approach was that of dry or wet injection upstream of the baghouse, the proposal should have included an estimate for all required equipment hardware, reagent storage vessels, reagent feed control instrumentation, engineering, construction and installation, etc., as well as pre-engineering costs such as site testing activities to locate the reagent injection site to optimize system performance with respect to SO_2 control and reagent utilization.*"

The basis for equipment costs was different from each vendor. ETS, Inc. applied their engineering knowledge and judgment to reconcile all vendors' costs to the same basis. Regarding the capital costs, ETS Inc. included the following categories in estimating the costs:

> **"***Demolition and Decommissioning*
> *Civil/Concrete*
> *Structural*
> *Equipment*
> *Piping & Mechanical*
> *Electrical & Controls*
> *Misc. Direct & Indirect Costs:*
> *Contractor overhead and misc. rentals*

Contractor field supervision
Mobilization/Demobilization
Overtime/productivity factor
Freight/shipping
Sales Tax
Commissioning and operating spares
Start-up/initial fill material
On-site training/start-up assistance
FEED engineering through detailed design
Project management"

ETS, Inc. included the following categories in estimating the annual operating and maintenance costs:

"*Annual Maintenance Costs*
Periodic Maintenance Costs
Additional Operating Costs
Utilities:
Natural Gas
Electricity
Water
Wastewater
Cooling Water
Compressed Air
Solid Waste Disposal"

A list of assumptions used by ETS, Inc. for cost estimation was summarized by ETS, Inc. in Table 11 of the final report.

4.3 Emission Reductions & Cost Effectiveness

A summary of emission reductions, cost estimates, and cost effectiveness using 25-year life for a wet gas scrubber and 4% interest rate estimated by ETS, Inc. is shown below:

		Two Scrubbers for Two Kilns	*One Scrubber for a Coal-Fired Boiler*
2005 Baseline Emissions	*tpd*	*0.27*	*0.38(if operated)*
Emission Reductions	*tpd*	*0.25*	*0.36(if operated)*
Equipment Costs	*$ million*	*16.6*	*4.7*
Capital Costs	*$ million*	*19.6*	*6.1*
Annual Operating Costs	*$ million*	*1.5*	*0.39*
Present Worth Value (25-year life)	*$ million*	*43.7*	*12.6*
Cost Effectiveness Factor	*$ per ton*	*18,893*	*3,818*

ETS, Inc. did not estimate emission reductions and cost effectiveness associated with other levels of control (90% or 80%). ETS, Inc. indicated that:

"In considering a curve of cost-effectiveness versus level of control there are two considerations. Firstly, will the control device capital cost vary with improved efficiency and secondly, will the operating cost increase with increasing efficiency. Since the capital cost is driven largely by the gas volume and since the volume is essentially constant there is little if any change in the capital cost over the considered range of efficiencies. With respect to operating cost versus efficiency, in the case of limestone, while the utilization does increase with increasing efficiency, the cost of the limestone was low enough to minimize the impact of efficiency on cost. Thus the merit of plotting a curve of cost versus efficiency seemed of little value."

4.4 Plot Space

The plot space needed for each hybrid dry limestone scrubber located upstream of the existing baghouse of the Portland cement kiln was estimated to be approximately 50 ft L x 40 ft W. ETS, Inc. conclusion on plot space availability was as follow:

"*With the exception of moving some existing coal piles, there appears to be no limitation on available space for prospective equipment for additional SO_2 control on the two cement kilns. If necessary, the existing baghouses could be considered for technology approaches (such as spray drying) requiring a filter collector after the reaction vessel. In this scenario the baghouse would serve the dual purpose of particulate control and the dust cake (on the bags) would provide an additional site for the reaction of the reagent with the SO_x.*"

The plot space needed for the dry scrubber located upstream of the existing baghouse of the COGEN coal fired boiler was estimated to be approximately 10 ft L x 10 ft W. ETS, Inc. conclusion on plot space availability was as follow:

"*……there appears to be no limited space for prospective equipment for additional SO_2 removal on the COGEN. In addition, if the physical integrity of the existing pulse jet baghouse is sound, it could probably be utilized in conjunction with some of the dry or semi-dry scrubbing technologies. This could be accomplished by replacing any malfunctioning components such as valves, timers, dampers, etc., and replacing the existing bag set with high efficiency PTFE membrane bags*."

4.5 Project Timing

The consultant estimated that startup of the control equipment could occur 24 months after the project begins for both the cement kilns as well as the coal fired boiler.

Chapter 5 – ETS/AEC's Analysis for Fluid Catalytic Cracking Units

ETS, Inc. (John McKenna) [15,16] was awarded the contract to study the control technologies (wet/dry scrubbers) for FCCUs located at six refineries in the District. ETS, Inc. subcontracted a part of the study to AEC Engineering Inc.[17] The ETS/AEC's analysis and results for FCCUs are summarized in this chapter.

5.1 Recommended BARCT Levels

ETS, Inc.'s final conclusion in this study is that it is feasible and cost effective to reduce SOx emissions to a level of 5 ppmv or less using wet scrubbing with caustic solution for six refineries in the District. ETS's recommended the District to set **BARCT at 5 ppmv, approximately 2.32 lbs/thousand barrels feed, or 87% control, averaging across six FCCUs** in the District. ETS Inc. estimated total emission reductions from the 2005 baseline were 3.07 tpd at an average cost effectiveness of $24.6 K per ton SOx reduced. [18,19]

Excerpts from ETS Inc.'s study are presented below:

> *"The final estimates of SOx reductions for the Module 3A BARCT-designated measures are tabulated below:*

Module 3A Forecasted SOx Reductions (tons/day) by Refinery

Refinery:	*1*	*2*	*3*	*4*	*5*	*6*	*Total*
Equipment Type FCCU	*0.58*	*0.19*	*0.28*	*0.20*	*0.87*	*0.94*	*3.07*

> *The following table gives a summary of the Module 3A cost effectiveness ratios by refinery following implementation of the respective measures selected by ETS/AEC:*

Module 3A Cost Effectiveness ($/ton of SOx) by Refinery

Refinery:	*1*	*2*	*3*	*4*	*5*	*6*	*Avg. for All*
Equipment Type FCCU	*$14.4k*	*$76.2k*	*$36.6k*	*$42.1k*	*$11.6k*	*$12.8k*	*$24.6k*

[15] ETS, Inc. team in this project included John McKenna, Ph.D., Robert Kunz, Ph.D., P.E., James Turner, Ph.D., Christina Clark and Jeff Smith. The consultants' biographies are attached in Appendix II-B of this report.

[16] SOx RECLAIM Study - Final Report – Module 3-A: Wet/Dry Scrubbing Technology for Refinery Fluid Catalytic Cracking Units (FCCUs), Refinery Boilers/Heaters, and Refinery Sulfur Recovery Units (SRUs) and Tail Gas Treatment Processes, AEC Engineering Inc./ETS, Inc., April 20, 2009.

[17] AEC Engineering, Inc. team in this project included Tav Heistand, P.E., Kristie Williams, P.E., Jason Sowards, Jesse Pikturna, Ph.D., and Britton Miller, P.E.

[18] The estimated emission reductions 3.07 tpd were the reductions calculated from the 2005 baseline described in Part 1 of the Staff Report for all six FCCUs in the District. Note that this 3.07 tpd estimated reductions from ETS/AEC was not the same as the RTC reductions estimated in Staff Report for FCCUs.

[19] The cost effectiveness of $24.6 K is an average for five refineries. One refinery in the District already installed and has operated a wet gas scrubber to meet the particulate emission standards in Rule 1105.1, and this gas scrubber also meet the limeit of 5 ppmv proposed by ETS/AEC.

5.2 Control Technology & Costs

5.2.1 Control Technology

'To arrive at the conclusions presented above, ETS Inc. and AEC Engineering Inc. conducted an independent literature research on wet and dry scrubbing technologies including non-regenerative, regenerative, and sea water. After that, ETS/AEC contacted vendors for feasibility and cost information. As indicated by ETS/AEC:

> "*Insofar as the wet and dry gas scrubbing technologies are concerned, information provided by SCAQMD was very helpful in identifying some of the vendors that were considered in this study. Contact was made with all vendors listed in the SCAQMD preliminary report and a number of vendors that were not listed. After initial discussions with vendors, careful reviews of various resources were conducted: literature provided by vendors; the April 2008 Preliminary Draft Staff Report; in-house files; public domain articles and reports; and conversations with industry experts. At that point, five different technology providers were selected for detailed analysis of installation and operation economics…."*

The technologies and vendors that ETS/AEC concentrated for further analysis (e.g. costs) for FCCUs were:

- BELCO (non-regenerative wet gas scrubber)
- MECS (non-regenerative wet gas scrubber)
- Hamon (dry scrubber)
- Alstom (sea water scrubber)

Regarding BELCO technology, ETS/AEC stated that:

> "*BELCO (DuPont) has more than 65 EDV wet scrubbing systems in refineries, at least 61 of which are in FCCU applications and 156 EDV [20] wet scrubbing systems in other applications. BELCO also has examples of EDV applications for SRU/TGTU and refinery boilers and heaters (DuPont Power Point Presentation, 2008). In a letter sent to ETS from Nick Confuerto, Vice President, Technology, Sales & Marketing of BELCO, it was confirmed that the guaranteed SOx outlet concentration based on the refinery-specific information provided would be 5 ppmv. The EDV utilizes a Purge Treatment System to decrease the COD [21] and suspended solid content of the effluent. A clarifier is used to collect the solids and then they are filter-pressed and disposed. The oxidation is facilitated*

[20] EDV® is a trademark wet gas scrubber manufactured and supplied by BELCO (Dupont).

[21] COD stands for Chemical Oxygen Demand, a commonly used measurement for water quality. It measures the capacity of water to consume oxygen during the decomposition of organic matter and the oxidation of inorganic chemicals such as ammonia and nitrite. It is an indirect measurement of the organic compounds (microorganisms) that survive in the waste water samples.

in a tower with air forced through the effluent to convert all sulfites to sulfates. After these two steps the effluent is safely discharged to the waste water treatment plant."

Regarding MECS technology, ETS/AEC stated that:

"*….MECS developed their DynaWave technology in the 1970s and has over 300 installations worldwide (Kixmiller, 2008). Specific examples are two Sinclair oil refineries in Wyoming. According to a published paper titled, "DynaWave Wet Gas Scrubbing: A New Alternative for Claus Unit Tail Gas Clean-Up", written by Steven F. Meyer, Ed Juno, Nick Watts, and Cristina Kulczycki, each refinery installed a DynaWave scrubber for SRU/TGTU stack treatment. The results of stack testing was a 99.99% sulfur removal. The DynaWave mitigates the effluent COD by injecting air into the sump of the vessel in order to oxidize the sulfites. The sump is also designed to allow adequate retention time for the oxidation to take place. As a result, the effluent water can be discharged directly to the wastewater treatment plant, provided the COD levels are continuously monitored and maintained within an acceptable range. According to the paper, the COD at the Casper, WY refinery ranged between 50 and 150 mg/l.*"

Regarding dry scrubbing technology provided by Hamon, ETS/AEC stated that:

"*The dry scrubbing technology evaluated in this study is Hamon's. It was evaluated for both FCCU and heater and boiler applications. According to information on its website, Hamon FGD technologies are installed in twenty countries and treat over 65,000 MW of power generation capacity. Hamon also has a long standing relationship with refineries world wide with over 100 ESP installations on FCCUs. There is no example of a dry scrubber installation in a refinery. However, the level of experience in FGD and general refinery applications is adequate to describe the technology as field demonstrated. In an email sent to AEC, a Hamon Research employee quoted a 90+% removal efficiency for streams with 300-400 ppmv SOx. Because flue gases in the South Coast refineries are typically below this range, the removal percentage is expected to be below 90% in most cases. Typically, it is governed by the SOx outlet concentration, which is not forecasted to fall below 10 ppmv on a guaranteed basis. Hence, the removal percentage for Hamon's dry gas scrubber is application-specific in these refineries and generally will be below 90%. One additional consideration for all types of dry scrubbers is the issue of solids handling. The effluent gas will have considerable particulate matter that must be removed. Therefore it is necessary to install some type of an ESP or baghouse downstream from the scrubber. The solids handling equipment will need to collect both dry particulate matter from the scrubber and particulate from the FCC. This introduces additional complexity with respect to available plot space and capital expenditure.*"

After several months of technical analysis and couple weeks visiting the refineries, ETS/AEC concluded that wet gas scrubbing was an aged-old technology which should be very familiar to all six refineries in the District:

"One WGS vendor, Belco Technologies Corporation (BELCO), has provided a lengthy application list…, with contracts awarded on as many as sixty-one (61) FCCU units and two (2) fluid cokers. Total FCCU capacity treated by BELCO scrubbers is noted as 3,228,700 bbl/day. The concept of using a WGS on an FCCU should be familiar to four (4) of the six (6) refining companies operating the Los Angeles, CA area since they are listed as customers employing BELCO WGS technology on the FCCUs at their other refineries……..

Another vendor of WGS technology, Exxon (Now ExxonMobil), has also developed WGS technology. It is used in their own refineries and at others under license…... As of 1999, they cite a total of fourteen (14) such installations. One of the Exxon papers …. pictures a number of FCCU scrubbers located in tight spots because the required plot space was not otherwise available, including a photograph of a creative solution in which the scrubber is mounted on stilts above a road."

Regarding vendors' guarantee, ETS/AEC indicated that BELCO and MECS were willing to provide guarantee on 5 ppmv:

"BELCO has provided numerous wet gas scrubbers for FCCUs in the United States and on a worldwide basis. Based on that experience, BELCO has given a guarantee of 5 ppm SO_2 from a wet scrubber if installed on any of the FCCUs in the District. MECS DynaWave, with at least three installations on FCCU regenerator flue gas, will also guarantee 5 ppmv SO_2. BELCO has indicated that most of their units operate in the near zero ppm range, with the most recent performance test from one of these at a fraction of a ppm (corrected to 0% O_2)…."

In addition, ETS/AEC cited one full-scale installation that they were aware of:

"…. The study team is aware of another full-scale wet gas scrubber operating on an FCCU in a petroleum refinery at an SO_2 emission level of 5 ppmv or less on a long-term basis."

To be conservative in their BARCT recommendation, ETS/AEC recommended BARCT to be set at 5 ppmv. The vendors and ETS/AEC did not recommend lower levels just to avoid CEMS measurement uncertainty:

….. the recommended BARCT level for fluid catalytic cracking unit (FCCU) SOx emissions is 5 ppmv on a dry basis. This is derived from an achievable concentration when employing wet gas scrubbing (WGS), a proven technology demonstrated in practice on this type of emission source. It is believed that a lower outlet concentration is indeed possible. However, a lower concentration may not be reliably measurable because of unavoidable accumulated error in the source test reference methods and/or the permissible tolerance in continuous emission monitoring system (CEMS) measurements."

"…After careful consideration of the various scrubbing approaches and review of the technical responses and guarantee statements offered by the suppliers of these

technologies, it is the recommendation of the ETS team that non-regenerative wet scrubbing be considered on a purely technical basis as BARCT for the FCCUs, Refinery Boiler/Heaters, and SRU/TGTU processes under study in Module 3A, with an overall BARCT level of 5 ppmv."

5.2.2 Costs

To gather budgetary quotes from vendors on costs and sizing information, ETS/AEC provided the vendors important critical information (e.g. gas flow rate, inlet SOx concentration, flue gas temperature) for a generic scenario. ETS/AEC adjusted the vendors' quotes information to match each refinery specific conditions. ETS/AEC claimed that their approach would ultimately generate cost information within +/- 40% range of the expected actual costs. As ETS/AEC stated that:

"*The methodology and techniques utilized during this project in the sizing of equipment for a new application ..... are exactly those used in any engineering endeavor. First, of course, we obtained a full understanding of how the existing system is configured and operates; those things are known by means of the site visit, underlying industry knowledge, interviews of refinery personnel, refinery-submitted data and drawings, etc. The second step was to conceptualize how the equipment under consideration is to be installed. This step also includes identifying the performance parameters to be achieved. In doing so, we quantified the expected ranges of service and efficiency, so that an appropriate over-design allowance could be applied (the purpose of which is to ensure that the performance objectives will reliably be met even if the underlying process is running at one extreme or another of its normal range). Next, all the pertinent information was communicated to the equipment representative, usually for pricing determination, but sometimes also to confirm the sizing exercise. In all cases, evaluating specific technology options required eventual coordination with the manufacturer or licensor to get verification of critical assumptions and/or conclusions.*

Since the study encompassed multiple facilities and systems with widely different process flows and arrangements, and because, furthermore, there were several optional technologies looked at for each installation, the total collection of potential measures was extraordinarily large. Thus, it was impossible—in the timeframe available—to address every one of the individual cases with a full set of vendor inquiries. Instead, the team made use of generic, but representative budgetary quotations and published cost studies for the various technologies. Each such "reference point" (i.e., package cost and performance data for a prescribed process operating condition) was then used as a basis for extrapolation to other locations and design conditions. For a specific application, the key sizing criterion (typically the process throughput—e.g., SCFM of gas) is determined or calculated from the relevant operational data. Then, to generate the probable capital purchase cost ($PC), that criterion value (V) is divided by the comparable numerical capacity (Cr) from the "reference point" package. Using the baseline capital cost ($BCr) for that "reference point", the desired capital cost is mathematically calculated via a conventional power curve relationship:

$PC = $BCr x (V/Cr) ^ n
where n is an appropriate exponent between .5 and 1.0

This approach is commonly used in engineering studies, and has been widely described in reference books such as Marks Standard Handbook for Mechanical Engineers and Perry's Chemical Engineers' Handbook. For our studies, the exponent value, n, was normally assigned a value between 0.6 and 0.7, a range that historically has given good estimates for industrial equipment packages.

In so far as the pertinent sizing criteria were concerned, they were compared to nameplate duties for other, similar units for rough verification purposes. Also, input was sought directly from the manufacturers' representatives, as well as public domain literature and published case studies. In the end, the checking procedures employed by the team members helped us to achieve rough, budgetary purchase costs, knowing that any loss in precision in arriving at those costs would be adequately covered by the very broad overall cost ranges (i.e., +/- 40%) expected for the ultimate results."

Regarding estimates for capital costs, ETS/AEC indicated that:

"*AEC worked as closely as possible with the technology suppliers to gather the direct capital cost estimates for this project. (Where available, too, we compiled net installation costs which had been reported by the manufacturers for "reference points", as described in the preceding section. Those "turn-key" costs were used to check the built-up cost estimates assembled by the project team.) Also, we took advantage of our relevant and extensive corporate knowledge base for similar projects. Every valid method was employed to give the best possible output. (In addition, as mentioned in Section A, above, indirect costs for impacts to utilities and infrastructure were estimated and included.)....*

...Owing to the fact that all the cost estimating tasks were conducted in a very preliminary, conceptual fashion, the overall accuracy of the capital cost determinations is no better than +/- 40%. Considerable engineering study would be required to refine the cost estimates and arrive at narrower accuracy ranges."

Regarding annual operating costs, ETS/AEC explained their approach as follows:

"*Unit rates for the principal cost-incurring utilities were requested from the refineries at the outset of the study. In several cases, explicit values were provided in response to the requests; those values were used as reported to us. For all other instances, generic estimates—obtained from other work by AEC at various U.S. refineries—of the unit rates were utilized...*

…The majority of the suggested control technologies or upgrades include the need not only for additional utilities but also raw materials, such as a scrubbing agent or catalyst. Costs for those items were estimated through consultation with a technology supplier or in-house expert. The appropriate third party resource or corporate engineer(s) based the quantity determinations on the specific characteristics of the technology under study. Once a quantity was determined, a local material cost was obtained for use in the calculations…

…Early in the project, AEC had requested from the refineries the average hourly costs for various labor classifications on typical capital projects. When plant-specific values were not provided, we used generic labor rates that are intended to reflect average fully-burdened costs for jobs inside a South Coast refinery

…The computation of chemical (such as NaOH) quantities used by the various measures, and the amounts of waste products generated by them, were very straightforward. In almost all instances, the manufacturers' literature provided guidelines and/or explicit case studies. That information was used via direct "scale-up" multipliers, based on the key parameter(s) involved..."

ETS/AEC applied their engineering knowledge and judgment to reconcile all vendors' costs to the same basis. Regarding the capital costs, ETS Inc. included the following categories in estimating the costs:

"*Demolition and decommissioning*
Civil/concrete
Structure
Equipment
Piping and Mechanical
Electrical and controls
Miscellaneous indirect costs include:
Contractor overhead, typically 8 % of direct field labor (DFL)
Contractor field supervision, typically 12 % of DFL
Mobilization/demobilization, typically 10 % of DFL
Overtime/productivity factor, typically 12 % of DFL
Freight and shipping, typically 8 %, of materials
Sales tax, typically 7 % of materials
Commissioning and operating spares, typically 5 % of materials
Startup/initial fill material, typically 2 % of materials
On-site training/startup assistance, depends on project
Front-end engineering design, depends on project size
Project management, depends on project size

Design development allowance, 10% of total
Contingency, 25-40% applied against the bottom-line capital cost estimate"

ETS, Inc. included the following categories in estimating the annual operating and maintenance costs:

"*Annual Maintenance Costs*
Periodic Maintenance Costs
Additional Operating Costs
Utilities:
Natural Gas
Electricity
Water
Wastewater
Cooling Water
Compressed Air
Solid Waste Disposal"

A list of assumptions used by ETS/AEC for cost estimation was summarized in Table 4-1 of the ETS/AEC's final report for Module 3-A.

5.3 Emission Reductions & Cost Effectiveness

A summary of emission reductions, cost estimates, and cost effectiveness assuming 90% control (5ppmv), 25-year life for a wet gas scrubber, and 4% interest rate estimated by ETS/AEC is shown below:

SOx Reductions (tons/day) for FCCUs by Refinery (5 ppmv)

Refinery:	*1*	*2*	*3*	*4*	*5*	*6*	*Total*
Equipment FCCU	*0.58*	*0.19*	*0.28*	*0.20*	*0.87*	*0.94*	*3.07*

Cost Effectiveness ($/ton of SOx) for FCCUs by Refinery (5 ppmv)

Refinery:	*1*	*2*	*3*	*4*	*5*	*6*	*Avg. for All*
Equipment FCCU	*$14.4k*	*$76.2k*	*$36.6k*	*$42.1k*	*$11.6k*	*$12.8k*	*$24.6k*

In addition, ETS/AEC provided an estimate for the following emission reductions and cost effectiveness associated with the most stringent, but feasible level of control (98%) in Table A-3 and A-4 of their final report:

SOx Reductions (tons/day) for FCCUs by Refinery (98%)

Refinery:	*1*	*2*	*3*	*4*	*5*	*6*	*Total*
Equipment FCCU	*0.60*	*0.30*	*0.35*	*0.24*	*0.94*	*1.01*	*3.45*

Cost Effectiveness ($/ton of SOx) for FCCUs by Refinery (98%)

Refinery:	*1*	*2*	*3*	*4*	*5*	*6*	*Avg. for All*
Equipment FCCU	*$14.0k*	*$48.0k*	*$29.5k*	*$35.2k*	*$10.7k*	*$11.9k*	*$21.5k*

Regarding the average cost effectiveness, ETS/AEC indicated that:

> "*One refinery has already installed a wet gas scrubber on its FCCU regenerator…. the cost effectiveness ratio for this refinery was not included in any of the average cost effectiveness calculations.*"

14.4 Plot Space

ETS/AEC conducted an analysis for plot space at the refineries to accommodate the wet gas scrubber and its associated equipment (e.g. additional fan, waste water handling system, plume mitigation system), presented their analysis in the confidential portion of the report, and concluded that space was available at all five refineries for additional control:

> "*Wet gas scrubber equipment footprints and space requirements for the FCCUs and the SRU/TGTUs are shown in the confidential appendices for each refinery where measures have been selected. These specifications have been compared with the plot plans provided by the respective refineries, and where applicable, are presented in the costing workbooks*."

5.5 Project Timing

AEC/ETS estimated that startup of the control equipment could occur within 3 calendar years after the project begins:

> *"ETS believes that it is conceivable that ….emission reduction ….. can be achieved from the refineries implementing the commercially available measures described in this project within a construction time frame of approximately 3 calendar years or less following the completion of study designs and engineering."*

Chapter 6 – ETS/AEC's Analysis for SRU/Tail Gas Systems

6.1 Recommended BARCT Levels

Through the data provided to ETS/AEC by the refineries, there was one refinery regularly vented the flue gas to the atmosphere, and the remaining refineries treated or incinerated the tail gas from their SRU/TG systems. Because of this distinction in the refinery's operations, ETS divided their recommendations for SRU/TG into two areas: the first recommendation is for the uncombusted tail gas:

> *"For uncombusted tail gas, the limits of Subpart J (Ja), namely 10 ppm H2S and 300 ppm reduced sulfur species (total of H2S, COS, and CS2), should continue to apply. Refineries should be encouraged to reduce emissions so as to be able to vent rather than having to combust SRU / TGTU tail gas."*

The ETS's second recommendation for the combusted tail gas is as follows:

> *"For combusted / incinerated tail gas, 5 ppmv SOx @ 0% O2 should be defined as the overall BARCT level for all refineries, based on scrubbed flue gas, but permissible to achieve by whatever means possible. A level of 10 ppmv would allow a greater number of refineries to meet the overall BARCT level by the gas treatment methods of Module 2 without having to install a wet gas scrubber (Module 3A)"*

6.2 Control Technology & Costs

To arrive at the conclusions presented above, ETS Inc. and AEC Engineering Inc. conducted an independent literature research on wet and dry scrubbing technologies including non-regenerative and regenerative for Module 3A; and numerous technologies for Module 2 including expansion of Claus process, sub-dewpoint process, selective oxidation catalyst, TG-10 additives, and additional sulfur capture at the sulfur pit. After the literature search, ETS/AEC contacted vendors for feasibility and cost information.

The five technologies and vendors that ETS/AEC concentrated for further analysis (e.g. costs) for SRU/TG systems were:

- Lurgi (sub-dewpoint HydroSulfreen process)
- EmeraChem Power LLC (selective oxidation catalyst)
- Gas Spec (TG-10 additive)
- Cansolv & BELCO (regenerative wet gas scrubber)
- Tri-Mer (non-regenerative wet gas scrubber)

For Lurgi Hydrosulfreen process, ETS/AEC stated that:

"*The HydroSulfreen process is an improvement on Lurgi's Sulfreen process. It adds a hydrolysis step to this process. There are over 45 Sulfreen processes in operation worldwide. In August of 2000, there were four HydroSulfreen plants licensed.*

The HydroSulfreen® process is typically used for treatment of tail gas from refineries. The effluent from an existing Claus plant is first treated in a hydrolysis reactor, where species such as SOx, CS_2, and COS are hydrolyzed to form H_2S. The effluent from the hydrolysis reactor is typically sent to the Sulfreen® process, which operates at temperatures lower than the dew point of sulfur. Operating the converters at these temperatures increases the conversion to elemental sulfur, thereby increasing the overall efficiency of the unit."

ETS/AEC estimated that the costs of conversion from normal Claus unit to HydroSulfreen were high and the cost effectiveness was in a range of $37,000 - $600,000 per ton of SOx reduced. This technology was not recommended by ETS/AEC at the final selection stage.

Regarding EmeraChem Power LLC's catalyst oxidation process, ETS/AEC stated that:

"*EmeraChem ESx catalyst can capture multiple sulfur species, including SO_2, SO_3, and H_2S. In addition to sulfur capture, the catalyst will destroy CO, VOC, and Particulate Matter (PM_{10}). These units are typically used to treat combustion exhaust gases from incinerators, heaters, turbines and boilers.*

EmeraChem does not appear to have its ESx technology installed as a stand-alone SOx control technology at any refinery……EmeraChem has provided assurances that their technology works to reduce pollution in exhaust gases across many types of unit operations, including refinery processes, gas turbines, boilers, process heaters, and diesel engines."

EmeraChem platinum catalysts can be used to treat tail gas that has or has not been incinerated. The tail gas that has not been incinerated must be heated to the temperatures where the ESx catalyst is active (minimum at 600^{o}F). ETS/AEC estimated that the cost effectiveness for Emerachem catalysts was in a range of $10,000 - $60,000 per ton of SOx reduced.

EmeraChem provided ETS/AEC a letter specifically stated the following performance guarantee:

"*EMx System Emission Concentration:*

Parameter		*Percent Removal*
NOx at Catalyst Outlet (EMx)	*< 2.0 ppmvd*	*92% guaranteed*
CO at Catalyst Outlet	*< 3.0 ppmvd*	*98% guaranteed*
SO2 at System Outlet	*3.85 ppmvd*	*98% guaranteed*
H2S at System Outlet	*0 ppmvd*	*98% guaranteed*

The catalyst warranty period is 5 years. Expected life of the catalysts is 10-15 years."

Regarding TG-10 additives, ETS/AEC stated that:

"*TG-10 can be added to tail gas treating amine systems. TG-10 is a proprietary amine mixture offered by INEOS Gas/Spec. It has been designed to be highly selective for H_2S. INEOS Gas/Spec has published data, comparing the capabilities of TG-10 and MDEA in actual tail gas plants…….For many reasons similar to those in fuel gas treating, the effectiveness ratios for TG-10 can appear to be quite attractive.*"

ETS/AEC estimated that the cost effectiveness for TG-10 additives was between $2,000 and $3,000 per ton of SOx reduced, however the potential of emission reductions was quite small 0.04 tpd - 0.07 tpd, and most of the refineries already used TG-10 in some fashion. Therefore, this measure was not recommended by ETS/AEC at the final selection stage.

Regarding Cansolv and BELCO regenerative wet gas scrubbing technology, ETS/AEC stated that:

"*Regenerative wet gas scrubbing was studied as a potential measure to reduce emissions from the SRU/TGTUs. Two manufacturers were considered for RWGS: BELCO's Labsorb and Cansolv. Cansolv was chosen, in particular for SRU/TGTU stack treatment, because they had more experience with SRU/TGTU incinerator stack gas scrubbing."*

Regarding Tri-Mer non-regenerative wet gas scrubber, ETS/AEC stated that:

"*Non-regenerative wet gas scrubbing of the sulfur plant tail gas was also studied (Tri-Mer's Cloud Chamber Technology). These units are typically less expensive to install than a regenerative system, but they consume large volumes of water and produce waste water. However, they are very effective at reducing SOx emissions."*

Tri-Mer provided ETS/AEC a guaranteed letter specifically stated the inlet parameters (gas volume and temperature) provided to Tri-Mer and the following statement of guarantee:

"With regard to the specifications provided to Tri-Mer by ETS Inc., based on the design conditions, Tri-Mer will guarantee ≤330 ppmv inlet SO2 to ≤1.0 ppmv outlet for SO2."

ETS/AEC indicated with confidence:

"Guaranteed outlet SOx concentrations of 5 ppmv after scrubbing can be achieved, in the worst case at 95% SOx removal efficiency; in most cases, the required scrubbing

efficiency for a 5-ppmv SOx outlet is considerably less. BELCO has demonstrated experience in scrubbing the SOx from incinerated sulfur plant tail gas as well.

Besides wet scrubbing technology, ETS/AEC also indicated that flue gas treating techniques (e.g. EmeraChem) can possibly bring down the SOx to a level of 5 ppmv – 10 ppmv:

"…….it has been found possible in this study also to reduce SRU ppm SOx to the atmosphere by the gas treating techniques investigated. Those results are all below 10 ppmv, and in many cases below 5 ppmv"

To gather budgetary quotes from vendors on costs and sizing information, ETS/AEC provided the vendors important critical information (e.g. gas flow rate, inlet SOx concentration, flue gas temperature) for a generic scenario. ETS/AEC adjusted the vendors' quotes information to match each refinery specific conditions. ETS/AEC claimed that their approach would ultimately generate cost information within +/- 40% range of the expected actual costs. Please refer to section 14.2 for further information on ETS/AEC's approach.

6.3 Emission Reductions & Cost Effectiveness

For three refineries (Refinery #1, #3 and #4), ETS/AEC recommended to implement the control technologies described in Module 2 report. For these three refineries, ETS/AEC estimated the following emission reductions (estimated from the 2005 actual emissions) and cost effectiveness:

SOx Reductions (tons/day) for SRU/TG by Refinery

Refinery:	*1*	*3*	*4*	*Total*
Equipment SRU/TG	*0.13*	*0.15*	*0.04*	*0.31*

Cost Effectiveness ($/ton of SOx) for SRU/TG by Refinery

Refinery:	*1*	*3*	*4*	*Avg. for All*
Equipment SRU/TG	*$22.4k*	*$12.9k*	*$54.7k*	*$21.9k*

For the remaining three refineries (Refinery #2, #5 and #6), ETS/AEC recommended to implement wet gas scrubbers described in Module 3A report. For these three refineries, ETS/AEC's recommendations for the emission reductions (estimated from the 2005 actual emissions) and cost effectiveness are as follows:

SOx Reductions (tons/day) for SRU/TG by Refinery

Refinery:	*2*	*5*	*6*	*Total*
Equipment SRU/TG	*0.17*	*0.06*	*0.29*	*0.52*

Cost Effectiveness ($/ton of SOx) for SRU/TG by Refinery

Refinery:	*2*	*5*	*6*	*Avg. for All*
Equipment SRU/TG	*$39.0k*	*$123.2k*	*$36.3k*	*$46.8k*

The overall estimates for emission reductions (estimated from the 2005 actual emission levels) and average cost effectiveness for six SRU/TG systems are as follows:

SOx Reductions (tons/day) for SRU/TG by Refinery

Refinery:	*1*	*2*	*3*	*4*	*5*	*6*	*Total*
Equipment SRU/TG	*0.13*	*0.17*	*0.15*	*0.04*	*0.06*	*0.29*	*0.83*

Cost Effectiveness ($/ton of SOx) for SRU/TG by Refinery

Refinery:	*1*	*2*	*3*	*4*	*5*	*6*	*Avg. for All*
Equipment SRU/TG	*$22.4k*	*$39.0k*	*$12.9k*	*$54.7k*	*$123k*	*$36.3k*	*$37.4k*

6.4 Plot Space

With plot space information estimated directly by the vendors, ETS/AEC conducted an analysis for plot space at the refineries to accommodate the wet gas scrubber and its associated equipment (e.g. additional fan, waste water handling system, plume mitigation system). Their analysis was included in the confidential portion of the reports. ETS/AEC concluded that space was available at all refineries for this type of control:

> "*Wet gas scrubber equipment footprints and space requirements for the FCCUs and the SRU/TGTUs are shown in the confidential appendices for each refinery where measures have been selected. These specifications have been compared with the plot plans provided by the respective refineries, and where applicable, are presented in the costing workbooks*."

6.5 Project Timing

AEC/ETS estimated that startup of the control equipment could occur within 3 calendar years after the project begins:

> *"ETS believes that it is conceivable that ….emission reduction ….. can be achieved from the refineries implementing the commercially available measures described in this project within a construction time frame of approximately 3 calendar years or less following the completion of study designs and engineering."*

Chapter 7 – ETS/AEC's Analysis for Refinery Boilers/Heaters

7.1 Recommended BARCT Levels

For refinery boilers/heaters, ETS/AEC studied the technologies for pre-treatment of fuel gas prior to combustion in Module 2, and the technologies for post-treatment of flue gas after combustion in Module 3A.

Regarding the pre-treatment of fuel gas prior to combustion, ETS/AEC stated that:

> *"the present value of 40 ppmv total sulfur in refinery fuel gas be retained as the Best Available Retrofit Control Technology (BARCT) level",* and

Regarding the post-treatment of flue gas from boilers/heaters after combustion, ETS/AEC stated that:

> "*For the heaters and boilers, post-combustion emission control is often expensive due to the combination of the relatively low concentrations of SOx in flue gases and the division of the fuel gas stream among a number of heaters and boilers. Pre-combustion control, studied in Module 2, has been found to be more suitable for the majority of situations."*

ETS/AEC's conclusions on emission reductions (estimated from the 2005 actual emissions) and cost effectiveness for pre-treatment of fuel gas for boilers/heaters are:

> "*The measures recommended by AEC are the measures that gave the largest expected SOx reduction potential while also featuring the most reasonable cost effectiveness. The total overall emissions reduction is approximately 0.89 tons per day SOx.*
>
> *The overall cost effectiveness for refinery fuel gas, averaged over the commercially available measures that AEC recommended for the refineries in this study, is estimated to be $16,823 per ton SOx reduced. The study team estimates that any given cost effectiveness number has an expected range someplace within the band of -10% to +50%.*"

Since ETS/AEC does not recommend a new BARCT level for boilers/heaters, staff will not describe this portion of ETS/AEC analysis in details, however a summary is included in Appendix II-A of this report.

References – Part 2

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AQMD, 2008-4. *South Coast Air Quality Management District – Contract# C09104 – Contract with Nexidea, Inc. – Evaluation of Emission Control Technologies for Further Reducing Sulfur Oxides Emissions from Stationary Sources in the SCAQMD's RECLAIM Program.* September 5, 2008.

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ETS, 2008-4. *SOx RECLAIM Study - Final Report – Module 3-E: Wet/Dry Scrubbing Technology for Cement Kilns and Coal-Fired Fluidized Bed Boiler.* ETS, Inc. December 16, 2008.

TESORO, 2009.

Appendix A – Summary of Consultants' Recommended Control Technology & Costs

Type	Fluid Catalytic Cracking Units						
	Refinery 1	Refinery 2	Refinery 3	Refinery 4	Refinery 5	Refinery 6	Total Costs for FCCUs
Control Technology	WGS						
Number of Vendors Provided Quotes & Vendor's Names	3 Vendors: BELCO, Hamon, MECS	3 Vendors: BELCO, Hamon, MECS	4 Vendors: Belco, Hamon, MECS, Alstom	3 Vendors: BELCO, Hamon, MECS		3 Vendors: BELCO, Hamon, MECS	
Vendor Guarantee/Quote #1	BELCO <5ppmv	BELCO <5ppmv	BELCO <5ppmv	BELCO <5ppmv		BELCO <5ppmv	
Vendor Guarantee/Quote #2	MECS 5ppmv	MECS 5ppmv	MECS 5ppmv	MECS 5ppmv		MECS 5ppmv	
Inlet Parameters Provided for Costs & Sizing	Flow: 93 Kscfm; Temp:400-600F SOx: 54.8 ppmv	Flow: 225 Kscfm Temp: 560 ºF SOx: 11.5 ppmv	Flow: 145 Kscfm Temp: 539 ºF SOx: 20.7 ppmv	Flow:101 Kscfm Temp: 500 ºF SOx: 20.6 ppmv	Flow: 65 Kscfm Temp: 539 ºF SOx: 21.8 ppmv	Flow:158 Kscfm Temp: 545 ºF SOt: 54.7 ppmv	
Vendor for costs/sizing (note 1)	BELCO	BELCO	BELCO	BELCO	BELCO	BELCO	
Plot Space Estimated	35' L x 45' W	40' L x 50' W	40' L x 50' W	35' L x 45' W	30' L x 40' W	40' L x 50' W	
Equipment Cost ($ million)	21	39	29	24		34	**147**
Capital Cost ($ million)	60	101	78	66		90	**395**
Present Worth Value ($ million)	76	133	95	78		110	**493**

Appendix A (Continued)

Type	Sulfur Recovery Units/Tail Gas						
	Refinery 1	Refinery 2	Refinery 3	Refinery 4	Refinery 5	Refinery 6	Total Costs for SRU/TG
Control Technology	Emerachem	WGS	Emerachem	Emerachem	WGS	WGS	
Number of Vendors Provided Quotes & Vendor's Names	2 Vendors: Lurgi, Emerachem	3 Vendors: Lurgi, Cansolv, Tri-Mer	4 Vendors: Lurgi, Cansolv, Emerachem, Tri-Mer	2 Vendors: Lurgi, Emerachem	3 Vendors: Lurgi, Cansolv, Tri-Mer	4 Vendors: Lurgi, Cansolv, Gas Spec, Tri-Mer	
Vendor Guarantee/Quote #1	Emerachem: 3.85 ppmvd (95%)		Emerachem: 3.85 ppmvd (95%)	Emerachem: 3.85 ppmvd (95%)			
Vendor Guarantee/Quote #2		Tri-Mer: ≤ 1.0 ppmv	Tri-Mer: ≤ 1.0 ppmv		Tri-Mer: ≤ 1.0 ppmv	Tri-Mer: ≤ 1.0 ppmv	
Inlet Parameters Provided for Costs & Sizing	Flow: 109.8 Klb/hr Temp: 600-700 ºF SOx: xx ppmvd	Flow:180.6 Kacfm Temp: 1000 ºF SOx: xx ppmv	Flow: 109.8 Klb/hr Temp: 600-700 ºF SOx: xx ppmvd	Flow: 109.8 Klb/hr Temp: 600-700 ºF SOx: xx ppmvd	Flow: 48.5 Kacfm Temp: 1000 ºF SOx: xx ppmv	Flow: 117.9Kacfm Temp: 1000 ºF SOx: xx ppmv	
Vendor for costs/sizing (note 1)	Emerachem	Tri-Mer	Emerachem	Emerachem	Tri-Mer	Tri-Mer	
Plot Space Estimated	25' L x 100' W	88.5' L x 67' W	25' L x 100' W	25' L x 100' W	29.5' L x 67' W (2 units required)	59' L x 67' W (2 units required)	
Equipment Cost ($ million)	4	14	5	4	15	20	**61**
Capital Cost ($ million)	13	38	13	11	39	51	**164**
Present Worth Value ($ million)	26	60	17	19	64	97	**282**

Appendix A (Continued)

Type	Refinery Boilers/Heaters		
	Refinery 1	**Refinery 2**	**Refinery 3**
Control Technology	FGT	FGT	FGT
Number of Vendors Provided Quotes & Vendor's Names	2 Vendors: Shell Sulfinol, Gas Spec	2 Vendors: Shell Sulfinol, UOP	1 Vendor: Shell Sulfinol
Vendor Guarantee/Quote #1	Sulfinol: 59% total SOx removal	Sulfinol: 0.2% total SOx removal	Sulfinol removal of non-H2S sulfur: 85%, 56%Total SOx reduction
Vendor Guarantee/Quote #2		UOP Merox removal of non-H2S ethyl- and methyl-mercaptans: 93% ethyl-mercaptan, 80% methly-mercaptan; 91%Total SOx reduction	
Inlet Parameters Provided for Costs & Sizing	Flow: 821,000 scfh, Temp: not available, SOx inlet: 42.48 ppmv	Flow: 3 MMscfd, Temp: not available, SOx inlet (total mercaptans): 300 ppmv	Flow: 9.6 MMscfd for H2S absorber #5 and 20.2 MMscfd for H2S absorber #6, Temp: 100 ºF, SOx inlet (combined): 5 ppmv for H2S and 20 ppmv for non-H2S species
Vendor for costs/sizing (note 1)	Gas Spec	UOP	Shell
Plot Space Estimated	Small plot space required	UOP: 40' L x 150' W	Small plot space required
Equipment Cost ($ million)	0.2	5	5
Capital Cost ($ million)	0.5	16	12
Present Worth Value ($ million)	1.4	20	15

Appendix A (Continued)

Type	Refinery Boilers/Heaters			
	Refinery 4	Refinery 5	Refinery 6	Total Costs for B/H
Control Technology	FGT	FGT	FGT	
Number of Vendors Provided Quotes & Vendor's Names	2 Vendors: Shell Sulfinol, UOP	2 Vendors: Shell Sulfinol, UOP	2 Vendors: Shell, UOP	
Vendor Guarantee/Quote #1	Sulfinol: 97% or 5 ppmv, 54%Total SOx reduction	Sulfinol removal for Wilmington: 85% removal for non-H2S sulfur in fuel gas , 68.4%Total SOx reduction	Sulfinol removal: 88%Mercaptans, 31%COS, 11%Total SOx reduction	
Vendor Guarantee/Quote #2	UOP Merox: 47.6% total SOx reduction	UOP Merox removal of Carson non-H2S ethyl- and methyl-mercaptans (191.4 ppmv of total): 93% ethyl-mercaptan, 80% methly-mercaptan; 90%Total SOx reduction	UOP Merox: 7.8% total SOx reduction	
Inlet Parameters Provided for Costs & Sizing	Flow: 19,059 MMscf/yr, Temp: 100 ºF, SOx inlet: 146 ppmv	Location A--> Flow:14 MMscfd, Temp:100 ºF, SOx: 50 ppmv. Location B--> Flow:20 MMscfd, Temp:not available, SOx: 200 ppmv	Flow: 42.4 MMscfd, Temp: 100 ºF, SOx: not available	
Vendor for costs/sizing (note 1)	Shell	Shell + UOP	Shell	
Plot Space Estimated	Small plot space required	Shell:small plot space required for Location A. UOP: 40' Lx150' W for Location B	Small plot space required	
Equipment Cost ($ million)	5	21	9	**44**
Capital Cost ($ million)	13	53	23	**116**
Present Worth Value ($ million)	16	64	21	**136**

Appendix A (Continued)

Type	Coke Calciner		Sulfuric Acid Plant			
	Fac C	Total Costs for Calciner	Fac A	Fac A	Fac B	Total Costs for SAP
Control Technology	WGS		Equip Modification	WGS	WGS	
Number of Vendors Provided Quotes & Vendor's Names	4 Vendors: BELCO, Tri-Mer, MECS, Cansolv		4 Vendors: BELCO, Tri-Mer, MECS, Cansolv	4 Vendors: BELCO, Tri-Mer, MECS, Cansolv	4 Vendors: BELCO, Tri-Mer, MECS, Cansolv	
Vendor Guarantee/Quote #1	MECS: <10 ppmv, expected <5 ppmv		MECS: <10 ppmv, expected <5 ppmv	MECS: <10 ppmv, expected <5 ppmv	MECS: <10 ppmv, expected <5 ppmv	
Vendor Guarantee/Quote #2	***BELCO: <10 ppmv, <5ppmv is achievable with existing scrubbers***		BELCO: <10 ppmv, <5ppmv is achievable with existing scrubbers	***BELCO: <10 ppmv, <5ppmv is achievable with existing scrubbers***	***BELCO: <10 ppmv, <5ppmv is achievable with existing scrubbers***	
Inlet Parameters Provided for Costs & Sizing	Flow: 205,000 acfm Temp: 405 oF SOx inlet: 50 ppmv		Flow: 27,383 acfm Temp: 86 oF SOx inlet: 20 ppmv	Flow: 27,383 acfm Temp: 86 oF SOx inlet: 20 ppmv	Flow: 70,000 acfm Temp: 134 oF SOx inlet: 145 ppmv	
Vendor for costs/sizing (note 1)	BELCO (Note 2)		Cansolv (Note 3)	BELCO (Note 4)	BELCO (Note 4)	
Plot Space Estimated	30' L x 40' W		No plot space needed	15' L x 20' W	20' L x 25' W	
Equipment Cost ($ million)	8.2	**8.2**	0.5	2.3	4.9	**7.2**
Capital Cost ($ million)	13.3	**13.3**	0.5	3.1	6.6	**9.7**
Present Worth Value ($ million)	25.3	**25.3**	1.7	8.0	17.3	**25.3**

Appendix A (Continued)

Type	Glass Plant		Cement Plant			
		Total Costs for Glass			Total Costs for Cement	TOTAL COSTS
Control Technology	WGS		Limestone Absorber	DGS or Limestone Absorber		
Number of Vendors Provided Quotes & Vendor's Names	4 Vendors: Tri-Mer (NWGS), MECS (NWGS), McGill (NWGS), Dustex (DGS), PPC (Process Mod)		3 Vendors: MECS (NWGS), BoldEco (Limestone Absorber), BoldEco (Hybrid DGS + Baghouse), Dustex (Hybrid DGS + Baghouse)	4 Vendors: MECS (NWGS), BoldEco (Limestone Absorber), BoldEco (Hybrid DGS+Baghouse), Dustex (Hybrid DGS+Baghouse), Solios		
Vendor Guarantee/Quote #1	MECS: 90% (<10 ppmv)		MECS: 90% (<10 ppmv)	MECS: 90% (<10 ppmv)		
Vendor Guarantee/Quote #2	McGill: 95% (5 ppmv)		***BoldEco Limestone Absorber: 95% (<2 ppmv)***	***BoldEco Limestone Absorber: 95% (5 ppmv)***		
Inlet Parameters Provided for Costs & Sizing	Flow: 30,000 - 60,000 acfm Temp: 650 - 675 oF SOx inlet: 100 ppmv		Flow: 170,000 - 203,000 acfm Temp: 275 oF SOx inlet: 25 ppmv	Flow: 60,000 acfm Temp: 275 oF SOx inlet: 100 ppmv		
Vendor for costs/sizing (note 1)	Tri-Mer		BoldEco	BoldEco		
Plot Space Estimated	32' L x 10' W		50' L x 40' W	Solios:10' Diax71' H Boldeco:35' Diax35' H		
Equipment Cost ($ million)	1.1	**1.1**	16.6	4.7	**21.3**	**290**
Capital Cost ($ million)	1.9	**1.9**	19.6	6.1	**25.7**	**726**
Present Worth Value ($ million)	8.8	**8.8**	43.7	12.6	**56.3**	**1,027**

Appendix B – Consultants' Biographies

This section includes the biographies of the consultants. Staff will add more in a near future.

MARSHALL A. (BUD) BELL

PRESIDENT CARSON INDUSTRIAL STEAM COMPANY
1639 THIRD STREET
MANHATTAN BEACH, CA 90266
310-376-4144 HOME
310-376-7194 FAX
310-951-8972 CELL
mbbells@earthlink.net

EDUCATION

1966 BS CHEMICAL ENGINEERING-CLEMSON UNIVERSITY

1968 MS CHEMICAL ENGINEERING- GEORGIA TECH

1994 EXECUTIVE MBA-CLAREMONT GRADUATE UNIVERSITY

Mr. Bell has a very strong background in refining and power technologies, and in plant operations and management. He has 41 years of refining and power experience, covering activities ranging from research and development to refinery operations and maintenance work; and has held the position of General Manager of Refining for a prototype heavy crude refinery. During his tenure as General Manager, the refinery achieved record levels of profitability, safety and environmental compliance. Mr. Bell provided much of the strategic planning for Conoco/Phillip's Wilmington Refinery, and helped develop and bring to the market several new refining technologies. He is currently President of Carson Industrial Steam Company, and is developing a large residual oil-fired cogeneration complex in southern California. Mr. Bell recently completed a three-year assignment as Owner's Engineer on a world-scale gasification project in North America.

EXPERIENCE

Mr. Bell's most recent job in refining was as Process Manager for Conoco/Phillips Petroleum Company's Wilmington, California refinery. While in this position, Mr. Bell worked as part of a project team assessing the technical and economic merits of building an 8,000 TPD IGCC plant at the refinery. He helped set the design basis, evaluated potential gasification technologies and assisted in developing the plant layout and coke handling systems. He also advised the development team on ways to maximize project returns, and on ways of meeting the very stringent air emission standards. During his tenure at this refinery, Mr. Bell helped develop, design and build the most sophisticated flue gas SO2 removal system in the refining industry. He also developed a novel approach to cracking jet fuel at low pressure to produce California-grade gasoline and isobutane.

Mr. Bell was previously Technology Manager for Petroleum Refining for Black & Veatch Pritchard (BVPI) in Overland Park, Kansas. In this role, he was responsible for all aspects of petroleum refining and petrochemical technologies. He assisted the Power Division in assessing the viability of several

direct-fired and IGCC power projects, and spent considerable time with the Power Group doing business development, both in the U.S. and overseas. Mr. Bell was involved in the training of engineers from major oil companies in the basics of power production using various technologies.

After leaving Conoco/Phillips, Mr. Bell began development of a 600 MWeq petroleum coke-fired cogeneration project in the Los Angeles basin. The project will burn petroleum coke in an ultra-supercritical steam boiler to generate power and process steam, while meeting the most stringent air quality standards in the world. The project will have the capability of removing 90 per cent of the CO2 in the boiler flue gas at less than $50 per tonne cost.

Mr. Bell also recently completed a three-year assignment as Owner's Engineer on a world-scale gasification project for a fertilizer plant in North America. The plant will gasify up to 15,000 TPD of coal or pet coke to make syngas for an IGCC unit, plus hydrogen for an ammonia/urea complex. Mr. Bell created the physical and economic model of the facility, as well as a pro forma model for various feedstocks and product offtakes. He provided novel ways of reducing capital and operating costs for the project, while increasing plant throughput.

Prior to joining BVPI, Mr. Bell was Product Line Manager for Refining for Brown and Root Braun in Alhambra, California. In this position, he was responsible for the basic designs of refining and petrochemical units, and the proper execution of process designs on refining projects. Mr. Bell's previous assignment with Brown and Root Braun was as Chief Process Engineer, where he supervised approximately 75 Process Engineers on numerous refining, petrochemical, ammonia and ethylene studies and projects.

Prior to joining Brown and Root, Mr. Bell was General Manager of Refining for Ultramar Refining Company's 75,000 BPD heavy crude refinery in Wilmington, California. Under his guidance, the refinery established the best refinery environmental record in the Los Angeles basin, and one of the best safety records in the refining industry. Mr. Bell also held Operations Manager and Technical Manager position with Champlin Petroleum Company, the predecessor to Ultramar at the Wilmington plant.

Prior to joining Champlin, Mr. Bell held a number of engineering and management positions with Chevron in their Richmond and El Segundo, California facilities, and was involved with two major expansions of both refineries.

Mr. Bell's first industrial job was as a Technical Services and Operations Engineer with Shell Chemical Company in Martinez, California.

ROBERT G. KUNZ, PH.D.

504 ALANBROOK COURT
HILLSBOROUGH, NC 27278-7733

RESIDENCE: (919) 245-1560
OFFICE: (919) 245-1569
E-MAIL: KUNZRG@AOL.COM

OBJECTIVE

Continuing participation in trend-setting environmental control activities utilizing proven strengths in planning, organization, analysis, and formulation of strategy to reduce costs, develop technology, and prevent downtime.

BACKGROUND SUMMARY

Professional with over 40 years experience and a consistent track record of completing projects on spec, on time, and on budget. Areas of accomplishments include leadership, negotiation skills, problem solving, and the ability to correlate diverse facts. Excellent communicator with the talent to instruct, train, and mentor others.

Earned both Ph.D. and M.B.A. degrees. Published technical author including book, journal articles, presentations, and one patent. Experienced team leader. Skills range from management to research and development, with awards received in both areas.

Expertise in petroleum refining and chemical / gas plants:

- Air emission control and testing
- Cooling water treatment and corrosion control
- Processes including fluid catalytic cracking
- Wastewater treatment
- Noise generation, control, and measurement
- Environmental permitting

SELECTED ACCOMPLISHMENTS

- Designed, built, and operated a pioneering pilot SO_2 and particulate flue-gas scrubber on fluid catalytic cracker (FCC) regenerator, allowing installation of full-scale scrubber at oil refinery to meet new air quality regulations.

- Led a team to respond quickly to pinpoint source of excessive particulate emissions from electrostatic precipitator treating cat cracker regenerator flue gas and others at California oil refinery.

- Co-authored U.S. patent while serving on elite task force to identify high-cost and missing technology necessary to comply with increasingly stringent environmental regulations in the refining industry.

- Over a 15-yr period, managed engineering group and supervised a team of environmental professionals responsible for negotiating environmental approvals needed for construction of new plants / projects. No capital project was ever delayed by failure to obtain permits in a timely manner.

- Served as member of "SWAT" team in discretionary siting of new $20M - $30M industrial gas plants to identify any fatal flaws which might prevent, delay, or jeopardize plant construction or unduly increase the cost.

- Supported sales of hydrogen gas to petroleum industry by providing expertise in environmental regulatory compliance.

- Developed a correlation to predict hydrogen reformer furnace NOx emissions (later extended to ethylene plants). Presented results at industry conferences and in the technical literature.

- Secured permits for and field-tested selective catalytic reduction (SCR) units, a post-combustion NOx control technique, located at / adjacent to several refineries / chemical plants. Published findings in *Journal of the Air & Waste Management Association.*

- Developed procedure for forecasting SCR catalyst life to prevent untimely shutdown of operations, presented at a petroleum industry conference and published in the literature (*Environmental Progress*).

- Presented technical paper on the successful application of SCR to FCC units at multiple locations. This presentation at a petroleum industry conference was co-authored by the SCR system manufacturer and a representative of a U.S refinery.

- Directed multi-location environmental site assessment for $65M acquisition, which was completed on schedule and at less than 50% of budget, allowing timely acquisition of new product line.

- Formulated the "Kunz Equation," which correlates system pH from alkalinity measurements in over 100 cooling towers to allow independent cooling water calculations, used as objective criteria to evaluate vendor proposals. These procedures were published in *Chemical Engineering* magazine and are now taught in college classrooms.

- Received Harrison Prescott Eddy Medal, a prestigious award given annually by the Water Pollution Control Federation, for noteworthy research in wastewater treatment.

PROFESSIONAL EXPERIENCE

RGK ENVIRONMENTAL CONSULTING, L.L.C., **Hillsborough, NC** 2003-Present
Independent Consultant / Author

CORMETECH, INC. ENVIRONMENTAL TECHNOLOGIES**, Durham, NC** 2001-2003
Technical Project Manager

AIR PRODUCTS AND CHEMICALS, INC.**, Allentown, PA** **1974-2000**
Senior Engineer / Manager / Senior Engineering Associate

1968-1974

ESSO RESEARCH AND ENGINEERING COMPANY**, Florham Park, NJ**
Engineer / Project Engineer

MILITARY SERVICE

Lieutenant, United States Air Force **-** Honorably separated from Active Duty and transferred to Retired Reserve.

Received Certificate of Outstanding Achievement from United States 17th Air Force for Communications Cost Reduction and Management Improvement Programs at conclusion of final assignment.

EDUCATION

Ph.D., Chemical Engineering, Rensselaer Polytechnic Institute, Troy, NY
M.B.A.., Executive Program, Temple University, Philadelphia, PA
M.S., Environmental Engineering, Newark College of Engineering, Newark, NJ
B.Ch.E. (with honors), Chemical Engineering, Manhattan College, Bronx, NY

Additional college courses in Psychology, Economics, Accounting, and Marketing

PROFESSIONAL LICENCES

Registered Professional Engineer NJ, PA, AL, TX, LA
Former Certified Community Noise Measurement Specialist, NJ

PROFESSIONAL ASSOCIATIONS

American Institute of Chemical Engineers (AIChE)
American Chemical Society (ACS)
Air & Waste Management Association (A&WMA)
Sigma Xi - The Scientific Research Society

JOHN D. MCKENNA
ETS, Inc.
1401 Municipal Road
Roanoke,VA 24012
540-265-0004 ext293
jmck@etsi-inc.com

EDUCATION

B.S.Ch.E. - Manhattan College - 1961
M.S.Ch.E. - New Jersey Institute of Technology - 1968
M.B.A. - Rider University - 1974
Ph.D. - Walden University - 1991

Doctoral Thesis Topic: A Study of Factors Underlying Growth for Industrial Firms During Their Early Years After Startup

Master Thesis Topic: The Effect of Nitrilotriacetic Acid Upon the Biodegradability of Synthetic Detergents

Certified On-line Trainer - Walden University - 2000

EXPERIENCE

Dr. McKenna has over forty years of technical and business management experience. His background includes a wide range of entrepreneurial activities including the start-up of six environmental firms, one of which he took public. His direct experience includes corporate acquisitions and mergers as well as the invention and commercialization of a flue gas desulphurization (FGD) system. In light of the weak USA market conditions, an office was established in Taiwan and thereby the initial FGD system sales were achieved. In 1996, ETS International Inc. was listed in "The Nations Fastest Growing Technology Companies," having recorded a 5-year revenue growth of 542%. In addition to business and technical management experience, he has also been providing international training for over 30 years. Currently he is a principal of ETS Inc. He has taught online business and environmental courses for the University of Phoenix.

2002-2007 Co-chair Southampton Corp
A private venture capital firm specializing in the environmental industry.

2002-2006 University of Phoenix
Teaching on-line: Management, Marketing, Environmental Ethics, Environmental Science

1999-present Principal ETS Inc.
A provider of environmental training, testing, troubleshooting and testimony.

Chairman/President, ETS International, Inc.
Responsible for general management and long range planning functions.
Program Manager – FGD (LEC) – Full Scale Commercial Systems.

President, ETS, Inc., June 1979 to June 1988.
Responsible for general management and R&D strategic planning/priorities
Program Manager – Pilot Plant FGD (LEC) Semi-Dry System.

President, January l, 1978 to June 1979.
Enviro-Systems & Research, Inc. and Environmental Testing Services, Inc. Director '72-'82.

Vice President, Enviro-Systems & Research.
Directed all application engineering, research and development related to air and water pollution control. Concentration of effort on fabric filters, mechanical collectors and scrubbers for a wide variety of industrial applications. Program manager for million dollar EPA contract.

1968-72 Research Cottrell, Projects Director of Environmental Systems Division.
Supervised the development of RC's wet limestone scrubber for SO_2 removal FGD Pilot Plant and first RC full scale FGD system at Arizona Public Service. Responsible for execution of all projects and laboratory activities for both air and water pollution control, including in-house research and development and industrial and EPA R&D contracts. Supervised technical services which encompassed stack and stream sampling, laboratory analytical determinations, bench analysis, pilot plant fabrication and research. Major R&D efforts, oriented to particulate control and SO_2 removal. Consulting included comprehensive pollution control studies for complete industrial plants.

1967-68 Princeton Chemical Research, Project Leader.
Assigned to execute industrial and government contracts for water and air pollution control, including a NAPCA contract concerned with SO_2 control by catalytic reduction.

1964-67 Eldib Engineering & Research, Inc., Technical Assistant to the President.
Senior Engineer for pollution control problem solving. Investigated industrial wastewater, municipal sewage and industrial air pollution problems.

PROFESSIONAL ACTIVITIES

Air and Waste Management Association Technical Council – AE Chair 2002-2005
Virginia Environmental Business Council – Board of Directors 2000-2004
Air and Waste Management Association Technical Program – Chairman, Specialty Conference Fabric Filter VII 1994
Air and Waste Management Association South Atlantic Section – Board of Directors 1993-1996
Virginia State Advisory Board of Air Pollution – 1992 Vice Chair, 1993 Chair
Advisory Board Member: Wiley Series in Chemical Engineering
Air and Waste Management Association Technical Program – Chairman, Specialty Conference Fabric Filter VI 1992
Technical Program Committee, Scientific Evaluation of the National Acid Precipitation Assessment Program's (NAPAP), Final Report – 1991
Technical Advisory Committee, Ohio Air Quality Development Authority (OAQDA) – 1991
Air and Waste Management Association Emission Control Technology - Division Chairman, 1988-1991
Air and Waste Management Association Technical Program – Chairman, Specialty Conference Fabric Filter V 1990
NSF Consultant for the College Faculty Workshop Program-Grant
EPA Fabric Filter Workshop Lecturer
Scientific Reviewer for EPA Publications
AIChE - Central VA Section – Chairman 1980-84
APCA Lecturer "Particulate Control Device Cost Optimization"
Member of National Association of Environmental Professionals
EPA Course 413 Lecturer, "Fabric Filters and Selection and Cost of Control Equipment." – Presented at Rutgers University, March 18-19, 1987.

LISTINGS AND AWARDS

Distinguished Alumni Medal for Outstanding Achievement - New Jersey Institute of Technology

Manhattan College School of Engineering Centennial Award - Outstanding Engineering Graduate

New York Xi, Chapter of Tau Beta Pi, National Honor Society of Engineering - Eminent Engineer

Fellow -- American Institute of Chemical Engineers
Fellow – Air and Waste Management Association.
Who's Who in Engineering
Who's Who Environmental Registry
Who's Who in Finance and Industry
Who's Who in Technology Today
Who's Who in the World
Who's Who in Science and Engineering
Appointed by VA Governor G. Allen 97-01 World Trade Alliance of the Blue Ridge

COMMUNITY ACTIVITIES

Chairman, Roanoke Catholic School Board, 1984-1986
Roanoke Memorial Hospital Pastoral Care Visitor 1988-1992

TRAINING COURSES DELIVERED

Domestic
Fine Particle Emission Measurement & Control
Toxic Air Pollutants - Prevention and Control
Particulate Emission Control Cost Optimization
Introduction to Air Pollution Control
Introduction to Water Pollution Control
Incineration
Regulatory and Permitting Policies
Particulate Emission Control
Gaseous Emission Control
Baghouse Operation and Maintenance
Project Costs and Financing
Project Management
Public Involvement in Large-Scale Development Projects with Significant Environmental Impacts - AED/USAID for Russian Group
Pollutant Release and Transfer Registers Program - AED/USAID for Ukrainian Group

Foreign
Developing and Implementing Emission Inventories - Saudi Arabia/SABIC
Energy and the Environment - Univ. of La Laguna - Canary Islands
Baghouse Technology - National Taiwan University - Taipei, Taiwan
Air Pollution Technology Workshop - Floreanopolis, Brazil - IIE/USAEP
Methods of Effective Environmental PR - AED/USAID Kazakhstan
National Park Management Capacity Building - AED/USAID Armenia

PROJECT MANAGEMENT EXPERIENCE

John D. McKenna has gained comprehensive technical project management experience over the past 40 years.

In 1967-1968, while at Princeton Chemical Research, Dr. McKenna was the Program Manager of a research project funded by the National Air Pollution Control Agency (NAPCA) to evaluate SO_2 control by catalytic reduction.

While at Research Cottrell, during 1968-1972, he was the Program Manager on an EPA/HEW project which dealt with the design, installation, operation and testing of a wet scrubbing pilot plant for SO_2 control. Managed pilot wet scrubber FGD testing at AEP (Tidd Station) and RC's first full scale SO_2 FGD system at Arizona Public Service (Cholla Station).

During this time, he was also the technical manager of a program funded by Research Cottrell to acquire and develop the RC/Bacho system for SO_2 removal.

In 1973, Dr. McKenna was the Program Manager of EPA 68-02-1093. The purpose of this ETS contract was to conduct a preliminary techno-economic evaluation of the application of fabric filters to coal-fired industrial boilers. The success of this project led to a larger scale demonstration program (EPA 68-02-2148) and a subsequent follow on program (EPA 68-02-3674) both managed by Dr. McKenna.

In 1976, he managed a program to install, operate and test a fabric filter pilot plant on the slipstream of a refuse-fired boiler. The study, EPA R804223, was initiated to determine if a fabric filter was a viable control alternative for this application.

In 1981, Dr. McKenna managed an ETS contract received from EPA Region 5 (EPA task order 116) to execute an air pollution control engineering study. The purpose of this study was to settle a dispute between a federal agency and state government. In this effort, ETS technical personnel successfully executed 12 major tasks both within budget and on schedule.

In 1982, he managed a major ETS environmental engineering contract funded by the Government of Mexico. The program objectives were to design and specify a continuous ambient monitoring network for a developing industrial port and surrounding residential towns on the west coast of Mexico. Not only did the program involve the management of ETS technical personnel, but also the coordination of activities between ETS and several consulting subcontractors, Mexican authorities and various Mexican industrial representatives.

In 1983, ETS received a contract (EPA 68-02-3649) to characterize the performance of fabric filters on three large utility boilers. This program not only demonstrated the field testing and other technical capabilities of ETS, but also Dr. McKenna's program management abilities since two major subcontractors were involved (RTI and TRC) and field teams of over 20 engineers, scientists and technicians were mobilized.

In 1985, he was the ETS manager in a program in which ETS was subcontractor to Malcolm Pirnie. The program was funded by the Power Authority of the State of New York (PASNY). The purpose was to evaluate the techno-economic feasibility of applying fabric filtration and dry scrubbing to control MSW emissions. The major outputs of the study included capital and operating costs estimates and recommended design specifications for the subject control techniques.

Dr. McKenna has managed an ETS program funded by the Ohio Coal Development Office. The program initiated in 1987, evaluates an approach to control acid rain precursors. In this program, he has been responsible for the coordination of all activities between ETS and the prime contractor, Ohio University.

In the 1990s managed EPA Contract No. 68D20029, "Source Testing and Method Evaluation for Stationary Source Emissions."

From 1998 to present via an ETS subcontract from RTI, he has been the manager of the Air Pollution Control Technology (APCT) Business and Marketing Planning activity for EPA's Environmental Technology Verification Program (EPA Coop. Agreement CR826152-01-0). He has also provided the coordination and technical support of the APCT's Baghouse Filtration Products (BFP) Verification Program. This activity includes the preparation of generic protocols and test Q/A plans, review and coordination of recommended modifications to existing generic protocols and test Q/A plans, and continued review and commentary of the BFP verification process.

In 2008-2009 Dr. McKenna managed an ETS contract received from the South Coast Air Quality Management District (SCAQMD) for the evaluation of emission control technologies for further reducing sulfur oxide emissions from stationary sources in the SCAQMD's RECLAIM program. The purpose was to identify the Best Available Retrofit Control Technologies (BARCT) that could be implemented within the 2011-2014 timeframe to help South Coast Basin attain the PM2.5 ambient air quality standards. The industries covered included refineries, cement manufacturing, and container glass manufacturing.

PUBLICATIONS – TEXTBOOKS

McKenna, John D.; Turner, James H.; "Fabric Filter - Baghouses I Theory, Design, and Selection." Published in 1989, ETS, Inc., Roanoke, VA.

Mycock, John C.; McKenna, John D.; Theodore, L.; "Handbook of Air Pollution Control Engineering and Technology" Published by Lewis Publishers, 1995.

McKenna, John D.; Turner, James H.; McKenna, James P., "Fine Particle (2.5 Microns) Emission Regulations, Measurement and Control" Published by John Wiley & Sons Inc., 2008

PUBLICATIONS – TEXTBOOK CHAPTERS

McKenna, John D.; Greiner, Gary P.; "Air Pollution Control Equipment: Operation and Maintenance"; Chapter 8: "Baghouses" - Published in 1982, Prentice Hall, Englewood Cliff, NJ. Ed. Theodore & Buonicore.

Turner, J.H.; McKenna, J.D.; "Control of Particles by Filters", Chapter in Air Pollution Technology Handbook, Seymour Calvert, ed. John Wiley & Sons, Inc., 1984.

Turner, J.H.; Lawless, P.A.; Yamamoto, T.; Coy, D.W.; Greiner, G.P.; McKenna, J.D.; Vatavuk, W.M; "Electrostatic Precipitators," Chapter 3 in Air Pollution Engineering Manual, Van Nostrand Reinhold, New York, NY, Ed. by Buonicore, A.J. and Davis, W.T., 1992.

McKenna, J.D.; Furlong, D.A.; "Fabric Filters," Chapter 3 in Air Pollution Engineering Manual, Van Nostrand Reinhold, New York, NY, Ed. by Buonicore, A.J. and Davis, W.T., 1992.

Mc Kenna, John D. "Air Pollution Management of Stationary Sources" Section 25 in Perry's Chemical Engineer's Handbook, Seventh Edition, Mc Graw-Hill, NYC, 1997

PUBLICATIONS – ARTICLES AND PRESENTATIONS

McKenna, J.D.; Eldib, I.A.; New Markets for Chemicals and Equipment to Combat Pollution. Presented at Farleigh Dickinson University Summer Conference, "The Demands of Pollution Control Legislation", August 22-26, 1966. Cited in C&EN 44, 37 (Sept. 4, 1966).

M.S. Thesis: The Effect of Nitrilotriacetic Acid Upon the Biodegradability of Linear Alkylbenzene Sulfonate (1968).

McKenna, J.D.; Evaluation of a Two-Stage Particulate Scrubber and Gas Absorber Applied to Power Plant Flue Gas. Presented at the NAPCA International Symposium on Wet Limestone Scrubbing, Pensacola, FL, March 16-20, 1970.

McKenna, J.D.; Atkins, R.S.; The RC/BAHCO System for Removal of Sulfur Oxides and Fly Ash from Flue Gases, Power Engineering, May 1972, pp. 50-52. Presented at the

Second International Lime-Lime-Stone-Wet Scrubbing Symposium, New Orleans, LA, Nov. 8-12, 1971.

McKenna, J.D.; The International Competitiveness of the U.S. Air Pollution Control Industry. Presented at the International Air Pollution Control and Noise Abatement Exhibition, Jonkoping, Sweden, September 1971.

Gleason, R.J.; McKenna, J.D.; Scrubbing of Sulfur Dioxide From a Power Plant Flue Gas. Presented at the 69th National Meeting of the American Institute of Chemical Engineers, Cincinnati, OH, May 16-19, 1971.

Roberts, R.M.; et al; Systems Evaluation of Refuse as a Low Sulfur Fuel, November 1971, EPA Contract CPA 22-69-22.

McKenna, J.D.; Coy, D.W.; Techno-Economic Selection in Times of Changing Costs and Performance Requirements. Published in the Proceedings of the Fifth Annual Northeast Regional Anti-Pollution Conference, University of Rhode Island, July 1972.

McKenna, J.D.; Applying Fabric Filtration to Coal-Fired Industrial Boilers. Environmental Protection Technology Series, July 1974,
EPA-650/2-74-058.

McKenna, J.D.; Mycock, J.C.; Lipscomb, W.O.; Performance and Cost Comparisons Between Fabric Filters and Alternate Particulate Control Techniques. Presented at the symposium on the "Use of Fabric Filters for the Control of Submicron Particulates", 4/8/74, Boston, MA. Sponsored by the Environmental Protection Agency and GCA Corporation.

McKenna, J.D.; Weisberg, R.; A Pilot Scale Investigation of Fabric Filtration as Applied to Coal Fired Industrial Boilers. Published in the Proceedings of the Fourth Annual Industrial Air Pollution Control Conference, University of Tennessee, March 28, 1974, Knoxville, TN.

McKenna, J.D.; The Application of Fabric Filter Dust Collectors to Coal-Fired Boilers. Presented at the Fourth Annual Environmental Engineering & Science Conference, Louisville, KY, March 4, 1974.

Theodore, L.; et al; Selected Problems in Design of Air Pollution Equipment. National Science Foundation, August 1975, NTIS PB 246-363 (Contributing consultant).

McKenna, J.D.; Mycock, J.C.; Lipscomb, W.O.; Applying Fabric Filtration to Coal-Fired Industrial Boilers: A Pilot Scale Investigation. EPA Technical Services, August 1975, EPA 650/2-74-058a.

McKenna, J.D.; and Brandt, K.D.; Demonstration of a High Velocity Fabric Filtration System Used to Control Fly Ash Emissions. Presented at The Third Symposium on Fabric Filters for Particle Collection, Tucson, AZ, December 1977.

McKenna, J.D.; Greiner, G.P.; Brandt, K.D.; Applying High Velocity Fabric Filters to Coal-Fired Industrial Boilers. Presented at the Symposium on the Transfer and Utilization of Particulate Control Technology, sponsored by the U.S. Environmental Protection Agency at the University of Denver, Denver, CO, July 24-28, 1978.

McKenna, J.D.; Mycock, J.C.; Miller, R.L.; Brandt, K.D.; Applying Fabric Filtration to Refuse-Fired Boilers: A Pilot-Scale Investigation. EPA Contract No. R804223, May 1978, Office of Energy, Minerals and Industry, U.S. Environmental Protection Agency, EPA-600/7-78-078.

McKenna, J.D.; Mycock, J.C.; Brandt, K.D.; Szalay, J.F.; Assessment of a High Velocity Fabric Filtration System used to Control Fly Ash Emissions. Annual Report for Contract No. 68-02-2148 for the U.S. Environmental Protection Agency, April 1979.

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WORKSHOPS

Drexel University, 2001 Olin Workshop On The Environment, Philadelphia, PA "Environmental Technology for Particulate Emission Control"

Rheinhold Environmental 2002 ESP/FF Roundtable & Expo, Dallas, TX "Fabric Filter Application & Selection"

PETROBRAS 2007 Seminar on Atmospheric Emissions, Rio de Janeiro, Brazil "Air Shed Management PM10/PM2.5/0zone"

James P. Norton, P.E.

Mr. Norton is a Principal Engineer and President of Norton Engineering Consultants, Inc. (NEC), which he founded in 1993. He has 30+ years experience in the petroleum process, specialty chemicals, lubricants, energy and environmental fields.

Mr. Norton has had a broad range of experience in petroleum refining and petrochemicals including:

- Fired heaters, boilers, CO boilers, incinerators, burners, and other solids, liquid and gas fueled combustion equipment and ancillary systems,
- Process development for reactive extrusion, polymer processing, and selective non-catalytic NOx reduction processes,
- Polymer Processing specialist (synthetic rubber and silanes),
- Process Design – solution polymerization plants, synthetic rubber dewatering and drying facilities, direct polymer devolatilization systems, reactive extrusion systems for polymer modification, lube blending, lubricant additive manufacturing, environmental control systems (SOx, NOx, PM, HAPs), fired heaters, steam generators, heat exchangers, pneumatic conveying systems, wet gas scrubbing systems, water treating facilities, off-sites/utilities, steam boilers, waste heat recovery facilities, etc.
- Planning – lube blending, lubricant additives, flue gas desulfurization and particulate control systems, environmental control facilities for polymer manufacturing plants, water slurry polymer finishing, direct devolatilization of solution polymers, solvent recovery and purification systems, delayed coker debottlenecking, fluid coker, and flexicoker projects.

Selected Career Highlights

1993 to Present: Norton Engineering Consultants, Inc., Boonton, NJ

- Refinery steam system optimization and boiler upgrade project planning, design and execution support (HOVENSA – 2008)
- Refinery boiler house ULNB conversion, economizer replacement and flue gas recirculation system design (Sunoco – 2008)
- Replacement Atmospheric and Vacuum Crude Heater designs (CO Heaters on FCCU) (Valero – 2007-08)
- Naptha Hydrotreater and Catalytic Reformer Heater UNLB Conversion Project Design (ConocoPhillips 2007-08).
- CO Boiler upgrade design and field supervision (ConocoPhillips – 2007 - 2009).
- Crude Unit Heater SIS System Design & Start-up (ConocoPhillips – 2007-08).

- FCCU/FCU Emissions Control Project consulting (Valero – 2001-2007).
- FCC CO Boiler evaluation for installation of emissions control facilities (ConocoPhillips – 2007).
- FCCU wet gas scrubbing system troubleshooting (ConocoPhillips – 2007).
- FCCU wet gas scrubbing project design review (ConocoPhillips – 2007).
- FCCU wet scrubbing system project assistance (cold-eyes reviews) (ConocoPhillips – 2007).
- NHT fired reboiler design and design of retrofit SIS system for NHT pre-heater furnace (Valero - 2006)
- Troubleshooting – LABSORB Regenerative Scrubbing System (Valero – 2006)
- Consulting – FCCU scrubber expansions (Various Clients - 2002, 2006, 2007)
- Lead Investigator for US DOE Advanced Fired Heater Development Project (2001 – 2005)
- Assessment of commercial technologies for the direct devolatilization of solution polymers (EP/EPDM) (2004-05)
- Solution polymer blending and devolatilization facilities for toll processor (2003)
- Jet Ejector Venturi Wet Gas Scrubbing System Design including assessment of regenerator overhead circuit including flue gas expander and back pressuring existing CO Boiler – EM R&S (2000-2001)
- Flue Gas Desulfurization Technology Evaluation – EM R&S (1999)
- Wet Gas Scrubbing System Designs – ExxonMobil Licensees (1996, 1997, 2001, 2004)
- FCCU Regenerator O/H Modifications for Electrostatic Precipitator Installation On-the-Run – Ultramar Diamond Shamrock (Quebec, 1996)
- Turnaround support and operations consulting for combined FCCU and FCU CC Boiler
- Boiler fired petroleum coke, waste CO gas from the FCCU and FCU and had supplemental RFG capability. (Alberta - 1994)
- Lubricant Additives Plant (solution polymerization facility) – Process Design and Planning (Infineum France SA, 1999 – 2000)
- Start-up support for SRP section of client's synthetic rubber plant (1995).
- Dispersants Plant - Process, Environmental Control and Offsites Design (ECC, 1995 – 1996)
- Lubricants Blending Plant Operations Consulting and Design Services (EUSA, Continuing)
- Hazardous Material Control Systems Development and Implementation (Lockheed Martin Aerospace, 1994 – 1996)
- Boiler Emissions Control Technology Selection (SOx & PM) for Bitumen Fired Steam Generators – IOR (2001)
- Reactive Extrusion Process Development - ExxonMobil Chemical / Dow Corning (1999 - 2000)
- CO Heater Encon & SCR NOx Control Study – Exxon Benicia Refinery (1992).
- SNCR DeNOx Utility Boiler Design – Exxon Research & Engineering (1993-94)
- ExxonMobil WGS Licensing Support & Process Development (1996 -2005)

1990 – 1993 Martech Industries, Inc.

- Process Development for Continuous Polymer Dissolving Process – Exxon Chemical Polymers Group.
- Operations and Maintenance Consulting – Exxon, Bayonne Lubricants Plant
- Selective Non-catalytic NOx Reduction Facilities Design – Exxon Research & Engineering.
- Lead Designer – Steam Plant Upgrade Project – Exxon, Pittsburgh PA
- Various Process Planning Activities for client's worldwide petroleum and petrochemical operations (Exxon Chemical & Exxon Res & Engr).

1984 – 1990 Exxon Chemical Company, Polymers Group

- Elastomer Extrusion Specialist
- Elastomer drying and direct devolatilization process development engineer
- Elastomers manufacturing support
- Process designer & planner for solution and slurry elastomer manufacturing facilities – primary focus on product finishing and stripping areas of plant.

1978 – 1984 Exxon Research & Engineering Co.

- CO Boiler Specialist – Design, Troubleshooting & Operations Consulting
- Steam Cracker & Steam Reformed Design
- Fired Heater, Steam Generator and Incinerator Designs
- Technology Commercialization – Materials of Construction, Burners, Air Preheat Systems, Advanced Fired heater and Boiler Controls, Energy Conservation Strategies.
- Plant Automation including Artificial Intelligence Systems Design and Testing
- Synthetic Fuels Planning, Process Development and Design
- Start-up Support and Plant Troubleshooting.
- Hydrocracker Heater Rebuild.
- Delayed Coking Heater Troubleshooting
- Delayed Coker Operations Consulting and Cycle Time Optimization

Process Simulation Tools

- PRO II (Proprietary and Commercial Thermodynamic Packages)
- HYSYS (Continuous and Batch Simulations)
- HEXTRAN
- Proprietary Plant and Process Evaluation Tools

Education

- Bachelor of Mechanical Engineering, Manhattan College, Bronx NY, 1978
- Master of Mechanical Engineering, Manhattan College, Bronx NY, 1981

Professional Accreditation

- Licensed Professional Engineer – State of New Jersey – GE28615 (1983)

Patents & Publications

- US Patent (1984) Steam Generating Solids Cooler for Spent Shale, Hot Catalyst and Fluid Coke.
- US Patent (1988) Method for Agglomerating and Dewatering Polymeric Materials
- US Patent (1991) Centrifugal Solids Cooler for Pneumatic Conveying Systems
- Patent Pending (2007) – Advanced Fired Heater
- Patent Pending (2007) – Zero Plugging Slurry Distribution Headers and Onstream Descaling System

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Program Environmental Assessment for Proposed Amended Regulation XX – Regional Clean Air Incentives Market (RECLAIM)

October 2010

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Author:	Barbara Radlein	Air Quality Specialist
Technical Assistance:	Minh Pham, M.S., P.E.	Air Quality Specialist
	Kevin Orellana	Air Quality Specialist
Reviewed By:	Steve Smith, Ph.D.	Program Supervisor, CEQA
	Joe Cassmassi	Planning and Rules Manager, Planning, Rule Development, and Area Sources
	Gary Quinn, P.E.	Program Supervisor, Planning, Rule Development, and Area Sources
	Barbara Baird	District Counsel
	William Wong	Principal Deputy District Counsel
	Veera Tyagi	Deputy District Counsel II

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JUDY MITCHELL
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Cities of Los Angeles County, Western Region

JAN PERRY
Councilwoman, 9th District
City of Los Angeles Representative

MIGUEL A. PULIDO
Mayor, City of Santa Ana
Cities Representative, Orange County

EXECUTIVE OFFICER:
BARRY R. WALLERSTEIN, D.Env.

PREFACE

This document constitutes the Final Program Environmental Assessment (PEA) for Proposed Amended Regulation XX – Regional Clean Air Incentives Market (RECLAIM). An Initial Study was released for a 30-day public review and comment period from June 19, 2009 to July 21, 2009 which identified the environmental topics of aesthetics, air quality, energy, hydrology and water quality, hazards and hazardous materials, and transportation and traffic, as potentially being significantly adversely affected by the project. Three comment letters were received from the public regarding the preliminary analysis in the Initial Study. These comment letters and responses to individual comments are included in Appendix D of this document.

The Draft PEA was released for a 45-day public review and comment period from August 18, 2010 to October 1, 2010 which identified the topics of air quality and hydrology (water demand) as exceeding the SCAQMD's significance thresholds associated with implementing the proposed project. Three comment letters were received from the public regarding the analysis in the Draft PEA. These comment letters and responses to individual comments are included in Appendix E of this document. No comment letters were received that identified other potentially significant adverse impacts from the proposed project.

In addition, subsequent to release of the Draft PEA, minor modifications were made to the proposed project. To facilitate identification, modifications to the document are included as underlined text and text removed from the document is indicated by ~~strikethrough~~. Staff has reviewed the modifications to the proposed project and concluded that none of the modifications alter any conclusions reached in the Draft PEA, nor provide new information of substantial importance relative to the draft document. As a result, these minor revisions do not require recirculation of the document pursuant to CEQA Guidelines §15088.5. Therefore, this document now constitutes the Final PEA for the proposed project.

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LIST OF ACRONYMS & TERMS

AAM = annual arithmetic mean
AB = Assembly Bill
AFV = alternative fuel vehicle
AHM = acutely hazardous material
Al2O3 = aluminum oxide
ANPR = Advance Notice of Proposed Rulemaking
API = American Petroleum Institute
AQMP = Air Quality Management Plan
ATCM = Airborne Toxic Control Measure
BACM = Best Available Control Measure
BACT = Best Available Control Technology
BARCT = Best Available Retrofit Control Technology
Basin = South Coast Air Basin
BAU = business-as-usual
BLEVE = boiling liquid expanding vapor explosion
BMP = best management practice
BNSF = Burlington Northern Santa Fe
BOD = bio-chemical oxygen demand
BP = British Petroleum
bpd = barrels per day
BPTCP = Bay Protection and Toxic Cleanup Plan
CAA = Clean Air Act
CAFE = Corporate Average Fuel Economy
CalARP = California Accidental Release Prevention Program
CalEPA = California Environmental Protection Agency
CalOSHA = California Occupational Safety and Health Administration
Caltrans = California Department of Transportation
CaOH = calcium hydroxide
CAPCOA = California Air Pollution Control Officers Association
CARB = California Air Resources Board
CaSO3 = calcium sulfite
CaSO4 = calcium sulfate
CCAR = California Climate Action Registry
CCE = Chicago Climate Exchange
CCR = California Code of Regulations
CEC = California Energy Commission
CEMS = continuous emissions monitor system
CEQA = California Environmental Quality Act
CERs = Certified Emission Reductions
CFR = Code of Federal Regulations
CH4 = methane
CO2 = carbon dioxide
CO2eq = carbon dioxide equivalent
CO = carbon monoxide
COD = chemical oxygen demand
COHb = carboxyhemoglobin
COS = carbonyl sulfide

LIST OF ACRONYMS & TERMS (continued)

CFR = Code of Federal Regulations
CHP = California Highway Patrol
CM = control measure
CMA = Congestion Management Agency
CMP = Congestion Management Program
CPCC = California Portland Cement Company
CPUC = California Public Utilities Commission
CRA = Colorado River Aqueduct
CS2 = carbon disulfide
CUPA = Certified Unified Program Agency
CWA = Clean Water Act
CWRF = Colton Water Reclamation Facility
CWS = California Water Service
DEA = diethanolamine
DGS = dry gas scrubber
DHS = Department of Health Services
DIPA = di-isopropanolamine
District = South Coast Air Quality Management District
DOE = United States Department of Energy
DOT = United States Department of Transportation
DTSC = Department of Toxic Substance Control
DWR = California Department of Water Resources
EA = Environmental Assessment
EDV = Electro Dynamic Venturi
EGF = electric generating facility
EIR = Environmental Impact Report
ERPG = Emergency Response Planning Guidelines
ESP = electrostatic precipitator
EU = European Union
FCCU = fluid catalytic cracking unit
FedOSHA = Federal Occupational Safety and Health Administration
FGT = fuel gas treatment
FR = Federal Register
gal = gallons
GHG = greenhouse gases
GMC = Growth Management Chapter
gpm = gallons per minute
gWh = gigawatt-hour
GWP = global warming potential
H2S = hydrogen sulfide
H2SO4 = sulfuric acid
HAP = hazardous air pollutant
HF = hydrofluoric acid
HCFC = hydrochlorofluorocarbon
HFC = hydrofluorocarbon
HCl = hydrochloric acid
HI = Hazard Index

LIST OF ACRONYMS & TERMS (continued)

hr = hour
HRRWPP = Harbor Refineries Recycled Water Pipeline Project
HSC = Health and Safety Code
HSWA = Hazardous and Solid Waste Act
HWCL = Hazardous Waste Control Law
IARC = International Agency for Research on Cancer
ICTF = intermodal container transfer facility
IC = internal combustion
ID = identification
ISTEA = Intermodal Surface Transportation Efficiency Act of 1991
kW = kilowatt
kWh = kilowatt-hour
LACSB = Los Angeles City Bureau of Sanitation
LACSD = Los Angeles County Sanitation District
LADWP = Los Angeles Department of Water and Power
LAER = Lowest Achievable Emission Rate
LAX = Los Angeles International Airport
lb = pound
LEED = Leadership in Energy and Environmental Design
LOS = level of service
M&I = municipal and industrial
MDAB = Mojave Desert Air Basin
MDEA = methyl diethanol amine
Metro = Los Angeles County Metropolitan Transportation Authority
MgO = magnesium oxide
MICR = maximum individual cancer risk
mmBTU = million British Thermal Units
mmscf = million standard cubic feet
mpg = miles per gallon
MPO = Metropolitan Planning Organization
MSBACT = Minor Source Best Available Control Technology
MSDS = Material Safety Data Sheet
MT/yr = metric tons per year
MW = megawatt
MWD = Metropolitan Water District
MWh = megawatt-hour
N2O = nitrous oxide
Na2CO3 = sodium carbonate
Na2S2O5 = sodium pyrosulfate
Na2SO3 = sodium sulfite
NAAQS = National Ambient Air Quality Standards
NaHSO3 = sodium bisulfite
NaOH = sodium hydroxide
NESHAP = National Emission Standard for Hazardous Air Pollutants
NFC = National Fire Code
NH3 = ammonia
NHTSA = National Highway Traffic and Safety Administration

LIST OF ACRONYMS & TERMS (continued)

NOC = Notice of Completion
NOP/IS = Notice of Preparation/Initial Study
NOx = oxides of nitrogen
NPDES = National Pollutant Discharge Elimination System
NSR = New Source Review
NTP = United States National Toxicology Program
O3 = ozone
OCTA = Orange County Transportation Authority
OEHA = Office of Environmental Health Hazard Assessment
OES = Office of Emergency Services
OPR = Office of Planning and Research
OSHA = Occupational Safety and Health Administration
PAR = Proposed Amended Rule
PEA = Program Environmental Assessment
PEL = permissible exposure limit
PFC = perfluorocarbon
PM = particulate matter
PM2.5 = particulate matter with an aerodynamic diameter of 2.5 microns or less
PM10 = particulate matter with an aerodynamic diameter of 10 microns or less
POTW = publicly-owned treatment works
ppm = parts per million
ppmv = parts per million by volume
PST = Pacific Standard Time
PVC = polyvinyl chloride
RCPG = Regional Comprehensive Plan Guide
RCRA = Resource Conservation and Recovery Act
RCTC = Riverside County Transportation Commission
RECLAIM = Regional Clean Air Incentives Market
REL = Reference Exposure Level
RMP = Risk Management Programs
RO = reverse osmosis
RPS = renewables portfolio standard
RTC = RECLAIM Trading Credit
RTIP = Regional Transportation Improvement Program
RTP = Regional Transportation Plan
RWQCB = Regional Water Quality Control Board
SANBAG = San Bernardino Associated Governments
SANDAG = San Diego Association of Governments
SARA = Superfund Amendments and Reauthorization Act
SB = Senate Bill
SCAB = South Coast Air Basin
SCAG = Southern California Association of Governments
SCAQMD = South Coast Air Quality Management District
SCE = Southern California Edison
SCR = selective catalytic reduction
SEA = Supplemental Environmental Assessment
SF6 = sulfur hexafluoride

LIST OF ACRONYMS & TERMS (concluded)

SIP = State Implementation Plan
SO2 = sulfur dioxide
SO3 = sulfur trioxide
SOx = oxides of sulfur
SR = state route
SRU/TGU = sulfur recovery unit/tail gas unit
SSAB = Salton Sea Air Basin
SWMP = Storm Water Management Plan
SWP = State Water Project
SWPPP = Storm Water Pollution Prevention Plan
SWRCB = State Water Resources Control Board
TAC = toxic air contaminant
TAO = Technology Advancement Office
TDM = Transportation Demand Management
TEA-21 = Transportation Equity Act for the 21st Century
TMDL = total maximum daily load
TIMP = Transportation Improvement and Mitigation Program
tons/day = tons per day
tpd = tons per day
TRI = Toxic Release Inventory
TSCA = Toxic Substances Control Act
TSS = total suspended solids
TXI = Riverside Cement Company
$\mu g/m^3$ = micrograms per cubic meter
ULSD = ultra-low sulfur diesel
UP = Union Pacific
USC = United States Code
USEPA = United States Environmental Protection Agency
USPS = United States Postal Service
V2O5 = vanadium pentoxide
VOC = Volatile Organic Compounds
WBMWD = West Basin Municipal Water District
WCI = Western Climate Incentive
WDR = waste discharge requirements
WGS = wet gas scrubber

CHAPTER 1

EXECUTIVE SUMMARY

INTRODUCTION

The California Legislature created the South Coast Air Quality Management District (SCAQMD) in 1977[1] as the agency responsible for developing and enforcing air pollution control rules and regulations in the South Coast Air Basin (Basin) and portions of the Salton Sea Air Basin and Mojave Desert Air Basin, referred to herein as the District. By statute, the SCAQMD is required to adopt an air quality management plan (AQMP) demonstrating achievement and maintenance of all federal and state ambient air quality standards for the District[2]. Furthermore, the SCAQMD must adopt rules and regulations that carry out the AQMP, including requiring Best Available Retrofit Control Technology (BARCT) for existing sources[3]. The 2007 AQMP concluded that major reductions in emissions of volatile organic compounds (VOCs), oxides of sulfur (SOx) and oxides of nitrogen (NOx) are necessary to attain the air quality standards for ozone (the key ingredient of smog) and particulate matter (PM10 and PM2.5). Ozone, a criteria pollutant which has been shown to adversely affect human health, is formed when VOCs react with NOx in the atmosphere. VOCs, NOx, SOx (especially sulfur dioxide) and ammonia also contribute to the formation of PM10 and PM2.5.

The Basin is designated by the United States Environmental Protection Agency (USEPA) as a non-attainment area for PM2.5 emissions because the federal PM2.5 standards have been exceeded. For this reason, the SCAQMD is required to evaluate all reasonably available control measures in order to reduce direct PM2.5 emissions, as well as PM2.5 precursors, such as NOx and SOx. Because NOx and SOx are major building blocks of PM2.5 formation, reducing NOx and SOx emissions is highly effective in reducing ambient PM2.5 levels as compared to other primary and secondary contributors to PM2.5 formation. For example, the reduction of one ton of SOx is equal to 1.5 tons of directly emitted PM2.5 or 15 tons of NOx. Further, chemical speciation of PM2.5 samples indicates that in the South Coast Air Basin, 25 percent of the ambient PM2.5 is attributed to contribution from sulfates (a component of SOx). Thus, the 2007 AQMP contains a multi-pollutant control strategy to achieve attainment with the federal annual average PM2.5 standard with NOx and SOx reductions identified as the two most effective tools in reaching attainment with the PM2.5 standards.

As part of this ongoing PM2.5 reduction effort and to implement the BARCT requirement for existing sources, SCAQMD staff is proposing amendments to Regulation XX – Regional Clean Air Incentives Market (RECLAIM) to achieve additional SOx emission reductions as outlined in the 2007 AQMP in Control Measure (CM) CMB-02: Further SOx Reduction for RECLAIM (CM #2007CMB-02). Amendments are proposed to Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx), to address BARCT requirements, which may require installation or modification of SOx emission control equipment. Other changes proposed are administrative in nature and include minor clarifications for continuity.

The primary focus of the proposed project is to bring the SOx RECLAIM program up-to-date with the latest BARCT requirements to achieve, if feasible, the proposed SOx emission reductions in CM #2007CMB-02 (at least 2.9 tons per day) and to achieve the maximum feasible reductions. The proposed project may actually achieve additional SOx emission reductions beyond 2.9 tons per day depending on the actual BARCT SOx emission control efficiencies. The proposed project will affect the following types of equipment and processes at SOx

[1] The Lewis-Presley Air Quality Management Act, 1976 Cal. Stats., ch 324 (codified at Health & Safety Code, §§40400-40540).
[2] Health & Safety Code, §40460 (a).
[3] Health & Safety Code, §40440 (a).

RECLAIM facilities: 1) petroleum coke calciners; 2) cement kilns; 3) coal-fired boiler (cogeneration); 4) container glass melting furnace; 5) diesel combustion[4]; 6) fluid catalytic cracking units; 7) refinery boilers/heaters; 8) sulfur recovery units/tail gas treatment units; and, 9) sulfuric acid manufacturing. Additional amendments are proposed to establish procedures and criteria for reducing RECLAIM Trading Credits (RTCs) and RTC adjustment factors for year 2013 and later. Other minor changes are proposed for clarity and consistency throughout the proposed amended rule.

The proposed project is estimated to reduce at least 2.9 tons per day of SOx emissions or more by 2014. Despite this projected environmental benefit to air quality, the Initial Study, prepared pursuant to the California Environmental Quality Act (CEQA), identified the following environmental topics as areas that may be adversely affected by the proposed project: aesthetics, air quality, energy, hydrology and water quality, hazards and hazardous materials, and transportation/traffic. This ~~Draft~~ Final Program Environmental Assessment (PEA) has been prepared to analyze further whether the potential impacts to these environmental topics are significant. Any other potentially significant environmental impacts identified in the Notice of Preparation/Initial Study have also been analyzed in this ~~Draft~~ Final PEA.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The proposed amendments to Regulation XX are considered a "project" as defined by CEQA. CEQA requires that the potential adverse environmental impacts of proposed projects be evaluated and that methods to reduce or avoid identified significant adverse environmental impacts of these projects be implemented if feasible. The purpose of the CEQA process is to inform the SCAQMD's Governing Board, public agencies, and interested parties of potential adverse environmental impacts that could result from implementing the proposed project and to identify feasible mitigation measures or alternatives, when an impact is significant.

California Public Resources Code §21080.5 allows public agencies with regulatory programs to prepare a plan or other written documents in lieu of an environmental impact report once the Secretary of the Resources Agency has certified the regulatory program. The SCAQMD's regulatory program was certified by the Secretary of Resources Agency on March 1, 1989, and is codified as SCAQMD Rule 110 (the rule which implements the SCAQMD's certified regulatory program). CEQA and Rule 110 require that potential adverse environmental impacts of proposed projects be evaluated and that feasible methods to reduce or avoid significant adverse environmental impacts of these projects be identified.

The SCAQMD as Lead Agency for the proposed project, prepared a Notice of Preparation/Initial Study (NOP/IS) which identified environmental topics to be analyzed in a Draft Environmental Assessment (EA). The NOP/IS provided information about the proposed project to other public agencies and interested parties prior to the intended release of the Draft EA. The NOP/IS was distributed to responsible agencies and interested parties for a 30-day review and comment period from June 19, 2009, to July 21, 2009. The initial evaluation in the NOP/IS identified the topics of aesthetics, air quality, energy, hydrology and water quality, hazards and hazardous materials, and transportation and traffic as potentially being adversely affected by the proposed project. During that public comment period, the SCAQMD received three comment letters.

[4] The proposed project does not establish a new BARCT level for diesel combustion. The BARCT level for this source category is incorporated into the proposed project for consistency with the existing 15 ppmv SOx requirement in SCAQMD Rule 431.2. For this reason, the diesel combustion source category is not included in this analysis.

These letters and their responses can be found in Appendix D of this document. In addition, the NOP/IS, is attached to this PEA as Appendix C, and can also be obtained by visiting the following website at: http://www.aqmd.gov/ceqa/documents/2009/aqmd/is_nop/RegXX.pdf.

Of the comment letters received relative to the NOP/IS, in particular, Comment 2-4 from Comment Letter #2 suggested that a Program Environmental Assessment (PEA) be prepared for the proposed project. In response to this comment, in accordance with CEQA Guidelines §15168, SCAQMD has prepared this ~~Draft~~ Final PEA to evaluate potential adverse impacts from the proposed project. The decision to prepare a ~~Draft~~ PEA is based on the proposed project: 1) being connected to the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program (CEQA Guidelines §15168 (a)(3)); and, 2) containing a series of actions that can be characterized as one large project and the series of actions are related as individual activities that would be carried out under the same authorizing regulatory authority and having similar environmental effects which can be mitigated in similar ways (CEQA Guidelines §15168 (a)(4)). This ~~Draft~~ PEA is a public disclosure document intended to: (a) provide the lead agency, responsible agencies, decision makers and the general public with information on the environmental impacts of the proposed project; and, (b) be used as a tool by decision makers to facilitate decision making on the proposed project.

The Draft PEA was released for a 45-day public review and comment period from August 18, 2010 to October 1, 2010. The ~~Thus, this~~ Draft PEA, prepared pursuant to CEQA, identifieds aesthetics, air quality, energy, hydrology and water quality, hazards and hazardous materials, and transportation and traffic as areas that may be adversely affected by the proposed project. Based on the conclusions in the NOP/IS prepared for the proposed project, the~~is~~ Draft PEA further analyzeds whether or not the aesthetics, air quality, energy, hydrology and water quality, hazards and hazardous materials, and transportation and traffic impacts are significant. The Draft PEA concluded that only the topics of air quality and hydrology (water demand) would have significant adverse impacts.

Three~~Any~~ comment letters were received during the public comment period on the analysis presented in the~~is~~ Draft PEA. Responses to these comment letters have been prepared. The comment letters along with the responses are ~~will be responded to and~~ included in Appendix E of this~~e~~ Final PEA. Thus, this Final PEA, prepared pursuant to CEQA Guidelines §15132, identifies air quality and hydrology (water demand) as areas that may be adversely affected by the proposed project. Prior to making a decision on the proposed amendments to Regulation XX, the SCAQMD Governing Board must review and certify the Final PEA as providing adequate information on the potential adverse environmental impacts of the proposed amendments to Regulation XX.

PREVIOUS CEQA DOCUMENTATION FOR REGULATION XX

This ~~Draft~~ Final PEA is a comprehensive environmental document that analyzes potential environmental impacts from the proposed amendments to Regulation XX. SCAQMD rules, as ongoing regulatory programs, have the potential to be revised over time due to a variety of factors (e.g., regulatory decisions by other agencies, new data, and lack of progress in advancing the effectiveness of control technologies to comply with requirements in technology forcing rules, etc.). Several previous environmental analyses have been prepared to analyze past amendments to the rules that comprise Regulation XX. The following paragraphs summarize these previously prepared CEQA documents and are included for informational purposes only. The current ~~Draft~~ Final PEA focuses on the currently proposed amendments to Regulation XX and does not rely on these previously prepared CEQA documents. The following documents can

be obtained by submitting a Public Records Act request to the SCAQMD's Public Records Unit. In addition, a link for downloading files from the SCAQMD's website is provided for those CEQA documents prepared after January 1, 2000. The following is a summary of the contents of these documents.

Notice of Exemption From CEQA for Proposed Amended Regulation XX – Regional Clean Air Incentives Market (RECLAIM); April 2007: The amendments to Regulation XX – RECLAIM were administrative in nature and focused on the following rules: Rule 2004 – Requirements; Rule 2007 – Trading Requirements; and Rule 2010 – Administrative Remedies and Sanctions. The amendments to Rule 2004 provided an exemption from submitting Quarterly Certification Emission Reports for facilities that do not have any NOx or SOx emitting equipment located on site. The amendments to Rule 2007 clarified the trading requirements for foreign entities that are not residing or licensed to conduct business in California, and clarified reporting requirements for parties entering into a forward contract or a contingent right contract. Amendments to Rule 2010 specified liability for allocation violations when changes of ownership occur. Other minor administrative changes were included that improved the clarity of these rules. The SCAQMD concluded that the amendments would not have an effect on emissions and that there was no possibility that the project would have the potential to have a significant adverse effect on the environment. Therefore, pursuant to CEQA Guidelines §15061(b)(3) - Review for Exemption, the project was determined to be exempt from CEQA and a Notice of Exemption was prepared. This document can also be obtained by visiting the following website at: http://www.aqmd.gov/ceqa/notices/2007/noe/RegXX_NOE.pdf

Notice of Exemption From CEQA for Proposed Amended Regulation XX – Regional Clean Air Incentives Market (RECLAIM); May 2005: The amendments to Regulation XX – RECLAIM were administrative in nature and focused on the following rules and protocols: Rule 2000 – General; Rule 2001 – Applicability; Rule 2005 – New Source Review for RECLAIM; Rule 2007 – Trading Requirements; Protocol for Rule 2011 – Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Sulfur (SOx) Emissions; and Protocol for Rule 2012 – Requirements for Monitoring, Reporting, and Recordkeeping for NOx Emissions. Amendments to Rule 2000 and Protocols for Rules 2011 and 2012 were proposed for consistency with the new source requirements for non-RECLAIM sources and for clarification that mobile source emissions are part of the total RECLAIM pollutants emitted from a facility. Amendments to Rule 2005 clarified that emissions from affected sources shall include mobile source emissions and to include an alternative quarterly holding period for RTCs for offsetting emissions from a new source. Amendments to Rule 2007 reinstated the trading provision that would allow power producers to transfer NOx RECLAIM Trading Credits among facilities under common ownership which was inadvertently omitted during the January 7, 2005 amendments to Rule 2007. The SCAQMD concluded that the amendments would not have an effect on emissions and that there was no possibility that the proposed project would have the potential to have a significant adverse effect on the environment. Therefore, pursuant to CEQA Guidelines §15061(b)(3) - Review for Exemption, the project was determined to be exempt from CEQA and a Notice of Exemption was prepared. This document can also be obtained by visiting the following website at: http://www.aqmd.gov/ceqa/notices/2005/noe/NOE_RegXX.doc

Final Environmental Assessment for Proposed Amended Regulation XX – Regional Clean Air Incentives Market (RECLAIM); December 2004 (SCAQMD No. 031104BAR): A Draft Environmental Assessment (EA) for amendments to Regulation XX (Rule 2001 – Applicability; Rule 2002 – Allocations for NOx and SOx; Rule 2007 – Trading Requirements; Rule 2009 – Compliance Plans for Power Producing Facilities; Rule 2010 – Administrative Remedies and

Sanctions; Rule 2011 – Requirements for Monitoring, Reporting, and Recordkeeping for SOx Emissions; and, Appendix A – Protocol for SOx; and, Rule 2012 – Requirements for Monitoring, Reporting, and Recordkeeping for NOx Emissions; and, Appendix A – Protocol for NOx) was released for a 45-day public review period from October 22, 2004 to December 7, 2004. The amendments implemented control measure CMB-10 in the 2003 AQMP and addressed BARCT requirements to achieve additional NOx emission reductions. The Draft EA identified the topic of air quality as the only area that may be significantly adversely affected by the project. After circulation of the Draft EA, a Final EA was prepared and certified by the SCAQMD Governing Board on January 7, 2005. This document can be obtained by visiting the following website at: http://www.aqmd.gov/ceqa/documents/2005/aqmd/finalEA/FEA_RegXX.doc .

Notice of Exemption From CEQA for Proposed Amended Rule 2007 – Trading Requirements; September 2004: The purpose of the amendments to Rule 2007 was to address CARB concerns regarding the reintroduction of power plants to the RECLAIM trading market. The proposal contained a provision that delayed the date when the trading restrictions would be lifted until such time that other RECLAIM rule amendments (scheduled for January 2005) were adopted that would decrease allocations to implement the 2003 AQMP Control Measure CMB-10 and to reflect BARCT in accordance with Health and Safety Code (HSC) §40440. The air quality objective was to ensure that BARCT adjustments are made to facility allocations prior to removal of power plant trading restrictions. The SCAQMD concluded that the amendments would not have an effect on emissions and that there was no possibility that the project would have the potential to have a significant adverse effect on the environment. Therefore, pursuant to CEQA Guidelines §15061(b)(3) - Review for Exemption, the project was determined to be exempt from CEQA and a Notice of Exemption was prepared. This document can also be obtained by visiting the following website at:
http://www.aqmd.gov/ceqa/notices/2004/noe/NOE_2007.doc

Notice of Exemption From CEQA for Proposed Amended Rule 2015 – Backstop Provisions; June 2004: The purpose of the amendments to Rule 2015 was to address the USEPA's conditional approval of Regulation XX – RECLAIM, as amended May 11, 2001. The USEPA determined that the accounting procedures for and mitigations of excess emissions that occur during a breakdown in the current version of the RECLAIM program needed to be modified because these provisions conflict with USEPA's 1999 'Excess Emissions Policy' and §110 and Part D of the federal Clean Air Act (CAA). Specifically, the amendments to Rule 2015: 1) required the SCAQMD to monitor excess emissions occurring during breakdowns that are not covered by facility RTCs, and to compare that amount to the quantity of available, unused RTCs each year for the entire RECLAIM program; and, 2) required offsets for excess unmitigated breakdown emissions. The SCAQMD concluded that the amendments would not have an effect on emissions and that there was no possibility that the project would have the potential to have a significant adverse effect on the environment. Therefore, pursuant to CEQA Guidelines §15061(b)(3) - Review for Exemption, the project was determined to be exempt from CEQA and a Notice of Exemption was prepared. This document can also be obtained by visiting the following website at: http://www.aqmd.gov/ceqa/notices/2004/noe/NOE_2015.doc

Addendum to May 2001 Final Environmental Assessment for Proposed Amended Rule 2007 – Trading Requirements; Proposed Amended Rule 2011 – Requirements for Monitoring, Reporting, and Recordkeeping for SOx Emissions; and, Proposed Amended Rule 2012 – Requirements for Monitoring, Reporting, and Recordkeeping for NOx Emissions; October 14, 2003 (SCAQMD No. 101403BAR): The amendments to Rule 2007 required the power producers to re-enter the RECLAIM trading market. Specifically, the power

producing facilities were brought back into the RECLAIM trading market and allowed to use RTCs to reconcile emissions, and to sell or transfer RTCs below the original allocation after compliance year 2003. The amendments to Rules 2011 and 2012 clarified that the 90-day recertification period for Continuous Emission Monitoring Systems (CEMS) applies when a new CEMS or a component of an existing CEMS is added to an existing or modified major RECLAIM source. An Addendum to the May 2001 Final EA for the amendments to Regulation XX (Rules 2007, 2011, and 2012) was prepared. The SCAQMD determined that an Addendum to the May 2001 Final EA was the appropriate document to prepare because none of the conditions described in CEQA Guidelines §15162 were triggered since the amendments did not contain new information of substantial importance and would not create any new significant adverse impacts or substantially increase the severity of the previously identified significant environmental effects in the original project. Further, the SCAQMD concluded that the amendments would not change the environmental analysis or conclusions in the previously certified May 2001 Final EA. Pursuant to CEQA Guidelines §15164 (c), it was not necessary to circulate the Addendum for public review. The Addendum to the May 2001 Final EA was certified by the SCAQMD Governing Board on December 5, 2003. This document can also be obtained by visiting the following website at: http://www.aqmd.gov/ceqa/2003/aqmd2003.html.

Final Environmental Assessment for Proposed New and Amended Rules, Regulation XX – RECLAIM; Rule 1631 – Pilot Credit Generation Program for Marine Vessels; Rule 1632 – Pilot Credit Generation Program for Hotelling Operations; Rule 1633 – Pilot Credit Generation Program for Truck/Trailer Refrigeration Units; and Rule 2507 – Pilot Credit Generation Program for Agricultural Pumps; May 2001 (SCAQMD No. 010201JDN): An integrated group of new and amended rules were adopted to help ensure compliance with emission allocations contemplated during initial RECLAIM program design while reducing impacts of California's electricity crisis on the RECLAIM market. The project included proposed new and amended RECLAIM rules and four voluntary mobile and area source NOx pilot credit generation rules. The project components were designed to work together to lower and stabilize RTC prices by increasing supply, reducing demand, and increasing RTC trading information availability and accuracy. A Draft EA for the amendments to Regulation XX plus proposed Rules 1631, 1632, 1633 and 2507 (which established pilot NOx credit generation rules as a means of creating additional NOx RTCs) was released for a 30-day public review period from March 27, 2001 to April 25, 2001. The analysis showed that there were potential adverse environmental effects that may result from implementing the amendments (primarily removing power producers from the trading market). The Draft EA identified "air quality" and "hazards and hazardous materials" as the only areas that may be significantly adversely affected by the project. After circulation of the Draft EA, a Final EA was prepared and certified by the SCAQMD Governing Board on May 11, 2001. This document can be obtained by visiting the following website at: http://www.aqmd.gov/ceqa/2001/aqmd2001.html.

Final Environmental Assessment for Proposed Amended Rules 1303 – Requirements, 2005 – New Source Review for RECLAIM, 1302 - Definitions and 1309.1 - Priority Reserve; April 9, 2001 (SCAQMD No. 021401MK): The amendments to Rules 1303 and 2005 revised the modeling standard for sources locating in an attainment sub-region of the district so that any proposed new emissions plus the measured background could not create a violation of any applicable ambient air quality standard. In sub-regions designated as nonattainment areas for specified criteria pollutants, the modeling criteria remained the same, but emissions from new or modified sources were not allowed to exceed the allowable change in concentration thresholds as set forth in Rule 1303, Table A-2. The amendments to Rule 1309.1 allowed temporary access to the SCAQMD's Priority Reserve PM10 account for new electric generating facilities (EGF) for

applications deemed complete between 2001 and 2003, provided that all the other requirements were met and the appropriate mitigation fee was paid. The Draft EA was released for a 30-day public review and comment period from February 14, 2001 to March 15, 2001. The Draft EA concluded that the project would not have any significant or potentially significant effects on the environment. After circulation of the Draft EA, a Final EA was prepared and certified by the SCAQMD Governing Board on April 20, 2001. This document can be obtained by visiting the following website at: http://www.aqmd.gov/ceqa/2001/aqmd2001.html.

Notice of Exemption From CEQA for Proposed Amended Rule 2011 – Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Sulfur (SOx) Emissions; and, Proposed Amended Rule 2012 – Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions; March 2001: Because the substantive components of the project involved the addition of an alternative recordkeeping option, the SCAQMD concluded that the amendments would not have an effect on emissions and that there was no possibility that the project would have the potential to have a significant adverse effect on the environment. Therefore, pursuant to CEQA Guidelines §15061(b)(3) - Review for Exemption, the project was determined to be exempt from CEQA and a Notice of Exemption was prepared. This document can also be obtained by visiting the following website at: http://www.aqmd.gov/hb/2001/010337a.html.

Final Environmental Assessment for Proposed Amended Rules 1302 – Definitions, 1303 – Requirements, 1306 – Emissions Calculations, 2000 – General; and BACT Guidelines; August 23, 2000 (SCAQMD No. 33100JDN): The amendments bifurcated the New Source Review (NSR) control technology requirements into Lowest Achievable Emission Rate (LAER) for federal major polluting facilities and Minor Source Best Available Control Technology (MSBACT) for all others. Unlike federal LAER, state law allows the cost of the control equipment to be taken into consideration when making a BACT determination. All major polluting facilities, as defined in the federal CAA, would continue to be required to employ LAER for a new or relocated source and any emission increase from a modified source. All other facilities would be required to employ MSBACT. The amendments applied to both RECLAIM and non-RECLAIM sources. Additionally, the amendments allowed relocations of non-major polluting facilities that meet certain conditions, including no emission increases upon relocation and for two years thereafter, to maintain the existing control level from the prior location instead of requiring the installation of new BACT controls. The Draft EA was released for a 30-day public review and comment period from July 11, 2000 to August 9, 2000. The Draft EA concluded that the project would not have any significant or potentially significant effects on the environment. After circulation of the Draft EA, a Final EA was prepared and certified by the SCAQMD Governing Board on October 20, 2000. This document can be obtained by visiting the following website at: http://www.aqmd.gov/hb/2000/001037a.html.

Notice of Exemption for Proposed Amended Rule 2005 - New Source Review for RECLAIM, Rule 2011 - Requirements for Monitoring, Reporting, and Recordkeeping for SOx Emissions, and Rule 2012 - Requirements for Monitoring, Reporting, and Recordkeeping for NOx Emissions; April 1999: The amendments included clarifications to New Source Review requirements for change of operator and modifications to new facilities. For major sources, the amendments clarified monitoring requirements and added calculation methods for cases currently not addressed. For large sources, the amendments added monitoring and calculations methods for cases currently not addressed and clarified source testing requirements. For process units, the amendments established concentration limits for determining emissions and added guidelines for category specific emission rates. The

amendments also corrected rule references, extended deadlines for monthly emissions reporting, and added clarifying language to enhance enforcement and consistency. The amendments were necessary to clarify rule requirements and improve enforceability. The amendments also increased flexibility for RECLAIM facilities. The SCAQMD concluded that the amendments would not have an effect on emissions and that there was no possibility that the project would have the potential to have a significant adverse effect on the environment. Therefore, pursuant to CEQA Guidelines §15061(b)(3) - Review for Exemption, the project was determined to be exempt from CEQA and a Notice of Exemption was prepared. This document can be obtained by visiting the following website at: http://www.aqmd.gov/hb/1999/990432a.html.

Notice of Exemption for Proposed Amended Rule 2000 - General, Rule 2011 - Requirements for Monitoring, Reporting and Recordkeeping for SOx Emissions and Rule 2012 - Requirements for Monitoring, Reporting, and Recordkeeping for NOx Emissions; April 1997: The amendments clarified the rule requirements for emissions from contractors' equipment at RECLAIM facilities by: 1) adding a definition for contractor; 2) specifying that emissions from contractors' equipment should be accounted for by the RECLAIM facility in the same manner as emissions from rental equipment, with the exception of specific processes that do not contribute to a facility's manufacturing process; and, 3) excluding emissions from certain contractors' equipment at a Super Compliant facility. The SCAQMD concluded that the amendments would not have an effect on emissions and that there was no possibility that the project would have the potential to have a significant adverse effect on the environment. Therefore, pursuant to CEQA Guidelines §15061(b)(3) - Review for Exemption, the project was determined to be exempt from CEQA and a Notice of Exemption was prepared. This document can be obtained by visiting the following website at: http://www.aqmd.gov/hb/1997/970436a.html.

Notice of Exemption for Proposed Amended Rule 2000 - General, Rule 2001 - Applicability, Rule 2002 - Allocations for NOx and SOx, Rule 2005 - New Source Review for RECLAIM, Rule 2011 - Requirements for Monitoring, Reporting and Recordkeeping for SOx Emissions, Rule 2012 - Requirements for Monitoring, Reporting, and Recordkeeping for NOx Emissions and Rule 2015 - Backstop Provisions; February 1997: The amendments modified requirements for non-operating and infrequently-operated major sources, exemption provisions, emission factors, and certain monitoring, reporting, and recordkeeping (MRR) requirements. The SCAQMD concluded that the amendments would not have an effect on emissions and that there was no possibility that the project would have the potential to have a significant adverse effect on the environment. Therefore, pursuant to CEQA Guidelines §15061(b)(3) - Review for Exemption, the project was determined to be exempt from CEQA and a Notice of Exemption was prepared. This document can be obtained by visiting the following website at: http://www.aqmd.gov/hb/1997/970238a.html.

Final Supplemental Environmental Assessment for Proposed Amended Rule 2002 - Allocations for NOx and SOx, Rule 2004 - Requirements, Rule 2005 - New Source Review for RECLAIM, Rule 2011 - Requirements for Monitoring, Reporting, and Recordkeeping for SOx Emissions, Rule 2012 - Requirements for Monitoring, Reporting, and Recordkeeping for NOx Emissions, and Rule 2015 - Backstop Provisions; June 1996: The amendments clarified rule requirements and improved monitoring, reporting, and recordkeeping flexibility for RECLAIM facilities. The amendments provided: 1) procedures consistent with Rule 430 - Breakdown Provisions; 2) procedures for reporting equipment breakdowns affecting RECLAIM pollutants; 3) more accurate emission factors; 4) clarifications of RTC allocations after year 2010; 5) consolidated requirements for reports on RECLAIM issues; 6) clarified

requirements for Super Compliance facilities; 7) a period of time for CEMS repairs; 8) clarifications of monitoring, reporting, recordkeeping, and other requirements; and, 9) an alternative to the NOx ending emission factor for cement kilns based on a demonstration plan. Pursuant to CEQA, the SCAQMD prepared a Draft Supplemental Environmental Assessment (SEA) for the amendments to Regulation XX - RECLAIM. The Draft SEA was a supplement to the October 1993 Final EA for Regulation XX (SCAQMD No. 930524SS) and was circulated for a 45-day public review and comment period that ended May 10, 1996. The Final SEA was certified by the SCAQMD Governing Board on July 12, 1996. This document can be obtained by visiting the following website at: http://www.aqmd.gov/hb/1996/960731a.html.

Notice of Exemption for Proposed Amended Rule 1303 - Requirements (New Source Review) and Rule 2005 - New Source Review for RECLAIM; May 1996: The amendments incorporated protection of visibility for Federal Class I areas into Regulations XIII and XX. Protection of visibility for Federal Class I areas and notification of Federal Land Managers are requirements of federal law. The SCAQMD determined that the amendments were exempt from CEQA pursuant to CEQA Guidelines §15308 - Action by Regulatory Agencies for the Protection of the Environment, since the activity was covered by this Class 8 exemption for actions to assure the maintenance, restoration, enhancement, or protection of the environment. Therefore, pursuant to CEQA Guidelines §15061(b)(3) - Review for Exemption, the project was determined to be exempt from CEQA and a Notice of Exemption was prepared. This document can be obtained by visiting the following website at: http://www.aqmd.gov/hb/1996/960538a.html.

Final Supplemental Environmental Assessment for Proposed Amended Regulation XX – RECLAIM; December 1995: The Final Supplemental EA for Regulation XX addressed the potential air quality, energy and risk of upset impacts associated with the exemption of two facilities from the RECLAIM program, State Implementation Plan (SIP) approvability issues and the allocation revision for one facility participating in the program. Air quality was the only environmental area determined to be adversely impacted from the amendments. The air quality impacts resulted from removing two facilities from the RECLAIM program and the loss of anticipated NOx emission reductions from the allocation revisions. A Statement of Findings and Overriding Considerations were prepared for the project.

Notice of Exemption for Proposed Amended Rule 2011 - Requirements for Monitoring, Reporting and Recordkeeping for SOx Emissions, and Rule 2012 - Requirements for Monitoring, Reporting, and Recordkeeping for NOx Emissions; September 1995: The SCAQMD concluded that the amendments would not have an effect on emissions and that there was no possibility that the project would have the potential to have a significant adverse effect on the environment. Therefore, pursuant to CEQA Guidelines §15061(b)(3) - Review for Exemption, the project was determined to be exempt from CEQA and a Notice of Exemption was prepared.

Final Supplemental Environmental Assessment for Proposed Amended Rule 2002 - Allocations for NOx and SOx; March 1995: The Final EA for Rule 2002 addressed the potential air quality and energy impacts from adjusting the years 2000 and 2003 Allocations for the petroleum coke calcining industry. Air quality was the only area determined to be adversely impacted from the amendments due to the loss of future emission reductions. A Statement of Finding and Overriding Considerations was prepared for the amendments.

Final Environmental Assessment for the Proposed Adoption of Regulation XX - RECLAIM; October 1993: A Draft EA for the proposed NOx and SOx RECLAIM program,

comprised of three volumes: Volume I - Development Report and Proposed Rules, Volume II - Supporting Documentation and Volume III - Socioeconomic and Environmental Assessments, was released for a 30-day public review and comment period on May 24, 1993. In response to comments received regarding the Draft EA, some components of the proposed project were modified. Subsequently, a Revised Draft EA was prepared and re-circulated for an additional public review and comment period of 45 days on July 22, 1993 The SCAQMD concluded that the changes in the Revised Draft EA did not alter the significance determination for any environmental impact areas analyzed in the May 1993 version of the Draft EA. After circulation of the Revised Draft EA, a Final EA was prepared and certified by the SCAQMD Governing Board at its hearing in October 1993.

Notice of Preparation/Initial Study of Draft Environmental Assessment for the Proposed Adoption of Regulation XX - RECLAIM; October 1992: The NOP/IS of a Draft EA for the proposed adoption of the NOx and SOx RECLAIM program was released for a 30-day public review and comment period on October 23, 1992. The NOP/IS identified "air quality," "energy," and "hazards and hazardous materials" as the key areas that may be adversely affected by the proposed project.

INTENDED USES OF THIS DOCUMENT

In general, a CEQA document is an informational document that informs a public agency's decision-makers and the public generally of potentially significant adverse environmental effects of a project, identifies possible ways to avoid or minimize the significant effects, and describes reasonable alternatives to the project (CEQA Guidelines §15121). A public agency's decision-makers must consider the information in a CEQA document prior to making a decision on the project. Accordingly, this ~~Draft~~ Final PEA is intended to: (a) provide the SCAQMD Governing Board and the public with information on the environmental effects of the proposed project; and, (b) be used as a tool by the SCAQMD Governing Board to facilitate decision making on the proposed project.

Additionally, CEQA Guidelines §15124(d)(1) requires a public agency to identify the following specific types of intended uses of a CEQA document:

1. A list of the agencies that are expected to use the PEA in their decision-making;
2. A list of permits and other approvals required to implement the project; and,
3. A list of related environmental review and consultation requirements required by federal, state, or local laws, regulations, or policies.

There are no permits or other approvals required to implement the project. Moreover, the project is not subject to any other related environmental review or consultation requirements.

To the extent that local public agencies, such as cities, county planning commissions, et cetera, are responsible for making land use and planning decisions related to projects that must comply with the requirements in the proposed project, they could possibly rely on this PEA during their decision-making process. Similarly, other single purpose public agencies approving projects at facilities complying with the proposed project may rely on this PEA.

AREAS OF CONTROVERSY

CEQA Guidelines §15123(b)(2) requires a public agency to identify the areas of controversy in the CEQA document, including issues raised by agencies and the public. Over the course of developing the proposed project, the predominant concerns expressed by representatives of

industry and environmental groups, either in public meetings or in written comments, regarding the proposed project are highlighted in Table 1-1.

Table 1-1
Areas of Controversy

	Area of Controversy	Topics Raised by the Public	SCAQMD Evaluation
1.	BARCT analysis versus potentially adverse environmental impacts	Industry representatives expressed concern that the CEQA process gives a "back door" from properly conducting the BARCT analysis because CEQA can be used to justify adverse significant impacts by the Statement of Findings and Statement of Overriding Considerations.	The process of conducting a BARCT analysis is separate from the CEQA analysis. For a market-based incentive program, SCAQMD staff is required by the Health and Safety Code to conduct periodic BARCT reassessments and demonstrate equivalency with command-and-control rules which would otherwise be developed as a result of BARCT reassessment. The purpose of CEQA is to disclose the environmental effects of a project, in this case, the implementation of BARCT. Both the adverse and beneficial environmental effects of the proposed amendments to SOx RECLAIM are analyzed in this CEQA document. Because the proposed project will have some significant adverse impacts, a Statement of Findings and a Statement of Overriding Considerations will be required.
2.	Shortcomings with analysis prepared by consultants.	Industry representatives expressed concern that the consultants did not consider all of the compliance options and their analyses did not properly include the cost of credits and the true cost of regulatory compliance.	SCAQMD staff has hired a consultant to provide a second opinion on the previously prepared cost analysis.
3.	Amount of SOx shave	Industry representatives expressed concern that reducing the available SOx RTCs could kill the SOx RECLAIM program because there will not be enough SOx RTCs to trade.	Contrary to the comment, the rule analysis shows that after the shave is imposed, there will be sufficient SOx RTCs available to maintain trading within the SOx RECLAIM program.

Table 1-1
Areas of Controversy (continued)

	Area of Controversy	Topics Raised by the Public	SCAQMD Evaluation
4.	Equity of the Proposed SOx shave	SOx reductions should be based on facility-specific and technology-specific data. Many facilities are super-compliant and cannot reduce SOx further. Other facilities do not have equipment subject to BARCT.	The proposed shave is based on source categories for which additional SOx reductions can be achieved.
5.	Space limitations	Industry representatives indicated that the affected facilities may not have enough available land or space to install additional SOx controls.	According to both of the consultants' reports, a facility-by-facility evaluation was conducted which included an analysis of plot space availability. The analysis does not support the claim that there is not adequate plot space available to install SOx controls.
6.	Equipment installed as part of complying with SCAQMD Rule 1105.1 will be stranded investments.	Industry representatives indicated that the installation of dry electrostatic precipitators (ESPs) to comply with SCAQMD Rule 1105.1 and control PM and ammonia will have been a wasted investment since the equipment that would need to be installed to control SOx (e.g., wet gas scrubber) could also be used to control PM and ammonia.	The dry ESPs selected as the control technology by most but not all local operators to comply with the PM requirements in Rule 1105.1 will not be wasted and can continue to be effectively utilized in the event that wet gas scrubbers are installed as part of this proposal because the wet gas scrubbers are predominantly for reducing SOx emissions. While it is true that all scrubbers provide some PM reduction benefit as well, only the very sophisticated ones such as ones equipped with a wet ESP, however, can control PM at the levels required by Rule 1105.1. Thus, for any facility that already has dry ESPs in operation, it may not be necessary to install a scrubber that also controls the full amount of PM reductions required by Rule 1105.1. Scrubbers that can achieve the required SOx and PM emission levels per SOx RECLAIM, and Rule 1105.1, respectively, are much more expensive than the ones considered for this analysis.

Table 1-1
Areas of Controversy (continued)

	Area of Controversy	Topics Raised by the Public	SCAQMD Evaluation
7.	SOx controls for cement kilns.	Industry representatives indicated that the BARCT assessment as it applies to the cement industry is incorrect in that the cement kiln, by the nature of its design, acts as a SOx scrubber, and that any attempt to further control SOx will cause the NOx emissions to increase beyond allowable levels.	Contrary to the claim that installation of SOx controls on cement kilns will increase NOx emissions, there are other installations of dry scrubbers on cement kilns worldwide which demonstrate that both SOx and NOx emissions can be effectively reduced.
8.	Impacts from wet gas scrubber technology.	Industry representatives indicated that there are too many potentially significant adverse environmental impacts from wet gas scrubber technology, especially aesthetics and water impacts.	The analysis shows that the aesthetics impacts from the proposed project would be less than significant. With regard to water demand impacts, SCAQMD staff recognizes that wet gas scrubber technology is water intensive. However, recycled water can be used in lieu of potable water. Specifically, up to 75 percent of the estimated increase in water demand due to the wet gas scrubbers under Option 1 of the proposed project can be satisfied with recycled water. With regard to the potential increases in wastewater processing, none of the affected facilities is anticipated to need to increase their wastewater discharge in excess of 25 percent of their currently allowed levels. Thus, no modifications to any existing wastewater discharge permits are anticipated.

Table 1-1
Areas of Controversy (concluded)

	Area of Controversy	Topics Raised by the Public	SCAQMD Evaluation
9.	Availability of Wet Gas Scrubbers	Industry representatives indicated that there may be a shortfall of available wet gas scrubbers if there are multiple units being bought and assembled simultaneously at multiple facilities.	Implementation of the proposed project is expected to span over seven years, which should be adequate time for purchasing and installing wet gas scrubbers.

Pursuant to CEQA Guidelines §15131(a), "Economic or social effects of a project shall not be treated as significant effects on the environment." CEQA Guidelines §15131(b) states further, "Economic or social effects of a project may be used to determine the significance of physical changes caused by the project." Physical changes caused by the proposed project have been evaluated in Chapter 4 of this PEA. No direct or indirect physical changes resulting from economic or social effects have been identified as a result of implementing the proposed project.

Of the topics discussed to address the concerns raised relative to CEQA and the secondary impacts that would be associated with implementing the proposed project, to date, no other controversial issues were raised as a part of developing the proposed project.

EXECUTIVE SUMMARY

CEQA Guidelines §15123 requires a CEQA document to include a brief summary of the proposed actions and their consequences. In addition, areas of controversy including issues raised by the public must also be included in the executive summary (see preceding discussion). This ~~Draft~~ Final PEA consists of the following chapters: Chapter 1 – Executive Summary; Chapter 2 – Project Description; Chapter 3 – Existing Setting, Chapter 4 – Potential Environmental Impacts and Mitigation Measures; Chapter 5 – Project Alternatives; Chapter 6 - Other CEQA Topics and various appendices. The following subsections briefly summarize the contents of each chapter.

Summary of Chapter 1 – Executive Summary

Chapter 1 includes a discussion of the legislative authority that allows the SCAQMD to amend and adopt air pollution control rules, identifies general CEQA requirements and the intended uses of this CEQA document, and summarizes the remaining five chapters that comprise this ~~Draft~~ Final PEA.

Summary of Chapter 2 - Project Description

The proposed project would affect the following types of equipment and processes at SOx RECLAIM facilities: 1) petroleum coke calciners; 2) cement kilns; 3) coal-fired boiler (cogeneration); 4) container glass melting furnace; 5) diesel combustion; 6) fluid catalytic cracking units; 7) refinery boilers/heaters; 8) sulfur recovery units/tail gas treatment units; and, 9) sulfuric acid manufacturing. The following is a summary of the key proposed amendments to Rule 2002. Other minor changes are also proposed for clarity and consistency throughout the rule. A copy of Proposed Amended Rule (PAR) 2002 can be found in Appendix A.

Proposed Amended Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx)

Annual Allocations for NOx and SOx and Adjustments to RTC Holdings - subdivision (f)
In accordance with the analysis prepared for Control Measure #2007CMB-02 in the 2007 AQMP which estimates an additional reduction in SOx RECLAIM emissions of 2.9 tons per day, new criteria, procedures, adjustment factors and equations for adjusting tradable/usable and non-tradable/non-usable SOx RTC holdings have been added to subdivision (f), specifically, subparagraphs (f)(1)(I-L) in order to achieve at least these projected emission reductions from SOx RTC holders beginning in compliance year 2012 through compliance year 2019 and after. The actual amount of reductions varies and depends on the compliance year.

New subparagraph (f)(1)(M) establishes procedures for publishing SOx RTC adjustment factors. New subparagraph (f)(1)(N) establishes procedures for calculating a 12-month rolling average of SOx RTC prices. Subparagraph (f)(1)(O) contains new procedures for holding a public hearing in the event that SOx RTC prices exceed $50,000 per ton based on a 12-month rolling average.

New subparagraph (f)(1)(P) contains criteria for submitting the emission reductions obtained via the RTC Holdings adjustments to the SIP.

New subparagraph (f)(1)(Q) contains procedures for assigning SOx allocations to facilities that enter the RECLAIM program after the date of adoption of the proposed rule amendments.

Paragraph (f)(1) contains two clarifications: 1) that SOx Allocations for 2004 through 2011 are equal to the facility's 2003 Allocation; and, 2) that NOx RTC Allocations and holdings subsequent to the year 2006 and SOx Allocations and holdings subsequent to the year 2011 shall be adjusted to the nearest pound. Lastly, subparagraph (f)(1)(B) contains a clarification to include RTC swap transactions into the computation of rolling average prices.

RECLAIM NOx 2011 Ending Emission Factors – Table 3
Table 3 has been revised to extend the RECLAIM NOx ending emission factors from 2010 to 2011. This revision is an administrative change for consistency and continuity with the changes adopted in the January 2005 amendments to the NOx RECLAIM program.

RECLAIM SOx Tier III Emission Factors – Table 4
New Table 4 has been added to Rule 2002 to establish BARCT for petroleum coke calciners, cement kilns, coal-fired boilers, container glass melting furnaces, diesel combustion, fluid catalytic cracking units, refinery boilers and heaters, sulfur recovery units/tail gas treatment units, and sulfuric acid manufacturing.

List of SOx RECLAIM Holders – Table 5
New Table 5 has been added to Rule 2002 to identify the list of holders of SOx RECLAIM RTCs.

Summary of Chapter 3 - Existing Setting
Pursuant to the CEQA Guidelines §15125, Chapter 3 – Existing Setting, includes descriptions of those environmental areas that could be adversely affected by the proposed project as identified in the NOP/IS (Appendix C). The following subsection briefly highlights the existing setting for the following environmental areas identified that could potentially be adversely affected by

implementing the proposed project: aesthetics, air quality, energy, hazards and hazardous materials, hydrology and water quality, and, transportation and traffic.

Aesthetics

Implementation of the proposed project has the potential for the installation of new air pollution control devices or the modification of existing air pollution control devices at the 11 affected facilities. Ten facilities are located within Los Angeles County and consist of six oil refineries (BP Carson, ExxonMobil, Chevron, ConocoPhillips, Tesoro, and Ultramar/Valero), one petroleum coke calciner plant (BP Wilmington), two sulfuric acid manufacturing plants (Rhodia and ConocoPhillips) and one container glass manufacturing facility (Owens-Brockway). The remaining facility, California Portland Cement Company (CPCC) is located in the City of Colton in San Bernardino County. The aesthetic setting for each of these facilities is briefly described in Chapter 3.

Air Quality

Air quality in the area of the SCAQMD's jurisdiction has shown substantial improvement over the last two decades. Nevertheless, some federal and state air quality standards are still exceeded frequently and by a wide margin. Of the National Ambient Air Quality Standards (NAAQS) established for seven criteria pollutants (ozone, lead, sulfur dioxide, nitrogen dioxide, carbon monoxide, PM10 and PM2.5), the area within the SCAQMD's jurisdiction is only in attainment with carbon monoxide, sulfur dioxide, and nitrogen dioxide standards. Air monitoring for PM10 indicates that SCAQMD has attained the NAAQS but USEPA has not yet approved the SCAQMD's request for re-designation. The Los Angeles County portion of the SCAQMD is proposed to be designated as non-attainment for the new federal standard for lead, based on emissions from two specific facilities. Chapter 3 provides a brief description of the existing air quality setting for each criteria pollutant, as well as the human health effects resulting from exposure to each criteria pollutant. In addition, this section includes a discussion on greenhouse gases (GHGs), climate change and toxic air contaminants.

Energy

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation (DOT), the United States Department of Energy (DOE), and the USEPA are three agencies with substantial influence over energy policies and programs. On the state level, the California Public Utilities Commission (CPUC) and California Energy Commission (CEC) are two agencies with authority over different aspects of energy.

The CEC collects and analyzes energy-related data, prepares statewide energy policy recommendations and plans, promotes and funds energy efficiency programs, and regulates the power plant siting process. Recent energy use figures show that in 2008, 38.12 percent of the crude oil came from in-state, with 13.41 percent coming from Alaska, and 48.46 percent being supplied by foreign sources. Also in 2008, 73.2 percent of the electricity came from in-state sources, while 26.8 percent was imported into the state. The total electricity imported in 2008 was 306,577 gigawatt-hours (gWh), with 23,945 gWh coming from the Pacific Northwest and 74,113 gWh from the Southwest (CEC, 2009)[5]. (Note: One gW is equal to one million kilowatts (kW)). For natural gas in 2007, 40.8 percent came from the Southwest, 22.1 percent from Canada, 12.9 percent from in-state, and 24.2 percent from the Rockies (CEC, 2008).

[5] http://www.energy.ca.gov/2009publications/CEC-200-2009-010/CEC-200-2009-010.PDF

One of the key areas of concern in the energy sector is reducing the amount of petroleum-based fuels in the District. Consumption of these fuels is a major factor in the amount of criteria pollutants in southern California. Alternative fuels play an important role in the strategy to reach attainment in the region. Renewable energy resources include: biomass, hydro, geothermal, solar and wind.

Hazards and Hazardous Materials

Potential hazard impacts may be associated with the production, use, storage, and transport of hazardous materials. For the purposes of this ~~Draft~~ Final PEA, the term "hazards" refers to both hazardous materials and hazardous wastes. Specifically, implementation of the proposed project is expected to result in potentially increased use of catalysts, caustic solutions, additives and other scrubbing agents that may contain TACs that are either chronic or acutely hazardous materials (or both), for SOx control purposes. In general, hazards can occur due to natural events, such as earthquake, and non-natural events, such as mechanical failure or human error. The risk associated with each affected facility is defined by the probability of an event and the consequence (or hazards) should the event occur. This section discusses existing hazards to the community from potential upset conditions at the affected facilities, to provide a basis for evaluating the changes in hazards posed by the proposed project.

The major types of public safety risks at the affected facilities consist of risk from releases of hazardous substances and from major fires and explosions. The shipping, handling, storage, and disposal of hazardous materials inherently pose a certain risk of a release to the environment. The hazards that are likely to exist are identified by the physical and chemical properties of the materials being handled and their process conditions, including toxic gas clouds, torch fires, flash fires, pool fires, and vapor cloud explosions, thermal radiation and explosion/overpressure.

The use, storage and transport of hazardous materials are subject to numerous laws and regulations at all levels of government. The most relevant existing hazardous materials laws and regulations include hazardous materials management planning, hazardous materials transportation, hazardous materials worker safety requirements, hazardous waste handling requirements and emergency response to hazardous materials and waste incidents. Potential risk of upset is a factor in the production, use, storage and transportation of hazardous materials. Risk of upset concerns are related to the risks of explosions or the release of hazardous substances in the event of an accident or upset conditions.

Releases of hazardous materials have the potential for harmful effects on workers and the public. Causes of these releases may include plant upsets; leaks in seals, pipeline failures; vehicular traffic accidents; and failures during delivery, such as hose leaks.

Hydrology and Water Quality

The Federal Safe Drinking Water Act, enacted in 1974 and implemented by the USEPA, imposes water quality and infrastructure standards for potable water delivery systems nation-wide. The California Safe Drinking Water Act was enacted in 1976. Potable water supply is managed through local agencies and water districts, the State Department of Water Resources (DWR), the Department of Health Services (DHS), the State Water Resources Control Board (SWRCB), the USEPA, and the United States Bureau of Reclamation. The DWR manages the State Water Project (SWP), and compiles planning information on supply and demand within California.

The DWR divides the state into ten hydrologic regions. Some regions contain a great deal of water, while other regions are very dry and must have their water imported by aqueducts. The South Coast Air Basin lies within the South Coast Hydrologic Region. The cities of Los Angeles, Long Beach, Santa Ana, and Riverside are among the many urban areas in this hydrologic region. The Santa Clara, Los Angeles, San Gabriel, and Santa Ana Rivers are among the area's hydrologic features. Most lakes in this area are actually reservoirs, made to hold imported water.

Imported sources of water (including the Colorado River Aqueduct (CRA), the State Water Project's California Aqueduct, and the Los Angeles Aqueduct) have, in previous years, supplied more than six million acre-feet[6] or two trillion gallons of water to the southern California region annually. Imported sources have accounted for approximately 74 percent of the total water used in the region.

However, back-to-back dry years and low reservoir levels have put California in a statewide drought. In late 2008, the state's major reservoirs were at about one-third of capacity, at a time when they would typically be at about two-thirds. As a result, the DWR has allocated only 15 percent of requested amounts of water to be delivered to the SWP in 2009. This allocation is the second lowest in the history of the project. Adding to California's water difficulties is a federal judge's restrictions on pumping in the Delta, ordered in 2007 to protect the threatened Delta smelt. These restrictions reduced water deliveries by as much as 30 percent in 2008 to 25 million Californians in the San Francisco Bay Area, the Central Coast, the San Joaquin Valley, and Southern California. Because of the drought, local water resources, which include groundwater and captured surface water runoff, are not expected to be stable in the future on a region-wide basis. Further, several groundwater basins in the region are threatened by overdraft conditions, increasing levels of salinity, and contamination by agricultural land to urban development, thereby reducing the land surface available for groundwater recharge. Increasing demand for groundwater may also be limited by water quality, since levels of salinity in sources currently used for irrigation could be unacceptably high for domestic use without treatment.

On June 4, 2008, Governor Arnold Schwarzenegger issued Executive Order S-06-08 and declared an official drought for California[7]. Further, California Water Code §71460 et seq. states that a water district may restrict the use of water during any emergency caused by drought, or other threatened or existing water shortage, and may prohibit the use of water during such periods for any purpose other than household uses or such other restricted uses as determined to be necessary. The water district may also prohibit the use of water during such periods for specific uses which it finds to be nonessential. On February 27, 2009, Governor Schwarzenegger proclaimed a state of emergency regarding the drought and the availability and future sustainability of California's water resources[8]. The proclamation directed all state government agencies to utilize their resources, implement a state emergency plan and provide assistance for people, communities and businesses impacted by the drought. The proclamation further requested that all urban water users immediately increase their water conservation activities in an effort to reduce their individual water use by 20 percent.

[6] One acre-foot is equivalent to 325,851 gallons.
[7] http://gov.ca.gov/press-release/9796
[8] http://gov.ca.gov/press-release/11556/

In response to the Governor's proclamation, the California legislature has proposed Assembly Bill (AB) 49 – Water Efficiency[9] and Senate Bill (SB) 261 – Urban Water Efficiency[10]. These proposed bills will require a 10 percent reduction of urban water use by 2015 and 20 percent by 2020. However, these proposed bills will allow the use of non-potable or recycled water to count towards the progress in meeting these targets.

Water districts, in response to the drought, have also taken actions throughout the state such as: 1) asking for voluntary reductions; 2) imposing mandatory restrictions or declaring a local emergency; 3) imposing agricultural rationing; 4) imposing drought rates, surcharges and fines; 5) limiting new development and requiring water efficient landscaping; and, 6) implementing a conservation campaign. In addition, water shortages have prompted cities to begin infrastructure improvements to secure future water supplies. For example, the Los Angeles Department of Water and Power (LADWP), in conjunction with the West Basin Municipal Water District (WBMWD), is constructing the Harbor Refineries Recycled Water Pipeline Project (HRRWPP) to conserve potable water and instead produce and convey recycled water to multiple industrial and irrigation customers in the Los Angeles Harbor area[11].

The SWRCB, and the nine regional water quality control boards (RWQCB), are responsible for protecting surface and groundwater supplies in California. In particular, the SWRCB establishes water-related policies and approves water quality control plans, which are implemented and enforced by RWQCBs. Five RWQCBs have jurisdiction over areas within the boundaries of the SCAQMD. These agencies also regulate discharges to state waters through federal pre-treatment requirements enforced by the publicly-owned treatment works (POTWs).

Water quality of regional surface water and groundwater resources is affected by point source and non-point source discharges occurring throughout individual watersheds. Regulated point sources, such as wastewater treatment effluent discharges, usually involve single discharge into receiving waters. Non-point sources involve diffuse and non-specific runoff that enters receiving waters through storm drains or from unimproved natural landscaping. Within the regional Basin Plans, the RWQCBs establish water quality objectives for surface water and groundwater resources and designate beneficial uses for each identified body of water.

Much of the urbanized areas in Los Angeles County, where the majority of the facilities affected by the proposed project are located, is serviced by two large POTWs operating on the coast as follows: the City of Los Angeles Bureau of Sanitation Hyperion Facility and the Joint Outfall System of the Los Angeles County Sanitation District (LACSD). Each of these facilities discharges an average of over 250 million gallons per day (MMgal/day).

The City of Colton, where one facility (CPCC) affected by the proposed project is located[12], owns, operates and maintains a wastewater collection, pumping and treatment system referred to as the Colton Water Reclamation Facility (CWRF). The CWRF also serves the City of Grand Terrace and unincorporated County areas. The plant utilizes a conventional and extended aeration secondary treatment process to product-treated effluent in compliance with RWQCB regulations. In addition, a regional tertiary treatment plant serving both the Cities of Colton and

[9] http://info.sen.ca.gov/pub/09-10/bill/asm/ab_0001-0050/ab_49_bill_20090909_proposed.html

[10] http://info.sen.ca.gov/pub/09-10/bill/sen/sb_0251-0300/sb_261_bill_20090713_amended_asm_v93.html

[11] The EIR for HRRWPP, SCH No. 2008121093, was certified by the LADWP Board of Harbor Commissioners on October 20, 2009.

[12] CPCC, located in San Bernardino County, does not discharge wastewater offsite.

San Bernardino treats the effluent from the wastewater treatment plant and returns the water to the Santa Ana River. The average daily flows at the CWRF are approximately 5.6 MMgal/day.

Transportation and Traffic

The transportation system in Southern California is a complex intermodal network designed to carry both people and goods. It consists of roads and highways, public transit, paratransit, bus and rail, freight railroads, airports, seaports and intermodal terminals. The regional highway system consists of an interconnected network of local streets, arterial streets, freeways, carpool lanes and toll roads. This highway network allows for the operation of private autos, carpools, private and public buses, and trucks. Non-motorized transportation modes, such as bicycles share many of these facilities. The regional public transit system includes local shuttles, municipal and area-wide public bus operations, rail rapid transit operations, regional commuter rail services, and inter-regional passenger rail service. The freight railroad network includes an extensive system of private railroads and several publicly owned freight rail lines serving industrial cargo and goods. The airport system consists of commercial, general, and military aviation facilities serving passenger, freight, business, recreational, and defense needs. The region's seaports support substantial international and interregional freight movement and tourist travel. Intermodal terminals consisting of freight processing facilities serve the function of transfer, storage and distribution of goods. The transportation system supports the region's economic needs as well as the demand for personal travel.

The regional transportation system is currently at capacity operations during peak periods. The highway system shows substantial freeway congestion in the morning and evening peak period, with random episodes of incident-related (e.g., accident) congestion throughout the day. The transit system is experiencing substantial overcrowding on a number of core urban bus routes with significant excess capacity on most off-peak and peripheral routes. Rail transit is very close to capacity during peak hours on the Metro Blue Line, Metro Red Line, and Metro Gold Line, while the Metro Green Line generally has some capacity available. Commuter rail service is at or near capacity during peak periods as the routes approach Union Station in downtown Los Angeles, but suburb-to-suburb capacity is available on most lines.

Summary of Chapter 4 - Environmental Impacts

CEQA Guidelines §15126(a) requires that a CEQA document shall identify and focus on the "significant environmental effects of the proposed project." Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects.

The Initial Study identified and described those environmental topics where the proposed project could cause significant adverse environmental impacts (i.e., aesthetics, air quality, energy, hazards and hazardous materials, hydrology and water quality, and, transportation and traffic). Analysis of these environmental topics revealed that potentially significant air quality impacts may result from construction activities resulting from installing new air pollution control equipment.

The type of emission reduction projects that may be undertaken to comply with PAR 2002 are the main focus of the analysis in this PEA. There are multiple source categories with multiple approaches to reducing SOx. With so many possibilities or permutations of how operators of SOx RECLAIM facilities could achieve actual SOx reductions, there is no way to predict what each facility operator will do. For this reason, the proposed project analysis is bifurcated into two options to illustrate the worst-case effects of applying the various SOx control technologies

along with demonstrating the flexibility that is provided by the RECLAIM program to facility operators when it comes to choosing the methods for reducing SOx emissions. Both options focus on the installation and operation of SOx control technologies for FCCUs, SRU/TGUs, sulfuric acid plants, coke calciners, glass melting furnaces, cement manufacturers, and refinery boilers and heaters. The main differences between Option 1 and Option 2 are: 1) the type of SOx control technique that may be applied to the FCCU source category; and, 2) the environmental impacts that may result from having different SOx control techniques applied to the FCCU source category. However, the type of SOx controls and associated environmental impacts for the remaining source categories will be the same for both Option 1 and Option 2.

The following subsections briefly summarize the analysis of potential adverse environmental impacts from the implementation of the proposed project.

Aesthetics

Physical modifications may result as part of implementing the proposed project and will vary depending on the equipment source category/process. The analysis in this CEQA document is based on the assumption that new air pollution control equipment is expected to be installed and existing air pollution control equipment is expected to be modified as part of implementing the proposed project at 11 affected facilities. Aesthetic impacts associated with the installation of new SOx control equipment, in particular, wet gas scrubbers (WGSs), were determined in the NOP/IS to be potentially significant and, as such, are evaluated in this PEA. Specifically, for any installation of a WGS, operational aesthetic impacts resulting from a substantial visible steam (water vapor) plume that would emanate from the WGS stack were evaluated in this PEA. The size of each WGS and the height needed for the associated stack were also considered in the evaluation.

The analysis will show that if any WGS is installed as part of the proposed project at any of the affected facilities, the steam plume, though visible, is not expected to significantly adversely affect the visual continuity of the surrounding area of each affected facility because no scenic highways or corridors exist within the areas of the refineries, the coke calciner, the sulfuric acid plants and the glass melting plant. Further, the visual continuity of the surrounding area is not expected to be adversely impacted because each WGS, if constructed, will be built within the confines of industrial areas and would be visually consistent with the profiles of the existing affected facilities. Thus, even if each WGS could be visible, depending on the location within each property boundary, the aesthetic significance criteria would not be exceeded. Further, the analysis shows that the proposed project is not expected to create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. For these reasons, less than significant aesthetics impacts during operation are expected from the proposed project.

In addition, implementation of the proposed project is expected to result in construction activities at some or all of the affected facilities, which are complex industrial facilities. Due to the large size profiles of the affected equipment, the construction activities associated with installing control equipment are expected to require the use of heavy-duty construction equipment, such as cranes, which may temporarily change the skyline of the affected facilities, depending on where they are located within each facility's property. However, because each affected facility is located in a heavy industrial area, the construction equipment is not expected to be substantially discernable from what would be needed for routine operations and maintenance activities. For these reasons, the construction activities are expected to blend in with the existing industrial environment and thus, are not expected to affect the visual continuity of the surrounding areas.

Overall, the aesthetics impacts were determined to be less than significant during both construction and operation for the proposed project.

Air Quality

The proposed project is expected to result in anticipated reductions of at least 2.9 tons per day of SOx emissions by 2014 from 11 facilities. In order to achieve the overall net air quality benefit from implementing the proposed project, some of the affected facilities may choose to modify existing equipment by retrofitting with air pollution control technologies in order to comply with the shave of SOx RTCs.

The physical changes involved that may occur as a result of implementing the proposed project focus on the installation of new or the modification of existing control equipment on the following types of equipment and processes at SOx RECLAIM facilities: 1) petroleum coke calciner; 2) cement kilns; 3) coal-fired boiler (cogeneration); 4) container glass melting furnaces; 5) fluid catalytic cracking units (FCCUs); 6) refinery boilers/heaters[13]; 7) sulfur recovery units/tail gas treatment units; and, 8) sulfuric acid manufacturing. Table 1-2 summarizes the potential control technologies that may be considered as part of implementing the proposed project.

Construction activities associated with installing or modifying existing air pollution control equipment are expected and have the potential to generate significant adverse air quality impacts. In addition, operational activities due to periodic truck trips such as the delivery of supplies to support the operations of the various control technologies, the removal of waste, or the sale of elemental sulfur recovered from the control processes are also expected and have the potential to generate significant adverse air quality impacts for greenhouse gases.

Table 1-2
Potential Control Technologies per Equipment/Source Category

Equipment/Source Category	Potential Control Technology
FCCU	WGS or SOx Reducing Additives
Sulfur Recovery Units/ Tail Gas Treatment Units	WGS or Selective Oxidation Catalyst
Refinery Boilers/Heaters	FGT
Sulfuric Acid Manufacturing	WGS or Upgrade Existing Controls
Petroleum Coke Calciner	WGS
Container Glass Melting Furnace	WGS
Cement Kiln	DGS (Absorber)
Coal-fired Boiler (cogeneration)	DGS (Absorber)

Key: WGS = wet gas scrubber; FGT = fuel gas treatment; DGS = dry gas scrubber

Cumulative air quality impacts from the proposed project and all other AQMP control measures considered together are not expected to be significant because the amount of emission reductions to be achieved by the proposed project for SOx are expected to meet the emission reduction projections and commitments made by control measures in the 2007 AQMP. Even though the proposed project may cause a temporary and significant adverse increase in emissions during

[13] Although the proposed project does not establish a new BARCT level for refinery boilers/heaters, it is conceivable that certain existing refinery boilers/heaters that are not meeting current BARCT levels could be retrofit candidates for future reductions. Therefore, the refinery boiler/heater source category is included in this analysis.

construction, the temporary net increase in emissions combined with the total net accumulated emission reductions projected overall would not interfere with the air quality progress and attainment demonstration projected in the AQMP. Indeed, the 2007 AQMP indicated that, based on future anticipated overall reduction in emissions, the Basin would achieve the federal ozone ambient air quality standard by the year 2024 and the PM2.5 standard by 2015 (SCAQMD, 2007). Further, in accordance with the 2007 AQMP emission inventory trends, average annual daily CO and VOC emissions are projected to be reduced, which in spite of significant CO and VOC construction emissions for the proposed project, implementing the control measures in the 2007 AQMP will result in an overall net reduction in CO and VOC emissions. Therefore, cumulative air quality impacts from the proposed project and all other AQMP control measures, when considered together, are not expected to be significant because implementation of all AQMP control measures is expected to result in net emission reductions and overall air quality improvement.

With regard to GHG emissions, the proposed project involves combustion processes which could generate GHG emissions such as CO2, CH4, and N2O. However, the proposed project does not affect equipment or operations that have the potential to emit other GHGs such as SF6, HFCs or PFCs. Implementing the proposed project is expected to increase GHG emissions that exceed the SCAQMD's GHG significance threshold for industrial sources. In addition, implementing the proposed project is expected to generate significant adverse cumulative GHG air quality impacts.

Energy

Implementation of the proposed project is expected to increase the amount of energy needed to both construct and operate the new and modified air pollution control devices associated with the existing facilities affected by the proposed project. During construction, increased use of electricity, plus gasoline and diesel fuels are expected from on- and off-road vehicle and equipment use. Operational activities of the new and modified air pollution control equipment are expected to result in an overall decrease in the use of natural gas (a benefit), but an increase in electricity. In addition, an increased use of diesel fuel associated with supply delivery trips and waste removal trips is expected as part of day-to-day operations. Despite the potential increases in energy use overall as part of implementing the proposed project, the increases are not expected to exceed the energy significance thresholds.

Hazards and Hazardous Materials

Implementation of the proposed project may alter the hazards and hazardous materials associated with the existing facilities affected by the proposed project. Air pollution control equipment and related devices are expected to be installed or modified at affected facilities such that their operations may increase the quantity of materials used in the control equipment, some of which are hazardous. For example, the proposed project could result in the increased use of catalysts and SOx reducing additives, amine additives, and caustic agents; some of these materials are hazardous while others are not. Thus, the routine transport of hazardous materials, use, and disposal of hazardous materials may increase as a result of the proposed project. The hazards analysis focuses on the materials used that may be hazardous.

In addition, because operation of the new or modified air pollution control equipment, by design, is also expected to reduce SOx, which is an amalgam of multiple hazardous materials, the proposed project is expected to result in a corresponding reduction of hazardous materials. Thus, the hazards analysis also considers the benefits (i.e., the capture of more hazardous materials) of

implementing the proposed project. The overall analysis concluded that the proposed project would generate less than significant adverse hazards/hazardous materials impacts.

Hydrology and Water Quality

Implementation of the proposed project may cause hydrology and water quality impacts associated with the existing facilities affected by the proposed project. Specifically, the installation of WGSs and DGSs (limestone absorbers), the installation of new or modification of existing FGT systems, and upgrading existing sulfuric acid plant controls all involve an increased demand for water and an increased amount of wastewater discharge. However, the use of selective oxidation catalyst and/or SOx reducing catalysts as part of implementing the proposed project, do not utilize water or generate wastewater and, therefore, are not expected to create hydrology and water quality impacts.

For water demand, there are three significance thresholds based on whether: 1) the total water demand of the proposed project is less than five million gallons per day; 2) the existing water supply has the capacity to meet the increased demands of the proposed project; and, 3) the potable water demand is a substantial use of water. The analysis shows that the increased potential demand for total water that may result from implementing the proposed project is not expected to exceed the significance threshold of five million gallons of total water demand per day. Further, based on discussions with the local water suppliers, the existing water supply is expected to have the capacity to meet the increased demands of the proposed project. However, because the entire state of California is in the midst of a severe drought, a water supply analysis relative to the current and future availability of potable water and the use of recycled water and industrial-use groundwater to satisfy some of the water demand needs of the proposed project was conducted. While the total water demand for the proposed project will not exceed the significance thresholds for total water, based on the definition of "water demand project" in CEQA Guidelines §15155, the potential increase in potable water demand may be considered a substantial use of potable water. Therefore, the proposed project may cause significant potable water demand impacts.

Relative to water quality, the analysis will also show that implementing the proposed project may increase the amount of wastewater discharged from certain affected facilities. However, the potential increases will not cause a permit revision to any affected facility's wastewater permit and as such, will not exceed the wastewater significance threshold. For this reason, the wastewater impacts from the proposed project are expected to be less than significant.

Transportation and Traffic

Implementation of the proposed project may cause adverse transportation and traffic impacts associated with the existing facilities affected by the proposed project. Specifically, construction-based traffic associated with the installation of WGSs and DGSs, the installation of new or modification of existing fuel gas treatment (FGT) systems, and upgrading existing sulfuric acid plant controls are expected from construction workers, delivery trucks and haul trucks. During operation of the proposed project, regular deliveries and waste disposal activities are expected to increase at each of the affected facilities. Despite the increases, the analysis shows that the transportation and traffic impacts, though adverse, are less than significant for the proposed project.

Potential Environmental Impacts Found Not To Be Significant

The Initial Study for the proposed project includes an environmental checklist of approximately 17 environmental topics to be evaluated for potential adverse impacts from a proposed project.

Review of the proposed project at the NOP/IS stage identified six topics, aesthetics, air quality, energy, hazards and hazardous materials, hydrology and water quality, and, transportation and traffic, for further review in the ~~Draft~~ Final PEA. Where the Initial Study concluded that the project would have no significant direct or indirect adverse effects on the remaining environmental topics, of the comments received on the NOP/IS or at the public meetings, none of the comments changed this conclusion. The screening analysis concluded that the following environmental areas would not be significantly adversely affected by the proposed project:

- agriculture resources
- biological resources
- cultural resources
- geology/soils
- land use and planning
- mineral resources
- noise
- population and housing
- public services
- recreation
- solid/hazardous waste

The NOP/IS for the proposed project was circulated for a 30-day review and comment period from June 19, 2009, to July 21, 2009. At the time the NOP/IS was circulated, the environmental checklist did not include impacts to forest lands as a topic to be evaluated as part of a CEQA document. However, subsequent to the release of the NOP/IS, amendments to the CEQA Guidelines adopted by the Natural Resources Agency became effective on March 18, 2010. These amendments also contained revisions to the environmental checklist, Appendix G; these revisions included the consideration of impacts to forestry lands in the environmental analysis. Specifically, the topic of "Agriculture Resources" in the checklist was revised and renamed as "Agriculture and Forest Resources" and questions were added to address the consideration of impacts to forest resources.

Although the NOP/IS did not include a preliminary analysis of forest resources, to make the analysis of environmental impacts consistent with the recent changes to the environmental checklist, a discussion of indirect impacts from the proposed project that could conflict with, or cause rezoning of forest land has been included in this section of the ~~Draft~~ Final PEA. No significant impacts on forest resources were identified.

Consistency

The Southern California Association of Governments (SCAG) and the SCAQMD have developed, with input from representatives of local government, the industry community, public health agencies, the USEPA-Region IX and the California Air Resources Board (CARB), guidance on how to assess consistency within the existing general development planning process in the Basin. Pursuant to the development and adoption of its Regional Comprehensive Plan Guide (RCPG), SCAG has developed an Intergovernmental Review Procedures Handbook (June 1, 1995). The SCAQMD also adopted criteria for assessing consistency with regional plans and the AQMP in its CEQA Air Quality Handbook. The proposed project is considered to be consistent with SCAG's RCPG because it does not interfere with achieving any of the goals identified in any of the RCPG policies.

Other CEQA Topics

CEQA documents are required to address the potential for irreversible environmental changes, growth-inducing impacts and inconsistencies with regional plans. Consistent with the Final Program Environmental Impact Report (EIR) prepared for the 2007 AQMP, additional analysis of the proposed project confirms that it would not result in irreversible environmental changes or the irretrievable commitment of resources, foster economic or population growth or the construction of additional housing, or be inconsistent with regional plans.

Summary Chapter 5 - Alternatives

Three alternatives to the proposed project are summarized in Table 1-3: Alternative A (No Project), Alternative B (AQMP), and Alternative C (Intermediate SOx Reductions). Pursuant to the requirements in CEQA Guidelines §15126.6 (b) to mitigate or avoid the significant effects that a project may have on the environment, a comparison of the potentially significant adverse air quality and hydrology (water demand) impacts from each of the project alternatives for the individual rule components that comprise the proposed project is provided in Table 1-4. The alternatives comparison in Table 1-4 also addresses the topics of aesthetics, energy, hazards and hazardous materials, water quality, and transportation/traffic. Aside from these topics, no other potentially significant adverse impacts were identified for the proposed project or any of the project alternatives. The proposed project is considered to provide the best balance between emission reductions and the adverse environmental impacts due to construction and operation activities while meeting the objectives of the project. Therefore, the proposed project is preferred over the project alternatives.

Table 1-3
Summary of PAR 2002 & Project Alternatives

Rule Components									
Basic Equipment	**BARCT**	**Proposed Project**	**SOx Reduction Potential** (tons/day)	**Alternative A:** No Project	**SOx Reduction Potential** (tons/day)	**Alternative B:** AQMP	**SOx Reduction Potential** (tons/day)	**Alternative C:** Intermediate SOx Reductions	**SOx Reduction Potential** (tons/day)
FCCU	WGS or SOx Reducing Additive	5 ppm SOx (3.25 lbs SOx/1000 bbl)	2.88[14]	No SOx limit	0	Same as Alternative A: No Project	0	Same as Proposed Project	2.88~~[12]~~[14]
SRU/TGU	WGS or Selective Oxidation Catalyst	5 ppm SOx (combusted tail gas) & 10 ppm H2S / 300 ppm non-H2S (non-combusted tail gas) (5.28 lbs SOx/hr)	0.73[15]	No SOx limit	0	Same as Alternative A: No Project	0	Same as Alternative A: No Project	0
Sulfuric Acid Mfg.	WGS or upgrade existing controls	10 ppm SOx (0.14 lbs SOx/ton acid)	1.03	No SOx limit	0	Same as Proposed Project	1.03	Same as Proposed Project	1.03
Coke Calciner	WGS	10 ppm SOx (0.07 lbs SOx/ton coke)	0.28	No SOx limit	0	Same as Proposed Project	0.28	Same as Proposed Project	0.28
Glass Melting Furnace	WGS	5 ppm SOx (0.03 lbs SOx/ton glass)	0.19	No SOx limit	0	Same as Proposed Project	0.19	Same as Proposed Project	0.19
Cement Kiln	Limestone Absorber	5 ppm SOx (0.04 lbs SOx/ton clinker)	0.25	No SOx limit	0	Same as Alternative A: No Project	0	Same as Proposed Project	0.25
Coal-fired Boiler	DGS or Limestone Absorber	5 ppm SOx	0[16]	No SOx limit	0	Same as Alternative A: No Project	0	Same as Alternative A: No Project	0
Refinery Boilers/ Heaters	FGT	40 ppm SOx (6.76 lbs SOx/mmscf)	0.85[17]	No SOx limit	0	Same as Alternative A: No Project	0	Same as Proposed Project	0.85[17]
Potential SOx Emission Reductions			**6.21**		**0**		**1.50**		**5.48**
Proposed RTC Shave			6.14		0		3.00		5.32
2005 Excess SOx RTCs			1.75		0		1.75		1.75
Minimum SOx Emission Reductions Needed[12]			**4.39**		**0**		**1.25**		**3.57**

Key: WGS = Wet Gas Scrubber; DGS = Dry Gas Scrubber; FGT = Fuel Gas Treatment

[14] The estimated amount of SOx potentially reduced excludes the data for Facility D because installing a WGS is not cost-effective for this facility. However, the estimated amount of SOx potentially reduced includes the data for Facility C because a WGS is already installed.

[15] The estimated amount of SOx potentially reduced excludes the data for Facility E and Facility G because installing a WGS or Emerachem unit is not cost-effective for these facilities.

[16] This equipment is currently not operating at Facility K.

[17] The proposed project neither establishes a new BARCT level for refinery boilers/heaters nor requires additional reductions from this source category. However, cost-effective emission reductions in the amount of 0.85 tons per day are potentially available from future retrofits in this source category and the environmental impacts from such controls are evaluated in this analysis but the potential emission reductions are excluded from the proposed RTC shave.

Table 1-4
Comparison of Adverse Environmental Impacts of the Alternatives

Category	Proposed Project – Option 1	Proposed Project – Option 2	Alternative A: No Project	Alternative B: AQMP	Alternative C: Intermediate SOx Reductions – Option 1	Alternative C: Intermediate SOx Reductions – Option 2
Aesthetics	Visible steam plumes and new, tall stacks from installing/operating 11 WGSs as follows: FCCU: 4 WGSs SRU/TGU: 3 WGSs Sulfuric Acid: 1 WGS Coke Calciner: 1 WGS Glass Melting: 2 WGSs	Visible steam plumes and new, tall stacks from installing/operating 7 WGSs as follows: SRU/TGU: 3 WGSs Sulfuric Acid: 1 WGS Coke Calciner: 1 WGS Glass Melting: 2 WGSs	No installation of WGS (i.e., no visible steam plumes and no new, tall stacks) expected.	Visible steam plumes and new, tall stacks from installing/operating 4 WGSs as follows: Sulfuric Acid: 1 WGS Coke Calciner: 1 WGS Glass Melting: 2 WGSs	Visible steam plumes and new, tall stacks from installing/operating 8 WGSs as follows: FCCU: 4 WGSs Sulfuric Acid: 1 WGS Coke Calciner: 1 WGS Glass Melting: 2 WGSs	Visible steam plumes and new, tall stacks from installing/operating 4 WGSs as follows: Sulfuric Acid: 1 WGS Coke Calciner: 1 WGS Glass Melting: 2 WGSs
Aesthetics Impacts Significant?	Less than significant, but more than the proposed project- Option 2.	Less than significant, but less than the proposed project - Option 1.	Not Significant	Less than significant, and less than the proposed project for both Options 1 and 2.	Less than significant, and less than the proposed project Option 1 and more than the proposed project Option 2.	Less than significant, and less than the proposed project for both Options 1 and 2.
Air Quality	• Decreases total operational SOx emissions by 6.21 tons/day (tpd) as follows: FCCU: 2.88 tpd SRU/TGU: 0.73 tpd Sulfuric Acid: 1.03 tpd Coke Calciner: 0.28 tpd Glass Melting: 0.19 tpd Cement Kiln: 0.25 tpd Coal-fired Boiler: 0 tpd Refinery Boilers/Heaters: 0.85 tpd	• Decreases total operational SOx emissions by 6.21 tpd as follows: FCCU: 2.88 tpd SRU/TGU: 0.73 tpd Sulfuric Acid: 1.03 tpd Coke Calciner: 0.28 tpd Glass Melting: 0.19 tpd Cement Kiln: 0.25 tpd Coal-fired Boiler: 0 tpd Refinery Boilers/Heaters: 0.85 tpd	No decreases in total operational SOx emissions.	• Decreases total operational SOx emissions by 1.50 tpd as follows: Sulfuric Acid: 1.03 tpd Coke Calciner: 0.28 tpd Glass Melting: 0.19 tpd	• Decreases total operational SOx emissions by 5.48 tpd as follows: FCCU: 2.88 tpd Sulfuric Acid: 1.03 tpd Coke Calciner: 0.28 tpd Glass Melting: 0.19 tpd Cement Kiln: 0.25 tpd Refinery Boilers/Heaters: 0.85 tpd	• Decreases total operational SOx emissions by 5.48 tpd as follows: FCCU: 2.88 tpd Sulfuric Acid: 1.03 tpd Coke Calciner: 0.28 tpd Glass Melting: 0.19 tpd Cement Kiln: 0.25 tpd Refinery Boilers/Heaters: 0.85 tpd

Table 1-4 (continued)
Comparison of Adverse Environmental Impacts of the Alternatives

Category	Proposed Project – Option 1	Proposed Project – Option 2	Alternative A: No Project	Alternative B: AQMP	Alternative C: Intermediate SOx Reductions – Option 1	Alternative C: Intermediate SOx Reductions – Option 2
Air Quality (concluded)	• Increases total GHGs by: - 39,020 MT/yr without mitigation; and. - 38,771 MT/yr with mitigation. • Increases operational use of NaOH (a TAC) by 13.24 tpd. • Increases peak daily operation emissions as follows: VOC: 1 lb/day CO: 5 lb/day NOx: 15 lb/day PM10: 1 lb/day PM2.5: 1 lb/day • Increases peak daily construction emissions as follows: VOC: 89 lb/day CO: 461 lb/day NOx: 464 lb/day SOx: 1 lb/day PM10: 159 lb/day PM2.5: 53 lb/day	• Increases total GHGs by: - 19,662 MT/yr without mitigation; and. - 19,580 MT/yr with mitigation. • Increases operational use of NaOH (a TAC) by 8.79 tpd. • Increases peak daily operation emissions as follows: VOC: 1 lb/day CO: 4 lb/day NOx: 13 lb/day PM10: 1 lb/day PM2.5: 1 lb/day • Increases peak daily construction emissions as follows: VOC: 89 lb/day CO: 461 lb/day NOx: 464 lb/day SOx: 1 lb/day PM10: 159 lb/day PM2.5: 53 lb/day	No increases in any emissions.	• Increases total GHGs by: - 6,567 MT/yr without mitigation; and. - 6,522 MT/yr with mitigation. • Increases operational use of NaOH (a TAC) by 5.45 tpd. • Increases peak daily operation emissions as follows: NOx: 1 lb/day • Increases peak daily construction emissions as follows: VOC: 89 lb/day CO: 461 lb/day NOx: 464 lb/day SOx: 1 lb/day PM10: 159 lb/day PM2.5: 53 lb/day	• Increases total GHGs by: - 34,159 MT/yr without mitigation; and. - 33,911 MT/yr with mitigation. • Increases operational use of NaOH (a TAC) by 13.24 tpd. • Increases peak daily operation emissions as follows: VOC: 1 lb/day CO: 4 lb/day NOx: 13 lb/day PM10: 1 lb/day PM10: 1 lb/day PM2.5: 1 lb/day • Increases peak daily construction emissions as follows: VOC: 89 lb/day CO: 461 lb/day NOx: 464 lb/day SOx: 1 lb/day PM10: 159 lb/day PM2.5: 53 lb/day	• Increases total GHGs by: - 14,805 MT/yr without mitigation; and. - 14,723 MT/yr with mitigation. • Increases operational use of NaOH (a TAC) by 8.79 tpd. • Increases peak daily operation emissions as follows: VOC: 1 lb/day CO: 4 lb/day NOx: 11 lb/day PM10: 1 lb/day • Increases peak daily construction emissions as follows: VOC: 89 lb/day CO: 461 lb/day NOx: 464 lb/day SOx: 1 lb/day PM10: 159 lb/day PM2.5: 53 lb/day

Table 1-4 (continued)
Comparison of Adverse Environmental Impacts of the Alternatives

Category	Proposed Project – Option 1	Proposed Project – Option 2	Alternative A: No Project	Alternative B: AQMP	Alternative C: Intermediate SOx Reductions – Option 1	Alternative C: Intermediate SOx Reductions – Option 2
Air Quality Impacts Significant?	• Less than significant, achieves equivalent SOx emission reductions during operation to the proposed project - Option 2. • Significant for GHGs, more than the proposed project - Option 2. • Less than significant for TACs use (NaOH) during operation, but more than the proposed project - Option 2. • Significant for NOx, VOC, and PM10 during construction and equivalent to the proposed project - Option 2. • Less than significant for VOC, CO, NOx, PM10 and PM2.5 during operation and more than the proposed project - Option 2.	• Less than significant, achieves equivalent SOx emission reductions during operation to the proposed project - Option 1. • Significant for GHGs, less than the proposed project - Option 1. • Less than significant for TACs use (NaOH) during operation, but less than the proposed project - Option 1. • Significant for NOx, VOC, and PM10 during construction and equivalent to the proposed project - Option 1. • Less than significant for VOC, CO, NOx, PM10 and PM2.5 during operation and less than the proposed project - Option 1.	Not significant for any pollutant during construction or operation but does not achieve required AQMP SOx emission reductions during operation.	• Less than significant, achieves the least amount of SOx emission reductions during operation than the proposed project for both Options 1 and 2. • Less than significant for GHGs, less than the proposed project for both Options 1 and 2. • Less than significant for TACs use (NaOH) during operation, and less than the proposed project for both Options 1 and 2. ~~but equivalent to the proposed project Option 2.~~ • Significant for NOx, VOC, and PM10 during construction; equivalent to the proposed project for both Options 1 and 2. • Less than significant for VOC, CO, NOx, PM10 and PM2.5 during operation and less than the proposed project for both Options 1 and 2.	• Less than significant, achieves less SOx emission reductions during operation than the proposed project for both Options 1 and 2. • Significant for GHGs, but less than the proposed project ~~for both~~ Options 1 and more than the proposed project - Option 2. • Less than significant for TACs use (NaOH) during operation, and equivalent to the proposed project - Option 1, and more than the proposed project - Option 2. • Significant for NOx, VOC, and PM10 during construction; equivalent to the proposed project for both Options 1 and 2. • Less than significant for VOC, CO, NOx, PM10 and PM2.5 during operation and less than the proposed project - Option 1 and equivalent to the proposed project – Option 2.	• Less than significant, achieves less SOx emission reductions during operation than the proposed project for both Options 1 and 2. • Significant for GHGs, but less than the proposed project for both Options 1 and 2. • Less than significant for TACs use (NaOH) during operation, and less than the proposed project - Option 1, but equivalent to the proposed project - Option 2. • Significant for NOx, VOC, and PM10 during construction; equivalent to the proposed project for both Options 1 and 2. • Less than significant for VOC, CO, NOx, PM10 and PM2.5 during operation and less than the proposed project for both Options 1 and 2.

Table 1-4 (continued)
Comparison of Adverse Environmental Impacts of the Alternatives

Category	Proposed Project – Option 1	Proposed Project – Option 2	Alternative A: No Project	Alternative B: AQMP	Alternative C: Intermediate SOx Reductions – Option 1	Alternative C: Intermediate SOx Reductions – Option 2
Energy	• During operation, - Overall reduction in the use of natural gas by 4.1 mmBTU/day; - Overall increase in the use of electricity by 204 MWh/day; and, - Overall increase in the use of diesel by 2,403 gal/day. • During construction, - Overall increase in the use of gasoline by 1,354 ~~1,384~~ gal/day; and, - Overall increase in the use of diesel by 1,360 gal/day.	• During operation, - Overall reduction in the use of natural gas by 4.1 mmBTU/day; - Overall increase in the use of electricity by 101 MWh/day; and, - Overall increase in the use of diesel by 2,037 gal/day; • During construction, - Overall increase in the use of gasoline by 1,354 ~~1,384~~ gal/day; and, - Overall increase in the use of diesel by 1,360 gal/day.	During both operation and construction, no increases in energy uses.	• During operation, - No change in the use of natural gas; - Overall increase in the use of electricity by 33 MWh/day; and, - Overall increase in the use of diesel by 105 gal/day. • During construction, - Overall increase in the use of gasoline by 1,354 ~~1,384~~ gal/day; and, - Overall increase in the use of diesel by 1,360 gal/day.	• During operation, - Overall reduction in the use of natural gas by 34.25 mmBTU/day; - Overall increase in the use of electricity by 182 MWh/day; and, - Overall increase in the use of diesel by ~~1,703~~2,133 gal/day. • During construction, - Overall increase in the use of gasoline by 1,354 ~~1,384~~ gal/day; and, - Overall increase in the use of diesel by 1,360 gal/day.	• During operation, - Overall reduction in the use of natural gas by 34.25 mmBTU/day; - Overall increase in the use of electricity by 79 MWh/day; and, - Overall increase in the use of diesel by ~~1,330~~1,767 gal/day. • During construction, - Overall increase in the use of gasoline by 1,354 ~~1,384~~ gal/day; and, - Overall increase in the use of diesel by 1,360 gal/day.

Table 1-4 (continued)
Comparison of Adverse Environmental Impacts of the Alternatives

Category	Proposed Project – Option 1	Proposed Project – Option 2	Alternative A: No Project	Alternative B: AQMP	Alternative C: Intermediate SOx Reductions – Option 1	Alternative C: Intermediate SOx Reductions – Option 2
Energy Impacts Significant?	Less than significant, more than the proposed project - Option 2 as follows: • The reduction in the use of natural gas is ~~not as much as the~~equivalent to the proposed project - Option 2; • The increase in the use of electricity is more than the proposed project - Option 2; • The total increase in the use of diesel is more than the proposed project - Option 2; and, • The increase in the use of gasoline is equivalent to the proposed project for both Options 1 and 2.	Less than significant, less than the proposed project - Option 1 as follows: • The reduction in the use of natural gas is ~~more than~~equivalent to the proposed project - Option 1; • The increase in the use of electricity is less than the proposed project - Option 1; • The total increase in the use of diesel is less than the proposed project - Option 1; and, • The increase in the use of gasoline is equivalent to the proposed project for both Options 1 and 2.	Not significant (no change)	Less than significant, less than the proposed project for both Options 1 and 2 as follows: • There is no change in the use of natural gas; • The increase in the use of electricity is less than the proposed project for both Options 1 and 2; • The total increase in the use of diesel is less than the proposed project for both Options 1 and 2; and, • The increase in the use of gasoline is equivalent to the proposed project for both Options 1 and 2.	Less than significant, less than the proposed project – Option 1 as follows: • The reduction in the use of natural gas is more than the proposed project for both Options 1 and 2; • The increase in the use of electricity is less than the proposed project - Option 1 and more than the proposed project - Option 2; • The total increase in the use of diesel is less than the proposed project for ~~both~~ Option~~s~~ 1 and more than the proposed project for Option 2; and, • The increase in the use of gasoline is equivalent to the proposed project for both Options 1 and 2.	Less than significant, less than the proposed project for both Options 1 and 2 as follows: • The reduction in the use of natural gas is more than the proposed project for both Options 1 and 2; • The increase in the use of electricity is less than the proposed project for both Options 1 and 2; • The total increase in the use of diesel is less than the proposed project for both Options 1 and 2; and, • The increase in the use of gasoline is equivalent to the proposed project for both Options 1 and 2.
Hazards & Hazardous Materials	Increased use of 13.24 tons/day of NaOH (a TAC) used during operation.	Increased use of 8.79 tons/day of NaOH (a TAC) used during operation.	No change to existing hazards and hazardous materials used.	Increased use of 5.45 tons/day of NaOH (a TAC) used during operation.	Increased use of 13.24 tons/day of NaOH (a TAC) used during operation.	Increased use of 8.79 tons/day of NaOH (a TAC) used during operation.

Table 1-4 (continued)
Comparison of Adverse Environmental Impacts of the Alternatives

Category	Proposed Project – Option 1	Proposed Project – Option 2	Alternative A: No Project	Alternative B: AQMP	Alternative C: Intermediate SOx Reductions – Option 1	Alternative C: Intermediate SOx Reductions – Option 2
Hazards & Hazardous Materials Impacts Significant?	Less than significant, more than the proposed project - Option 2.	Less than significant, less than the proposed project - Option 1.	Not significant	Less than significant, less than the proposed project for both Options 1 and 2.	Less than significant, equivalent to the proposed project - Option 1.	Less than significant, equivalent to the proposed project - Option 2.
Hydrology & Water Quality	• During operation, increase in total water demand by 883,368 gal/day (of which up to 201,587 gal/day may be supplied by potable water); and, increase in the generation of wastewater by 270,532 gal/day. • During peak daily construction activities, increase in water demand by 52,272 gal/day.	• During operation, increase in total water demand by 642,272 gal/day (of which up to 108,436 gal/day may be supplied by potable water); and, increase in the generation of wastewater by 158,203 gal/day. • During peak daily construction activities, increase in water demand by 52,272 gal/day.	No change to existing water demand or wastewater discharge.	• During operation, increase in total water demand by 125,285 gal/day (of which up to 105,696 gal/day may be supplied by potable water); and, increase in the generation of wastewater by 40,669 gal/day. • During peak daily construction activities, increase in water demand by ~~52,272~~7,020 gal/day.	• During operation, increase in total water demand by 529,121 gal/day (of which up to 201,587 gal/day may be supplied by potable water); and, increase in the generation of wastewater by 199,573 gal/day. • During peak daily construction activities, increase in water demand by 52,272 gal/day.	• During operation, increase in total water demand by 288,025 gal/day (of which up to 108,436 gal/day may be supplied by potable water); and, increase in the generation of wastewater by 87,244 gal/day. • During peak daily construction activities, increase in water demand by 52,272 gal/day.
Hydrology & Water Quality Impacts Significant?	• Significant for water demand (based on potable water), more than the proposed project - Option 2. • Less than significant for wastewater discharge, more than the proposed project - Option 2.	• Less than significant for water demand (based on potable water), less than the proposed project - Option 1. • Less than significant for wastewater discharge, less than the proposed project - Option 1.	Not significant for water demand or wastewater discharge.	• Less than significant for water demand (based on potable water), less than the proposed project for both Options 1 and 2. • Less than significant for wastewater discharge, less than the proposed project for both Options 1 and 2.	• Significant for water demand (based on potable water), and less than the proposed project for both Options 1 and 2. • Less than significant for wastewater discharge, and less than the proposed project - Option 1 and more than the proposed project - Option 2.	• Less than significant for water demand (based on potable water), and less than the proposed project for both Options 1 and 2. • Less than significant for wastewater discharge, and less than the proposed project for both Options 1 and 2.

Table 1-4 (concluded)
Comparison of Adverse Environmental Impacts of the Alternatives

Category	Proposed Project – Option 1	Proposed Project – Option 2	Alternative A: No Project	Alternative B: AQMP	Alternative C: Intermediate SOx Reductions – Option 1	Alternative C: Intermediate SOx Reductions – Option 2
Transportation & Traffic	Overall peak increase in transportation and traffic of 700 trips per day during construction and 33 trips per day during operation.	Overall peak increase in transportation and traffic of 700 trips per day during construction and 30 trips per day during operation.	No change to existing transportation and traffic.	Overall peak increase in transportation and traffic of 700 trips per day during construction and 5 trips per day during operation.	Overall peak increase in transportation and traffic of 700 trips per day during construction and 27 trips per day during operation.	Overall peak increase in transportation and traffic of 700 trips per day during construction and 20 trips per day during operation.
Transportation & Traffic Impacts Significant?	Less than significant, but equivalent to ~~more than~~ the proposed project – Option 2 for ~~both~~ construction and more than the proposed project – Option 2 for operation.	Less than significant, but equivalent to ~~less than~~ the proposed project – Option 1 for ~~both~~ construction and less than the proposed project – Option 1 for operation.	Not significant	Less than significant, but less than the proposed project for both Options 1 and 2.	Less than significant, but less than the proposed project for both Options 1 and 2.	Less than significant, but less than the proposed project for both Options 1 and 2.

CHAPTER 2

PROJECT DESCRIPTION

Project Location
Project Background
Project Objective
Project Description
Technology Overview

PROJECT LOCATION

The SCAQMD has jurisdiction over an area of 10,473 square miles (referred to hereafter as the District), consisting of the four-county South Coast Air Basin and the Riverside County portions of the Salton Sea Air Basin (SSAB) and the Mojave Desert Air Basin (MDAB). The Basin, which is a subarea of the SCAQMD's jurisdiction, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The 6,745 square-mile Basin includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. The Riverside County portion of the SSAB and MDAB is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley. The federal nonattainment area (known as the Coachella Valley Planning Area) is a subregion of both Riverside County and the SSAB and is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley to the east (Figure 2-1).

Figure 2-1
Boundaries of the South Coast Air Quality Management District

Of the 11 facilities affected by the proposed project, 10 facilities are located in Los Angeles County (in the cities of Los Angeles, Carson, Wilmington, El Segundo, Torrance, and Vernon) and one facility is located in San Bernardino county (in the city of Colton).

PROJECT BACKGROUND

Adopted in October 1993, Regulation XX – RECLAIM, is comprised of 11 rules which contain a declining cap and trade mechanism to reduce NOx and SOx emissions from the largest stationary sources in the Basin. The portion of Regulation XX that focuses on reducing NOx emissions is referred to as "NOx RECLAIM" while the portion that focuses on reducing SOx emissions is referred to as "SOx RECLAIM." Regulation XX contains applicability requirements, NOx and SOx facility allocations, general requirements, as well as monitoring, reporting, and recordkeeping requirements for NOx and SOx sources located at RECLAIM facilities. The

RECLAIM program started with 41 SOx facilities and 392 NOx facilities, but by the end of the 2005 compliance year, the program is populated with 33 SOx facilities and 304 NOx facilities. The reduction in the number of facilities participating in the RECLAIM program since inception has been primarily due to facility shutdowns.

Under the SOx RECLAIM program, the RECLAIM facilities were issued annual allocations of SOx emissions (also known as facility caps), which declined annually from 1993 until 2003 and remained constant after 2003. In 1993, annual allocations were issued to the RECLAIM facilities and the facility cap reflected BARCT in effect at that time. SCAQMD staff has since conducted a BARCT reassessment for NOx in 2005 which was incorporated into changes in facility allocations, but not for SOx. A BARCT reassessment is now necessary for SOx RECLAIM to assure that the participating facilities will continue to achieve emission reductions as expeditiously as possible. Under the RECLAIM program, the facilities have the flexibility to install air pollution control equipment, change method of operations, or purchase RTCs to meet BARCT levels.

PROJECT OBJECTIVE

There are four key goals of the proposed project. The primary focus of the proposed project is to bring the SOx RECLAIM program up-to-date with the latest BARCT requirements to achieve the maximum feasible reductions including, at a minimum, the proposed SOx emission reductions in CM #2007CMB-02 (at least 2.9 tons per day). Another objective of the proposed project is to establish procedures and criteria for reducing RTCs and RTC adjustment factors for year 2013 and later. The third objective is to comply with state law as promulgated in Health and Safety Code §39616 to provide equivalent or greater emission reductions with current command-and-control regulations. Lastly, a goal of the proposed project is to reduce SOx emissions to assist the SCAQMD with attaining and maintaining state and federal ambient air quality standards for PM10 and PM2.5.

PROJECT DESCRIPTION

The proposed project would affect the following types of equipment and processes at SOx RECLAIM facilities: 1) petroleum coke calciners; 2) cement kilns; 3) coal-fired boiler (cogeneration); 4) container glass melting furnace; 5) diesel combustion; 6) fluid catalytic cracking units; 7) refinery boilers/heaters; 8) sulfur recovery units/tail gas treatment units; and, 9) sulfuric acid manufacturing. The following is a summary of the key proposed amendments to Rule 2002. Other minor changes are also proposed for clarity and consistency throughout the rule. No other Regulation XX rules are affected by the currently proposed project. A copy of the proposed amended rule can be found in Appendix A.

Proposed Amended Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx)

<u>Annual Allocations for NOx and SOx and Adjustments to RTC Holdings - subdivision (f)</u>

In accordance with the analysis prepared for Control Measure #2007CMB-02 in the 2007 AQMP which estimates an additional reduction in SOx RECLAIM emissions of 2.9 tons per day, new criteria, procedures, adjustment factors and equations for adjusting tradable/usable and non-tradable/non-usable SOx RTC holdings have been added to subdivision (f), specifically, subparagraphs (f)(1)(I-L) in order to achieve at least these projected emission reductions from

SOx RTC holders beginning in compliance year 2012 through compliance year 2019 and after. The actual amount of reductions varies and depends on the compliance year.

New subparagraph (f)(1)(M) establishes procedures for publishing SOx RTC adjustment factors. New subparagraph (f)(1)(N) establishes procedures for calculating a 12-month rolling average of SOx RTC prices. Subparagraph (f)(1)(O) contains new procedures for holding a public hearing in the event that SOx RTC prices exceed $50,000 per ton based on a 12-month rolling average.

New subparagraph (f)(1)(P) contains criteria for submitting the emission reductions obtained via the RTC Holdings adjustments to the SIP.

New subparagraph (f)(1)(Q) contains procedures for assigning SOx allocations to facilities that enter the RECLAIM program after the date of adoption of the proposed rule amendments.

Paragraph (f)(1) contains two clarifications: 1) that SOx Allocations for 2004 through 2011 are equal to the facility's 2003 Allocation; and, 2) that NOx RTC Allocations and holdings subsequent to the year 2006 and SOx Allocations and holdings subsequent to the year 2011 shall be adjusted to the nearest pound. Lastly, subparagraph (f)(1)(B) contains a clarification to include RTC swap transactions into the computation of rolling average prices.

RECLAIM NOx 2011 Ending Emission Factors – Table 3

Table 3 has been revised to extend the RECLAIM NOx ending emission factors from 2010 to 2011. This revision is an administrative change for consistency and continuity with the changes adopted in the January 2005 amendments to the NOx RECLAIM program.

RECLAIM SOx Tier III Emission Factors – Table 4

New Table 4 has been added to Rule 2002 to establish BARCT for petroleum coke calciners, cement kilns, coal-fired boilers, container glass melting furnaces, diesel combustion, fluid catalytic cracking units, refinery boilers and heaters, sulfur recovery units/tail gas treatment units, and sulfuric acid manufacturing.

List of SOx RECLAIM Holders – Table 5

New Table 5 has been added to Rule 2002 to identify the list of holders of SOx RECLAIM RTCs.

TECHNOLOGY OVERVIEW

SOx Emission Sources

The SOx RECLAIM program consists of 33 facilities as of the 2005 Compliance Year. Of these 33, 12 RECLAIM facilities represent the top emitters of SOx (i.e., emit 95 percent of the total SOx emissions from all RECLAIM facilities). However, one of the 12 facilities has permanently shutdown. For this reason, the analysis of the proposed project will focus on the 11 remaining facilities and reducing SOx emissions from these top emitters. The affected facilities are:

- Six refineries: BP (Carson location); ConocoPhillips (Wilmington and Carson locations); Chevron; ExxonMobil; Ultramar (also referred to as Valero); and, Tesoro (formerly referred to as Shell/Equilon/Texaco)
- Two sulfuric acid plants: Rhodia Inc. and ConocoPhillips (Wilmington location)

- One coke calciner plant: BP (Wilmington location)
- One cement manufacturing plant: CPCC[18]
- Two container glass manufacturing plants: Owens-Brockway Glass Container Inc. and Saint-Gobain Containers Inc.[19]

On an equipment/process basis, Table 2-1 shows the distribution of SOx emissions with respect to the equipment/processes at these top emitting SOx RECLAIM facilities. These source categories are responsible for 80 percent of the facility emissions.

Table 2-1
Distribution of SOx Emissions at RECLAIM Facilities By Equipment/Process

Equipment/Process	Percentage of Emissions
FCCUs	33%
Refinery Process Heaters and Boilers	31%
Sulfuric Acid Manufacturing	12%
Sulfur Recovery Units and Tail Gas Units	10%
Cement Kilns and Glass Melting Furnaces	7%
Other Miscellaneous Processes/Equipment	7%

Reference: Baseline emissions from Compliance Year 2005

Of the top emitting facilities, six refineries operate one FCCU each, one sulfur recovery and tail gas unit (SRU/TGU) each, and a multitude of refinery process heaters and boilers[20]. The quantity of SOx emissions from the six refineries alone comprise approximately 74 percent of the total SOx emitted from the top emitting RECLAIM facilities that will be affected by the proposed project. The remaining facilities emit 26 percent of the total.

To appreciate the mechanics of SOx control equipment and techniques, it is necessary to first understand how SOx emissions are generated from the equipment and processes listed in Table 1-1.

FCCUs

The purpose of an FCCU at a refinery is to convert or "crack" heavy oils (hydrocarbons), with the assistance of a catalyst, into gasoline and lighter petroleum products. Each FCCU consists of three main components: a reaction chamber, a catalyst regenerator and a fractionator. All six refineries each operate one FCCU.

The cracking process begins in the reaction chamber where fresh catalyst is mixed with pre-heated heavy oils (crude) known as the fresh feed. The catalyst typically used for cracking is a fine powder made up of tiny particles with surfaces covered by several microscopic pores. A high heat-generating chemical reaction occurs that converts the heavy oil liquid into a cracked hydrocarbon vapor mixed with catalyst. As the cracking reaction progresses, the cracked hydrocarbon vapor is routed to a distillation column or fractionator for further separation into

[18] On November 20, 2009, CPCC operators announced the shutdown of both cement kilns. CPCC operators indicated that the shutdown is not permanent to the extent that when the economy improves, they plan to bring the cement kilns back on-line.

[19] Saint-Gobain Glass Container has permanently shutdown their operations.

[20] There are approximately 300 refinery boilers and heaters operating at all of the refineries and approximately 15 of these units are considered top SOx emitters.

lighter hydrocarbon components than crude such as light gases, gasoline, light gas oil, and cycle oil.

Towards the end of the reaction, the catalyst surface becomes inactive or spent because the pores are gradually coated with a combination of heavy oil liquid residue and solid carbon (coke), thereby reducing its efficiency or ability to react with fresh heavy liquid oil in the feed. To prepare the spent catalyst for re-use, the remaining oil residue is removed by steam stripping. The spent catalyst is later cycled to the second component of the FCCU, the regenerator, where hot air burns the coke layer off of the surface of each catalyst particle to produce reactivated or regenerated catalyst. Subsequently, the regenerated catalyst is cycled back to the reaction chamber and mixed with more fresh heavy liquid oil feed. Thus, as the heavy oils enter the cracking process through the reaction chamber and exit the fractionator as lighter components, the catalyst continuously circulates between the reaction chamber and the regenerator.

During the regeneration cycle, large quantities of catalyst are lost in the form of catalyst fines or particulates thus making FCCUs a major source of primary particulate emissions at refineries. In addition, particulate precursor emissions such as SOx (because crude oil naturally contains sulfur) and NOx, additional secondary particulates (i.e., formed as a result of various chemical reactions), plus carbon monoxide (CO) and carbon dioxide (CO2) are produced due to coke burn-off during the regenerator process.

The potential available control technologies to reduce SOx emissions from a FCCU are:

1. Processing of low sulfur feed stocks;
2. Feed hydro-treating;
3. Flue gas scrubbing via wet gas scrubbers (WGSs);
4. Using SOx reducing catalyst; or,
5. Using a combination of these control technologies.

The type of SOx control option to be utilized in response to the proposed project for FCCUs will depend on each refinery's individual operations and the current control technologies and techniques in place. For example, all six refineries already process low sulfur feed stocks and utilize feed hydrotreating for their FCCUs. Thus, it is possible that each refinery may choose to rely on a WGSs or SOx reducing catalysts in order to comply with the BARCT requirements for the FCCU portion of the proposed project.

Refinery Process Heaters and Boilers

Refinery process heaters and boilers are used extensively throughout various processes in refinery operations such as distillation, hydrotreating, fluid catalytic cracking, alkylation, reforming, and delayed coking. There are approximately 300 refinery process heaters and boilers operating throughout the six aforementioned refineries and the top 16 emitters in this category collectively emitted about one ton per day of SOx in 2005. Refinery process heaters and boilers are primarily fueled by refinery gas, one of several products generated at a refinery. In addition, most refinery process heaters and boilers are designed to also operate on natural gas, but liquid or solid fuels are rarely used.

SOx is created from the combustion of fuel that contains sulfur or sulfur compounds. To reduce SOx emissions from these refinery process heaters and boilers, the refinery operators can opt to use lower sulfur-containing fuels to reduce the sulfur input on the front end (e.g., fuel gas treatment), or to install flue gas scrubber (wet scrubber) to reduce SOx emissions in the flue gas

after it exits the refinery process heaters and boilers on the back end. Because the Consultants' Reports determined that utilizing a flue gas scrubber was not cost-effective for this source category, this ~~Draft~~ Final PEA (in Chapter 4) will evaluate the possibility that each refinery may rely on the fuel gas treatment control option in order to comply with the refinery process heaters and boilers portion of the proposed project.

Sulfur Recovery Units and Tail Gas Units (SRU/TGUs)

Because sulfur is a naturally occurring and undesirable component of crude oil, refineries employ a sulfur recovery system to maximize sulfur removal. A typical sulfur removal or recovery system will include a sulfur recovery unit (e.g., Claus unit) followed by a tail gas treatment unit (e.g., amine treating) for maximum removal of hydrogen sulfide (H2S). A Claus unit consists of a reactor, catalytic converters and condensers. Two chemical reactions occur in a Claus unit. The first reaction occurs in the reactor, where a portion of H2S reacts with air to form sulfur dioxide (SO2) followed by a second reaction in the catalytic converters where SO2 reacts with H2S to form liquid elemental sulfur. Side reactions producing carbonyl sulfide (COS) and carbon disulfide (CS2) can also occur. These side reactions are problematic for Claus plant operators because COS and CS2 cannot be easily converted to elemental sulfur and carbon dioxide. Liquid sulfur is recovered after the final condenser. The combination of two converters with two condensers in series will generally remove as much as 95 percent of the sulfur from the incoming acid gas. To increase removal efficiency, some newer sulfur recovery units may be designed with three to four sets of converters and condensers.

To recover the remaining sulfur compounds after the final pass through the last condenser, the gas is sent to a tail gas treatment process such as a SCOT or Wellman-Lord treatment process. For example, the SCOT tail gas treatment is a process where the tail gas is sent to a catalytic reactor and the sulfur compounds in the tail gas are converted to H2S. The H2S is absorbed by a solution of amine in the H2S absorber, steam-stripped from the absorbent solution in the H2S stripper, concentrated, and recycled to the front end of the sulfur recovery unit. This approach typically increases the overall sulfur recovery efficiency of the Claus unit to 99.8 percent or higher. However, the fresh acid gas feed rate to the sulfur recovery unit is reduced by the amount of recycled stream, which reduces the capacity of the sulfur recovery unit. The residual H2S in the treated gas from the absorber is typically vented to a thermal oxidizer where it is oxidized to sulfur dioxide (SO2) before venting to the atmosphere.

The Wellman-Lord tail gas treatment process is when the sulfur compounds in the tail gas are first incinerated to oxidize to SO2. After the incinerator, the tail gas enters a SO2 absorber, where the SO2 is absorbed in a sodium sulfite (Na2SO3) solution to form sodium bisulfite (NaHSO3) and sodium pyrosulfate (Na2S2O5). The absorbent rich in SO2 is then stripped, and the SO2 is recycled back to the beginning of the Claus unit. The residual sulfur compounds in the treated tail gas from the SO2 absorber are then vented to a thermal oxidizer where they are oxidized to SO2 before venting to the atmosphere.

There are three main strategies that can be employed to further reduce SO2 emissions from each SRU/TGU operating at the six refineries: 1) increase the efficiency of the sulfur recovery unit; 2) improve the efficiency of the tail gas treatment process; and, 3) install a wet gas scrubber as an alternative to the thermal oxidizer[21]. The type of SOx control option to be utilized in response to this portion of the proposed project will depend on each refinery's individual operations and

[21] All six refineries have thermal oxidizers at the end of their tail gas treatment units.

the current control technologies and techniques in place. Thus, this ~~Draft~~ Final PEA (in Chapter 4) will evaluate the possibility that each refinery may rely on the SOx control strategies identified above in order to comply with the sulfur recovery/tail gas treatment unit portion of the proposed project.

Sulfuric Acid Manufacturing

Sulfuric acid is a commodity chemical that is used in manufacturing phosphate and nitrogen fertilizers, detergents, paper, and rust removers. It is also used extensively in automobile manufacturing, metal smelting, water treatment and oil refining processes. There are two facilities in the Basin that manufacture sulfuric acid. The sulfuric acid manufacturing process includes three basic operations. First, the sulfur in the feedstock is oxidized to sulfur dioxide (SO2) in a furnace. The SO2 is then catalytically oxidized (using vanadium as the catalyst) to sulfur trioxide (SO3) in a multi-staged catalytic reactor (or converter). Lastly, the sulfur trioxide is absorbed (e.g., combined with water) to create a strong sulfuric acid (H2SO4) solution.

In a dual or two-stage absorption process, the SO3 gas formed from the primary converter is sent to a first absorber where most of the SO3 is removed to form H2SO4. The remaining unconverted SO2 and SO3 are directed to a secondary converter and absorber set to further remove H2SO4.

The conversion of SO2 to H2SO4 is an incomplete, exothermic reaction which means that there is always one to two percent of SO2 that does not get converted to H2SO4. The success of conversion is affected by the number of stages in the catalytic converter, the amount of catalyst used, temperature and pressure, and the concentrations of the reactants, SO2 and elemental oxygen (O2). The remaining SO2 in the exhaust gas stream from the absorbers is vented to ESPs, scrubbers, and mist eliminators to remove SO2 and acid mist prior to venting to the atmosphere. Because the conversion of SO2 to H2SO4 is exothermic (e.g., produces a great deal of heat), the heat is recovered and converted into useful energy for operating steam-driven compressors, waste heat boilers, and heat exchangers. This ~~Draft~~ Final PEA (in Chapter 4) will evaluate the possibility that the operators of the sulfuric acid manufacturing facilities may consider installing a WGSs or upgrading existing controls in order to comply with the BARCT requirements for this portion of the proposed project.

Container Glass Melting Furnace

A container glass melting furnace is the main equipment used for manufacturing glass products, such as bottles, glass wares, pressed and blown glass, tempered glass, and safety glass. The manufacturing process consists of four phases: 1) preparation of the raw materials; 2) melting the mixture of raw materials in the furnace; 3) forming the desired shape; and, 4) finishing the final product. Raw materials, such as sand, limestone, and soda ash, are crushed and mixed with cullets (recycled glass pieces) to ensure homogeneous melting. The raw materials mixture is then conveyed to a continuous regenerative side-port melting furnace. As the mixture enters the furnace through a feeder, it melts and blends with the molten glass already in the furnace, and eventually flows to a refiner section, forming machine, and annealing ovens. The final products undergo inspection, testing, packaging and storage. Any damaged or undesirable glass is transferred back to be recycled as cullets.

SOx is generated from a container glass melting furnace in two ways: 1) during the decomposition of the sulfates in the raw materials; and, 2) from combusting fuel (that contains

sulfur) to generate high heating values in the furnace. The container glass melting furnace contributes over 99 percent of the total SOx emissions from a glass manufacturing plant.

SOx emissions from a container glass melting furnace are typically controlled by a scrubber followed by a dry electrostatic precipitator (ESP) to control particulates. Two glass melting facilities are in the SOx RECLAIM program, but only one of these facilities is currently operating. The type of SOx control option to be utilized in response to the proposed project will depend on this facility's individual operations and the current control technologies and techniques in place. Thus, this ~~Draft~~ Final PEA (in Chapter 4) will evaluate the possibility that operators of the glass melting facility may rely on WGS technology to further control SOx emissions in order to comply with the BARCT requirements for the FCCU portion of the proposed project.

Petroleum Coke Calciner

Petroleum coke, the heaviest portion of crude oil, cannot be recovered in the normal oil refining process. Instead, it is processed in a delayed coker unit to generate a carbonaceous solid referred to as "green coke," a commodity. To improve quality of the product, if the green coke has a low metals content, it will be sent to a calciner to make calcined petroleum coke. Calcined petroleum coke can be used to make anodes for the aluminum, steel, and titanium smelting industry. If the green coke has a high metals content, it is used as a fuel grade coke by the fuel, cement, steel, calciner and specialty chemicals industries.

The process of making calcined petroleum coke begins when the green coke feed from the delayed coker unit is screened and transported to the calciner unit where it is stored in a covered coke storage barn. The screened and dried green coke is introduced into the top end of a rotary kiln and is tumbled by rotation under high temperatures that range between 2,000 and 2,500 degrees Fahrenheit (^{o}F). The rotary kiln relies on gravity to move coke through the kiln countercurrent to a hot stream of combustion air produced by the combustion of natural gas or fuel oil. As the green coke flows to the bottom of the kiln, it rests in the kiln for approximately one additional hour to eliminate any remaining moisture, impurities, and hydrocarbons. Once discharged from the kiln, the calcined coke is dropped into a cooling chamber, where it is quenched with water, treated with de-dusting agents to minimize dust, and carried by conveyors to storage tanks. Eventually, the calcined coke is transported by truck to the Port of Long Beach for export, or is loaded onto railcars for shipping to domestic customers.

Because sulfur is a naturally occurring and undesirable component of crude oil, it remains a component of the green coke after it exits the delayed coking unit. As the green coke is processed under high heat conditions in the rotary kiln, SOx emissions are generated. SOx is also generated from combusting fuel oil (that contains sulfur) to generate high heating values in the rotary kiln.

There is only one petroleum coke calciner in the Basin and the SOx emissions from the unit are controlled by a dry scrubber. The existing control system also includes a spray dryer, a reverse-air baghouse, a slurry storage system, a slurry circulating system, and a pneumatic conveying system. Calcium hydroxide (CaOH) slurry is the absorbing medium for the existing SO2 control system. The type of SOx control option to be utilized in response to the proposed project will depend on this facility's individual operations and the current control technologies and techniques in place. Thus, this ~~Draft~~ Final PEA (in Chapter 4) will evaluate the possibility that operators of the petroleum coke calcining facility may rely on a WGS to better control SOx

emissions in order to comply with the BARCT requirements for the petroleum coke calcining portion of the proposed project.

Cement Kiln and Coal-Fired Boiler

Of the two Portland cement manufacturing facilities located in the Basin, CPCC and TXI Riverside Cement Company (TXI), the quantity of SOx emissions from CPCC at 100.5 tons per year is substantially greater than TXI's SOx emissions at 0.7 ton per year for compliance year 2005. Because the proposed project is directed at reducing emissions from the top SOx emitters, the following discussion is limited to reducing SOx emissions at the CPCC facility.

CPCC manufactures gray Portland cement in two cement kilns and follows a four-step process of: 1) acquiring raw materials; 2) preparing the raw materials to be blended into a raw mix; 3) pyroprocessing of the raw mix to make clinker; and, 4) grinding and milling clinker into cement. The raw materials used for manufacturing cement include calcium, silica, alumina and iron, with calcium having the highest concentration. These raw materials are obtained from a limestone quarry for calcium, sand for silica; and shale and clay for alumina and silica.

The raw materials are crushed, milled, blended into a raw mix and stored. Primary, secondary and tertiary crushers are used to crush the raw materials until they are about ¾-inch or smaller in size. Raw materials are then conveyed to rock storage silos. Belt conveyors are typically used for this transport. Roller mills or ball mills are used to blend and pulverize raw materials into fine powder. Pneumatic conveyors are typically used to transport the fine raw mix to be stored in silos until it is ready to be pyroprocessed.

The pyroprocess in a kiln consists of three phases during which clinker is produced from raw materials undergoing physical changes and chemical reactions. The first phase in a kiln, the drying and pre-heating zone, operates at a temperature between 70 ^{o}F and 1650 ^{o}F and evaporates any remaining water in the raw mix of materials entering the kiln. Essentially this is the warm-up phase which stabilizes the temperature of the refractory fire brick inside the mouth opening of the kiln. The second phase, the calcining zone, operates at a temperature between 1100 ^{o}F and 1650 ^{o}F and converts the calcium carbonate from the limestone in the kiln feed into calcium oxide and releases carbon dioxide. During the third phase, the burning zone operates on average at 2200 ^{o}F to 2700 ^{o}F (though the flame temperature can exceed 3400 ^{o}F) during which several reactions and side reactions occur. The first reaction is calcium oxide (produced during the calcining zone) with silicate to form dicalcium silicate and the second reaction is the melting of calcium oxide with alumina and iron oxide to form the liquid phase of the materials. Despite the high temperatures, the constituents of the kiln feed do not combust during pyroprocessing. As the materials move towards the discharge end of the kiln, the temperature drops and eventually clinker nodules form and volatile constituents, such as sodium, potassium, chlorides, and sulfates, evaporate. Any excess calcium oxide reacts with dicalcium silicate to form tricalcium silicate. The red hot clinker exits the kiln, is cooled in the clinker cooler, passes through a crusher and is conveyed to storage for protection from moisture. Since clinker is water reactive, if it gets wet, it will set into concrete.

Heat used in CPCC's kilns is supplied through the combustion of different fuels such as coal, coke, oil, natural gas, and discarded automobile tires. The combustion gases are vented to a baghouse for dust control, and the collected dust is returned to the process or recycled if they meet certain criteria, or is discarded to landfills. Post-combustion control for SOx is not currently used at CPCC.

In addition to the cement kilns, another potential source of SOx emissions at CPCC could be from the coal-fired steam boiler due to the high sulfur content in coal. CPCC reported that the coal-fired steam boiler has not been in operation since 2002. In addition on November 20, 2009, CPCC operators shut down both of their cement kilns due to the economic downturn. CPCC operators indicated that they could begin operating their equipment again in the future if circumstances with the nation's economy improve.

SOx emissions from the cement kilns and coal-fired boiler are generated from the following: 1) combustion of sulfur in the fuel; and, 2) oxidation of sulfides (e.g., pyrites) in the raw materials entering the cement kiln. Fuel switching, process alterations, dry and wet scrubbers are commercially available control technologies to reduce SOx emissions. The type of scrubber to be utilized in response to the proposed project will depend on this facility's individual operations and how it will function with the current control technologies and techniques in place at CPCC (e.g., the baghouse). The control equipment considered for this facility has been analyzed by a contracted consultant (ETS Inc.) as part of the SOx RECLAIM rule development process[22] and ETS Inc. recommended that operators of CPCC may rely on dry gas scrubber technology to further control SOx emissions in order to comply with the BARCT requirements for the cement kiln and coal-fired boiler portion of the proposed project. Thus, this ~~Draft~~ Final PEA (in Chapter 4) will evaluate the possibility that a dry gas scrubber technology may be installed at CPCC.

SOx Control Technologies

On an equipment/process basis, Table 2-2 shows the control technologies that will be considered as part of the BARCT analysis for the proposed project. The following discussions will elaborate on the various technologies listed in Table 2-2.

Table 2-2
BARCT Control Technologies Under Consideration
for SOx Emitting Equipment/Processes

Equipment/Process	BARCT Control Technology
FCCUs	1. WGS 2. SOx Reducing Additives
Sulfur Recovery Units/Tail Gas Units	1. WGS 2. Selective Oxidation Catalyst
Sulfuric Acid Manufacturing	WGS or Upgrade Existing Controls
Petroleum Coke Calciner	WGS
Cement Kilns and Coal-Fired Boiler	DGS (Limestone Absorber)
Container Glass Melting Furnaces	WGS
Refinery Process Heaters and Boilers	FGT

Wet Gas Scrubbers (WGSs)

Wet gas scrubbers are used to control both SOx and particulate emissions and can be installed on petroleum coke calciners, cement kilns and coal-fired boilers, container glass melting furnaces,

[22] On July 11, 2008, the SCAQMD Governing Board approved release of a Request for Proposal to obtain proposals from qualified contractors with technical expertise and experience in SOx emissions control technologies. Two qualified contractors, ETS Inc. and Nexidea Inc., were selected to conduct engineering evaluations and cost estimates on existing commercially viable control technologies to further reduce SOx emissions from 11 SOx RECLAIM facilities. These evaluations resulted in facility-specific information that assisted staff in identifying potential BARCT to be implemented to help the Basin attain the PM2.5 ambient air quality standards.

FCCUs, refinery process heaters and boilers, sulfuric acid manufacturing, and sulfur recovery units/tail gas units. There are two types of wet gas scrubbers: 1) caustic-based non-regenerative WGS; and, 2) regenerative WGS.

In non-regenerative wet gas scrubbing, caustic soda (sodium hydroxide - NaOH) or other alkaline reagents, such as soda ash, are used as an alkaline absorbing reagent (absorbent) to capture SO2 emissions. The absorbent captures SO2 and sulfuric acid mist (H2SO4) and converts it to various types of sulfites and sulfates (e.g., NaHSO3, Na2SO3, and Na2SO4). The absorbed sulfites and sulfates are later separated by a purge treatment system and the treated water, free of suspended solids, is either discharged or recycled.

One example of the caustic-based non-regenerative scrubbing system is the proprietary Electro Dynamic Venturi (EDV) scrubbing system offered by BELCO Technologies Corporation. An EDV scrubbing system consists of three main modules: 1) a spray tower module; 2) a filtering module; and, 3) a droplet separator module. The flue gas enters the spray tower module, which is an open tower with multiple layers of spray nozzles. The nozzles supply a high density stream of caustic water that is directed in a countercurrent flow to the gas flow and encircles, encompasses, wets, and saturates the flue gas. Multiple stages of liquid/gas absorption occur in the spray tower module and SO2 and acid mist are captured and converted to sulfites and sulfates. Large particles in the flue gas are also removed by impaction with the water droplets.

The flue gas saturated with heavy water droplets continues to move up the wet scrubber to the filtering module where the flue gas reaches super-saturation. At this point, water continues to condense and the fine particles in the gas stream begin to cluster together, to form larger and heavier groups of particles. Next, the flue gas, super-saturated with heavy water droplets, enters the droplet separator module causing the water droplets to impinge on the walls of parallel spin vanes and drain to the bottom of the scrubber.

The spent caustic water purged from the WGS is later processed in a purge treatment unit. The purge treatment unit contains a clarifier that removes suspended solids for disposal. The effluent from the clarifier is oxidized with agitated air to help convert sulfites to sulfates and also reduce the chemical oxygen demand (COD) so that the effluent can be safely discharged to a waste water system.

A regenerative WGS removes SO2 from the flue gas by using a buffer solution that can be regenerated. The buffer is then sent to a regenerative plant where the SO2 is extracted as concentrated SO2. The concentrated SO2 is then sent to a sulfur recovery unit (SRU) to recover the liquid SO2, sulfuric acid and elemental sulfur as a by-product. When the inlet SO2 concentrations are high, a substantial amount of sulfur-based by-products can be recovered and later sold as a commodity for use in the fertilizer, chemical, pulp and paper industries. For this reason, the use of a regenerative WGS is favored over a non-regenerative WGS.

One example of a regenerative scrubber is the proprietary LABSORB offered by BELCO Technologies Corporation [23, 24]. The LABSORB scrubbing process uses a patented non-organic

[23] *Evaluating Wet Scrubbers*, Edwin H. Weaver of BELCO Technologies Corporation, Petroleum Technology Quarterly, Quarter 3, 2006.

[24] *A Logical and Cost Effective Approach for Reducing Refinery FCCU Emissions.* S.T. Eagleson, G. Billemeyer, N. Confuorto, and E. H. Weaver of BELCO, and S. Singhania and N. Singhania of Singhania Technical Services Pvt., India, Presented at PETROTECH 6th International Petroleum Conference in India, January 2005.

aqueous solution of sodium phosphate salts as a buffer. This buffer is made from two common available products, caustic and phosphoric acid. The LABSORB system consists of: 1) a quench pre-scrubber; 2) an absorber; and, 3) a regeneration section which typically includes a stripper and a heat exchanger.

In the scrubbing side of the regenerative scrubbing system, the quench pre-scrubber is used to wash out any large particles that are carried over, plus any acid components in the flue gas such as hydrofluoric acid (HF), hydrochloric acid (HCl), and SO3. The absorption of SO2 is carried out in the absorber. The absorber typically consists of one single, high-efficiency packed bed scrubber filled with high-efficiency structural packing material. However, if the inlet SO2 concentration is low, a multiple-staged packed bed scrubber, or a spray-and-plate tower scrubber, may be used instead to achieve an ultra-low outlet SO2 concentration.

The third step in the regenerative wet gas scrubbing system is the regenerative section in which the SO2-rich buffer stream is steam heated to evaporate the water from the buffer. The buffer stream is then sent to a stripper/condenser unit to separate the SO2 from the buffer. The buffer free of SO2 is returned to the buffer mixing tank while the condensed-SO2 gas stream is sent back to the SRU for further treatment.

Dry Gas Scrubbers (DGS)

Dry gas scrubbers are used to control SOx emissions and can be installed to control emissions from cement kilns and coal-fired boilers, container glass melting furnaces, and refinery boilers and heaters. In dry gas scrubbers, a dry calcium- and sodium-based alkaline powdered sorbent is used to absorb SO2 from the flue (outlet) gas stream. There are two types of DGSs: 1) spray dryer scrubbers; and, 2) dry injection scrubbers.

A spray dryer scrubber is configured so that the reaction between SO2 in the flue gas and the dry sorbent takes place in a separate, dedicated reactor (or scrubber). A dry injection scrubber is configured so that the sorbent is injected directly via multiple injection ports into the SO2-producing equipment or ducting system. Spray dryer scrubbers can achieve about 80 percent to 90 percent SO2 removal efficiency, while dry injection scrubbers can achieve about 50 percent to 80 percent SO2 removal efficiency.

DGSs require high temperatures in the range of 1,800 ^{o}F to 2,000 ^{o}F in order to decompose the sorbent into porous solids with high adsorbing surface area to ensure efficient SO2 removal. Because particulates are formed during the dry gas scrubbing process, cyclones and ESPs are additional control equipment units that are typically installed downstream of a dry scrubber.

SOx Reducing Additives

To help reduce condensable particulate matter from sulfur, SOx reducing additives (catalysts) are used for reducing the production of SOx by-products in FCCUs. SOx reducing catalyst is a metal oxide compound such as aluminum oxide (Al2O3), magnesium oxide (MgO), vanadium pentoxide (V2O5) or a combination of the three that is added to the FCCU catalyst as it circulates throughout the reactor. In the regenerator of the FCCU, sulfur bearing coke is burned and SO2, CO, and CO2 by-products are formed. A portion of SO2 will react with excess oxygen and form SO3 which will either stay in the flue gas or react with the metal oxide in the SOx reducing catalyst to form metal sulfate. In the FCCU reactor, the metal sulfate will react with hydrogen to form either metal sulfide and water, or more metal oxide. In the steam stripper section of the FCCU reactor, metal sulfide reacts with steam to form metal oxide and hydrogen

sulfide. The net effect of these reactions is that the quantity of SOx in the regenerator is typically reduced between 40 to 65 percent while the quantity of hydrogen sulfide (H2S) in the reactor is increased. Generally, the increase in H2S is handled by sulfur recovery processes located elsewhere within the refinery.

FCCUs operate with a primary or base catalyst injection system that maintains a continuous or semi-continuous addition of fresh catalyst to the catalyst inventory circulating between the regenerator and the reactor. The catalyst injection system typically includes a main catalyst source but it can also accommodate the injection of other additives such as SOx reducing catalysts. The main catalyst feed lines and the additive catalyst feed lines are connected to the FCCU by a process line equipped with a blower or air compressor to provide pressurized fluid, such as air, that is utilized to inject all of the various powdered catalysts into the FCCU.

To introduce the SOx reducing catalyst into an FCCU, an intermittent catalyst addition system can be used. The addition system will automatically inject catalyst via an addition hopper which is periodically fed by gravity from a storage hopper which is sealed off from the supply line. The addition hopper is then pressurized with air to discharge its contents to the carrier gas line which feeds the catalyst into the hydrocarbon conversion unit in the regenerator section of the FCCU. The catalyst addition can be controlled by an electronic timer or pneumatic (pressurized) valve system so as to inject the precise amount of catalyst required as evenly as possible over the course of each day.

The size (capacity) of the additive injection system varies from refinery to refinery and can range from one ton capacity to over 50 tons. Many refineries already have silos to hold bulk fresh catalyst and some systems are sized and designed to operate with additive shipping containers and bulk trucks.

Fuel Gas Treatment (FGT)

Currently, SCAQMD Rule 431.1 – Sulfur Content of Gaseous Fuels, limits the sulfur content in refinery fuel gas to 40 ppmv sulfur. This limit has already been incorporated in the SOx RECLAIM allocations and resulted in an emission factor of 6.76 pounds of SOx per million cubic feet of refinery gas. However, the sulfur content in refinery fuel gas may be further reduced to a range between 25 ppmv and 35 ppmv and the outlet SOx concentrations from refinery boilers and process heaters may also be limited to less than 20 ppmv by implementing efficiency improvements to fuel gas treatment.

Refinery fuel gas, commonly used for operating refinery process heaters and boilers, is treated in various acid gas processing units such as an amine, Merox[25] or Sulfinol[26] treating unit for removal of sour components such as hydrogen sulfide (H2S), carbonyl sulfide (COS), mercaptan, and ammonia. Lean amine is generally used as an absorbent. At the end of the process, the lean amine is regenerated to form rich amine, and H2S is recovered in acid gas which is then fed to the SRU/TGU for more processing. By improving the efficiency of the amine treating unit to recover more sulfur from the inlet acid gas stream, the sulfur content in the

[25] Merox is an acronym for mercapatan oxidation and the treatment process is a proprietary catalytic chemical process used for removing mercaptans from refinery fuel gas by converting them to liquid hydrocarbon disulfides. Merox treatment is an alkaline process that typically uses an aqueous solution of sodium hydroxide (NaOH) or caustic.

[26] The Sulfinol process uses an industrial solvent called sulfolane to remove H2S, CO2, COS and mercaptans from natural gas as well as separating high purity aromatic compounds from hydrocarbon mixtures.

refinery fuel gas at the outlet, and subsequently the SOx emissions from boilers and heaters that use these refinery fuel gases can be reduced.

Selective Oxidation Catalyst

EmeraChem Power LLC markets a proprietary catalytic gas treatment called selective oxidation catalyst "ESx" that is typically used as a sulfur reducing agent in conjunction with its "EMx NOx trap" catalyst to treat combustion exhaust gases from incinerators, process heaters, turbines and boilers. The ESx catalyst can also be used as part of SOx reduction for sulfur recovery units/tail gas treatment units. The ESx catalyst can reduce multiple sulfur species, including SO2, SO3, and H2S from the tail gas stream while also removing CO, VOC, and PM10 emissions. ESx catalyst is a platinum group metal catalyst that stores sulfur species and simultaneously assists in the catalytic oxidation of CO and VOCs. The ESx units are typically outfitted with multiple chambers such that at least one chamber is always in regeneration while the other units are working to store SOx. In the storage process, SO2 is oxidized to SO3 and is stored by EmeraChem's sorber. The catalyst regeneration process releases sulfur as SO2.

CHAPTER 3

EXISTING SETTING

Introduction
Existing Setting
Aesthetics
Air Quality
Energy
Hazards and Hazardous Materials
Hydrology and Water Quality
Transportation and Traffic

INTRODUCTION

In order to determine the significance of the impacts associated with a proposed project, it is necessary to evaluate the project's impacts against the backdrop of the environment as it exists at the time the NOP/IS is published. The CEQA Guidelines define "environment" as "the physical conditions that exist within the area which will be affected by a proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance" (CEQA Guidelines §15360; see also Public Resources Code §21060.5). Furthermore, a CEQA document must include a description of the physical environment in the vicinity of the project, as it exists at the time the NOP/IS is published, from both a local and regional perspective (CEQA Guidelines §15125). Therefore, the "environment" or "existing setting" against which a project's impacts are compared consists of the immediate, contemporaneous physical conditions at and around the project site (Remy, et al; 1996).

The following sections summarize the existing setting for aesthetics, air quality, energy, hazards and hazardous materials, hydrology and water quality, and transportation and traffic which are the only environmental areas identified in the NOP/IS that may be adversely affected by the proposed project. The Final Program EIR for the 2007 AQMP contains more comprehensive information on existing and projected environmental settings for all environmental areas discussed in this chapter. Copies of the referenced documents are available from the SCAQMD's Public Information Center by calling (909) 396-2039.

EXISTING SETTING

The proposed project will affect the following types of equipment and processes at the top emitting SOx RECLAIM facilities: 1) FCCUs; 2) SRU/TGUs; 3) sulfuric acid manufacturing; 4) petroleum coke calciners; 5) cement kiln and coal-fired boiler; 6) container glass melting furnace; and, 7) refinery boilers/heaters.

The SOx RECLAIM program consists of 33 facilities as of the 2005 Compliance Year. Of these 33, 11 RECLAIM facilities represent the top emitters of SOx (i.e., emit 95 percent of the total SOx emissions from all RECLAIM facilities). For this reason, the proposed project will focus on reducing SOx emissions from these top emitters. They are:

- Six FCCUs and six SRU/TGUs plus 15 refinery boilers and heaters operated at: BP Carson Refinery; ConocoPhillips; Chevron Refinery; ExxonMobil Refinery; Ultramar/Valero Refinery; Tesoro Refinery; and, ConocoPhillips Carson Plant.
- Two sulfuric acid plants: Rhodia Inc. and ConocoPhillips
- One coke calciner plant: BP Wilmington Plant
- One cement manufacturing plant (two cement kilns and one coal-fired boiler): CPCC
- One container glass manufacturing plant: Owens-Brockway Glass Container Inc.

On an equipment/process basis, Table 3-1 shows the distribution of SOx emissions with respect to the equipment/processes at these SOx RECLAIM facilities. These source categories are responsible for 80 percent of the facility emissions. Of the 11 affected facilities, the quantity of SOx emissions from all of the refineries comprise approximately 74 percent of the total SOx emitted from the RECLAIM facilities that will be affected by the proposed project. The remaining facilities emit 26 percent of the total. Table 3-2 summarizes on a facility-specific basis (referred to by facility identification number (ID) as Facilities A through K), the equipment or source category that may be potentially affected by the proposed project.

Table 3-1
Distribution of SOx Emissions at RECLAIM Facilities By Equipment/Process

Equipment/Process	Percentage of Emissions
FCCUs	33%
Refinery Process Heaters and Boilers	31%
Sulfuric Acid Manufacturing	12%
SRU/TGUs	10%
Cement Kilns and Glass Melting Furnaces	7%
Other Miscellaneous Processes/Equipment	7%

Reference: Baseline emissions from Compliance Year 2005

Table 3-2
Equipment/Source Category That May Be Affected by the Proposed Project

Facility ID	Potentially Affected Equipment/Source Category
A	1 FCCU 1 SRU/TGU 1 FGT
B	1 FCCU 1 SRU/TGU 1 FGT
C	1 FCCU 1 FGT 1 Sulfuric Acid Plant
D	1 FCCU 1 SRU/TGU 1 FGT
E	1 FCCU 1 SRU/TGU 1 FGT
F	1 FCCU 1 SRU/TGU 1 FGT
G	1 SRU/TGU 1 FGT
H	1 Calciner Plant
I	2 Glass Melting Furnaces
J	1 Sulfuric Acid Plant
K	2 Cement Kilns
11 facilities	6 FCCUs 6 SRU/TGUs 7 FGTs 2 Sulfuric Acid Plants 1 Calciner Plant 2 Glass Melting Furnaces 2 Cement Kilns

AESTHETICS

The following discussion describes the existing aesthetics setting for each of the affected facilities (refineries, sulfuric acid manufacturing plants, petroleum coke calcining plant, container glass manufacturing plant, and a Portland cement manufacturing plant) that are potentially affected by the proposed project:

1. BP Carson Refinery

The BP Carson Refinery is located at 1801 East Sepulveda Boulevard in the City of Carson, California. The BP Carson Refinery is bounded by Wilmington Avenue on the west, 223rd Street on the north, Alameda Street on the east, and Sepulveda Boulevard on the south (http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=1801+East+Sepulveda+Boulevard,+Carson,+CA&sll=37.0625,-95.677068&sspn=44.388698,92.021484&ie=UTF8&ll=33.81777,-118.242073&spn=0.022855,0.044932&t=h&z=15&iwloc=A). The Dominguez Channel flows through the BP Carson Refinery, dividing the property into two sections: Northeastern and Southern. Industrial and commercial facilities and transportation corridors (e.g., 405 freeway and Alameda Corridor) surround the BP Carson Refinery. The BP Carson Refinery is comprised of large scale, industrial equipment that includes a FCCU, boilers, heaters, numerous above-ground storage tanks, process columns, and stacks reaching approximately 200 feet in height. The BP Carson Refinery is a 24-hour operation with existing light sources in place for nighttime operations.

To the east of the BP Carson Refinery is the Alameda Corridor and other industrial facilities including the BP Coke Barn, the Air Products Hydrogen Plant, and the Tesoro Sulfur Recovery Plant. Commercial and residential areas are located to the west. The ConocoPhillips Refinery, a cold storage warehouse facility and tank farms occupy the area south of the BP Carson Refinery. The BP Carson Refinery and all adjacent properties are zoned manufacturing heavy (MH). The closest residential area to the BP Carson Refinery is approximately 3,000 feet from the property line across Wilmington Avenue to the southwest of the Refinery.

2. ConocoPhillips Wilmington Refinery

The ConocoPhillips Wilmington Refinery occupies approximately 400 acres of land and is located at 1660 West Anaheim Street in Wilmington, California (http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=1660+West+Anaheim+Street,+Wilmington,+Ca&sll=33.770729,-118.287048&sspn=0.023224,0.045276&ie=UTF8&ll=33.773618,-118.288829&spn=0.011612,0.022638&t=h&z=16). The City of Los Angeles has zoned the Wilmington Refinery property as M3 for heavy industrial land uses. The eastern part of the Wilmington Refinery borders a residential area, a roofing materials plant, and a portion of the Harbor 110 Freeway. The northern portion of the refinery borders Harbor Lake Park, Harbor College, Harbor Golf Course, and a small residential area. The western part of the refinery borders Gaffey Street which is adjacent to a gun firing range, vacant fields, recreational fields, and a United States Navy fuel storage facility. The southern portion of the site shares a border with warehouse facilities. The Wilmington Refinery is located on the eastern side of the Palos Verdes Peninsula, with the slope of the surrounding topography rising from east to west. To the west of the refinery, residential areas located on the hillsides above the facility have unobstructed views overlooking the Wilmington Refinery, port areas, and other portions of the Wilmington and Long Beach areas. The refinery is comprised of large scale, industrial equipment that includes a FCCU, boilers, heaters, numerous above-ground storage tanks, process columns, and

stacks reaching approximately 200 feet in height. The ConocoPhillips Wilmington Refinery is a 24-hour operation with existing light sources in place for nighttime operations.

3. Chevron Refinery

The Chevron Refinery, which was constructed over 90 years ago, is located at 324 West El Segundo Boulevard in the City of El Segundo, California (http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=324+West+El+Segundo+Boulevard,+El+Segundo,+California&sll=33.81777,-118.242073&sspn=0.022855,0.044932&ie=UTF8&ll=33.907519,-118.407297&spn=0.022831,0.044932&t=h&z=15&iwloc=A). The Refinery is located within Los Angeles County in an urbanized area that includes a substantial amount of industrial development, due to the proximity of Los Angeles International Airport (LAX). The Chevron Refinery is comprised of large scale, industrial equipment that includes a FCCU, boilers, heaters, numerous above-ground storage tanks, process columns, and stacks reaching approximately 200 feet in height. The Chevron Refinery is a 24-hour operation with existing light sources in place for nighttime operations.

Specifically, the Chevron Refinery is bounded by El Segundo Boulevard to the north, Sepulveda Boulevard to the east, Rosecrans Avenue to the south, and Vista Del Mar to the west. The Chevron Refinery is located in an area of mixed land uses, with industrial, recreational, residential, and commercial zoned areas nearby. Land use to the north of the Chevron Refinery is primarily residential, with a mix of commercial and light industrial zoning mixed in. The predominant adjacent land uses west of the Refinery are nearly all heavy industrial, or open space, which includes: Dockweiler State Beach, Manhattan Beach, and the El Segundo Generating Station, although a small parcel of land at the southwest corner of the Chevron property is made up of commercial areas and multiple-family residences.

Directly south of the Refinery, there is a single-family residential area bordering the entire length of the Refinery separated by Rosecrans Avenue. The corridor immediately east of the Refinery is comprised of a golf course at the corner of Sepulveda Boulevard and El Segundo Boulevard, with light commercial and heavy industrial zoning for the rest of the tract.

4. ExxonMobil Refinery

The ExxonMobil Refinery is located in Los Angeles County at 3700 West 190th Street, in the City of Torrance, California (http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=3700+West+190th+Street,+Torrance,+CA&sll=33.907519,-118.407297&sspn=0.022831,0.044932&ie=UTF8&ll=33.853773,-118.333826&spn=0.011422,0.022466&t=h&z=16). The ExxonMobil Refinery was built in 1929 and occupies approximately 750 acres over an irregularly-shaped parcel of land, between 190th Street to the north, Van Ness Avenue to the east, railroad tracks and Del Amo Boulevard to the south, and Prairie Avenue to the west. A small portion of the refinery is located on the west side of Prairie Avenue. The refinery property is zoned by the City of Torrance as Heavy Manufacturing (M-2). The ExxonMobil Refinery is comprised of large scale, industrial equipment that includes a FCCU, boilers, heaters, numerous above-ground storage tanks, process columns, and stacks reaching approximately 200 feet in height. The ExxonMobil Refinery is a 24-hour operation with existing light sources in place for nighttime operations.

The closest residential area is across 190th Street to the north. Columbia Regional Park is located immediately across from the refinery in the northwest corner. Other land uses to the north, east,

west, and south include industrial and commercial facilities, a BNSF railroad line, and a business park. The areas surrounding the refinery can be characterized as a blend of heavy and light industrial, commercial, medium and high-density residential, and industrial/manufacturing.

5. Ultramar/Valero Refinery

The Ultramar/Valero Refinery is located at 2402 East Anaheim Street, in the Wilmington district of the City of Los Angeles in the southern portion of Los Angeles County (http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=2402+East+Anaheim+Street,+Los+Angeles,+ca&sll=33.853773,-118.333826&sspn=0.011422,0.022466&ie=UTF8&ll=33.786513,-118.230486&spn=0.011431,0.022466&t=h&z=16&iwloc=A). According to the Wilmington-Harbor City Plan (City of Los Angeles, 1999), the Ultramar/Valero Refinery is zoned heavy manufacturing (M3-1). The Wilmington district is generally urbanized and includes a substantial amount of industrial and port-related development. The Ports of Los Angeles and Long Beach are located along the coastal boundary of Wilmington. The Wilmington area is bordered by the Harbor Freeway (Interstate 110) on the west, the Long Beach Freeway (Interstate 710) on the east, the San Diego Freeway (Interstate 405) on the north and the Pacific Ocean on the south. The Dominguez Channel runs adjacent to the Refinery from the north to the south. Railroad tracks service the area along the western boundary of the Refinery and along Alameda Street. The Ultramar/Valero Refinery is comprised of large scale, industrial equipment that includes a FCCU, boilers, heaters, numerous above-ground storage tanks, process columns, and stacks reaching approximately 200 feet in height. The Ultramar/Valero Refinery is a 24-hour operation with existing light sources in place for nighttime operations.

The Ultramar/Valero Refinery is bounded to the north by Anaheim Street and industrial uses. Also northward of Anaheim Street is another major refinery complex. The Ultramar/Valero Refinery is bounded on the south by an area used previously for oil field production facilities and which is now developed for marine cargo transport and storage facilities and other Port of Long Beach related uses. A Hydrogen Plant is located adjacent to and immediately west of the Ultramar/Valero Refinery (west of the Dominguez Channel) on Henry Ford Avenue. To the west of Henry Ford Avenue are additional industrial and commercial uses and the Port of Los Angeles. To the east of the Ultramar/Valero Refinery are automobile storage yards, a cogeneration plant and a petroleum coke calcining plant (BP Wilmington Plant). The Terminal Island Freeway (State Route 103) runs through the Refinery's boundaries. Historically, there were oil production facilities scattered throughout this general area, none of which are currently producing. The closest residential area is about one mile northwest of the Refinery in the City of Wilmington.

6. Tesoro Refinery

The Tesoro Refinery is located at 2101 East Pacific Coast Highway in the Wilmington district of the City of Los Angeles, California (http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=2101+East+Pacific+Coast+Highway,+Los+Angeles,+ca&sll=33.786513,-118.230486&sspn=0.011431,0.022466&ie=UTF8&ll=33.796357,-118.230679&spn=0.01143,0.022466&t=h&z=16). The Refinery occupies about 300 acres of land, with the larger portion located within the jurisdiction of the City of Los Angeles and the smaller portion located within the City of Carson. The Refinery is bounded to the north by Sepulveda Boulevard, to the west by Alameda Street, to the south by the Southern Pacific Railroad tracks, and to the east by the Dominguez Channel. The Refinery is bisected by Pacific

Coast Highway, with the larger portion of the Refinery to the north of Pacific Coast Highway and the smaller portion to the south.

The Tesoro Refinery is zoned for heavy industrial uses (M3-1). The land use in the vicinity of the Tesoro Refinery includes oil production facilities, refineries, hydrogen plants, coke handling facilities, automobile wrecking/dismantling facilities, and other industrial facilities. The nearest residential areas to the Refinery include a residential area in the City of Long Beach, about one-half mile east of the Refinery and residential areas of Wilmington about 0.17 mile west of the southern portion of the Refinery and about 0.25 mile west of the Refinery. The Alameda Corridor, a major port access arterial, is located west of the Refinery. Other industrial uses west of the Refinery include wrecking yards, storage tanks farms and container storage areas. Industrial facilities north of the Refinery include the BP Coke Barn, other refining activities, and storage tanks farms, and an intermodal container transfer facility (ICTF). Land to the east of the Refinery includes a rail yard, the Terminal Island Freeway, a residential neighborhood and light manufacturing facilities. Land uses south of the Refinery are predominately heavy industrial with wrecking yards, a truck terminal and storage tank facilities. No schools are located within 0.25 mile of the Refinery. The Tesoro Refinery is comprised of large scale, industrial equipment that includes a FCCU, boilers, heaters, numerous above-ground storage tanks, process columns, and stacks reaching approximately 200 feet in height. The Tesoro Refinery is a 24-hour operation with existing light sources in place for nighttime operations.

Tesoro also owns and operates a separate Sulfur Recovery Plant (SRP) north of the Refinery located at 23208 South Alameda Street in the City of Carson, California (http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=23208+South+Alameda+Street,+carson,+ca&sll=33.796357,-118.230679&sspn=0.01143,0.022466&ie=UTF8&ll=33.810478,-118.230228&spn=0.011428,0.022466&t=h&z=16&iwloc=A). The SRP is zoned for heavy manufacturing uses (MH) by the City of Carson's Land Use element of its General Plan. Adjacent areas to the SRP are heavy industrial and include other refineries, a hydrogen plant, undeveloped lots, and container storage areas. The closest residential area is about 0.5 mile east of the SRP in the City of Long Beach. No schools are located within 0.25 mile of the SRP. The SRP is comprised of large scale, industrial equipment that includes numerous above-ground storage tanks, process columns, and stacks reaching approximately 200 feet in height. Like the Tesoro Refinery, the SRP is also a 24-hour operation with existing light sources in place for nighttime operations.

7. Rhodia Inc.

The Rhodia sulfuric acid plant is located at 20720 South Wilmington Avenue in the City of Carson, California (http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=20720+South+Wilmington+Avenue,+carson,+ca&sll=33.810478,-118.230228&sspn=0.011428,0.022466&ie=UTF8&ll=33.843936,-118.230014&spn=0.011424,0.022466&t=h&z=16). The facility is bordered by South Wilmington Avenue on the west, East Dominguez Street to the south, East Del Amo Boulevard to the north, and South Alameda Street to the east. The Rhodia sulfuric acid plant is comprised of large scale, industrial equipment such as a reactor, scrubber, bulk loading and conveying, boilers, heaters, internal combustion (IC) engines, conveyors, and storage tanks. The Rhodia sulfuric acid plant is a 24-hour operation with existing light sources in place for nighttime operations. The Rhodia plant is 90 percent paved, and is located in an industrial and commercial area. The nearest residential neighborhoods are located 0.25 mile northwest and 0.5 mile southwest of the facility. The Dominguez Channel is located approximately 1.25 miles from the facility.

8. ConocoPhillips Carson Plant

The ConocoPhillips Carson Plant is located at 1520 East Sepulveda Boulevard in the City of Carson, California and occupies 245 acres (http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=1520+East+Sepulveda+Boulevard,+carson,+ca&sll=33.843936,-118.230014&sspn=0.011424,0.022466&ie=UTF8&t=h&z=16). The Carson Plant is zoned for heavy manufacturing uses (MH). The Carson Plant is bounded on the north by Sepulveda Boulevard, on the west by Wilmington Avenue, on the south by a branch of the Atchison, Topeka and Santa Fe Railroad, and on the east by Alameda Street. Property to the north of the Carson Plant is occupied by the BP Carson Refinery. The western boundary of the plant borders a shipping and container facility. Property across Wilmington Avenue includes a residential neighborhood to the northwest and commercial uses to the southwest. Land uses to the south of the Carson Plant are designated as heavy industrial. Land south of Lomita Avenue is dominated by port-related activities. Land east of Alameda Street is occupied by a storage tank farm and the Tesoro Refinery. The ConocoPhillips Carson Plant is comprised of large scale, industrial equipment that includes numerous above-ground storage tanks, process columns, and stacks reaching approximately 200 feet in height. The ConocoPhillips Carson Plant is a 24-hour operation with existing light sources in place for nighttime operations.

9. BP Wilmington Calciner Plant

The BP Wilmington Calciner is located in Los Angeles County near the Port of Long Beach just north of Cerritos Channel, at 1175 Carrack Avenue in the City of Wilmington, California (http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=1175+Carrack+Avenue,+Wilmington,+ca&sll=33.804192,-118.243762&sspn=0.011429,0.022466&g=1520+East+Sepulveda+Boulevard,+carson,+ca&ie=UTF8&ll=33.774028,-118.224864&spn=0.011433,0.022466&t=h&z=16). Pier B Street runs to the north and west of the Calciner Plant's boundaries. Pier A Way borders the south end of the Calciner Plant and Carrack Avenue borders the east side of the Calciner Plant. The BP Wilmington Calciner is comprised of large scale, industrial equipment that includes a long rotary kiln (13 feet, diameter x 270 feet, length), one of the largest of its kind, that produces approximately 400,000 (short) tons per year of calcined product. The BP Wilmington Calciner is a 24-hour operation with existing light sources in place for nighttime operations. There are no sensitive receptors within 1,000 feet or 0.25 mile radius of the BP Wilmington Calciner.

10. CPCC Plant

Currently, CPCC is the only company in the SCAQMD that manufactures Gray Portland Cement. The process involves injection of used tires into the cement kiln. CPCC is located in San Bernardino County at 695 South Rancho Avenue in the City of Colton, California (http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=695+South+Rancho+Avenue,+Colton,+California&sll=33.774028,-118.224864&sspn=0.011433,0.022466&ie=UTF8&ll=34.061921,-117.338362&spn=0.011395,0.022466&t=h&z=16&iwloc=A). CPCC occupies 578 acres and is bounded by train tracks to the west operated by Union Pacific Railroads, the San Bernardino freeway (I-10) to the north, South Rancho Avenue to the east, and West Agua Mansa Road to the south. CPCC and adjacent properties to the north, east, west and southwest of CPCC are industrial zones. The adjacent property to the south of CPCC is open space that follows the Santa Ana River and is zoned as equestrian/agricultural. CPCC is a 24-hour operation with existing light sources in place for nighttime operations. CPCC operates two gray cement kilns, Kiln #1 and Kiln #2.

11. Owens-Brockway Glass Container Inc.

The Owens-Brockway Glass Container plant is located in Los Angeles County at 2901-23 Fruitland Avenue, in the City of Vernon, California (http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=2901-23+Fruitland+Avenue,+Vernon,+CA&sll=37.0625,-95.677068&sspn=44.388698,92.021484&ie=UTF8&ll=33.99825,-118.215841&spn=0.005702,0.011233&t=h&z=17). The facility is bordered by South Soto Street on the west, Fruitland Avenue to the south, East 50th Street to the north, and State Street to the east. The Owens-Brockway Glass Container plant is comprised of large scale, industrial equipment such as glass melting kilns, glass forming machines, heat treating furnaces, scrubbers, bag houses, bulk loading, conveying and blending equipment, and storage tanks. The Owens-Brockway Glass Container plant is a 24-hour operation with existing light sources in place for nighttime operations.

AIR QUALITY

This section provides an overview of air quality in the District. A more detailed discussion of current and projected future air quality in the District, with and without additional control measures can be found in the Final Program EIR for the 2007 AQMP (Chapter 3).

It is the responsibility of the SCAQMD to ensure that state and federal ambient air quality standards are achieved and maintained in its geographical jurisdiction. Health-based air quality standards have been established by California and the federal government for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO2), particulate matter less than 10 microns (PM10), particulate matter less than 2.5 microns (PM2.5) sulfur dioxide (SO2) and lead. These standards were established to protect sensitive receptors with a margin of safety from adverse health impacts due to exposure to air pollution. The California standards are more stringent than the federal standards and in the case of PM10 and SO2, far more stringent. California has also established standards for sulfates, visibility reducing particles, hydrogen sulfide, and vinyl chloride. The state and national ambient air quality standards for each of these pollutants and their effects on health are summarized in Table 3-3. The SCAQMD monitors levels of various criteria pollutants at 34 monitoring stations. The 2008 air quality data from SCAQMD's monitoring stations are presented in Table 3-4.

Table 3-3
State and Federal Ambient Air Quality Standards

AIR POLLUTANT	STATE STANDARD	FEDERAL PRIMARY STANDARD	MOST RELEVANT EFFECTS
	CONCENTRATION, AVERAGING TIME		
Carbon Monoxide (CO)	20 ppm, 1-hour average > 9.0 ppm, 8-hour average >	35 ppm, 1-hour average > 9 ppm, 8-hour average >	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and, (d) Possible increased risk to fetuses.
Ozone (O3)	0.09 ppm, 1-hour average > 0.07 ppm, 8-hour average >	0.12 ppm, 1-hour average > 0.075 ppm, 8-hour average >	(a) Short-term exposures: 1) Pulmonary function decrements and localized lung edema in humans and animals; and, 2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; and, (d) Property damage.
Nitrogen Dioxide (NO2)	0.18 ppm, 1-hour average > 0.030 ppm, annual average >	0.0534 ppm, AAM >	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and, (c) Contribution to atmospheric discoloration.
Sulfur Dioxide (SO2)	0.25 ppm, 1-hour average > 0.04 ppm, 24-hour average >	0.03 ppm, AAM > 0.14 ppm, 24-hour average > 0.50 ppm, 3-hour average >	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
Suspended Particulate Matter (PM10)	20 µg/m^3, AAM > 50 µg/m^3, 24-hour average >	150 µg/m^3, 24-hour average >	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; and, (b) Excess seasonal declines in pulmonary function, especially in children.
Suspended Particulate Matter (PM2.5)	12 µg/m^3, AAM >	15 µg/m^3, AAM > 35 µg/m^3, 24-hour average >	(a) Increased hospital admissions and emergency room visits for heart and lung disease; (b) Increased respiratory symptoms and disease; and, (c) Decreased lung functions and premature death.
Lead	1.5 µg/m^3, 30-day average >=	0.15 µg/m^3, rolling three-month average >	(a) Increased body burden; and, (b) Impairment of blood formation and nerve conduction.

KEY:

ppm = parts per million parts of air, by volume	AAM = Annual Arithmetic Mean
µg/m^3 = micrograms per cubic meter	

Table 3-3 (concluded)
State and Federal Ambient Air Quality Standards

AIR POLLUTANT	STATE STANDARD	FEDERAL PRIMARY STANDARD	MOST RELEVANT EFFECTS
	CONCENTRATION, AVERAGING TIME		
Sulfates (SOx)	25 µg/m^3, 24-hour average >=		(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and, (f) Property damage.
Visibility-Reducing Particles	Insufficient amount to give an extinction coefficient >0.23 inverse kilometers (visual range to less than 10 miles) with relative humidity less than 70 percent, 8-hour average (10am – 6pm PST)		Nephelometry and AISI Tape Sampler; instrumental measurement on days when relative humidity is less than 70 percent.
Vinyl Chloride	0.010 ppm, 24-hour average >=		Known carcinogen.
Hydrogen Sulfide	0.03 ppm, 1-hour average >=		Odor annoyance.

KEY:

ppm = parts per million parts of air, by volume	AAM = Annual Arithmetic Mean
µg/m^3 = micrograms per cubic meter	

Table 3-4
2008 Air Quality Data – South Coast Air Quality Management District

CARBON MONOXIDE (CO)						
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. ppm, 1-hour	Max. Conc. ppm, 8-hour	No. Days Standard Exceeded[a]	
					Federal > 9.0 ppm, 8-hour	State > 9.0 ppm, 8-hour
LOS ANGELES COUNTY (Co)						
1	Central Los Angeles	366	3	2.1	0	0
2	Northwest Coast Los Angeles Co	366	3	2.0	0	0
3	Southwest Coast Los Angeles Co	358	4	2.5	0	0
4	South Coastal Los Angeles Co1	366	3	2.6	0	0
4	South Coastal Los Angeles Co2	--	--	--	--	--
6	West San Fernando Valley	366	4	2.9	0	0
7	East San Fernando Valley	366	3	2.6	0	0
8	West San Gabriel Valley	366	3	2.1	0	0
9	East San Gabriel Valley 1	366	2	1.6	0	0
9	East San Gabriel Valley 2	366	3	3.0	0	0
10	Pomona/Walnut Valley	366	3	2.0	0	0
11	South San Gabriel Valley	357	3	2.1	0	0
12	South Central LA County	310*	6*	4.3*	0	0
13	Santa Clarita Valley	363	2	1.1	0	0
ORANGE COUNTY						
16	North Orange County	366	5	2.9	0	0
17	Central Orange County	366	4	3.6	0	0
18	North Coastal Orange County	366	3	2.0	0	0
19	Saddleback Valley	365	2	1.1	0	0
RIVERSIDE COUNTY						
22	Norco/Corona	--	--	--	--	--
23	Metropolitan Riverside County 1	366	3	2.0	0	0
23	Metropolitan Riverside County 2	366	7	2.0	0	0
23	Mira Loma	366	3	1.9	0	0
24	Perris Valley	--	--	--	--	--
25	Lake Elsinore	365	1	1.0	0	0
29	Banning Airport	--	--	--	--	--
30	Coachella Valley 1**	366	1	0.6	0	0
30	Coachella Valley 2**	--	--	--	--	--
SAN BERNARDINO COUNTY						
32	NW San Bernardino Valley	365	2	1.6	0	0
33	SW San Bernardino Valley	--	--	--	--	--
34	Central San Bernardino Valley 1	363	2	1.9	0	0
34	Central San Bernardino Valley 2	366	2	1.8	0	0
35	East San Bernardino Valley	--	--	--	--	--
37	Central San Bernardino Mountains	--	--	--	--	--
38	East San Bernardino Mountains	--	--	--	--	--
	DISTRICT MAXIMUM	366	7	4.3	0	0
	SOUTH COAST AIR BASIN		7	4.3	0	0

KEY:

ppm = parts per million parts of air, by volume	* Less than 12 full months of data. May not be representative.
-- = Pollutant not monitored	** Salton Sea Air Basin

a) The federal 8-hour standard (8-hour average CO > 9 ppm) and state 8-hour standard (8-hour average CO > 9.0 ppm) were not exceeded. The federal and state 1-hour standards (35 ppm and 20 ppm) were not exceeded, either.

Table 3-4 (continued)
2008 Air Quality Data – South Coast Air Quality Management District

OZONE (O_3)											
Source/Receptor Area		No. Days of Data	Max. Conc. in ppm 1-hour	Max. Conc. in ppm 8-hour	Fourth High Conc. ppm 8-hour	No. Days Standard Exceeded					
						Health Advisory	Federal [b]			State [c]	
No.	Location					≥ 0.15 ppm 1-hour	> 0.12 ppm 1-hour	> 0.08 ppm 8-hour	> 0.075 ppm 8-hour	> 0.09 ppm 1-hour	> 0.070 ppm 8-hour
LOS ANGELES COUNTY											
1	Central LA	356	0.109	0.090	0.073	0	0	1	3	3	7
2	Northwest Coastal LA County	366	0.11	0.097	0.073	0	0	1	2	3	8
3	Southwest Coastal LA County	360	0.086	0.075	0.065	0	0	0	0	0	1
4	South Coastal LA County 1	366	0.093	0.074	0.064	0	0	0	0	0	1
4	South Coastal LA County 2	--	--	--	--	--	--	--	--	--	--
6	West San Fernando Valley	366	0.123	0.103	0.095	0	0	14	25	23	40
7	East San Fernando Valley	366	0.133	0.109	0.092	0	1	8	17	20	35
8	West San Gabriel Valley	366	0.122	0.100	0.091	0	0	6	16	16	26
9	East San Gabriel Valley 1	366	0.135	0.111	0.101	0	7	14	28	34	39
9	East San Gabriel Valley 2	366	0.156	0.118	0.112	2	12	25	45	48	61
10	Pomona/Walnut Valley	366	0.141	0.110	0.100	0	5	19	35	32	47
11	South San Gabriel Valley	366	0.107	0.093	0.077	0	0	1	5	7	13
12	South Central LA County	310*	0.078*	0.060*	0.055*	0*	0*	0*	0*	0*	0*
13	Santa Clarita Valley	363	0.160	0.131	0.108	2	8	35	60	54	81
ORANGE COUNTY											
16	North Orange County	366	0.104	0.084	0.078	0	0	0	5	7	15
17	Central Orange County	366	0.105	0.086	0.076	0	0	1	4	2	10
18	North Coastal Orange County	366	0.094	0.079	0.075	0	0	0	3	0	6
19	Saddleback Valley	365	0.118	0.104	0.092	0	0	6	15	9	25
RIVERSIDE COUNTY											
22	Norco/Corona	--	--	--	--	--	--	--	--	--	--
23	Metropolitan Riverside County 1	366	0.146	0.116	0.111	0	8	38	64	54	88
23	Metropolitan Riverside County 2	--	--	--	--	--	--	--	--	--	--
23	Mira Loma	366	0.135	0.107	0.104	0	4	23	47	38	62
24	Perris Valley	366	0.142	0.114	0.106	0	4	41	77	65	94
25	Lake Elsinore	365	0.139	0.118	0.108	0	6	32	69	49	92
29	Banning Airport	365	0.149	0.120	0.108	0	10	45	74	57	95
30	Coachella Valley 1**	366	0.11	0.101	0.098	0	0	20	51	26	70
30	Coachella Valley 2**	355	0.12	0.092	0.090	0	0	11	27	11	44
SAN BERNARDINO COUNTY											
32	Northwest San Bernardino Valley	365	0.155	0.122	0.111	2	9	30	50	51	65
33	Southwest San Bernardino Valley	--	--	--	--	--	--	--	--	--	--
34	Central San Bernardino Valley 1	364	0.162	0.124	0.111	1	8	35	58	55	82
34	Central San Bernardino Valley 2	366	0.157	0.122	0.113	2	11	43	62	62	90
35	East San Bernardino Valley	366	0.154	0.120	0.112	1	12	50	75	72	100
37	Central San Bernardino Mountains	362	0.176	0.126	0.120	2	16	67	97	78	115
38	East San Bernardino Mountains	--	--	--	--	--	--	--	--	--	--
	DISTRICT MAXIMUM	366	0.176	0.131	0.120	2	17	75	97	79	115
	SOUTH COAST AIR BASIN		0.176	0.131	0.120	7	28	80	120	102	140

KEY:

ppm = parts per million parts of air, by volume	* Less than 12 full months of data. May not be representative.
-- = Pollutant not monitored	** Salton Sea Air Basin

b) The federal 1-hour ozone standard was revoked and replaced by the 8-hour average ozone standard effective June 15, 2005. USEPA has revised the federal 8-hour ozone standard from 0.084 ppm to 0.075 ppm, effective May 27, 2008.

c) The 8-hour average California ozone standard of 0.070 ppm was established effective May 17, 2006.

Table 3-4 (continued)
2008 Air Quality Data – South Coast Air Quality Management District

NITROGEN DIOXIDE (NO_2)				
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc.[d] ppm, 1-hour	Annual Average[d] AAM Conc. ppm
LOS ANGELES COUNTY (Co)				
1	Central Los Angeles	343	0.12	0.0275
2	Northwest Coastal Los Angeles Co	364	0.09	0.0184
3	Southwest Coastal Los Angeles Co	359	0.10	0.0143
4	South Coastal Los Angeles Co1	366	0.13	0.0208
4	South Coastal Los Angeles Co2	--	--	--
6	West San Fernando Valley	366	0.09	0.0180
7	East San Fernando Valley	364	0.11	0.0285
8	West San Gabriel Valley	365	0.11	0.0235
9	East San Gabriel Valley 1	366	0.10	0.0230
9	East San Gabriel Valley 2	366	0.10	0.0182
10	Pomona/Walnut Valley	366	0.11	0.0302
11	South San Gabriel Valley	341	0.10	0.0263
12	South Central LA County	305*	0.12*	0.0301*
13	Santa Clarita Valley	363	0.07	0.0165
ORANGE COUNTY				
16	North Orange County	361	0.09	0.0206
17	Central Orange County	366	0.09	0.0203
18	North Coastal Orange County	365	0.08	0.0132
19	Saddleback Valley	--	--	--
RIVERSIDE COUNTY				
22	Norco/Corona	--	--	--
23	Metropolitan Riverside County 1	366	0.09	0.0192
23	Metropolitan Riverside County 2	70*	0.09*	0.0258*
23	Mira Loma	366	0.10	0.0174
24	Perris Valley	--	--	--
25	Lake Elsinore	362	0.06	0.0129
29	Banning Airport	366	0.08	0.0128
30	Coachella Valley 1**	366	0.05	0.0093
30	Coachella Valley 2**	--	--	--
SAN BERNARDINO COUNTY				
32	Northwest SB Valley	365	0.09	0.0235
33	Southwest SB Valley	--	--	--
34	Central SB Valley 1	364	0.10	0.0207
34	Central SB Valley 2	366	0.09	0.0217
35	East SB Valley	--	--	--
37	Central SB Mountains	--	--	--
38	East SB Mountains	--	--	--
DISTRICT MAXIMUM			0.13	0.0302
SOUTH COAST AIR BASIN			0.13	0.0302

KEY:

ppm = parts per million parts of air, by volume	* Less than 12 full months of data. May not be representative.
AAM = Annual Arithmetic Mean	** Salton Sea Air Basin
-- = Pollutant not monitored	

d) The federal standard is annual arithmetic mean NO2 > 0.534 ppm. CARB has revised the NO2 1-hour standard from 0.25 ppm to 0.18 ppm and has established a new annual standard of 0.030 ppm , effective March 20, 2008.

Table 3-4 (continued)
2008 Air Quality Data – South Coast Air Quality Management District

SULFUR DIOXIDE (SO_2)					
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Maximum Conc.[e] ppm, 1-hour	Maximum Conc.[e] ppm, 24-hour	Annual Average, AAM ppm
LOS ANGELES COUNTY					
1	Central Los Angeles	366	0.01	0.002	0.0003
2	Northwest Coast Los Angeles County	--	--	--	--
3	Southwest Coast Los Angeles County	357	0.02	0.005	0.0014
4	South Coastal Los Angeles County 1	366	0.09	0.012	0.0022
4	South Coastal Los Angeles County 2	--	--	--	--
6	West San Fernando Valley	--	--	--	--
7	East San Fernando Valley	366	0.01	0.003	0.0008
8	West San Gabriel Valley	--	--	--	--
9	East San Gabriel Valley 1	--	--	--	--
9	East San Gabriel Valley 2	--	--	--	--
10	Pomona/Walnut Valley	--	--	--	--
11	South San Gabriel Valley	--	--	--	--
12	South Central LA County	--	--	--	--
13	Santa Clarita Valley	--	--	--	--
ORANGE COUNTY					
16	North Orange County	--	--	--	--
17	Central Orange County	--	--	--	--
18	North Coastal Orange County	366	0.01	0.003	0.0011
19	Saddleback Valley	--	--	--	--
RIVERSIDE COUNTY					
22	Norco/Corona	--	--	--	--
23	Metropolitan Riverside County 1	366	0.01	0.003	0.0009
23	Metropolitan Riverside County 2	--	--	--	--
23	Mira Loma	--	--	--	--
24	Perris Valley	--	--	--	--
25	Lake Elsinore	--	--	--	--
29	Banning Airport	--	--	--	--
30	Coachella Valley 1**	--	--	--	--
30	Coachella Valley 2**	--	--	--	--
SAN BERNARDINO COUNTY					
32	Northwest San Bernardino Valley	--	--	--	--
33	Southwest San Bernardino Valley	--	--	--	--
34	Central San Bernardino Valley 1	364	0.01	0.003	0.0018
34	Central San Bernardino Valley 2	--	--	--	--
35	East San Bernardino Valley	--	--	--	--
37	Central San Bernardino Mountains	--	--	--	--
38	East San Bernardino Mountains	--	--	--	--
	DISTRICT MAXIMUM		0.09	0.012	0.0022
	SOUTH COAST AIR BASIN		0.09	0.012	0.0022

KEY:

ppm = parts per million parts of air, by volume	* Less than 12 full months of data. May not be representative.
AAM = Annual Arithmetic Mean	** Salton Sea Air Basin
-- = Pollutant not monitored	

e) The state standards are 1-hour average SO_2 > 0.25 ppm and 24-hour average SO_2 > 0.04 ppm. The federal standards are annual arithmetic mean SO_2 > 0.03 ppm, 24-hour average > 0.14 ppm, and 3-hour average > 0.50 ppm. The federal and state SO_2 standards were not exceeded.

Table 3-4 (continued)
2008 Air Quality Data – South Coast Air Quality Management District

SUSPENDED PARTICULATE MATTER PM10 [f]						
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. µg/m^3, 24-hour	No. (%) Samples Exceeding Standard		Annual Average[g] AAM Conc. µg/m^3
				Federal > 150 µg/m^3, 24-hour	State > 50 µg/m^3, 24-hour	
LOS ANGELES COUNTY						
1	Central Los Angeles	42*	66*	0*	3(7%)*	32.2*
2	NW Coastal Los Angeles County	--	--	--	--	--
3	SW Coast Los Angeles County2	60	50	0	0(0%)	25.6
4	South Coastal Los Angeles County1	57	62	0	1(2%)	29.1
4	South Coastal Los Angeles County2	58	81	0	9(16%)	35.8
6	West San Fernando Valley	--	--	--	--	--
7	East San Fernando Valley	54	66	0	7(13%)	35.6
8	West San Fernando Valley	--	--	--	--	--
9	East San Gabriel Valley 1	49	98	0	13(27%)	35.3
9	East San Gabriel Valley 2	--	--	--	--	--
10	Pomona/Walnut Valley	--	--	--	--	--
11	South San Gabriel Valley	--	--	--	--	--
12	South Central LA County	--	--	--	--	--
13	Santa Clarita Valley	57	91	0	2(4%)	25.8
ORANGE COUNTY						
16	North Orange County	--	--	--	--	--
17	Central Orange County	58	61	0	3(5%)	28.6
18	North Coastal Orange County	--	--	--	--	--
19	Saddleback Valley	55	42	0	0(0%)	22.6
RIVERSIDE COUNTY						
22	Norco/Corona	61	86	0	9(15%)	34.4
23	Metropolitan Riverside County 1	119	115	0	49(41%)	47.0
23	Metropolitan Riverside County 2	61	135	0	35(57%)	57.4
23	Mira Loma	--	--	--	--	--
24	Perris Valley	45*	85*	0*	12(27%)*	38.3*
25	Lake Elsinore	--	--	--	--	--
29	Banning Airport	56	51	0	1(2%)	26.1
30	Coachella Valley 1**	52	75	0	4(8%)	24.0
30	Coachella Valley 2**	114	128	0	27(24%)	39.9
SAN BERNARDINO COUNTY-						
32	NW San Bernardino Valley	--	--	--	--	--
33	SW San Bernardino Valley	62	90	0	15(24%)	38.8
34	Central San Bernardino Valley 1	60	75	0	14(23%)	40.3
34	Central San Bernardino Valley 2	60	76	0	19(32%)	42.7
35	East San Bernardino Valley	61	58	0	4(7%)	29.0
37	Central San Bernardino Mountains	46	46	0	0(0%)	25.0
38	East San Bernardino Mountains	--	--	--	--	--
	DISTRICT MAXIMUM		135	0	59	57.4
	SOUTH COAST AIR BASIN		135	0	68	57.4

KEY:

µg/m^3 = micrograms per cubic meter of air	* Less than 12 full months of data. May not be representative.
AAM = Annual Arithmetic Mean	** Salton Sea Air Basin
-- = Pollutant not monitored	

f) PM10 samples were collected every 6 days at all sites except for Station Number 4144 and 4157 where samples were collected every 3 days.

g) Federal annual PM 10 standard (AAM > 50 µg/m^3) was revoked effective December 17, 2006. State standard is annual average (AAM) >20 µg/m3.

Table 3-4 (continued)
2008 Air Quality Data – South Coast Air Quality Management District

SUSPENDED PARTICULATE MATTER PM2.5 [h]							
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. µg/m^3, 24-hour	98th Percentile Conc. in µg/m^3 24-hr	No. (%) Samples Exceeding Federal Standard [i]		Annual Averages[j]
					Current > 35 µg/m^3, 24-hour	Old > 65 µg/m^3, 24-hour	AAM Conc. µg/m^3
LOS ANGELES COUNTY (Co)							
1	Central Los Angeles	337	78.3	40.4	10(3.0)	1(0.3)	15.7
2	Northwest Coastal Los Angeles Co	--	--	--	--	--	--
3	Southwest Coastal Los Angeles Co 2	--	--	--	--	--	--
4	South Coastal Los Angeles Co 1	346	57.2	38.9	8(2.3)	0	14.2
4	South Coastal Los Angeles County 2	349	60.9	36.4	7(2.0)	0	13.7
6	West San Fernando Valley	113	50.5	26.2	2(1.8)	0	11.9
7	East San Fernando Valley	116	57.5	34.6	2(1.7)	0	14.1
8	West San Gabriel Valley	118	66.0	32.1	2(1.7)	1(0.9)	12.9
9	East San Gabriel Valley 1	321	53.1	34.8	5(1.6)	0	14.1
9	East San Gabriel Valley 2	--	--	--	--	--	--
10	Pomona/Walnut Valley	--	--	--	--	--	--
11	South San Gabriel Valley	114.	47.3	38.0	4(3.5)	0	15.0
12	South Central LA County	118	44.2	36.5	3(2.5)	0	15.5
13	Santa Clarita Valley	--	--	--	--	--	--
ORANGE COUNTY							
16	North Orange County	--	--	--	--	--	--
17	Central Orange County	336	67.9	39.4	13(3.9)	1(0.3)	13.7
18	North Coastal Orange County	--	--	--	--	--	--
19	Saddleback Valley	120	32.6	27.1	0	0	10.4
RIVERSIDE COUNTY							
22	Norco/Corona	--	--	--	--	--	--
23	Metropolitan Riverside County 1	348	57.7	41.5	14(4.0)	0	16.4
23	Metropolitan Riverside County 2	116	43.0	39.1	4(3.4)	0	13.4
23	Mira Loma	111	50.9	47.1	10(9.0)	0	18.2
24	Perris Valley	--	--	--	--	--	--
25	Lake Elsinore	--	--	--	--	--	--
29	Banning Airport	--	--	--	--	--	--
30	Coachella Valley 1**	110	18.1	17.1	0	0	7.2
30	Coachella Valley 2**	113	21.6	18.8	0	0	8.4
SAN BERNARDINO COUNTY							
32	Northwest San Bernardino Valley	--	--	--	--	--	--
33	Southwest San Bernardino Valley	113	54.2	45.0	6(5.3)	0	15.8
34	Central San Bernardino Valley1	112	49.0	47.1	6(5.4)	0	15.4
34	Central San Bernardino Valley2	110	43.5	40.1	3(2.7)	0	13.5
35	East San Bernardino Valley	--	--	--	--	--	--
37	Central San Bernardino Mountains	--	--	--	--	--	--
38	East San Bernardino Mountains	58	36.8	33.3	1(1.7)	0	9.2
DISTRICT MAXIMUM			78.3	47.1	14	1	18.2
SOUTH COAST AIR BASIN			78.3	47.1	28	2	18.2

KEY:

µg/m^3 = micrograms per cubic meter of air	* Less than 12 full months of data. May not be representative.
AAM = Annual Arithmetic Mean	** Salton Sea Air Basin
-- = Pollutant not monitored	

h) PM2.5 samples were collected every 3 days at all sites except for the following sites: Station Numbers 060, 072, 077, 087, 3176, and 4144 where samples were taken every day, and Station Number 5818 where samples were taken every 6 days.

i) USEPA has revised the federal 24-hour PM2.5 standard from 65 µg/m^3 to 35 µg/m^3; effective December 17, 2006.

j) Federal PM2.5 standard is annual average (AAM) > 15 µg/m^3. State standard is annual average (AAM) > 12 µg/m^3.

Table 3-4 (continued)
2008 Air Quality Data – South Coast Air Quality Management District

TOTAL SUSPENDED PARTICULATES TSP [k]				
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. µg/m^3, 24-hour	Annual Average AAM Conc. µg/m^3
LOS ANGELES COUNTY (Co)				
1	Central Los Angeles	63	112	65.6
2	Northwest Coastal Los Angeles Co	56	88	45.9
3	Southwest Coastal Los Angeles Co	54	85	42.4
4	South Coastal Los Angeles Co 1	61	117	55.7
4	South Coastal Los Angeles Co 2	59	130	61.2
6	West San Fernando Valley	--	--	--
7	East San Fernando Valley	--	--	--
8	West San Gabriel Valley	55	108	46.7
9	East San Gabriel Valley 1	59	146	74.9
9	East San Gabriel Valley 2	--	--	--
10	Pomona/Walnut Valley	--	--	--
11	South San Gabriel Valley	57	119	63.2
12	South Central LA County	51	103	70.4
13	Santa Clarita Valley	--	--	--
ORANGE COUNTY				
16	North Orange County	--	--	--
17	Central Orange County	--	--	--
18	North Coastal Orange County	--	--	--
19	Saddleback Valley	--	--	--
RIVERSIDE COUNTY				
22	Norco/Corona	--	--	--
23	Metropolitan Riverside County 1	59	222	100.6
23	Metropolitan Riverside County 2	63	130	69.4
23	Mira Loma	--	--	--
24	Perris Valley	--	--	--
25	Lake Elsinore	--	--	--
29	Banning Airport	--	--	--
30	Coachella Valley 1**	--	--	--
30	Coachella Valley 2**	--	--	--
SAN BERNARDINO COUNTY				
32	NW San Bernardino Valley	54	87	52.2
33	SW San Bernardino Valley	--	--	--
34	Central San Bernardino Valley 1	57	139	80
34	Central San Bernardino Valley 2	59	166	83.6
35	East San Bernardino Valley	--	--	--
37	Central San Bernardino Mountains	--	--	--
38	East San Bernardino Mountains	--	--	--
DISTRICT MAXIMUM			222	100.6
SOUTH COAST AIR BASIN			222	100.6

KEY:

µg/m^3 = micrograms per cubic meter of air	-- = Pollutant not monitored
AAM = Annual Arithmetic Mean	** Salton Sea Air Basin

k) Total suspended particulates, lead, and sulfate were determined from samples collected every 6 days by the high volume sampler method, on glass fiber filter media.

Table 3-4 (concluded)
2008 Air Quality Data – South Coast Air Quality Management District

Source Receptor Area No.	Location of Air Monitoring Station	LEAD[k] Max. Monthly Average Conc[l] µg/m³	LEAD[k] Max. Quarterly Average Conc.[l] µg/m³	SULFATES (SOx)[k] Max. Conc. µg/m³, 24-hour	SULFATES (SOx)[k] No. (%) Samples Exceeding State Standard ≥ 25 µg/m³, 24-hour
LOS ANGELES COUNTY (Co)					
1	Central Los Angeles	0.02	0.02	14.4	0
2	Northwest Coastal Los Angeles Co	--	--	11.1	0
3	Southwest Coastal Los Angeles Co	0.01	0.01	14.0	0
4	South Coastal Los Angeles Co 1	0.01	0.01	11.0	0
4	South Coastal Los Angeles Co 2	0.01	0.01	13.2	0
6	West San Fernando Valley	--	--	--	--
7	East San Fernando Valley	--	--	--	--
8	West San Gabriel Valley	--	--	14.1	0
9	East San Gabriel Valley 1	--	--	18.7	0
9	East San Gabriel Valley 2	--	--	--	--
10	Pomona/Walnut Valley	--	--	--	--
11	South San Gabriel Valley	0.02	0.02	10.1	0
12	South Central LA County	0.03	0.02	10.6	0
13	Santa Clarita Valley	--	--	--	--
ORANGE COUNTY					
16	North Orange County	--	--	--	--
17	Central Orange County	--	--	--	--
18	North Coastal Orange County	--	--	--	--
19	Saddleback Valley	--	--	--	--
RIVERSIDE COUNTY					
22	Norco/Corona	--	--	--	--
23	Metropolitan Riverside County 1	0.01	0.01	9.1	0
23	Metropolitan Riverside County 2	0.01	0.01	7.1	0
23	Mira Loma	--	--	--	--
24	Perris Valley	--	--	--	--
25	Lake Elsinore	--	--	--	--
29	Banning Airport	--	--	--	--
30	Coachella Valley 1**	--	--	--	--
30	Coachella Valley 2**	--	--	--	--
SAN BERNARDINO COUNTY					
32	NW San Bernardino Valley	0.01	0.01	8.4	0
33	SW San Bernardino Valley	--	--	--	--
34	Central San Bernardino Valley 1	--	--	9.5	0
34	Central San Bernardino Valley 2	0.02	0.02	8.6	0
35	East San Bernardino Valley	--	--	--	--
37	Central San Bernardino Mountains	--	--	--	--
38	East San Bernardino Mountains	--	--	--	--
DISTRICT MAXIMUM		0.03	0.02	18.7	0
SOUTH COAST AIR BASIN		0.03	0.02	18.7	0

KEY:

µg/m³ = micrograms per cubic meter of air	** Salton Sea Air Basin
-- = Pollutant not monitored	

l) - Federal lead standard is quarterly average > 1.5 µg/m³; and state standard is monthly average ≥ 1.5 µg/m³. USEPA has established the federal standard of 0.15 µg/m³, rolling 3-month average, as of October 15, 2008.

Criteria Pollutants

Carbon Monoxide

CO is a colorless, odorless, relatively inert gas. It is a trace constituent in the unpolluted troposphere, and is produced by both natural processes and human activities. In remote areas far from human habitation, carbon monoxide occurs in the atmosphere at an average background concentration of 0.04 ppm, primarily as a result of natural processes such as forest fires and the oxidation of methane. Global atmospheric mixing of CO from urban and industrial sources creates higher background concentrations (up to 0.20 ppm) near urban areas. The major source of CO in urban areas is incomplete combustion of carbon-containing fuels, mainly gasoline. In 2002, approximately 98 percent of the CO emitted into the Basin's atmosphere was from mobile sources. Consequently, CO concentrations are generally highest in the vicinity of major concentrations of vehicular traffic.

CO is a primary pollutant, meaning that it is directly emitted into the air, not formed in the atmosphere by chemical reaction of precursors, as is the case with ozone and other secondary pollutants. Ambient concentrations of CO in the Basin exhibit large spatial and temporal variations due to variations in the rate at which CO is emitted and in the meteorological conditions that govern transport and dilution. Unlike ozone, CO tends to reach high concentrations in the fall and winter months. The highest concentrations frequently occur on weekdays at times consistent with rush hour traffic and late night during the coolest, most stable portion of the day.

Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of worsening oxygen supply to the heart.

Inhaled CO has no direct toxic effect on the lungs, but exerts its effect on tissues by interfering with oxygen transport by competing with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include patients with diseases involving heart and blood vessels, fetuses (unborn babies), and patients with chronic hypoxemia (oxygen deficiency) as seen in high altitudes.

Reductions in birth weight and impaired neurobehavioral development have been observed in animals chronically exposed to CO resulting in COHb levels similar to those observed in smokers. Recent studies have found increased risks for adverse birth outcomes with exposure to elevated CO levels. These include pre-term births and heart abnormalities.

Carbon monoxide concentrations were measured at 25 locations in the Basin and neighboring SSAB areas in 2008. Carbon monoxide concentrations did not exceed the standards in 2008. The highest one-hour average carbon monoxide concentration recorded (7.0 ppm in the South Central Los Angeles County area) was 20 percent of the federal one-hour carbon monoxide standard of 35 ppm. The highest eight-hour average carbon monoxide concentration recorded (4.3 ppm in the South Central Los Angeles County area) was 48 percent of the federal eight-hour carbon monoxide standard of 9.0 ppm. The state one-hour standard is also 9.0 ppm. The highest eight-hour average carbon monoxide concentration is 35 percent of the state eight-hour carbon monoxide standard of 20 ppm.

The 2003 AQMP revisions to the SCAQMD's CO Plan served two purposes: it replaced the 1997 attainment demonstration that lapsed at the end of 2000; and, it provided the basis for a CO maintenance plan in the future. In 2004, the SCAQMD formally requested the USEPA to re-designate the Basin from non-attainment to attainment with the CO National Ambient Air Quality Standards. On February 24, 2007, USEPA published in the Federal Register its proposed decision to re-designate the Basin from non-attainment to attainment for CO. The comment period on the re-designation proposal closed on March 16, 2007 with no comments received by the USEPA. On May 11, 2007, USEPA published in the Federal Register its final decision to approve the SCAQMD's request for re-designation from non-attainment to attainment for CO, effective June 11, 2007.

Ozone

Ozone (O3), a colorless gas with a sharp odor, is a highly reactive form of oxygen. High ozone concentrations exist naturally in the stratosphere. Some mixing of stratospheric ozone downward through the troposphere to the earth's surface does occur; however, the extent of ozone transport is limited. At the earth's surface in sites remote from urban areas ozone concentrations are normally very low (0.03-0.05 ppm).

While ozone is beneficial in the stratosphere because it filters out skin-cancer-causing ultraviolet radiation, it is a highly reactive oxidant. It is this reactivity which accounts for its damaging effects on materials, plants, and human health at the earth's surface.

The propensity of ozone for reacting with organic materials causes it to be damaging to living cells and ambient ozone concentrations in the Basin are frequently sufficient to cause health effects. Ozone enters the human body primarily through the respiratory tract and causes respiratory irritation and discomfort, makes breathing more difficult during exercise, and reduces the respiratory system's ability to remove inhaled particles and fight infection.

Individuals exercising outdoors, children and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the most susceptible subgroups for ozone effects. Short-term exposures (lasting for a few hours) to ozone at levels typically observed in southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. In recent years, a correlation between elevated ambient ozone levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple sports and live in high ozone communities. Elevated ozone levels are also associated with increased school absences.

Ozone exposure under exercising conditions is known to increase the severity of the abovementioned observed responses. Animal studies suggest that exposures to a combination of pollutants which include ozone may be more toxic than exposure to ozone alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.

In 2008, the SCAQMD regularly monitored ozone concentrations at 29 locations in the Basin and SSAB. All areas monitored were below the stage 1 episode level (0.20 ppm), but the maximum concentrations in the Basin exceeded the health advisory level (0.15 ppm). Maximum

ozone concentrations in the SSAB areas monitored by the SCAQMD were lower than in the Basin and were below the health advisory level.

In 2008, the maximum ozone concentrations in the Basin continued to exceed federal standards by wide margins. Maximum one-hour and eight-hour average ozone concentrations were 0.176 ppm and 0.131 ppm (the maximum one-hour was recorded in Central San Bernardino Mountains area, the eight-hour maximum was recorded in Santa Clarita Valley). The federal one-hour ozone standard was revoked and replaced by the eight-hour average ozone standard effective June 15, 2005. USEPA has revised the federal eight-hour ozone standard from 0.84 ppm to 0.075 ppm, effective May 27, 2008. The maximum eight-hour concentration was 175 percent of the new federal standards. The maximum eight-hour concentration was 187 percent of the eight-hour state ozone standard of 0.070 ppm.

The objective of the 2007 AQMP is to attain and maintain ambient air quality standards. Based upon the modeling analysis described in the Program Environmental Impact Report for the 2007 AQMP implementation of all control measures contained in the 2007 AQMP is anticipated to bring the District into compliance with the federal eight-hour ozone standard by 2024 and the state eight-hour ozone standard beyond 2024.

Nitrogen Dioxide

NO2 is a reddish-brown gas with a bleach-like odor. Nitric oxide (NO) is a colorless gas, formed from the nitrogen (N2) and oxygen (O2) in air under conditions of high temperature and pressure which are generally present during combustion of fuels; NO reacts rapidly with the oxygen in air to form NO2. NO2 is responsible for the brownish tinge of polluted air. The two gases, NO and NO2, are referred to collectively as NOx. In the presence of sunlight, NO2 reacts to form nitric oxide and an oxygen atom. The oxygen atom can react further to form ozone, via a complex series of chemical reactions involving hydrocarbons. Nitrogen dioxide may also react to form nitric acid (HNO3) which reacts further to form nitrates, components of PM2.5 and PM10.

Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposures to NO2 at levels found in homes with gas stoves, which are higher than ambient levels found in southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma and/or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups. More recent studies have found associations between NO2 exposures and cardiopulmonary mortality, decreased lung function, respiratory symptoms and emergency room asthma visits.

In animals, exposure to levels of NO2 considerably higher than ambient concentrations results in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of ozone exposure increases when animals are exposed to a combination of ozone and NO2.

In 2008, nitrogen dioxide concentrations were monitored at 25 locations. No area of the Basin or SSAB exceeded the federal or state standards for nitrogen dioxide. The Basin has not exceeded the federal standard for nitrogen dioxide (0.0534 ppm) since 1991, when the Los Angeles County portion of the Basin recorded the last exceedance of the standard in any county within the United

States. In 2008, the maximum annual average concentration was recorded at 0.0302 ppm in the Pomona/Walnut Valley area.

In addition, the nitrogen dioxide state one-hour standard was not exceeded at any SCAQMD monitoring location in 2008. Effective March 20, 2008, CARB has revised the nitrogen dioxide one-hour standard from 0.25 ppm to 0.18 ppm and established a new annual standard of 0.30 ppm. The highest one-hour average concentration recorded (0.13 ppm in South Coastal Los Angeles County) was 72 percent of the new state one-hour standard. NOx emission reductions continue to be necessary because it is a precursor to both ozone and PM (PM2.5 and PM10) concentrations.

Sulfur Dioxide

SO2 is a colorless gas with a sharp odor. It reacts in the air to form sulfuric acid (H2SO4), which contributes to acid precipitation, and sulfates, which are components of PM10 and PM2.5. Most of the SO2 emitted into the atmosphere is produced by burning sulfur-containing fuels.

Exposure of a few minutes to low levels of SO2 can result in airway constriction in some asthmatics. All asthmatics are sensitive to the effects of SO2. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, is observed after acute higher exposure to SO2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO2.

Animal studies suggest that despite SO2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract.

Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO2 levels. In these studies, efforts to separate the effects of SO2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.

No exceedances of federal or state standards for sulfur dioxide occurred in 2008 at any of the seven SCAQMD locations monitored. The maximum one-hour sulfur dioxide concentration was 0.09 ppm. The maximum 24-hour sulfur dioxide concentration was 0.012 ppm. The maximum annual average was 0.0022 ppm. All maximums were recorded in south Coastal Los Angeles County. The federal sulfur dioxide standards are 0.03 ppm for the annual arithmetic mean, 0.14 for the 24-hour average and 0.50 ppm for the three-hour average. The state standards are 0.25 ppm for the one-hour average and 0.04 ppm for the 24-hour average. Though sulfur dioxide concentrations remain well below the standards, sulfur dioxide is a precursor to sulfate, which is a component of fine particulate matter, PM10, and PM2.5. Standards for PM10 and PM2.5 were both exceeded in 2008. Sulfur dioxide was not measured at SSAB sites in 2008. Historical measurements showed concentrations to be well below standards and monitoring has been discontinued.

Particulate Matter (PM10 and PM2.5)

Of great concern to public health are the particles small enough to be inhaled into the deepest parts of the lung. Respirable particles (particulate matter less than about 10 micrometers in diameter) can accumulate in the respiratory system and aggravate health problems such as

asthma, bronchitis and other lung diseases. Children, the elderly, exercising adults, and those suffering from asthma are especially vulnerable to adverse health effects of PM10 and PM2.5.

A consistent correlation between elevated ambient fine particulate matter (PM10 and PM2.5) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. Studies have reported an association between long term exposure to air pollution dominated by fine particles (PM2.5) and increased mortality, reduction in life-span, and an increased mortality from lung cancer.

Daily fluctuations in fine particulate matter concentration levels have also been related to hospital admissions for acute respiratory conditions, to school and kindergarten absences, to a decrease in respiratory function in normal children and to increased medication use in children and adults with asthma. Studies have also shown lung function growth in children is reduced with long-term exposure to particulate matter.

The elderly, people with pre-existing respiratory and/or cardiovascular disease and children appear to be more susceptible to the effects of PM10 and PM2.5.

The SCAQMD monitored PM10 concentrations at 21 locations in 2008. The federal 24-hour PM10 standard (150 µg/m3) was not exceeded at any of the locations monitored in 2008. The maximum 24-hour PM10 concentration of 135 µg/m3 was recorded in Metropolitan Riverside County. The maximum 24-hour PM10 concentration in Metropolitan Riverside County is 90 percent of the federal standards. The much more stringent state 24-hour PM10 standard (50 µg/m3) was exceeded in all but two of the 21 monitoring stations. The maximum annual average PM10 concentration of 57.4 µg/m3 was recorded in Metropolitan Riverside County. The maximum annual average PM10 concentration in Metropolitan Riverside County is 478 percent of the state standard. The federal annual PM10 standard has been revoked.

In 2008, PM2.5 concentrations were monitored at 20 locations throughout the District. USEPA revised the federal 24-hour PM2.5 standard from 65 µg/m3 to 35 µg/m3, effective December 17, 2006. In 2008, the maximum PM2.5 concentrations in the Basin exceeded the new federal 24-hour PM2.5 standards in all but three locations. The maximum 24-hour PM2.5 concentration of 78.3 µg/m3 was recorded in Central Los Angeles, which represents 138 percent of the federal standard of 35 µg/m3. The maximum annual average concentration of 18.2 µg/m3 was recorded in Mira Loma, which represents 121 percent of the federal standard of 15 µg/m3 and 151 percent of the state standard of 12 µg/m3.

Similar to PM10 concentrations, PM2.5 concentrations were higher in the inland valley areas of San Bernardino and Metropolitan Riverside counties. However, PM2.5 concentrations were also high in Central Los Angeles County. The high PM2.5 concentrations in Los Angeles County are mainly due to the secondary formation of smaller particulates resulting from mobile and stationary source activities. In contrast to PM10, PM2.5 concentrations were low in the Coachella Valley area of SSAB. PM10 concentrations are normally higher in the desert areas due to windblown and fugitive dust emissions.

Lead

Lead in the atmosphere is present as a mixture of a number of lead compounds. Leaded gasoline and lead smelters have been the main sources of lead emitted into the air. Due to the phasing out

of leaded gasoline, there was a dramatic reduction in atmospheric lead in the Basin over the past 28 years.

Fetuses, infants, and children are more sensitive than others to the adverse effects of lead exposure. Exposure to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

Lead poisoning can cause anemia, lethargy, seizures, and death. It appears that there are no direct effects of lead on the respiratory system. Lead can be stored in the bone from early-age environmental exposure, and elevated blood lead levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland), and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of lead because of previous environmental lead exposure of their mothers.

The federal and state standards for lead were not exceeded in any area of the SCAQMD in 2008. There have been no violations of the standards at the SCAQMD's regular air monitoring stations since 1982, as a result of removal of lead from gasoline. The maximum quarterly average lead concentration (0.02 $\mu g/m^3$ at monitoring stations in Central Los Angeles, South San Gabriel Valley, South Central Los Angeles County, and Central San Bernardino Valley No. 2) was 1.3 percent of the federal quarterly average lead standard (1.5 $\mu g/m^3$). The maximum monthly average lead concentration (0.03 $\mu g/m^3$ in South Central Los Angeles County), measured at special monitoring sites immediately adjacent to stationary sources of lead was two percent of the state monthly average lead standard. No lead data were obtained at SSAB and Orange County stations in 2008, and because historical lead data showed concentrations in SSAB and Orange County areas to be well below the standard, measurements have been discontinued.

On November 12, 2008, USEPA published new national ambient air quality standards for lead, which became effective January 12, 2009. The existing national lead standard, 1.5 $\mu g/m^3$, was reduced to 0.15 $\mu g/m^3$, averaged over a rolling three-month period. The new federal standard was not exceeded at any source/receptor location in 2008. Nevertheless, USEPA has proposed to designate the Los Angeles County portion of the Basin as non-attainment for the new lead standard, based on emissions from two battery recycling facilities. The proposed designation is expected to become final in October 2010. However, the SCAQMD is in the process of adopting Proposed Rule 1420.1 to ensure that lead emissions do not exceed the new federal standard.

Sulfates

Sulfates (SOx) are chemical compounds which contain the sulfate ion and are part of the mixture of solid materials which make up PM10. Most of the sulfates in the atmosphere are produced by oxidation of SO2. Oxidation of sulfur dioxide yields sulfur trioxide (SO3) which reacts with water to form sulfuric acid, which contributes to acid deposition. The reaction of sulfuric acid with basic substances such as ammonia yields sulfates, a component of PM10 and PM2.5.

Most of the health effects associated with fine particles and SO2 at ambient levels are also associated with SOx. Thus, both mortality and morbidity effects have been observed with an increase in ambient SOx concentrations. However, efforts to separate the effects of SOx from the effects of other pollutants have generally not been successful.

Clinical studies of asthmatics exposed to sulfuric acid suggest that adolescent asthmatics are possibly a subgroup susceptible to acid aerosol exposure. Animal studies suggest that acidic particles such as sulfuric acid aerosol and ammonium bisulfate are more toxic than non-acidic particles like ammonium sulfate. Whether the effects are attributable to acidity or to particles remains unresolved.

In 2008, the state 24-hour sulfate standard (25 $\mu g/m^3$) was not exceeded in any of the monitoring locations in the Basin. No sulfate data were obtained at SSAB and Orange County stations in 2008. Historical sulfate data showed concentrations in the SSAB and Orange County areas to be well below the standard; thus, measurements in these areas have been discontinued. There are no federal sulfate standards.

Visibility Reducing Particles

Since deterioration of visibility is one of the most obvious manifestations of air pollution and plays a major role in the public's perception of air quality, the state of California has adopted a standard for visibility or visual range. Until 1989, the standard was based on visibility estimates made by human observers. The standard was changed to require measurement of visual range using instruments that measure light scattering and absorption by suspended particles.

The visibility standard is based on the distance that atmospheric conditions allow a person to see at a given time and location. Visibility reduction from air pollution is often due to the presence of sulfur and nitrogen oxides, as well as particulate matter. Visibility degradation occurs when visibility reducing particles are produced in sufficient amounts such that the extinction coefficient is greater than 0.23 inverse kilometers (to reduce the visual range to less than 10 miles) at relative humidity less than 70 percent, 8-hour average (10am - 6pm) according to the state standard. Future-year visibility in the Basin is projected empirically using the results derived from a regression analysis of visibility with air quality measurements. The regression data set consisted of aerosol composition data collected during a special monitoring program conducted concurrently with visibility data collection (prevailing visibility observations from airports and visibility measurements from District monitoring stations). A full description of the visibility analysis is given in Technical Report V-C of the 1994 AQMP.

With future year reductions of PM2.5 from implementation of all proposed emission controls for 2015, the annual average visibility would improve from 12 miles (calculated for 2005) to over 20 miles at Rubidoux, for example. Visual range in 2021 at all other Basin sites is expected to equal or exceed the Rubidoux visual range. Visual range is expected to double from the 2005 baseline due to reductions of secondary PM2.5, directly emitted PM2.5 (including diesel soot) and lower nitrogen dioxide concentrations as a result of 2007 AQMP controls.

Vinyl Chloride

Vinyl chloride is a colorless compound that is highly toxic and a known carcinogen that causes a rare cancer of the liver (USEPA, 2001). At room temperature, vinyl chloride is a gas with a sickly sweet odor that is easily condensed. However, it is stored as a liquid. Due to the hazardous nature of vinyl chloride to human health there are no end products that use vinyl chloride in its monomer form. Vinyl chloride is a chemical intermediate, not a final product. It is an important industrial chemical chiefly used to produce polymer polyvinyl chloride (PVC). The process involves vinyl chloride liquid fed to polymerization reactors where it is converted from a monomer to a polymer PVC. The final product of the polymerization process is PVC in either a flake or pellet form. Billions of pounds of PVC are sold on the global market each year. From its flake or pellet form PVC is sold to companies that heat and mold the PVC into end products such

as PVC pipe and bottles. The SCAQMD does not monitor for vinyl chloride at their air monitoring stations.

Volatile Organic Compounds

It should be noted that there are no state or national ambient air quality standards for VOCs because they are not classified as criteria pollutants. VOCs are regulated, however, because limiting VOC emissions reduces the rate of photochemical reactions that contribute to the formation of ozone. VOCs are also transformed into organic aerosols in the atmosphere, contributing to higher PM10 and lower visibility levels.

Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations of VOCs because of interference with oxygen uptake. In general, ambient VOC concentrations in the atmosphere are suspected to cause coughing, sneezing, headaches, weakness, laryngitis, and bronchitis, even at low concentrations. Some hydrocarbon components classified as VOC emissions are thought or known to be hazardous. Benzene, for example, one hydrocarbon component of VOC emissions, is known to be a human carcinogen.

Non-Criteria Pollutants

Although the SCAQMD's primary mandate is attaining the State and National Ambient Air Quality Standards for criteria pollutants within the District, SCAQMD also has a general responsibility pursuant to HSC §41700 to control emissions of air contaminants and prevent endangerment to public health. Additionally, state law requires the SCAQMD to implement airborne toxic control measures (ATCM) adopted by CARB, and to implement the Air Toxics "Hot Spots" Act. As a result, the SCAQMD has regulated pollutants other than criteria pollutants such as TACs, greenhouse gases and stratospheric ozone depleting compounds. The SCAQMD has developed a number of rules to control non-criteria pollutants from both new and existing sources. These rules originated through state directives, CAA requirements, or the SCAQMD rulemaking process.

In addition to promulgating non-criteria pollutant rules, the SCAQMD has been evaluating AQMP control measures as well as existing rules to determine whether or not they would affect, either positively or negatively, emissions of non-criteria pollutants. For example, rules in which VOC components of coating materials are replaced by a non-photochemically reactive chlorinated substance would reduce the impacts resulting from ozone formation, but could increase emissions of toxic compounds or other substances that may have adverse impacts on human health.

The following sections summarize the existing setting for the two major categories of non-criteria pollutants: compounds that contribute to ozone depletion and global warming, and TACs.

Greenhouse Gases

The SCAQMD adopted a "Policy on Global Warming and Stratospheric Ozone Depletion" on April 6, 1990. The policy commits the SCAQMD to consider global impacts in rulemaking and in drafting revisions to the AQMP. In March 1992, the SCAQMD Governing Board reaffirmed this policy and adopted amendments to the policy to include the following directives:

- phase out the use and corresponding emissions of chlorofluorocarbons (CFCs), methyl chloroform (1,1,1-trichloroethane or TCA), carbon tetrachloride, and halons by December 1995;

- phase out the large quantity use and corresponding emissions of hydrochlorofluorocarbons (HCFCs) by the year 2000;
- develop recycling regulations for HCFCs;
- develop an emissions inventory and control strategy for methyl bromide; and,
- support the adoption of a California greenhouse gas emission reduction goal.

Gases that trap heat in the atmosphere are often called greenhouse gases (GHGs), comparable to a greenhouse, which captures and traps radiant energy. GHGs are emitted by natural processes and human activities. The accumulation of greenhouse gases in the atmosphere regulates the earth's temperature. Global warming is the observed increase in average temperature of the earth's surface and atmosphere. The primary cause of global warming is an increase of GHGs in the atmosphere. The six major GHGs are carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride (SF6), hydrofluorocarbons (HFCs), and perfluorocarbon (PFCs). The GHGs absorb longwave radiant energy emitted by the Earth, which warms the atmosphere. The GHGs also emit longwave radiation both upward to space and back down toward the surface of the Earth. The downward part of this longwave radiation emitted by the atmosphere is known as the "greenhouse effect." Emissions from human activities such as electricity production and vehicles have elevated the concentration of these gases in the atmosphere.

CO2 is an odorless, colorless natural greenhouse gas. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic (human caused) sources of CO2 are from burning coal, oil, natural gas, and wood. CO2 emissions in the Basin were determined for the year 2002, which was the base year used in determining GHG emissions for the 2007 AQMP. The total CO2 emissions in the SCAB were estimated to be about 153 million metric tons (SCAQMD, 2007 AQMP) of which:

- 48 percent was contributed by on-road mobile sources;
- 34 percent was contributed by point sources;
- 12 percent was contributed by area sources; and
- 6 percent was contributed off-road mobile sources.

CH4 is a flammable gas and is the main component of natural gas. N2O, also known as laughing gas, is a colorless greenhouse gas. Some industrial processes such as fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions also contribute to the atmospheric load of N2O. HFCs are synthetic man-made chemicals that are used as a substitute for chlorofluorocarbons (whose production was stopped as required by the Montreal Protocol) for automobile air conditioners and refrigerants. The two main sources of PFCs are primary aluminum production and semiconductor manufacture. SF6 is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Scientific consensus, as reflected in recent reports issued by the United Nations Intergovernmental Panel on Climate Change, is that the majority of the observed warming over the last 50 years can be attributable to increased concentration of GHGs in the atmosphere due to human activities. Industrial activities, particularly increased consumption of fossil fuels (e.g., gasoline, diesel, wood, coal, etc.), have heavily contributed to the increase in atmospheric levels of GHGs. As reported by the California Energy Commission (CEC), California contributes 1.4 percent of the global and 6.2 percent of the national GHGs emissions (CEC, 2006). The most

recent GHG inventory for California is presented in Table 3-5 (CARB, 2007). Approximately 80 percent of GHGs in California are from fossil fuel combustion and over 70 percent of GHG-CO2 equivalent emissions are CO2 emissions (see Table 3-5).

Table 3-5
California GHG Emissions and Sinks Summary
(Million MTCO2eq)

Categories Included in the Inventory	1990	2004
ENERGY	**386.41**	**420.91**
Fuel Combustion Activities	**381.16**	**416.29**
Energy Industries	157.33	166.43
Manufacturing Industries & Construction	24.24	19.45
Transport	150.02	181.95
Other Sectors	48.19	46.29
Non-Specified	1.38	2.16
Fugitive Emissions from Fuels	**5.25**	**4.62**
Oil and Natural Gas	2.94	2.54
Other Emissions from Energy Production	2.31	2.07
INDUSTRIAL PROCESSES & PRODUCT USE	**18.34**	**30.78**
Mineral Industry	4.85	5.90
Chemical Industry	2.34	1.32
Non-Energy Products from Fuels & Solvent Use	2.29	1.37
Electronics Industry	0.59	0.88
Product Uses as Substitutes for Ozone Depleting Substances	0.04	13.97
Other Product Manufacture & Use Other	3.18	1.60
Other	5.05	5.74
AGRICULTURE, FORESTRY, & OTHER LAND USE	**19.11**	**23.28**
Livestock	11.67	13.92
Land	0.19	0.19
Aggregate Sources & Non-CO_2 Emissions Sources on Land	7.26	9.17
WASTE	**9.42**	**9.44**
Solid Waste Disposal	6.26	5.62
Wastewater Treatment & Discharge	3.17	3.82
EMISSION SUMMARY		
Gross California Emissions	**433.29**	**484.4**
Sinks and Sequestrations	**-6.69**	**-4.66**
Net California Emissions	**426.60**	**479.74**

Source: CARB, 2007

In June 2005, Governor Schwarzenegger signed Executive Order #S-3-05 which established the following greenhouse gas reduction targets:

- By 2010, reduce GHGs to 2000 emission levels,
- By 2020, reduce GHGs to 1990 emission levels, and
- By 2050, reduce GHGs to 80 percent below 1990 emission levels.

On September 27, 2006, Assembly Bill (AB) 32, the California Global Warming Solutions Act, of 2006 was enacted by the State of California and signed by Governor Schwarzenegger. AB 32 expanded on Executive Order #S-3-05. The legislature stated that "global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment

of California." AB 32 represents the first enforceable state-wide program in the United States to cap all GHG emissions from major industries that includes penalties for non-compliance. While acknowledging that national and international actions will be necessary to fully address the issue of global warming, AB 32 lays out a program to inventory and reduce greenhouse gas emissions in California and from power generation facilities located outside the state that serve California residents and businesses.

AB 32 requires CARB to:

- Establish a statewide GHG emissions cap for 2020, based on 1990 emissions by January 1, 2008;
- Adopt mandatory reporting rules for significant sources of GHG by January 1, 2008;
- Adopt an emissions reduction plan by January 1, 2009, indicating how emissions reductions will be achieved via regulations, market mechanisms, and other actions; and
- Adopt regulations to achieve the maximum technologically feasible and cost-effective reductions of GHG by January 1, 2011.

The combination of Executive Order #S-3-05 and AB 32 will require significant development and implementation of energy efficient technologies and shifting of energy production to renewable sources.

Consistent with the requirement to develop an emission reduction plan, CARB prepared a Scoping Plan indicating how GHG emission reductions will be achieved through regulations, market mechanisms, and other actions. The Scoping Plan was released for public review and comment in October 2008 and approved by CARB on December 11, 2008. The Scoping Plan calls for reducing greenhouse gas emissions to 1990 levels by 2020. This means cutting approximately 30 percent from business-as-usual (BAU) emission levels projected for 2020, or about 15 percent from today's levels. Key elements of CARB staff's recommendations for reducing California's greenhouse gas emissions to 1990 levels by 2020 contained in the Scoping Plan include the following:

- Expansion and strengthening of existing energy efficiency programs and building and appliance standards;
- Expansion of the Renewables Portfolio Standard to 33 percent;
- Development of a California cap-and-trade program that links with other Western Climate Initiative (WCI) Partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gases and pursuing policies and incentives to achieve those targets;
- Adoption and implementation of existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Targeted fees, including a public good charge on water use, fees on high global warming potential (GWP) gases and a fee to fund the state's long-term commitment to AB 32 administration.

In response to the comments received on the Draft Scoping Plan and at the November 2008 public hearing, CARB made a few changes to the Draft Scoping Plan, primarily to:

- State that California "will transition to 100 percent auction" of allowances and expects to "auction significantly more [allowances] than the Western Climate Initiative minimum;"
- Make clear that allowance set-asides could be used to provide incentives for voluntary renewable power purchases by businesses and individuals and for increased energy efficiency;

- Make clear that allowance set-asides can be used to ensure that voluntary actions, such as renewable power purchases, can be used to reduce greenhouse gas emissions under the cap;
- Provide allowances are not required from carbon neutral projects; and
- Mandate that commercial recycling be implemented to replace virgin raw materials with recyclables.

On August 24, 2007, Governor Schwarzenegger signed into law Senate Bill (SB) 97 – CEQA: Greenhouse Gas Emissions stating, "This bill advances a coordinated policy for reducing greenhouse gas emissions by directing the Office of Planning and Research (OPR) and the Resources Agency to develop CEQA guidelines on how state and local agencies should analyze, and when necessary, mitigate greenhouse gas emissions." Specifically, SB 97 requires OPR, by July 1, 2009, to prepare, develop, and transmit guidelines to the Resources Agency for the feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, as required by CEQA, including, but not limited to, effects associated with transportation or energy consumption. The Resources Agency would be required to certify and adopt those guidelines by January 1, 2010. The OPR would be required to periodically update the guidelines to incorporate new information or criteria established by the CARB pursuant to the California Global Warming Solutions Act of 2006. SB 97 also identifies a limited number of types of projects that would be exempt under CEQA from analyzing GHG emissions. Finally, SB 97 will be repealed on January 1, 2010.

Consistent with SB 97, on June 19, 2008, OPR released its "Technical Advisory on CEQA and Climate Change," which was developed in cooperation with the Resources Agency, the California Environmental Protection Agency (CalEPA), and the CARB. According to OPR, the "Technical Advisory" offers the informal interim guidance regarding the steps lead agencies should take to address climate change in their CEQA documents, until CEQA guidelines are developed pursuant to SB 97 on how state and local agencies should analyze, and when necessary, mitigate greenhouse gas emissions.

According to OPR, lead agencies should determine whether greenhouse gases may be generated by a proposed project, and if so, quantify or estimate the GHG emissions by type and source. Second, the lead agency must assess whether those emissions are individually or cumulatively significant. When assessing whether a project's effects on climate change are "cumulatively considerable" even though its GHG contribution may be individually limited, the lead agency must consider the impact of the project when viewed in connection with the effects of past, current, and probable future projects. Finally, if the lead agency determines that the GHG emissions from the project as proposed are potentially significant, it must investigate and implement ways to avoid, reduce, or otherwise mitigate the impacts of those emissions.

On July 30, 2008, USEPA released a draft Advance Notice of Proposed Rulemaking (ANPR) "Regulating Greenhouse Gas Emissions Under the Clean Air Act." The ANPR solicits public comments, which must be received on or before November 28, 2008, and presents the following relevant information:

- Reviews the various CAA provisions that may be applicable to regulate GHGs;
- Examines the issues that regulating GHGs under those provisions may raise;
- Provides information regarding potential regulatory approaches and technologies for reducing GHG emissions; and

- Raises issues relevant to possible legislation and the potential for overlap between legislation and CAA regulation.

The SCAQMD has established a policy, adopted by the SCAQMD Governing Board at its September 5, 2008 meeting, to actively seek opportunities to reduce emissions of criteria, toxic, and climate change pollutants. The policy includes the intent to assist businesses and local governments implementing climate change measures, decrease the agency's carbon footprint, and provide climate change information to the public. The SCAQMD will take the following actions:

1. Work cooperatively with other agencies/entities to develop quantification protocols, rules, and programs related to greenhouse gases;
2. Share experiences and lessons learned relative to the Regional Clean Air Incentives Market (RECLAIM) to help inform state, multi-state, and federal development of effective, enforceable cap-and-trade programs. To the extent practicable, staff will actively engage in current and future regulatory development to ensure that early actions taken by local businesses to reduce greenhouse gases will be treated fairly and equitably. SCAQMD staff will seek to streamline administrative procedures to the extent feasible to facilitate the implementation of AB 32 measures;
3. Review and comment on proposed legislation related to climate change and greenhouse gases, pursuant to the 'Guiding Principles for SCAQMD Staff Comments on Legislation Relating to Climate Change' approved at the Board Special Meeting in April 2008;
4. Provide higher priority to funding Technology Advancement Office (TAO) projects or contracts that also reduce greenhouse gas emissions;
5. Develop recommendations through a public process for an interim greenhouse gas CEQA significance threshold, until such time that an applicable and appropriate statewide greenhouse gas significance level is established. Provide guidance on analyzing greenhouse gas emissions and identify mitigation measures. Continue to consider GHG impacts and mitigation in SCAQMD lead agency documents and in comments when SCAQMD is a responsible agency;
6. Revise the SCAQMD's Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning to include information on greenhouse gas strategies as a resource for local governments. The Guidance Document will be consistent with state guidance, including CARB's Scoping Plan;
7. Update the Basin's greenhouse gas inventory in conjunction with each Air Quality Management Plan. Information and data used will be determined in consultation with CARB, to ensure consistency with state programs. Staff will also assist local governments in developing greenhouse gas inventories;
8. Bring recommendations to the Board on how the agency can reduce its own carbon footprint, including drafting a Green Building Policy with recommendations regarding SCAQMD purchases, building maintenance, and other areas of products and services. Assess employee travel as well as other activities that are not part of a GHG inventory and determine what greenhouse gas emissions these activities represent, how they could be reduced, and what it would cost to offset the emissions;
9. Provide educational materials concerning climate change and available actions to reduce greenhouse gas emissions on the SCAQMD website, in brochures, and other venues to help cities and counties, businesses, households, schools, and others learn about ways to reduce their electricity and water use through conservation or other

efforts, improve energy efficiency, reduce vehicle miles traveled, access alternative mobility resources, utilize low emission vehicles and implement other climate friendly strategies; and

10. Conduct conferences, or include topics in other conferences, as appropriate, related to various aspects of climate change, including understanding impacts, technology advancement, public education, and other emerging aspects of climate change science.

On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. SCAQMD's recommended interim GHG significance threshold proposal uses a tiered approach to determining significance. Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA. Tier 2 consists of determining whether or not the project is consistent with a GHG reduction plan that may be part of a local general plan, for example. Tier 3 establishes a screening significance threshold level to determine significance using a 90 percent emission capture rate approach, which corresponds to 10,000 metric tons of CO2 equivalent emissions per year (MTCO2eq/yr). Tier 4, to be based on performance standards, is yet to be developed. Under Tier 5 the project proponent would allow offsets to reduce GHG emission impacts to less than the proposed screening level. If CARB adopts statewide significance thresholds, SCAQMD staff plans to report back to the Governing Board regarding any recommended changes or additions to the SCAQMD's interim threshold.

On April 13, 2009, OPR submitted to the Natural Resources Agency its proposed amendments to the CEQA Guidelines for GHG emissions. The proposed amendments provided guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. The Natural Resources Agency conducted a formal rulemaking process and on December 20, 2009, they adopted amendments to the CEQA Guidelines for GHG emissions as directed by SB97. On February 16, 2010, the Office of Administrative Law approved the amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations (CCR). The amendments became effective on March 18, 2010.

Climate Change

Global climate change is a change in the average weather of the earth, which can be measured by wind patterns, storms, precipitation, and temperature. Historical records have shown that temperature changes have occurred in the past, such as during previous ice ages. Some data indicate that the current temperature record differs from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change constructed several emission trajectories of greenhouse gases needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of greenhouse gases at 400 to 450 ppm carbon dioxide-equivalent concentration is required to keep global mean warming below two degrees Celsius, which is assumed to be necessary to avoid dangerous climate change.

The potential health effects from global climate change may arise from temperature increases, climate-sensitive diseases, extreme events, and air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems (i.e., heat rash and heat stroke). In addition, climate sensitive diseases may increase, such as those spread by mosquitoes and other disease carrying insects. Those diseases include malaria, dengue fever, yellow fever, and encephalitis. Extreme events such as flooding

and hurricanes can displace people and agriculture, which would have negative consequences. Drought in some areas may increase, which would decrease water and food availability. Global warming may also contribute to air quality problems from increased frequency of smog and particulate air pollution.

The impacts of climate change will also affect projects in various ways. Effects of climate change are specifically mentioned in AB 32 such as rising sea levels and changes in snow pack. The extent of climate change impacts at specific locations remains unclear. However, it is expected that California agencies will more precisely quantify impacts in various regions of the State. As an example, it is expected that the DWR will formalize a list of foreseeable water quality issues associated with various degrees of climate change. Once state government agencies make these lists available, they could be used to more precisely determine to what extent a project creates global climate change impacts.

Toxic Air Contaminants

On March 17, 2000, the SCAQMD Governing Board approved "An Air Toxics Control Plan for the Next Ten Years." The Air Toxics Control Plan identifies potential strategies to reduce toxic levels in the Basin over the ten years following adoption. To the extent the strategies are implemented by the relevant agencies, the plan will improve public health by reducing health risks associated with both mobile and stationary sources. Exposure to toxic air contaminants (TACs) can increase the risk of contracting cancer or result in other deleterious health effects which target such systems as cardiovascular, reproductive, hematological, or nervous. The health effects may be through short-term, high-level or "acute" exposure or long-term, low-level or "chronic" exposure.

Historically, the SCAQMD has regulated criteria air pollutants using either a technology-based or an emissions limit approach. The technology-based approach defines specific control technologies that may be installed to reduce pollutant emissions. The emission limit approach establishes an emission limit, and allows industry to use any emission control equipment, as long as the emission requirements are met. The regulation of toxic air contaminants (TACs) often uses a health risk-based approach, but may also require a regulatory approach similar to criteria pollutants, as explained in the following subsections.

Control of TACs Under the TAC Identification and Control Program

California's TAC identification and control program, adopted in 1983 as AB1807, is a two-step program in which substances are identified as TACs, and ATCMs are adopted to control emissions from specific sources. CARB has adopted a regulation designating all 188 federal hazardous air pollutants (HAPs) as TACs.

ATCMs are developed by CARB and implemented by the SCAQMD and other air districts through the adoption of regulations of equal or greater stringency. Generally, the ATCMs reduce emissions to achieve exposure levels below a determined health threshold. If no such threshold levels are determined, emissions are reduced to the lowest level achievable through the best available control technology unless it is determined that an alternative level of emission reduction is adequate to protect public health.

Under California law, a federal National Emission Standard for Hazardous Air Pollutants (NESHAP) automatically becomes a state ATCM, unless CARB has already adopted an ATCM for the source category. Once a NESHAP becomes an ATCM, CARB and each air pollution

control or air quality management district have certain responsibilities related to adoption or implementation and enforcement of the NESHAP/ATCM.

Control of TACs Under the Air Toxics "Hot Spots" Act

The Air Toxics Hot Spots Information and Assessment Act of 1987 (AB2588) establishes a state-wide program to inventory and assess the risks from facilities that emit TACs and to notify the public about significant health risks associated with the emissions. Facilities are phased into the AB2588 program based on their emissions of criteria pollutants or their occurrence on lists of toxic emitters compiled by the SCAQMD. Phase I consists of facilities that emit over 25 tons per year of any criteria pollutant and facilities present on the SCAQMD's toxics list. Phase I facilities entered the program by reporting their air TAC emissions for calendar year 1989. Phase II consists of facilities that emit between 10 and 25 tons per year of any criteria pollutant, and submitted air toxic inventory reports for calendar year 1990 emissions. Phase III consists of certain designated types of facilities which emit less than 10 tons per year of any criteria pollutant, and submitted inventory reports for calendar year 1991 emissions. Inventory reports are required to be updated every four years under the state law.

In October 1992, the SCAQMD Governing Board adopted public notification procedures for Phase I and II facilities. These procedures specify that AB2588 facilities must provide public notice when exceeding the following risk levels:

- Maximum Individual Cancer Risk: greater than 10 in 1 million (10×10^{-6})
- Total Hazard Index: greater than 1.0 for TACs except lead, or > 0.5 for lead

Public notice is to be provided by letters mailed to all addresses and all parents of children attending school in the impacted area. In addition, facilities must hold a public meeting and provide copies of the facility risk assessment in all school libraries and a public library in the impacted area.

The SCAQMD continues to complete its review of the health risk assessments submitted to date and may require revision and resubmission as appropriate before final approval. Notification will be required from facilities with a significant risk under the AB2588 program based on their initial approved health risk assessments and will continue on an ongoing basis as additional and subsequent health risk assessments are reviewed and approved.

Control of TACs With Risk Reduction Audits and Plans

Senate Bill (SB) 1731, enacted in 1992 and codified at HSC §44390 et seq., amended AB2588 to include a requirement for facilities with significant risks to prepare and implement a risk reduction plan which will reduce the risk below a defined significant risk level within specified time limits. SCAQMD Rule 1402 - Control of Toxic Air Contaminants From Existing Sources, was adopted on April 8, 1994, to implement the requirements of SB 1731.

In addition to the TAC rules adopted by SCAQMD under authority of AB 1807 and SB 1731, the SCAQMD has adopted source-specific TAC rules, based on the specific level of TAC emitted and the needs of the area. These rules are similar to the state's ATCMs because they are source-specific and only address emissions and risk from specific compounds and operations.

Cancer Risks from Toxic Air Contaminants

New and modified sources of toxic air contaminants in the District are subject to Rule 1401 - New Source Review of Toxic Air Contaminants and Rule 212 - Standards for Approving Permits. Rule 212 requires notification of the SCAQMD's intent to grant a permit to construct a significant project, defined as a new or modified permit unit located within 1000 feet of a school (a state law requirement under AB 3205), a new or modified permit unit posing an maximum individual cancer risk of one in one million (1×10^{-6}) or greater, or a new or modified facility with criteria pollutant emissions exceeding specified daily maximums. Distribution of notice is required to all addresses within a 1/4-mile radius, or other area deemed appropriate by the SCAQMD. Rule 1401 currently controls emissions of carcinogenic and non-carcinogenic (health effects other than cancer) air contaminants from new, modified and relocated sources by specifying limits on cancer risk and hazard index (explained further in the following discussion), respectively.

Health Effects

One of the primary health risks of concern due to exposure to TACs is the risk of contracting cancer. The carcinogenic potential of TACs is a particular public health concern because it is currently believed by many scientists that there is no "safe" level of exposure to carcinogens. Any exposure to a carcinogen poses some risk of causing cancer. It is currently estimated that about one in four deaths in the United States is attributable to cancer. About two percent of cancer deaths in the United States may be attributable to environmental pollution (Doll and Peto 1981). The proportion of cancer deaths attributable to air pollution has not been estimated using epidemiological methods.

Non-Cancer Health Risks from Toxic Air Contaminants

Unlike carcinogens, for most TAC non-carcinogens it is believed that there is a threshold level of exposure to the compound below which it will not pose a health risk. CalEPA's Office of Environmental Health Hazard Assessment (OEHA) develops Reference Exposure Levels (RELs) for TACs which are health-conservative estimates of the levels of exposure at or below which health effects are not expected. The non-cancer health risk due to exposure to a TAC is assessed by comparing the estimated level of exposure to the REL. The comparison is expressed as the ratio of the estimated exposure level to the REL, called the hazard index (HI).

Baseline Emission Inventory

The SOx RECLAIM program started in 1993 with 41 facilities but by the end of the 2005 compliance year, participation in the program dropped to 33 facilities. The reduction in the number of facilities participating in the RECLAIM program since inception has been primarily due to facility shutdowns.

Under the SOx RECLAIM program, the RECLAIM facilities were issued annual allocations of SOx emissions (also known as facility caps), which declined annually from 1993 until 2003 and remained constant after 2003. In 2005, the top 11 SOx RECLAIM facilities reported approximately 7.5 tons of SOx emissions per day; 95 percent of these emissions were generated by the top 11 facilities belonging to the following seven source categories.

- Fluid catalytic cracking units (FCCUs);
- Sulfur recovery and tail gas treatment units (SRU/TGUs);
- Boilers and heaters using refinery gas;
- Sulfuric acid manufacturing plants;
- Container glass melting furnace;

- Petroleum coke calciner;
- Cement kilns and a coal steam boiler at a cement manufacturing facility.

These facilities were issued an overall allocation of approximately 9.82 tons per day for the 2000 compliance year and 6.41 tons per day for the 2003 compliance year as shown in Table 3-6.

Table 3-6
SOx RECLAIM Allocations and Reported Emissions for Top Seven Source Categories

Source Category	SOx RECLAIM Allocations (tons/day)		SOx Reported Emissions (tons/day)
	Compliance Year 2000	Compliance Year 2003	Compliance Year 2005
FCCUs	2.17	1.42	3.55
Refinery Boilers/Heaters	0.89 [1]	0.58 [1]	0.91 [2]
SRU/TGUs	1.61	1.05	0.96
Sulfuric Acid Manufacturing	2.53	1.65	1.16
Container Glass Manufacturing	1.01	0.66	0.32
Petroleum Coke Calciner	1.28	0.84	0.35
Portland Cement Manufacturing	0.33	0.22	0.27
Total	**9.82**	**6.41**	**7.53**

[1] Represents the emissions from all boilers and heaters operated at all of the refineries.
[2] Represents the top seven emitters at all of the refineries.

ENERGY

This section provides an overview of energy in the District. A more detailed discussion of current and projected future energy profile in the District can be found in the Final Program EIR for the 2007 AQMP (Chapter 3).

Statewide Energy Trends

Figure 3-1 shows California's major sources of energy (electricity data for 2008, natural gas data for 2007, and crude oil data for 2008)[27].

[27] http://www.energyalmanac.ca.gov/overview/energy_sources.html (Last updated April 7, 2009).

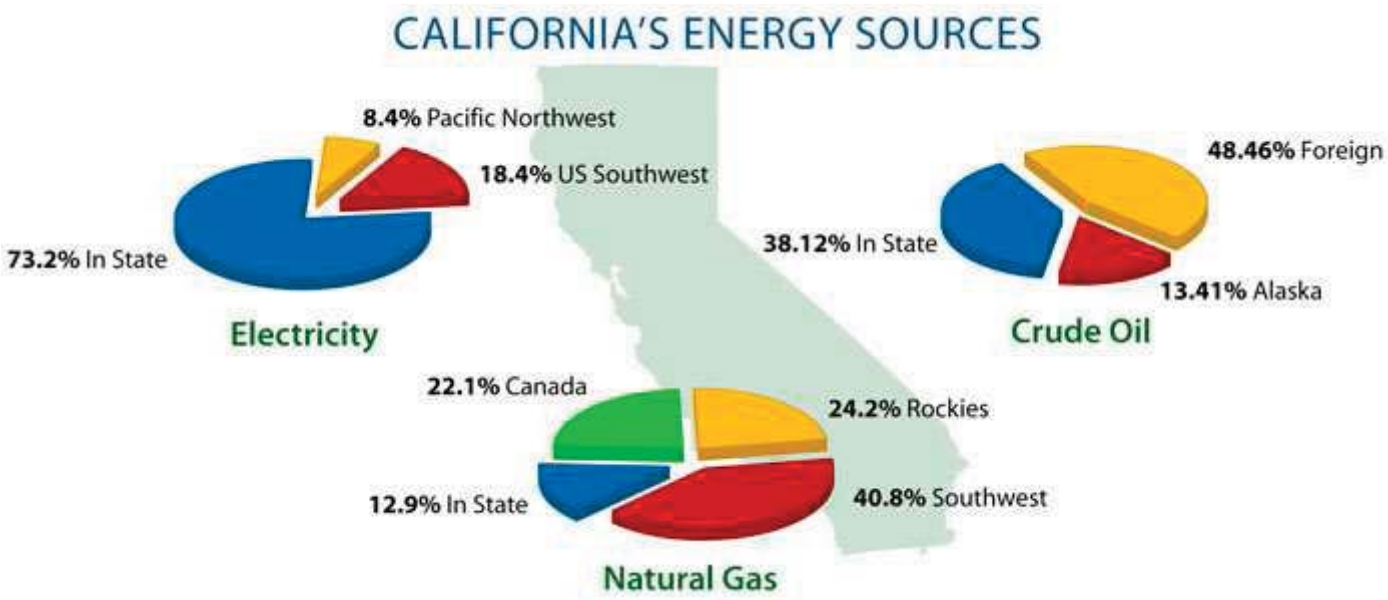

Figure 3-1

In 2008, 38.12 percent of the crude oil came from in-state, with 13.41 percent coming from Alaska, and 48.46 percent being supplied by foreign sources. Also in 2008, 73.2 percent of the electricity came from in-state sources, while 26.8 percent was imported into the state. The total electricity imported in 2008 was 306,577 gWh, with 23,945 gWh coming from the Pacific Northwest and 74,113 gWh from the Southwest (CEC, 2009)[28]. (Note: One gW is equal to one million kW). For natural gas in 2007, 40.8 percent came from the Southwest, 22.1 percent from Canada, 12.9 percent from in-state, and 24.2 percent from the Rockies (CEC, 2008).

Electricity

Power plants in California provided approximately 73.2 percent of the in-state electricity demand in 2008. Hydroelectric power from the Pacific Northwest provides another 8.4 percent, and power plants in the Southwestern United States provide another 18.4 percent. The relative contribution of in-state and out-of-state power plants depends upon, among other factors, the precipitation that occurred in the previous year and the corresponding amount of hydroelectric power that is available. Two of the largest power plants in California are located in southern California: Alamitos and Redondo Beach. Both of these plants consume natural gas to produce electricity. San Onofre, the state's largest power plant in terms of net capability, is nuclear powered and is located in San Diego County. In addition, in Southern California, a significant percentage of our imported power comes from plants that are generally coal-fired facilities.

Local electricity distribution service is provided to customers within southern California by one of two privately owned utilities – either Southern California Edison (SCE) or San Diego-based Sempra Energy – or by a publicly-owned utility, such as the LADWP.

SCE is the largest electricity utility in southern California with a service area that covers all or nearly all of Orange, San Bernardino, and Ventura counties, and most of Los Angeles and Riverside counties. SCE provides approximately 70 percent of the total electricity demand in southern California. SCE currently supplies electricity to six of the seven refineries affected by the proposed project and supplies more than 101,000 gWh per year of electricity to all of its

[28] http://www.energy.ca.gov/2009publications/CEC-200-2009-010/CEC-200-2009-010.PDF

customers. SCE expects that they will be able to annually increase its output and has made projections that over 121,000 megawatts (MW) will be available in 2012 (CEC, 2002).

The LADWP is the largest of the public-owned electric utilities in southern California and provides approximately 20 percent of the total electricity demand in the District and 15,063 million kilowatt-hours (kWh) to its nonresidential customers located in Los Angeles county.[29]

Table 3-7 shows the amount of electricity delivered to residential and nonresidential entities in Los Angeles and San Bernardino Counties in 2007 (CEC, 2009)[30].

Table 3-7
Electricity Utility Deliveries for Los Angeles and San Bernardino Counties in 2007[31]

County	RESIDENTIAL Electricity Delivered (kWh)[1]	NON-RESIDENTIAL Electricity Delivered (kWh)	TOTAL Electricity Delivered (kWh)
Los Angeles	20,636	47,484	68,120
San Bernardino	4,815	9,617	14,432

[1] The kilowatt-hour (kWh) is a commonly used unit of measure for describing the amount of electricity consumed over a period of time. One kWh is equal to 1000 watts of electricity supplied in one hour.

The following discussion describes the existing electricity gas setting for each of the affected facilities (refineries, sulfuric acid manufacturing plants, petroleum coke calcining plant, container glass manufacturing plant, and a Portland cement manufacturing plant) that are potentially affected by the proposed project:

1. BP Carson Refinery

The BP Carson Refinery receives almost all of its electrical power from its existing on-site Watson Cogeneration Plant. The Watson Cogeneration Plant has a generation capacity of over 320 MW and supplies the Refinery with approximately 727,000 MW-hours (MWh) per year. BP's operators also purchase approximately 257 MWh per year from SCE[32].

2. ConocoPhillips Wilmington Refinery

Most of the electricity supplied to the ConocoPhillips Wilmington Refinery is provided by an existing onsite 50 MW cogeneration plant that currently generates 43MW. However, the LADWP supplies additional electricity as needed to handle routing electricity fluctuations[33].

3. Chevron Refinery

The Chevron Refinery currently operates a multi-train cogeneration plant (three existing cogeneration units) to supply most of the electricity and steam used by refinery processing equipment. To supplement electrical needs, approximately 20 MW of electricity is purchased from SCE. Chevron is in the process of expanding their existing cogeneration facility by an

[29] California 2001 Electric Utility Retail Deliveries, California Energy Commission, 2001.
[30] Of the 11 facilities affected by the proposed project, 10 are located in Los Angeles County and one is located in San Bernardino County.
[31] California Energy Commission, Energy Consumption Data Management System, Electricity Consumption by County, http://www.ecdms.energy.ca.gov/elecbycounty.asp
[32] SCAQMD, Final Environmental Impact Report for the Proposed BP Carson Refinery – Safety, Compliance and Optimization Project (Appendix A: NOP/IS); SCH No. 2005111057; September 2006.
[33] SCAQMD, Final Environmental Impact Report for the ConocoPhillips Los Angeles Refinery PM10 and NOx Reduction Projects; SCH No. 2006111138; April 2007.

additional 49.9 MW. The new 49.9 MW Cogen Train D includes a natural gas and refinery gas-fired turbine electric generator, a new steam-driven turbine electrical generator, feed gas compressors, knockout and surge pots, waste heat boilers (including duct burners) to generate steam, a carbon monoxide (CO) oxidation catalyst unit, and a selective catalytic reduction (SCR) unit to control NOx emissions. Expansion of the cogeneration plant will decrease the Chevron's need for offsite sources of electricity[34]. The expansion of Chevron's cogeneration facility is expected to be completed by the end of 2010.

4. ExxonMobil Refinery

ExxonMobil derives its energy needs from a SCE sub-station that was specifically built to accommodate the electrical demands of the ExxonMobil Refinery and does not either contribute to other facilities, or rely upon other facilities in the area for electrical power[35].

5. Ultramar/Valero Refinery

Electricity is supplied to the Ultramar/Valero Refinery entirely by LADWP.

6. Tesoro Refinery

Tesoro currently operates a cogeneration system that supplies a portion of electricity and steam used by the process equipment at their refinery, while supplementing onsite generation by purchasing electricity from the LADWP. However, Tesoro has plans to upgrade the Refinery's cogeneration system and steam boilers[36]. Specifically, Tesoro is proposing to replace the two 30 MW existing cogeneration units (Cogens A and B) and their associated selective catalytic reduction (SCR) Units with one new 61.02 MW cogeneration system (Cogen C) (including NOx control technology such as an SCR Unit). A new emergency IC Engine will also be installed to supply power to the instruments and auxiliary equipment in the gas turbine which will allow the boilers to continue to operate and provide sufficient steam as necessary, and while maintaining a safe shutdown and start up of the Refinery during a power outage. The new emergency IC Engine will only be constructed as part of the installation of Cogen C. The proposed new cogeneration system would increase the maximum electrical generating capacity at their refinery by about one MW while reducing NOx emissions.

Currently the existing cogeneration systems and four steam boilers (Boilers 7, 8, 9, and 10) generate steam at a total rate of 734.16 million British Thermal Units per hour (mmBtu/hr) for multiple processes at the refinery. Tesoro will replace the four existing boilers with two new boilers (Boilers 11 and 12), each with total heat input rating of no more than 400 mmBtu/hr. The new boilers will burn refinery fuel gas or natural gas and will be equipped with new SCR Units to reduce NOx emissions.

7. Rhodia Inc.

Electricity is supplied to Rhodia by SCE.

8. ConocoPhillips Carson Plant

Electricity is supplied to the ConocoPhillips Carson Plant entirely by SCE.

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[34] SCAQMD, Final Environmental Impact Report for: Chevron Products Company El Segundo Refinery Product Reliability and Optimization Project; SCH No. 2007081057; May 2008.

[35] SCAQMD, Final Environmental Impact Report for ExxonMobil Rule 1105.1 Compliance Project (Appendix A – NOP/IS); SCH No. 2006091112; March 2007.

[36] SCAQMD, Final Environmental Impact Report for the Tesoro Reliability Improvement and Regulatory Compliance Project; SCH No. 2008021099; April 2009.

9. BP Wilmington Calciner Plant

The BP Wilmington Calciner Plant operates a cogeneration facility with a maximum electrical design capacity of 35 MW but operates at 25 MW. The BP Wilmington Calciner Plant internally uses four MW for its operations and sells 21 MW back to SCE's grid. In addition, SCE provides supplementary power, backup power, maintenance power, and/or interruptible power service to the BP Wilmington Calciner Plant if the cogeneration plant is shutdown.

10. CPCC Plant

The majority of the electricity demand is supplied to CPCC Plant by Constellation New Energy. CPCC Plant also operates a cogeneration unit that supplies approximately four MW of electricity from their waste heat boilers for use elsewhere in the plant. Peak electrical demand at CPCC Plant is approximately 22 MW.

11. Owens-Brockway Glass Container Inc.

Electricity is supplied to Owens-Brockway Glass Container by the City of Vernon.

Natural Gas

Four regions supply California with natural gas. Three of these regions, the Southwestern United States, the Rocky Mountains, and Canada, supplied 87 percent of all the natural gas consumed in California in 2007. The remainder is produced in California. In 2006, approximately 43 percent of all the natural gas consumed in California was used to generate electricity. Residential consumption represented approximately 22 percent of California's natural gas use with the balance consumed by the industrial, resource extraction, transportation, and commercial sectors.

Southern California Gas Company, a privately-owned utility company, provides natural gas service throughout the District, except for the City of Long Beach, the southern portion of Orange County, and portions of San Bernardino County. The service area for the Long Beach Gas & Electric Department, a municipal utility owned and operated by the City of Long Beach, includes the cities of Long Beach and Signal Hill, and sections of surrounding communities, including Lakewood, Bellflower, Compton, Seal Beach, Paramount, and Los Alamitos. San Diego Gas & Electric Company provides natural gas service to the southern portion of Orange County. In San Bernardino County, Southwest Gas Corporation provides natural gas service to Victorville, Big Bear, Barstow, and Needles (SCAG, 2005) (CEC, 2006a).

Table 3-8 provides the estimated use of natural gas in California by residential, commercial and industrial sectors. In 2006, about 66 percent of the natural gas consumed in California was for industrial and electric generation purposes.

Table 3-8
California Natural Gas Demand in 2006[37]
(Million Cubic Feet per Day – MMcfd)

Sector	Demand (MMcfd)
Residential	1,300
Commercial	573
Industrial	1,392
Electric Generation	2,613
Transportation	25
Net Storage/Loss	129
Total	**6,032**

The following discussion describes the existing natural gas setting for each of the affected facilities (six refineries, two sulfuric acid manufacturing plants, one petroleum coke calcining plant, one container glass manufacturing plant, and one Portland cement manufacturing plant) that are potentially affected by the proposed project:

1. BP Carson Refinery

Natural gas is supplied from BP Carson's existing utility system.

2. ConocoPhillips Wilmington Refinery

Natural gas is supplied to the ConocoPhillips Wilmington Refinery by Southern California Gas Company.

3. Chevron Refinery

Natural gas is supplied to the Chevron Refinery by the Southern California Gas Company and is used in conjunction with refinery fuel gas generated on-site at the Chevron Refinery.

4. ExxonMobil Refinery

Natural gas is supplied to the ExxonMobil Refinery by the Southern California Gas Company.

5. Ultramar/Valero Refinery

Natural gas is supplied to the Ultramar/Valero Refinery by the Southern California Gas Company.

6. Tesoro Refinery

Natural gas is supplied to the Tesoro Refinery by the Southern California Gas Company.

7. Rhodia Inc.

Natural gas is supplied to Rhodia by Coral Energy Resources. In addition, the transmission and metering of the natural gas to the Rhodia plant is provided by the Southern California Gas Company.

8. ConocoPhillips Carson Plant

Natural gas is supplied to the ConocoPhillips Carson Plant by Southern California Gas Company.

[37] CEC, http://energyalmanac.ca.gov/naturalgas/demand_by_sector.html.

9. BP Wilmington Calciner Plant

Natural gas is supplied to the BP Wilmington Calciner Plant by Southern California Gas Company.

10. CPCC Plant

Natural gas is supplied to the CPCC Plant by Occidental Petroleum.

11. Owens-Brockway Glass Container Inc.

Natural gas is supplied to the Owens-Brockway Glass Container Inc. by Shell Energy.

Table 3-9 summarizes the sources of energy for each of the affected facilities.

Table 3-9
Facility-Specific Existing Setting Summary for Energy

Facility Name	ENERGY	
	Electricity Source	**Natural Gas Source**
BP Carson Refinery	1. Self-generates 727,000 MWh/yr from BP's on-site Watson Cogeneration Plant 2. Purchases approximately 257 MWh/yr from SCE	Self-generates from BP's existing utility system
ConocoPhillips Wilmington Refinery	1. Existing onsite cogeneration plant 2. Purchases additional electricity as needed from LADWP	Southern California Gas Company
Chevron Refinery	1. Existing onsite cogeneration plant[38] 2. Purchases additional electricity as needed from SCE	1. Self-generates refinery fuel gas 2. Purchases natural gas from Southern California Gas Company
ExxonMobil Refinery	Purchases electricity from SCE sub-station that solely serves ExxonMobil	Southern California Gas Company
Ultramar/Valero Refinery	LADWP	Southern California Gas Company
Tesoro Refinery	1. Existing onsite cogeneration plant[39] 2. Purchases additional electricity as needed from LADWP	Southern California Gas Company
Rhodia Inc.	SCE	1. Coral Energy Resources for natural gas 2. Southern California Gas Company for transmission/metering
ConocoPhillips Carson Plant	SCE	Southern California Gas Company
BP Wilmington Calciner Plant	1. Self-generates 25 MW from BP's on-site cogeneration plant and sells 21 MW to SCE 2. Purchases additional electricity as needed from SCE if cogeneration unit is offline	Southern California Gas Company
CPCC	1. Self-generates 4 MW from on-site cogeneration plant for use within plant 2. Purchases additional electricity from Constellation New Energy	Occidental Petroleum
Owens-Brockway Glass Container Inc.	City of Vernon	Shell Energy

[38] Chevron is in the process of expanding their existing cogeneration facility by an additional 49.9 MW to be completed by the end of 2010. Once the project is completed, the need for purchasing additional electricity may be reduced or eliminated.

[39] Tesoro has plans to upgrade their cogeneration system and steam boilers by replacing two 30 MW existing cogeneration units (Cogens A and B) with one new 61.02 MW cogeneration system (Cogen C).

Liquid Petroleum Fuels

California is currently ranked fourth in the nation among oil producing states, behind Louisiana, Texas, and Alaska, respectively. Crude oil production in California averaged 684,912 barrels per day (bpd) in 2008[40]. Statewide oil production has declined to levels not seen since 1943. In 2008, the total receipts to refineries of roughly 656 million barrels came from in-state oil production (38.1 percent), combined with oil from Alaska (13.4 percent), and foreign sources (48.4 percent)[41]. In 2006, California ranked second in the United States in petroleum consumption[42].

A large network of crude oil pipelines connect producing areas with refineries that are located in the San Francisco Bay area, Los Angeles area and the Central Valley. Major ports in northern and southern California receive Alaska North Slope and foreign crude oil for processing in many of the state's 20 operable refineries[43].

Most gasoline and diesel fuel sold in California for on-road motor vehicles is refined in California to meet state-specific formulations required by CARB. Major petroleum refineries in California are concentrated in three counties: Contra Costa County in northern California, Kern County in central California, and Los Angeles County in southern California. In Los Angeles County, petroleum refineries are located mostly in the southern portion of the county.

In 2006, Californians used nearly 42 million gallons of gasoline and eight million gallons of diesel every day[44]. California refineries produce these fuels and other products from crude oil and blending components. Transportation fuel production in California depends on the availability and quality of the crude oils used by refineries in the state. The supply of crude oil to California refineries has changed substantially in the last 10 years. Most notably, receipts of foreign crude oil have increased as production sources from California and Alaska have continued to decline.

In the last two decades, California refineries have been running increasingly closer to capacity levels. Southern California refineries have also shown an increasing level of crude oil imports during this same period. In addition, refineries are also required to meet new diesel regulations promulgated by the USEPA and CARB. The USEPA lowered the allowable amount of sulfur in on-road diesel fuel from less than 500 ppm to less than 15 ppm. This requirement became effective in 2006. The sulfur content and American Petroleum Institute (API) gravity of crude oil input to a refinery in conjunction with the complexity of process units will affect the quantity of ultra-low sulfur diesel (ULSD) produced by a refinery. The hydrocracking and hydrotreater units are utilized to recover sulfur during the oil refining process. Recovered sulfur is converted into elemental sulfur for commercial sale. Hydrocracking units also break hydrocarbon molecules into lighter compounds in the presence of hydrogen. Refineries throughout the United States. have upgraded their desulfurization processes in order to meet the new diesel sulfur standards. This upgrade typically involves techniques such as changing the catalyst in the hydrotreater or installing booster pumps to force more feedstock through the unit. Both hydrocrackers and hydrotreaters also remove heavy metals and aromatics from the feedstock.

[40] One barrel is equal to 42 gallons.
[41] http://www.energyalmanac.ca.gov/petroleum/statistics/crude_oil_receipts.html
[42] http://www.eia.doe.gov/emeu/states/sep_sum/plain_html/rank_use_per_cap.html
[43] http://tonto.eia.doe.gov/dnav/pet/pet_pnp_cap1_dcu_SCA_a.htm
[44] http://energyalmanac.ca.gov/gasoline/gasoline_by_county.html

This is particularly important in California where lower aromatic standards are required along with the new ULSD standards.

Regulatory Background

Federal and state agencies regulate energy use and consumption through various programs. On the federal level, the DOT, the DOE, and the USEPA are three agencies with substantial influence over energy policies and programs.

Generally, federal agencies influence transportation energy consumption through establishment and enforcement of fuel economy standards for automobiles and light trucks, through funding of energy related research and development projects, and through funding for transportation infrastructure projects. On the state level, the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) are two agencies with authority over different aspects of energy. The CPUC regulates privately-owned utilities in the energy, rail, telecommunications, and water fields. The CEC collects and analyzes energy-related data, prepares state-wide energy policy recommendations and plans, promotes and funds energy efficiency programs, and regulates the power plant siting process. California is preempted under federal law from setting state fuel economy standards for new on-road motor vehicles. Some of the more relevant federal and state transportation-energy-related laws and plans are discussed in the following subsections.

Federal Regulations

Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 sought to ensure that all vehicles sold in the United States would meet certain fuel economy goals. Through this Act, Congress established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the Act, the National Highway Traffic and Safety Administration, which is part of the DOT, is responsible for establishing additional vehicle standards and for revising existing standards. Since 1990, the fuel economy standard for new passenger cars has been 27.5 miles per gallon (mpg). Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 mpg. Heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not currently subject to fuel economy standards. Compliance with federal fuel economy standards is not determined for each individual vehicle model, but rather, compliance is determined on the basis of each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the United States. The Corporate Average Fuel Economy (CAFE) program, which is administered by USEPA, was created to determine vehicle manufacturers' compliance with the fuel economy standards. The USEPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. Based on the information generated under the CAFE program, the DOT is authorized to assess penalties for noncompliance.

In late 2007, CAFE standards received their first overhaul in more than 30 years. On December 19, President Bush signed into law the Clean Energy Act of 2007, which requires in part that automakers boost fleetwide gas mileage to 35 mpg by the year 2020. This requirement applies to all passenger automobiles, including “light trucks.” The bill signed into law December 2007 was an 822-page document changing United States energy policy in many areas. Key provisions were:

- Improved vehicle fuel economy.

- Increased CAFE standards. Automakers are required to boost fleetwide gas mileage to 35 mpg (14.8 kilometers per liter) by 2020. This applies to all passenger automobiles, including "light trucks."
- Improved vehicle technology and transportation electrification. Incentives for the development of plug-in hybrids.
- New conservation requirements for federal vehicle fleets.
- Increased production of biofuels. The total amount of biofuels added to gasoline is required to increase to 36 billion gallons by 2022, from the 4.7 billion gallons in 2007. The Energy Act specifies that 21 billion gallons of the 2022 total must be derived from non-cornstarch products (e.g., sugar or cellulose).

Light-Duty Vehicle GHG Emission Standards and Corporate Average Fuel Economy (CAFE) Standards

On May 7, 2010, the USEPA and the National Highway Traffic and Safety Administration (NHTSA) published GHG and CAFE standards for light-duty vehicles. This program applies to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. In addition, these vehicles are required to meet an estimated combined average emissions level of 250 grams per mile of CO2, equivalent to 35.5 miles per gallon (MPG) if the automobile industry were to meet this CO2 level solely through fuel economy improvements. Together, these standards will cut GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program for model years 2012-2016.

Intermodal Surface Transportation Efficiency Act

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) promoted the development of inter-modal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs), such as SCAG, were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values that were to guide transportation decisions in that metropolitan area. The planning process for specific projects would then address these policies. Another requirement was to consider the consistency of transportation planning with federal, state, and local energy goals. Through this requirement, energy consumption was expected to become a decision criterion, along with cost and other values that determine the best transportation solution.

Transportation Equity Act for the 21st Century

The Transportation Equity Act for the 21st Century (TEA-21) was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. TEA-21 authorizes highway, highway safety, transit, and other surface transportation programs. TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems, to help improve operations and management of transportation systems and vehicle safety. Congress is currently developing various amendments to continue surface transportation programs.

Clean Cities Program

The DOE's Clean Cities Program promotes voluntary, locally-based government/industry partnerships for the purpose of expanding the use of alternatives to gasoline and diesel fuel by accelerating the deployment of alternative fuel vehicles (AFVs) and building a local AFV refueling infrastructure. The Clean Cities Program has created more than 70 partnerships in communities throughout the country. Six of these partnerships have been established in the southern California region: Coachella Valley, Lancaster, Long Beach, Los Angeles, Northwest Riverside, and one administered by SCAG (SCAG, 2005).

State Regulations

State of California Integrated Energy Policy Report

In 2002, the Legislature reconstituted the state's responsibility to develop an integrated energy plan for electricity, natural gas, and transportation fuels. On November 1, 2003, and every two years thereafter, the CEC, in consultation with other State energy agencies, must provide an overview of the major energy trends and issues facing California, including supply, demand, price, reliability, and efficiency. It must assess the impacts of these trends and issues on public health and safety, the economy, resources, and the environment. Finally, it must make policy recommendations to the Governor and the Legislature that are based on an in-depth and integrated analysis of the most current and pressing energy issues facing California (SCAG, 2005).

Reducing California's Petroleum Dependence

The CEC and CARB produced a joint report "Reducing California's Petroleum Dependence" to highlight petroleum consumption and to establish a performance based goal to reduce petroleum consumption in California over the next thirty years. The report includes the following recommendations to the Governor and Legislature regarding petroleum:

- Adopt the recommended statewide goal of reducing demand for on-road gasoline and diesel to 15 percent below the 2003 demand level by 2020 and maintaining that level for the foreseeable future.
- Work with the California delegation and other states to establish national fuel economy standards that double the fuel efficiency of new cars, light trucks, and sport utility vehicles.
- Establish a goal to increase the use of non-petroleum fuels to 20 percent of on-road fuel consumption by 2020, and 30 percent by 2030.

The CEC will use these recommendations when developing its series of recommendations to the Governor and Legislature for the integrated energy plan for electricity, natural gas, and transportation fuels (SCAG, 2005).

Renewables Portfolio Standard

California's renewables portfolio standard (RPS) requires retail sellers of electricity to increase their procurement of eligible renewable energy resources by at least one percent per year so that 20 percent of their retail sales are procured from eligible renewable energy resources by 2014. If a seller falls short in a given year, they must procure more renewables in succeeding years to make up the shortfall. Once a retail seller reaches 20 percent, they need not increase their procurement in succeeding years. The CEC and the CPUC are jointly implementing the standard. In addition, California lawmakers are currently developing legislation to increase the

current 20 percent by 2010 RPS to 33 percent by 2020[45]. The CEC and CPUC have endorsed this change and it is a key GHG reduction strategy in the CARB's AB 32 Scoping Plan.

California Environmental Quality Act

Appendix F of the CEQA Guidelines describes the types of information and analyses related to energy conservation that are to be included in EIRs that are prepared pursuant to the CEQA. In Appendix F of the CEQA Guidelines, energy conservation is described in terms of decreased per capita energy consumption, decreased reliance on natural gas and oil, and increased reliance on renewable energy sources. To assure that energy implications are considered in project decisions, EIRs must include a discussion of the potentially significant energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy.

HAZARDS AND HAZARDOUS MATERIALS

The use, storage and transport of hazardous materials are subject to numerous laws and regulations at all levels of government. The most relevant existing hazardous materials laws and regulations include hazardous materials management planning, hazardous materials transportation, hazardous materials worker safety requirements, hazardous waste handling requirements and emergency response to hazardous materials and waste incidents. Potential risk of upset is a factor in the production, use, storage and transportation of hazardous materials. Risk of upset concerns are related to the risks of explosions or the release of hazardous substances in the event of an accident or upset conditions.

Hazardous Materials Management Planning

State law requires detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of to prevent or mitigate injury to health or the environment in the event that such materials are accidentally released. Federal laws, such as the Emergency Planning and Community-Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act (SARA), Title III) impose similar requirements. These requirements are enforced by the California Office of Emergency Services.

The Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires that any business or government agency that handles hazardous materials prepare a business plan, which must include the following (HSC §25504):

- details, including floor plans, of the facility and business conducted at the site;
- an inventory of hazardous materials that are handled or stored on the site;
- an emergency response plan; and
- a training program in safety procedures and emergency response for new employees, and an annual refresher course in the same topics for all employees.

These requirements are generally administered by the local fire departments.

Hazardous Materials Transportation

The DOT has the regulatory responsibility for the safe transportation of hazardous materials between states and to foreign countries. DOT regulations govern all means of transportation, except for those packages shipped by mail, which are covered by the United States Postal

[45] http://www.cpuc.ca.gov/PUC/energy/Renewables/hot/33implementation.htm

Service (USPS) regulations. DOT regulations are contained in the Code of Federal Regulations, Title 49 (49 CFR); USPS regulations are in 39 CFR.

Every package type used by a hazardous materials shipper must undergo tests which imitate some of the possible rigors of travel. While not every package must be put through every test, most packages must be able to meet the following generic test criteria: the ability to be (a) kept under running water for one-half hour without leaking; (b) dropped, fully loaded, onto a concrete floor; (c) compressed from both sides for a period of time; (d) subjected to low and high pressure; and (e) frozen and heated alternately.

Common carriers are licensed by the California Highway Patrol (CHP) pursuant to the California Vehicle Code, §32000, which requires licensing of every motor (common) carrier who transports, for a fee, in excess of 500 pounds of hazardous materials at one time and every carrier, if not for hire, who carries more than 1,000 pounds of hazardous material of the type requiring placards. Common carriers conduct a large portion of their business in the delivery of hazardous materials.

Under the federal Resource Conservation and Recovery Act (RCRA) of 1976, the USEPA set standards for transporters of hazardous waste. In addition, the State of California regulates the transportation of hazardous waste originating or passing through the state; state regulations are contained in the CCR, Title 13. Hazardous materials are regularly removed from generating sites by licensed hazardous waste transporters. Transported materials must be accompanied by hazardous waste manifests.

Two state agencies have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies: the CHP and the California Department of Transportation (Caltrans).

The CHP enforces hazardous materials and hazardous waste labeling and packing regulations that prevent leakage and spills of material in transit and provide detailed information to cleanup crews in the event of an accident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of CHP, which conducts regular inspections of licensed transporters to assure regulatory compliance. Caltrans has emergency chemical spill identification teams at 72 locations throughout the state.

Hazardous Material Worker Safety Requirements

The California Occupational Safety and Health Administration (CalOSHA) and the Federal Occupational Safety and Health Administration (FedOSHA) are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. In California, CalOSHA assumes primary responsibility for developing and enforcing workplace safety regulations.

Under the authority of the Occupational Safety and Health Act of 1970, FedOSHA has adopted numerous regulations pertaining to worker safety (contained in 29 CFR – Labor). These regulations set standards for safe workplaces and work practices, including the reporting of accidents and occupational injuries. Some OSHA regulations contain standards relating to hazardous materials handling, including workplace conditions, employee protection requirements, first aid, and fire protection, as well as material handling and storage. Because California has a federally-approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in 29 CFR.

CalOSHA regulations concerning the use of hazardous materials in the workplace (which are detailed in CCR, Title 8) include requirements for employee safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. CalOSHA enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances as well as communicating hazard information related to hazardous substances and their handling. The hazard communication program also requires that MSDSs be available to employees and that employee information and training programs be documented. These regulations also require preparation of emergency action plans (escape and evacuation procedures, rescue and medical duties, alarm systems, and emergency evacuation training).

Both federal and state laws include special provisions for hazard communication to employees in research laboratories, including training in chemical work practices. The training must include methods in the safe handling of hazardous materials, an explanation of MSDSs, use of emergency response equipment and supplies, and an explanation of the building emergency response plan and procedures.

Chemical safety information must also be available. More detailed training and monitoring is required for the use of carcinogens, ethylene oxide, lead, asbestos, and certain other chemicals listed or defined in 29 CFR. Emergency equipment and supplies, such as fire extinguishers, safety showers, and eye washes, must also be kept in accessible places. Compliance with these regulations reduces the risk of accidents, worker health effects, and emissions.

National Fire Codes (NFC), Title 45 (published by the National Fire Protection Association) contains standards for laboratories using chemicals, which are not requirements, but are generally employed by organizations in order to protect workers. These standards provide basic protection of life and property in laboratory work areas through prevention and control of fires and explosions, and also serve to protect personnel from exposure to non-fire health hazards.

While NFC Standard 45 is regarded as a nationally recognized standard, the California Fire Code (24 CCR) contains state standards for the use and storage of hazardous materials and special standards for buildings where hazardous materials are found. Some of these regulations consist of amendments to NFC Standard 45. State Fire Code regulations require emergency pre-fire plans to include training programs in first aid, the use of fire equipment, and methods of evacuation.

Hazardous Waste Handling Requirements

The RCRA created a major new federal hazardous waste regulatory program that is administered by the USEPA. Under RCRA, the USEPA regulates the generation, transportation, treatment, storage, and disposal of hazardous waste from "cradle to grave."

RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the "cradle-to-grave" system of regulating hazardous wastes. HSWA specifically prohibits the use of certain techniques for the disposal of some hazardous wastes.

Under RCRA, individual states may implement their own hazardous waste programs in lieu of RCRA as long as the state program is at least as stringent as federal RCRA requirements. The USEPA approved California's program to implement federal regulations as of August 1, 1992.

The Hazardous Waste Control Law (HWCL) is administered by the CalEPA's DTSC. Under HWCL, the DTSC has adopted extensive regulations governing the generation, transportation, and disposal of hazardous wastes. HWCL differs little from RCRA; both laws impose "cradle to grave" regulatory systems for handling hazardous wastes in a manner that protects human health and the environment. Regulations implementing HWCL are generally more stringent than regulations implementing RCRA.

Regulations implementing HWCL list over 780 hazardous chemicals as well as 20 to 30 more common materials that may be hazardous; establish criteria for identifying, packaging and labeling hazardous wastes; prescribe management practices for hazardous wastes; establish permit requirements for hazardous waste treatment, storage, disposal and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

Under both RCRA and HWCL, hazardous waste manifests must be retained by the generator for a minimum of three years. Hazardous waste manifests list a description of the waste, its intended destination and regulatory information about the waste. A copy of each manifest must be filed with DTSC. The generator must match copies of hazardous waste manifests with certification notices from the treatment, disposal, or recycling facility.

Emergency Response to Hazardous Materials and Wastes Incidents

Pursuant to the Emergency Services Act, the State has developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government agencies and private persons. Response to hazardous materials incidents is one part of this plan. The Plan is administered by the state Office of Emergency Services (OES), which coordinates the responses of other agencies including USEPA, CHP, the Department of Fish and Game, the RWQCB, and local fire departments. (See *California Government Code* §8550.)

In addition, pursuant to the Hazardous Materials Release Response Plans and Inventory Law of 1985 (the Business Plan Law), local agencies are required to develop "area plans" for response to releases of hazardous materials and wastes. These emergency response plans depend to a large extent on the business plans submitted by persons who handle hazardous materials. An area plan must include pre-emergency planning of procedures for emergency response, notification and coordination of affected government agencies and responsible parties, training, and follow-up.

Existing Hazards and Hazardous Waste Setting

The following discussion describes the existing hazards and hazardous waste setting for the equipment/source categories that may be affected by the proposed project. Due to the heavy industrial nature of each affected facility, the existing hazards setting is widely varied and voluminous. Since the proposed project is focused on controlling SOx emissions from FCCUs, SRU/TGUs, refinery boilers/heaters, sulfuric acid manufacturing, petroleum coke calcining container glass manufacturing, and cement manufacturing, the existing setting for hazards/hazardous materials for these source categories will focus on the current hazardous materials used by the applicable source categories at the affected facilities.

1. BP Carson Refinery

There are three source categories at the BP Carson Refinery that may be affected by the proposed project: the FCCU, the SRU/TGU, and the FGT for amine absorbers in their fuel gas system. The materials used in these existing units and whether they are hazardous are identified in the following paragraphs.

FCCU: The ESP catalyst fines from the FCCU at the BP Carson Refinery are loaded into a truck and either transported to a local cement plant or transported to a landfill for disposal. The catalyst fines material is classified as non-hazardous waste. In 2008, the BP Carson Refinery disposed of approximately 1,700 tons of ESP catalyst fines. Hazardous waste generated by the BP Carson Refinery is regulated by the DTSC. However, the BP Carson Refinery is not subject to a solid waste discharge permit.

SRU/TGU: The Sulfur Plant currently converts H2S and ammonia-rich acid gases into elemental sulfur, water, and nitrogen via a partial combustion (Claus) reaction. The Sulfur Plant utilizes sour water strippers for removal of H2S and NH3 from water, Claus Units for the conversion of H2S to elemental sulfur and the destruction of NH3, and TGUs via amine absorbers to recover any unconverted H2S. The amine used in this process is methyl diethanol amine (MDEA). MDEA is not considered a TAC or hazardous compound per SCAQMD's Rule 1401 and California Accidental Release Prevention (CalARP) Program as published in the California Code of Regulations (CCR), Title 19, Division 2, Chapter 4.5. NH3 and H2S are TACs and hazardous compounds per SCAQMD Rule 1401 and CalARP. Commercial grade sulfur is not considered a TAC or hazardous compound per SCAQMD's Rule 1401 and CalARP, but it may form a flammable or explosive mixture if any sulfur particles (dust) are allowed to mix with air.

FGT: Fuel gas is treated by amine absorbers that use MDEA to remove H2S from fuel gas. While MDEA is not considered a TAC or hazardous compound per SCAQMD's Rule 1401 and CalARP, H2S is a TAC and hazardous compound per SCAQMD Rule 1401 and CalARP.

2. ConocoPhillips Wilmington Refinery

There are three source categories at the ConocoPhillips Wilmington Refinery that may be affected by the proposed project: the FCCU, FGT and sulfuric acid plant. The materials used in these existing units and whether they are hazardous are identified in the following paragraphs.

FCCU: The ESP catalyst fines from the FCCU at the ConocoPhillips Wilmington Refinery are loaded into a truck and transported to a local cement plant for use as an ingredient in the manufacture of cement. The approximate quantity of catalyst fines generated is 526 tons per year. The catalyst fines material is not classified as a hazardous waste since it is recycled. Hazardous waste generated by the ConocoPhillips Wilmington Refinery is regulated by the DTSC and the Los Angeles County Fire Department.

FGT: The amine absorbers use monoethanolamine (MEA) to remove sulfur compounds from the refinery fuel gas. MEA is not considered a hazardous compound per SCAQMD's Rule 1401 and CalARP.

Sulfuric Acid Plant: The sulfuric acid plant takes the sulfur in the feedstock (spent sulfuric acid from other processes plus fresh sulfur) and oxidizes it to SO2 in a furnace. The SO2 is then oxidized to SO3 in a catalytic converter. Lastly, the SO3 is combined with water to create a strong H2SO4 solution. H2SO4 and SO3 are regulated, hazardous compounds per SCAQMD's Rule 1401 and CalARP, under certain conditions.

3. Chevron Refinery

There are three source categories at the Chevron Refinery that may be affected by the proposed project: the FCCU, the SRU/TGU, and the FGT for amine absorbers in their fuel gas system. The materials used in these existing units and whether they are hazardous are identified in the following paragraphs.

FCCU: The ESP catalyst fines are comprised of base catalyst plus SOx reducing additives from the FCCU at the Chevron Refinery are loaded into a pneumatic tanker truck and transported to a local cement plant for use as an ingredient in the manufacture of cement. In 2008, the Chevron Refinery shipped approximately 409 tons for recycling. The catalyst fines material is not classified as a hazardous waste since it is recycled.

FGT: The absorbers use diethanolamine (DEA) to remove sulfur compounds (e.g., H2S) from the refinery fuel gas. H2S and DEA are TACs and are considered hazardous compounds per SCAQMD's Rule 1401 and CalARP.

SRU/TGU: The SRU/TGU uses catalyst to convert ammonia (NH3), H2S and nitrogen compounds from the sour water feed stream to commercial grade sulfur along with nitrogen and water that is exhausted to the atmosphere. NH3 and H2S are TACs and hazardous compounds per SCAQMD Rule 1401 and CalARP. Commercial grade sulfur is not considered a TAC or hazardous compound per SCAQMD's Rule 1401 and CalARP, but it may form a flammable or explosive mixture if any sulfur particles (dust) are allowed to mix with air. Similar to the catalyst used in the FCCU, the catalyst in the SRU/TGU is loaded into a pneumatic tanker truck and transported to a local cement plant for use as an ingredient in the manufacture of cement. The spent catalyst used in this process is not classified as a hazardous waste since it is recycled.

4. ExxonMobil Refinery

There are three source categories at the ExxonMobil Refinery that may be affected by the proposed project: the FCCU, the SRU/TGU, and the FGT. The materials used in these existing units and whether they are hazardous are identified in the following paragraphs.

FCCU: The ESP catalyst fines from the FCCU at the ExxonMobil Refinery are loaded into a truck and transported to a local cement plant for use as an ingredient in the manufacture of cement. The approximate quantity of catalyst fines generated is 150 tons per year. The catalyst fines material is not classified as a hazardous waste since it is recycled. Hazardous waste generated by the ExxonMobil Refinery is regulated by the DTSC and/or the local CUPA.

SRU/TGU: The Sulfur Plant currently converts H2S and ammonia-rich acid gases into elemental sulfur, water, and nitrogen via a partial combustion (Claus) reaction. The Sulfur Plant utilizes Claus Units for the conversion of H2S to elemental sulfur and the destruction of NH3, and TGUs via amine absorbers to recover any unconverted H2S. A proprietary amine is used in the TGU. NH3 and H2S are TACs and hazardous compounds per SCAQMD Rule 1401 and CalARP. Commercial grade sulfur is not considered a TAC or hazardous compound per SCAQMD's Rule 1401 and CalARP, but it may form a flammable or explosive mixture if any sulfur particles (dust) are allowed to mix with air.

FGT: To reduce mercaptans (ethyl- and methyl-), DEA is used to treat most of the refinery fuel gas, other than coker off-gas, which is treated with MEA and NaOH. NaOH and DEA are both TACs and are considered hazardous compounds per SCAQMD's Rule 1401 and CalARP. MEA is not considered a hazardous compound per SCAQMD's Rule 1401 and CalARP.

5. Ultramar/Valero Refinery

There are three source categories at the Chevron Refinery that may be affected by the proposed project: the FCCU, the SRU/TGU, and the FGT for amine absorbers in their fuel gas system. The materials used in these existing units and whether they are hazardous are identified in the following paragraphs.

FCCU: The ESP catalyst fines from the FCCU at the Ultramar/Valero Refinery are currently collected in hoppers below the ESP structure. The ESP catalyst fines, comprised of base catalyst and SOx reducing additives, are currently shipped to a local cement plant to be used as an ingredient in the manufacture of cement. The quantity of catalyst fines generated in 2008 was approximately 729 tons and it was classified as non-hazardous waste. The solid waste regulator for this facility is the Department of Toxic Substances Control (DTSC).

SRU/TGU: The Sulfur Plant currently converts H2S and ammonia-rich acid gases into elemental sulfur, water, and nitrogen via a partial combustion (Claus) reaction. The Sulfur Plant utilizes Claus Units for the conversion of H2S to elemental sulfur and the destruction of NH3, and TGUs via amine absorbers to recover any unconverted H2S. The amine used in the TGU is a hybrid mixture of MDEA and a special amine additive (TG-10). While MDEA, TG-10, and carbonyl sulfide are not considered TACs or hazardous compounds per SCAQMD's Rule 1401 and CalARP, H2S, NaOH and mercaptans are TACs and hazardous compounds per SCAQMD Rule 1401 and CalARP. Commercial grade sulfur is not considered a TAC or hazardous compound per SCAQMD's Rule 1401 and CalARP, but it may form a flammable or explosive mixture if any sulfur particles (dust) are allowed to mix with air.

FGT: Fuel gas is treated by amine absorbers to remove H2S from fuel gas. The FGT unit uses a fiber contactor system to treat fuel gas with a circulating stream of amine (MDEA) and caustic (NaOH) to remove H2S, carbonyl sulfide, and mercaptans. While MDEA and carbonyl sulfide are not considered TACs or hazardous compounds per SCAQMD's Rule 1401 and CalARP, H2S, NaOH and mercaptans are TACs and hazardous compounds per SCAQMD Rule 1401 and CalARP.

6. Tesoro Refinery

There are three source categories at the Chevron Refinery that may be affected by the proposed project: the FCCU, the SRU/TGU, and the FGT for amine absorbers in their fuel gas system. The materials used in these existing units and whether they are hazardous are identified in the following paragraphs.

FCCU: The ESP catalyst fines from the FCCU at the Tesoro Refinery, comprised of base catalyst and SOx reducing additives, are loaded into a truck and transported to a local cement plant CPCC for use as an ingredient in the manufacture of cement. The approximate quantity of catalyst fines generated is 360 tons per year. The catalyst fines material is not classified as a hazardous waste since it is recycled. Hazardous waste generated by the Tesoro Refinery is regulated by the DTSC.

SRU/TGU: The Sulfur Plant currently converts H2S and ammonia-rich acid gases into elemental sulfur, water, and nitrogen via a partial combustion (Claus) reaction. The Sulfur Plant utilizes Claus Units for the conversion of H2S to elemental sulfur and the destruction of NH3, and TGUs via MDEA amine absorbers to recover any unconverted H2S. Commercial grade sulfur is not considered a TAC or hazardous compound per SCAQMD's Rule 1401 and CalARP, but it may form a flammable or explosive mixture if any sulfur particles (dust) are allowed to

mix with air. MDEA is not considered a TAC or hazardous compound per SCAQMD's Rule 1401 and CalARP.

FGT: Fuel gas is treated by amine absorbers that use DEA to remove H2S from fuel gas. DEA is a TAC and is considered a hazardous compound per SCAQMD's Rule 1401 and CalARP.

7. Rhodia Inc.

Rhodia has only one source category, sulfuric acid manufacturing, that may be affected by the proposed project. The sulfuric acid plant takes the sulfur in the feedstock (spent sulfuric acid from other facilities plus fresh sulfur) and oxidizes it to SO2 in a furnace. The SO2 is then oxidized to sulfur trioxide (SO3) in a catalytic converter. Lastly, the SO3 is combined with water to create a strong sulfuric acid (H2SO4) solution. H2SO4 and SO3 are regulated, hazardous compounds per SCAQMD's Rule 1401 and CalARP, under certain conditions. In addition, Rhodia is a generator of hazardous waste and local oversight of this waste stream is under the jurisdiction of the Los Angeles County Fire Department as the Certified Unified Program Agency (CUPA). At the state level, hazardous waste generated by Rhodia is regulated by the DTSC and CalEPA and at the federal level, it is regulated by the USEPA.

8. ConocoPhillips Carson Plant

There are two source categories at the ConocoPhillips Carson Plant that may be affected by the proposed project: the SRU/TGU and the FGT for amine absorbers in their fuel gas system. The materials used in these existing units and whether they are hazardous are identified in the following paragraphs.

SRU/TGU: The Sulfur Plant currently converts H2S and ammonia-rich acid gases into elemental sulfur, water, and nitrogen via a partial combustion (Claus) reaction. The Sulfur Plant utilizes Claus Units for the conversion of H2S to elemental sulfur and the destruction of NH3, and TGUs via amine absorbers to recover any unconverted H2S. The amine used in the TGU is a hybrid mixture of MDEA and a special amine additive (TG-10). While MDEA, TG-10, and carbonyl sulfide are not considered TACs or hazardous compounds per SCAQMD's Rule 1401 and CalARP, H2S, NaOH and mercaptans are TACs and hazardous compounds per SCAQMD Rule 1401 and CalARP. Commercial grade sulfur is not considered a TAC or hazardous compound per SCAQMD's Rule 1401 and CalARP, but it may form a flammable or explosive mixture if any sulfur particles (dust) are allowed to mix with air.

FGT: The fuel gas is treated with MEA and NaOH to reduce mercaptans (ethyl- and methyl-) and carbonyl sulfur. NaOH is a TAC and is considered a hazardous compound per SCAQMD's Rule 1401 and CalARP. MEA is not considered a hazardous compound per SCAQMD's Rule 1401 and CalARP.

The ConocoPhillips Carson Plant is a generator of hazardous waste and local oversight of this waste stream is under the jurisdiction of the DTSC and the Los Angeles County Fire Department.

9. BP Wilmington Calciner Plant

The calciner at BP Wilmington is the only source category that may be affected by the proposed project. The SOx emissions from the unit are controlled by a dry scrubber. The existing control system also includes a spray dryer, a reverse-air baghouse, a slurry storage system, a slurry circulating system, and a pneumatic conveying system. Calcium hydroxide (CaOH) slurry is the absorbing medium for the existing SO2 control system. CaOH is not considered a hazardous compound per SCAQMD's Rule 1401 and CalARP.

The BP Wilmington Calciner Plant does not operate an FCCU so there are no catalyst fines from this type of equipment in their solid waste stream. However, approximately 175 tons per day of non-hazardous waste is produced by the dry scrubber and baghouse operated at the BP Wilmington Calciner Plant, which is sold and shipped to a local cement plant for recycling. Other non-hazardous wastes produced are sent to some waste facilities as either a waste or a commodity that is sold to the waste facility as a sludge solidifier.

The primary Certified Unified Program Agencies[46] (CUPAs) for the BP Wilmington Calciner Plant are the Long Beach Fire Department and the Los Angeles City Fire Department. In addition, the CUPA permits for the BP Wilmington Calciner Plant are specifically for hazardous waste and hazardous materials. The BP Wilmington Calciner Plant has an USEPA identification number and meets the criteria as a small quantity generator[47].

10. CPCC Plant

The two cement kilns operating at the CPCC Plant are the only units that may be affected by the proposed project. The raw materials used for manufacturing cement include calcium, silica, alumina and iron, with calcium having the highest concentration. These raw materials are obtained from a limestone quarry for calcium, sand for silica; and shale and clay for alumina and silica. None of these materials are considered hazardous per SCAQMD's Rule 1401 and CalARP. In addition, the CPCC Plant receives catalyst fines and other non-hazardous waste from several facilities to be used in the cement manufacturing process[48]. The solid waste regulators for the CPCC Plant are the California Integrated Waste Management Board and the County of San Bernardino Fire Department CUPA for hazardous wastes.

11. Owens-Brockway Glass Container Inc.

The two glass melting furnaces and corresponding scrubbers at Owens-Brockway Glass Container are the only equipment that may be affected by the proposed project. Limestone, soda ash, and glass cullet are the main feedstocks to the furnaces. The scrubbers use trona, a rare sodium-rich mineral, as a scrubbing agent. Trona is also the main component in the manufacture of soda ash. Limestone, soda ash, trona and glass cullet are not considered hazardous compounds per SCAQMD's Rule 1401 and CalARP.

Owens-Brockway Glass Container Inc. collects particulates in their electrostatic precipitators (ESPs) and re-uses a majority of the dust in the glass-making process. The amount of dust that cannot be recycled in this manner is sent to be disposed of as hazardous waste. Owens-Brockway Glass Container Inc. qualifies as a large quantity generator[49] of solid waste.

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[46] Senate Bill 1082, passed in 1993, created the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program), which requires the administrative consolidation of six hazardous materials and waste programs (Program Elements) under one agency, a Certified Unified Program Agency.

[47] A small quantity generator is allowed to generate less than 2,200 pounds of hazardous waste in any calendar month. All hazardous waste generated by the small quantity generator that is not treated onsite must be manifested to an offsite treatment, storage and disposal facility permitted to handle hazardous waste or to an approved designated facility (e.g., recycling facility).

[48] On November 20, 2009, CPCC operators shutdown both of its cement kilns and as such, indicated to SCAQMD staff that they will not be receiving catalyst fines for recycling until further notice. CPCC operators indicated that catalyst fines will be diverted to another cement plant located outside of the jurisdiction of SCAQMD.

[49] A large quantity generator generates 2,200 pounds or more of hazardous waste or more than 2.2 pounds of acute hazardous waste per calendar month. All hazardous waste generated by the large quantity generator that is not treated onsite must be manifested and sent to an offsite treatment, storage and disposal facility permitted to handle hazardous waste, or sent to an approved designated facility (e.g., a recycling facility).

HYDROLOGY AND WATER QUALITY

Water Quality

The USEPA is the federal agency responsible for water quality management and administration of the federal Clean Water Act (CWA). The USEPA has delegated most of the administration of the CWA in California to the California State Water Resources Control Board (SWRCB). The SWRCB was established through the California Porter-Cologne Water Quality Act of 1969 and is the primary agency responsible for water quality management issues in California. Much of the responsibility for implementation of the SWRCB's policies is delegated to the nine RWQCBs. Section 402 of the CWA established the National Pollutant Discharge Elimination System (NPDES) to regulate discharges into "navigable waters" of the United States. The USEPA authorized the SWRCB to issue NPDES permits in the State of California in 1974. The NPDES permit establishes discharge pollutant thresholds and operational conditions for industrial facilities and wastewater treatment plants. For point source discharges (e.g., wastewater treatment facilities), the RWQCBs prepare specific effluent limitations for constituents of concern such as toxic substances, total suspended solids (TSS), bio-chemical oxygen demand (BOD), and organic compounds. The limitations are based on the Basin Plan objectives and are tailored to the specific receiving waters, allowing some discharges, for instance deep water outfalls in the Pacific Ocean, more flexibility with certain constituents due to the ability of the receiving waters to accommodate the effluent without significant impact.

Non-point source NPDES permits are also required for municipalities and unincorporated communities of populations greater than 100,000 to control urban stormwater runoff. These municipal permits include Storm Water Management Plans (SWMPs). A key part of the SWMP is the development of Best Management Practices (BMPs) to reduce pollutant loads. Certain businesses and projects within the jurisdictions of these municipalities are required to prepare Storm Water Pollution Prevention Plans (SWPPPs) which establish the appropriate BMPs to gain coverage under the municipal permit. On October 29, 1999, the USEPA finalized the Storm Water Phase II rule which requires smaller urban communities with a population less than 100,000 to acquire individual storm water discharge permits. The Phase II rule also requires construction activities on one to five acres to be permitted for storm water discharges. Individual storm water NPDES permits are required for specific industrial activities and for construction sites greater than five acres. State-wide general storm water NPDES permits have been developed to expedite discharge applications. They include the state-wide industrial permit and the state-wide construction permit. A prospective applicant may apply for coverage under one of these permits and receive Waste Discharge Requirements (WDRs) from the appropriate RWQCB. WDRs establish the permit conditions for individual dischargers.

Section 303(d) of the CWA requires the SWRCB to list impaired water bodies in the State and determine total maximum daily loads (TMDLs) for pollutants or other stressors impacting water quality. Even though the Section 303(d) list was completed in March 1999, TMDLs have yet to be determined for most of the identified impaired water bodies, although a priority schedule has been developed to complete the process in the region within 13 years. The RWQCBs will be responsible for ensuring that total discharges do not exceed TMDLs for individual water bodies as well as for entire watersheds.

The RWQCBs also coordinate the State Water Quality Certification program pursuant to Section 401 of the CWA. According to Section 401, states have the authority to review any federal permit or license that will result in a discharge or disruption to wetlands and other waters under state jurisdiction, to ensure that the actions will be consistent with the state's water quality

requirements. This program is most often associated with §404 of the CWA which obligates the United States Army Corps of Engineers to issue permits for the movement of dredge and fill material into and from "waters of the United States."

Water quality of regional surface water and groundwater resources is affected by point source and non-point source discharges occurring throughout individual watersheds. Regulated point sources, such as wastewater treatment effluent discharges, usually involve a single discharge into receiving waters. Non-point sources involve diffuse and non-specific runoff that enters receiving waters through storm drains or from unimproved natural landscaping. Common non-point sources include urban runoff, agriculture runoff, resource extraction (on-going and historical), and natural drainage. Within the regional Basin Plans, the RWQCBs establish water quality objectives for surface water and groundwater resources and designate beneficial uses for each identified body of water.

California Water Code, Division 7, Chapter 5.6 established a comprehensive program within the SWRCB to protect the existing and future beneficial uses of California's enclosed bays and estuaries. The Bay Protection and Toxic Cleanup Plan (BPTCP) has provided a new focus on the SWRCB and the RWQCBs' efforts to control pollution of the state's bays and estuaries by establishing a program to identify toxic hot spots and plan for their cleanup. In June 1999, the SWRCB published a list of known toxic hot spots in estuaries, bays, and coastal waters.

Other state-wide programs run by the SWRCB to monitor water quality include the California State Mussel Watch Program and the Toxic Substances Monitoring Program. The Department of Fish and Game collects water and sediment samples for the SWRCB for both these programs and provides extensive state-wide water quality data reports annually. In addition, the RWQCBs conduct water sampling for Water Quality Assessments required by the CWA and for specific priority areas under restoration programs such as the Santa Monica Bay Restoration Program.

Water Supply

The Federal Safe Drinking Water Act, enacted in 1974 and implemented by the USEPA, imposes water quality and infrastructure standards for potable water delivery systems nation-wide. The California Safe Drinking Water Act was enacted in 1976. Potable water supply is managed through local agencies and water districts, the State Department of Water Resources (DWR), the Department of Health Services (DHS), the State Water Resources Control Board (SWRCB), the USEPA, and the United States Bureau of Reclamation. The DWR manages the State Water Project (SWP), and compiles planning information on supply and demand within California.

The DWR divides the state into ten hydrologic regions. Some regions contain a great deal of water, while other regions are very dry and must have their water imported by aqueducts. The South Coast Air Basin lies within the South Coast Hydrologic Region. The cities of Los Angeles, Long Beach, Santa Ana, and Riverside are among the many urban areas in this hydrologic region. The Santa Clara, Los Angeles, San Gabriel, and Santa Ana Rivers are among the area's hydrologic features. Most lakes in this area are actually reservoirs, made to hold imported water.

Imported sources of water (including the Colorado River Aqueduct (CRA), the State Water Project's California Aqueduct, and the Los Angeles Aqueduct) have, in previous years, supplied more than six million acre-feet[50] or two trillion gallons of water to the southern California region

[50] One acre-foot is equivalent to 325,851 gallons.

annually. Imported sources have accounted for approximately 74 percent of the total water used in the region.

Local sources of water account for approximately 26 percent of the total volume consumed annually in the SCAG area. Local sources include surface water runoff and groundwater.

The largest surface water sources in the region are the Colorado, the Santa Ana, and the Santa Clara River systems. Major groundwater basins in the region include the Central, Raymond, San Fernando, and San Gabriel basins (Los Angeles County); the Upper Santa Ana Valley Basin system (San Bernardino and Riverside counties); the Coastal Plain Basin (Orange County); and the Coachella Valley Basin (Riverside County).

Local water resources are fully developed and historically have remained relatively stable on a region-wide basis. However, local water supplies may decline in certain localized areas and increase in others. Several groundwater basins in the region are threatened by overdraft conditions, increasing levels of salinity, and contamination by agricultural land to urban development, thereby reducing the land surface available for groundwater recharge. Increasing demand for groundwater may also be limited by water quality, since levels of salinity in sources currently used for irrigation could be unacceptably high for domestic use without treatment.

Available water supplies provided by the Metropolitan Water District (MWD) are diverse and include State Water Project (SWP) deliveries, Colorado River deliveries (according to Federal apportionments and guidelines), water transfers and exchanges, storage and groundwater banking programs, and State and Federal initiatives (such as the California Water Use Plan for the Colorado River and Delta Improvements) (MWD, 2002).

Historically, the demand forecasts and supply capabilities have been compared over the next 20 years and under varying hydrologic conditions. These comparisons determine the supplies that can be reasonably relied upon to meet projected supplemental demands and to provide resource reserves that can provide a margin of safety to mitigate against uncertainties in demand projections and risks in implementing supply programs (MWD, 2002). Current practices allow MWD to bring water supplies on-line at least ten years in advance of demand with a very high degree of reliability. If all imported water supply programs and local projects proceed as planned, with no change in demand projections, reliability could be assured beyond twenty years (MWD, 2002).

The SWRCB, and the nine Regional Water Quality Control Boards (RWQCB), are responsible for protecting surface and groundwater supplies in California. In particular, the SWRCB establishes water-related policies and approves water quality control plans, which are implemented and enforced by RWQCBs. Five RWQCBs have jurisdiction over areas within the boundaries of the SCAQMD. These agencies also regulate discharges to state waters through federal pre-treatment requirements enforced by the publicly-owned treatment works (POTWs).

However, back-to-back dry years and low reservoir levels have put California in a statewide drought. In late 2008, the state's major reservoirs were at about one-third of capacity, at a time when they would typically be at about two-thirds. As a result, the DWR has allocated only 15 percent of requested amounts of water to be delivered to the SWP in 2009. This allocation is the second lowest in the history of the project. Adding to California's water woes is a federal judge's restrictions on pumping in the Sacramento-San Joaquin Delta, ordered in 2007 to protect the threatened Delta smelt. These restrictions reduced water deliveries by as much as 30 percent

in 2008 to 25 million Californians in the San Francisco Bay Area, the Central Coast, the San Joaquin Valley, and Southern California. Because of the drought, local water resources, which include groundwater and captured surface water runoff, are not expected to be stable in the future on a region-wide basis. Further, several groundwater basins in the region are threatened by overdraft conditions, increasing levels of salinity, and contamination by agricultural land to urban development, thereby reducing the land surface available for groundwater recharge. Increasing demand for groundwater may also be limited by water quality, since levels of salinity in sources currently used for irrigation could be unacceptably high for domestic use without treatment.

On June 4, 2008, Governor Arnold Schwarzenegger issued Executive Order S-06-08 and declared an official drought for California[51]. Further, California Water Code §71460 et seq. states that a water district may restrict the use of water during any emergency caused by drought, or other threatened or existing water shortage, and may prohibit the use of water during such periods for any purpose other than household uses or such other restricted uses as determined to be necessary. The water district may also prohibit the use of water during such periods for specific uses which it finds to be nonessential. On February 27, 2009, Governor Schwarzenegger proclaimed a state of emergency regarding the drought and the availability and future sustainability of California's water resources[52]. The proclamation directed all state government agencies to utilize their resources, implement a state emergency plan and provide assistance for people, communities and businesses impacted by the drought. The proclamation further requested that all urban water users immediately increase their water conservation activities in an effort to reduce their individual water use by 20 percent.

In response to the Governor's proclamation, the California legislature has proposed Assembly Bill (AB) 49 – Water Efficiency[53] and Senate Bill (SB) 261 – Urban Water Efficiency[54]. These proposed bills will require a 10 percent reduction of urban water use by 2015 and 20 percent by 2020. However, these proposed bills will allow the use of non-potable or recycled water to count towards the progress in meeting these targets. On January 27, 2010, AB 49 was moved to the inactive file. On August 27, 2009, a hearing was set for SB 261 and then canceled. These are the last times any actions were taken on these bills.

Water districts, in response to the drought, have taken several actions throughout the state such as: 1) asking for voluntary reductions; 2) imposing mandatory restrictions or declaring a local emergency; 3) imposing agricultural rationing; 4) imposing drought rates, surcharges and fines; 5) limiting new development and requiring water efficient landscaping; and, 6) implementing a conservation campaign. In addition, water shortages have prompted cities to begin infrastructure improvements to secure future water supplies. For example, the LADWP, in conjunction with the WBMWD, are proposing the Harbor Refineries Recycled Water Pipeline Project (HRRWPP) to conserve potable water and instead produce and convey recycled water to multiple industrial and irrigation customers in the Los Angeles Harbor area[55].

[51] http://gov.ca.gov/press-release/9796
[52] http://gov.ca.gov/press-release/11556/
[53] http://info.sen.ca.gov/pub/09-10/bill/asm/ab_0001-0050/ab_49_bill_20090909_proposed.html
[54] http://info.sen.ca.gov/pub/09-10/bill/sen/sb_0251-0300/sb_261_bill_20090713_amended_asm_v93.html
[55] http://www.ladwp.com/ladwp/cms/ladwp011486.jsp

Groundwater

Groundwater provides most of the region's local (i.e., non-imported) supply of fresh water. Many cities within the area augment imported water supplies with groundwater from underlying groundwater basins. Groundwater basins are recharged through local precipitation and through imported water applied through injection wells or percolation ponds. Groundwater basins in California are generally not managed by government authorities such that overlying property owners are allowed to extract water to the extent that other users are not impaired. However, through court decisions, several basins in the South Coast area have become adjudicated. Adjudicated groundwater basins are managed through a watermaster assigned by the court. The watermaster manages the distribution of extracted water and is responsible for maintaining water quality.

Recent efforts to store recycled water and surplus water in groundwater basins for use during drought periods have proven successful. These conjunctive use projects, in place of surface reservoirs, promise to play a major role in future water management planning.

The general quality of groundwater in the District has degraded substantially from historic levels. Much of the degradation has been attributed to land uses. For example, fertilizers and pesticides typically used on agricultural lands can infiltrate and degrade groundwater. Further, septic systems and leaking underground storage tanks can also impact groundwater quality. Urban runoff has been proven to be a significant source of pollutants. Pollutants in urban runoff include urban debris, suspended solids, bacteria, viruses, heavy metals, pesticides, petroleum hydrocarbons, and other organic compounds. In addition, when increased withdrawals from groundwater basins exceed safe yields, salt water intrusion from the ocean further degrades groundwater quality. Conversely, as impervious surfaces in urban areas increase, the rate of natural surface recharge declines.

Surface Runoff

Surface runoff augments groundwater and surface water supplies. However, the regional demand far surpasses the potential natural recharge capacity. The arid climate, drought, and increased urbanization contribute to the inadequate natural recharge. Urban and agricultural runoff can contain pollutants, which decrease the quality of local water supplies. Runoff captured in storage reservoirs varies widely from year to year depending on local precipitation, averaging 130,000 acre-feet per year within the MWD service area. Within the desert regions, the amount is considerably less, given the low annual rainfall and the relatively few surface reservoirs.

Water Demand

Estimating total water use in the District is difficult because the boundaries of supplemental water purveyors' service areas bear little relation to the boundaries of the District and there are dozens of individual water retailers within the District. Water demand in California can generally be divided between urban, agricultural, and environmental uses. In the SCAG area, 74 percent of potable water is provided from imported sources. Annual water demand fluctuates in relation to available supplies. During prolonged periods of drought, water demand can be reduced significantly through conservation measures.

Increases in California's water demand are due primarily to the increases in population. According the DWR Bulletin 160-98[56], urban water demand for 2020 is projected to increase

[56] http://www.dpla2.water.ca.gov/publications/b160/1998/esch4.pdf

from 1995 base levels by about 3.2 million acre-feet in average water years and by about 3.4 million acre-feet in drought years. However, agricultural water demand is forecast to be reduced by 2.3 million acre-feet (one acre-foot equals approximately 325,850 gallons) by 2020 due to anticipated increases in water use efficiency and reductions in irrigated agricultural acreage. Environmental water demand[57] will increase only slightly by 2020. Measures to ensure an adequate water supply include conservation programs, recycling, and increased storage facilities (SCAG, 2001).

The MWD monitors demographics in its service area using official SCAG and San Diego Association of Governments (SANDAG) growth projections. In MWD's service area, the population increased approximately seven percent from 1995 through 2000. This is an increase of about 211,000 people per year over a five-year period. Based on official SCAG and SANDAG growth projections, the population in MWD service area is expected to be 21.3 million people by 2020, reflecting an annual increase of 223,000 per year (MWD, 2002).

In 1998, 3.5 million acre-feet of water was used in the MWD service area. Of this total, 3.2 million acre-feet (91 percent) were used for municipal and industrial purposes (M&I), and 0.3 million acre-feet (nine percent) were used for agricultural purposes. Due to urbanization and market factors, including the price of water, agricultural water use has declined as the relative share of M&I water use has increased over time. Agricultural water use has declined from 14 percent in 1980 to 8.3 percent in 1997 (MWD, 2002).

Based on official SCAG and SANDAG growth projections, total water use is expected to grow from a projected 3.8 million acre-feet in 2000 to 4.8 million acre-feet in 2020. All water demand projections reflect demands under normal weather conditions. The water demand forecasts account for projected implementation of California's conservation best management practices (BMPs), water savings resulting from plumbing codes, and savings due to price effects. Per capita water demand in MWD's service area has decreased significantly since the 1980s, but is expected to remain relatively constant as rising affluence and growth in hot and dry areas dampen the effects of intense conservation efforts (MWD, 2002).

Nonresidential water use represents about 25 percent of the total M&I demand in the MWD's service area. The nonresidential sector represents water that is used by businesses, services, government, institutions (such as hospitals and schools), and industrial (or manufacturing) establishments. Within the commercial/institutional category, the top water users include schools, hospitals, hotels, amusement parks, colleges, laundries, and restaurants. In southern California, the major industrial users include electronics, aircraft, petroleum refining, beverages, food processing, and other industries that use water as a major component of the manufacturing process (MWD, 2002).

For 2009, MWD's current water demands are 2.23 million acre-feet per year. MWD's Colorado River supplies provide approximately 1.05 million acre-feet per year; therefore, MWD's SWP supplies combined with existing system storage make up the remaining 1.18 million acre-feet per year. However, the biological opinion on the Delta smelt issued by the US Fish and Wildlife Service imposed a 30 percent restriction on water deliveries which will severely affect MWD's

[57] Environmental water demand is the sum of the following: 1) dedicated flows in state and federal wild and scenic rivers; 2) Instream flow requirements established by water right permits, DFG agreements, court actions, or other administrative documents; 3) Bay-Delta outflows required by SWRCB; and, 4) Applied water demands of managed freshwater wildlife areas.

ability to deliver reliable water supplies that meet current and future water demands. For example, demand for MWD's SWP water is 1.5 million acre-feet per year, which exceeds available supplies of 0.75 million acre-feet per year in normal years. To handle the water deficit, MWD has been removing and will continue to remove water from existing storage reserves to meet demands in eight out of 10 years. MWD's storage reserves are at critically low levels, with one million acre-feet of supply in a five million acre-feet capacity system, with MWD drawing 350,000 acre-feet per year. Thus, shrinking supplies due to drought and the Delta smelt combined with increased demand due to regional growth has caused MWD to cut deliveries to Los Angeles by 10 percent.

Proposed Project

Much of the urbanized areas in Los Angeles County, where the majority of the facilities affected by the proposed project are located, is serviced by two large POTWs operating on the coast as follows: the City of Los Angeles Bureau of Sanitation Hyperion Facility and the Joint Outfall System of the Los Angeles County Sanitation District (LACSD). Each of these facilities discharges an average of over 250 MMgal/day.

The City of Colton, where one facility (CPCC) affected by the proposed project is located[58], owns, operates and maintains a wastewater collection, pumping and treatment system referred to as the Colton Water Reclamation Facility (CWRF). The CWRF also serves the City of Grand Terrace and unincorporated County areas. The plant utilizes a conventional and extended aeration secondary treatment process to product-treated effluent in compliance with RWQCB regulations. In addition, a regional tertiary treatment plant serving both the Cities of Colton and San Bernardino treats the effluent from the wastewater treatment plant and returns the water to the Santa Ana River. The average daily flows at the CWRF are approximately 5.6 MMgal/day.

The following discussion describes the existing water demand and wastewater setting for each of the affected facilities (six refineries, two sulfuric acid manufacturing plants, one petroleum coke calcining plant, one container glass manufacturing plant, and one Portland cement manufacturing plant) that are potentially affected by the proposed project. Unless otherwise noted, the data was provided by the facility operators:

1. BP Carson Refinery

The baseline water use at the BP Carson Refinery is approximately 12.5 MMgal/day. Operators of the BP Carson Refinery purchase approximately 5.8 MMgal/day of potable water and 2.8 MMgal/day of recycled water from the California Water Service (CWS). The CWS is a retailer that purchases water at wholesale rates from the West Basin Municipal Water District (WBMWD). In addition, operators of the BP Carson Refinery currently pump approximately 3.9 MMgal/day from their three onsite groundwater wells and their permit allows pumping up to 4.7 MMgal/day. The BP Carson Refinery is not limited to an amount of water it can purchase.

The BP Carson Refinery operates a wastewater treatment system that has a maximum capacity of 8,000 gallons per minute (gpm) or 11.5 MMgal/day, but discharges an average of 4,000 gpm or 5.76 MMgal/day. However, during wet weather, the discharge limit is 5,200 gpm or 7.49 MMgal/day. The Los Angeles County Sanitation District (LACSD) permit allows the BP Carson Refinery to discharge wastewater into the Dominguez Channel.

[58] The facility that is located in Riverside County, CPCC, does not discharge wastewater offsite.

2. ConocoPhillips Wilmington Refinery

The baseline water use at the ConocoPhillips Wilmington Refinery is approximately 7.85 MMgal/day. Operators of the ConocoPhillips Wilmington Refinery purchase approximately 5.47 MMgal/day of potable water from the LADWP. In addition, operators of the ConocoPhillips Wilmington Refinery currently pump approximately 2.38 MMgal/day from their one onsite groundwater well. This facility does not currently have access to recycled water. The ConocoPhillips Wilmington Refinery is not limited to an amount of water it can purchase.

The ConocoPhillips Wilmington Refinery operates a wastewater treatment system that discharges approximately of 2.69 MMgal/day. The Los Angeles City Bureau of Sanitation District (LACBS) permit allows the ConocoPhillips Wilmington Refinery to discharge wastewater into the city's sewer system which drains to LACBS's Terminal Island Water Reclamation Plant for treatment.

3. Chevron Refinery

The baseline water use by the Chevron Refinery is approximately 10.75 MMgal/day (2.6 million gallons of potable water and 8.15 million gallons of recycled water). Operators of the Chevron Refinery currently purchase their water from the City of El Segundo (a retailer). The City of El Segundo is a retailer that purchases water at wholesale rates from the WBMWD. Chevron also receives: 1) boiler feed water from secondary-treated effluent from the Hyperion Wastewater Treatment plant that has been further processed by filtration, chlorination, and demineralization by reverse osmosis; and 2) cooling tower water from secondary–treated effluent from the Hyperion Wastewater Treatment Plant that has been further processed by filtration, chlorination, and de-nitrification. Improvements as part of their ongoing Project Reliability and Optimization Project at WBMWD, located nearby, include increasing reverse osmosis and de-nitrification water production facilities. Chevron is not limited to an amount of water it can purchase. Further, Chevron does not have any groundwater well sources.

The Chevron Refinery operates two wastewater treatment systems. The first system operates at a flow rate of 5,000 gpm or 7.2 MMgal/day and the second system has a flow rate limit of 2,000 gpm or 2.88 MMgal/day and operates at an average flow rate of 1,800 gpm or 2.59 MMgal/day. The Chevron Refinery discharges an average of 7.2 MMgal/day of wastewater and is permitted to discharge 8.8 MMgal/day when weather conditions are dry and up to 23 MMgal/day during wet weather. Their National Pollutant Discharge Elimination System (NPDES) permit allows Chevron to discharge into the Santa Monica Bay.

4. ExxonMobil Refinery

The baseline water use at the ExxonMobil Refinery is approximately 10.32 MMgal/day. Operators of the ExxonMobil Refinery purchase approximately 3.19 MMgal/day of potable water and 6.0 MMgal/day of recycled water from the City of Torrance. The City of Torrance, the water purveyor, purchases recycled water at wholesale rates from the WBMWD. The ExxonMobil Refinery is not limited to an amount of water it can purchase. In addition, operators of the ExxonMobil Refinery currently pump approximately 1.13 MMgal/day of non-potable water from their six onsite groundwater wells and their permit allows pumping up to 2.39 MMgal/day.

The ExxonMobil Refinery operates one wastewater treatment system with a maximum capacity of 3,500 gpm or 5.04 MMgal/day but currently discharges at an average flow rate of 3,000 gpm or 4.32 MMgal/day. ExxonMobil's LACSD permit limits the discharge at 10,000 gpm or 14.4 MMgal/day during dry weather and 5,300 gpm or 7.63 MMgal/day during wet weather. The

LACSD permit allows the ExxonMobil Refinery to discharge wastewater into the Dominguez Channel.

5. Ultramar/Valero Refinery

The baseline water use at the Ultramar/Valero Refinery is approximately 2.57 MMgal/day. The majority of the water purchased by the operators of the Ultramar/Valero Refinery is potable water supplied by the LADWP with a small amount (e.g., 0.75 MMgal/day) of reverse osmosis (RO) water supplied by the Air Products Company. The Ultramar/Valero Refinery does not have any groundwater wells. This facility does not currently have access to recycled water. The Ultramar/Valero Refinery is not limited to an amount of water it can purchase.

The Ultramar/Valero Refinery does not have wastewater treatment facility. Two discharge permits, one from LACSB and one from LACSD, contain the same wastewater discharge limit of 1.14 MMgal/day. The wastewater discharges to LACSB's pipe which is connected to LACSD's mainline. Ultramar/Valero's LACSD permit limits the discharge at 2,000 gpm and 1,000 gpm during wet weather.

6. Tesoro Refinery

The baseline water use at Tesoro is approximately 5.76 MMgal/day. Operators of the Tesoro Refinery purchase approximately 1.3 MMgal/day of potable water from the LADWP. The Tesoro Refinery is not limited to an amount of water it can purchase. In addition, operators of the Tesoro Refinery currently pump approximately 4.46 MMgal/day from their three onsite groundwater wells (two wells are located at the refinery and one well is located at the sulfur plant). Because Tesoro's groundwater pumping permit only allows pumping up to 3.06 MMgal/day, Tesoro operators obtain permission to pump the additional 1.4 MMgal/day through lease agreements. This facility does not purchase recycled water.

The Tesoro Refinery operates one wastewater treatment system with a maximum capacity of 6,000 gpm or 8.64 MMgal/day but currently discharges at an average flow rate of 2,215 gpm or 3.19 MMgal/day in dry weather and 2,260 gpm or 3.25 MMgal/day in wet weather. Tesoro's LACSD permit limits the discharge at 10,000 gpm or 14.4 MMgal/day during dry weather and 5,300 gpm or 7.63 MMgal/day during wet weather. The LACSD permit allows the Tesoro Refinery to discharge wastewater into the LACSD Carson Treatment Plant.

7. Rhodia Inc.

The baseline water use at Rhodia is approximately 0.73 MMgal/day. Rhodia purchases approximately 0.58 MMgal/day from CWS with 85 percent going to cooling towers and 15 percent to other water users. The CWS is a retailer that purchases water at wholesale rates from the WBMWD. Rhodia is not limited to an amount of water it can purchase. However, this facility does not purchase recycled water. Rhodia has one groundwater well with water pumping rights of 521 acre-feet per year (169.7 million gallons per year or 0.47 MMgal/day). In Fiscal Year 2008-2009, Rhodia pumped 0.15 MMgal/day of non-potable water from its wells.

Rhodia has an on-site elementary neutralization unit where all wastewater from the facility is pumped into above-ground agitated tanks and sodium hydroxide is added to elevate the pH to above 6.0. This system is jointly regulated by the LACSD and the Los Angeles County Department of Public Works (LADPW) and the wastewater permit is jointly issued by both agencies. For the fiscal year ending June 30, 2008 the peak flow wastewater discharge rate was 387 gpm and the average flow rate was 175 gpm. The wastewater is discharged to the LACSD's sewerage system.

8. ConocoPhillips Carson Plant

The baseline water use at the ConocoPhillips Carson Plant is approximately 2.88 MMgal/day. Operators of the ConocoPhillips Carson plant can pump up to 2.59 MMgal/day from their one operational onsite groundwater well which provides non-potable water[59]. Operators of the ConocoPhillips Carson Plant purchase approximately 0.3 MMgal/day of potable water from the CWS. The CWS is a retailer that purchases water at wholesale rates from the WBMWD. This facility does not purchase recycled water. The ConocoPhillips Carson Plant is not limited to an amount of water it can purchase.

The ConocoPhillips Carson Plant operates a wastewater treatment system that discharges an average of 2.88 MMgal/day. The LACSD permit allows the ConocoPhillips Carson Plant to discharge wastewater to LACSD's sewerage system.

9. BP Wilmington Calciner Plant

The BP Wilmington Calciner Plant purchases approximately 1.08 MMgal/day from the Port of Long Beach. There is no limit on the amount of water the operators of the BP Wilmington Calciner Plant can purchase. The BP Wilmington Calciner Plant has no groundwater wells. This facility does not have access to recycled water.

The BP Wilmington Calciner Plant has an on-site basin to adjust the pH of the wastewater stream. The peak flow wastewater discharge permit limit is 125 gpm and the average flow rate is approximately 93,775 gallons per day. The wastewater is discharged to the LACSB and LACSD's sewerage systems.

10. CPCC Plant

The baseline water use at the CPCC plant is approximately 3.29 MMgal/day. The potable water purchased by the operators of CPCC is supplied by the Riverside Highland Water Company. CPCC is not limited to an amount of water it can purchase. In addition, CPCC has five groundwater wells that pump industrial-use groundwater (non-potable) at a rate of approximately 1.9 MMgal/day. This facility does not have access to recycled water.

CPCC does not have a wastewater treatment plant. Potable waste water is untreated and discharged to septic tank systems on site. Process industrial wastewater is untreated and discharged to percolation ponds on site. The RWQCB for the Santa Ana Region is the wastewater regulator for CPCC. CPCC's wastewater discharge permit allows: 1) 1.05 MMgal/day of cooling water wastes discharged to percolation ponds; 2) 0.45 MMgal/day of slurry wastes to evaporation ponds; and, 3) 8,000 gallons per day of sanitary wastes to subsurface disposal systems (septic tanks).

11. Owens-Brockway Glass Container Inc.

The baseline water use at the Owens-Brockway Glass Container Inc. (Owens-Brockway) is approximately 126,000 gallons per day. The water purchased by the operators of Owens-Brockway is supplied by the City of Vernon. Owens-Brockway does not have any groundwater wells. Owens-Brockway is not limited to an amount of water it can purchase. This facility does not have access to recycled water. Owens-Brockway treats their wastewater by passing it through skimmers to eliminate excess oil. The wastewater discharges to LACSD via the sanitary sewer line under a joint permit issued by the City of Vernon and LACSD. The current wastewater discharge rate is approximately 250 gpm or 360,000 gallons per day.

[59] There are two other non-operational wells at this facility.

Tables 3-10 and 3-11 summarize the water supply sources and wastewater processing data, respectively for each of the affected facilities.

Table 3-10
Facility-Specific Existing Setting Summary for Water Demand

Facility Name	Purchased Water Supplier	Total Baseline Water Use[1] (MMgal/day)	Potable Water Use (MMgal/day)	Recycled Water Use (MMgal/day)	Groundwater Use (MMgal/day)	Groundwater Pumping Permit Allows? (MMgal/day)
BP Carson Refinery[2]	CWS (retailer); WBMWD (wholesaler)	12.5	5.8	2.8	3.9	4.74
ConocoPhillips Wilmington Refinery[3]	LADWP	7.85	5.47	0 (No current access)	2.38	Not provided by the facility
Chevron Refinery	City of El Segundo (retailer); WBMWD (wholesaler)	10.75	2.6	8.15	0 (No wells)	Not applicable
ExxonMobil Refinery[4]	City of Torrance (purveyor); WBMWD (recycled wholesaler)	10.32	3.19	6.0	1.13 (non-potable treated prior to use)	2.29
Ultramar/ Valero Refinery[5]	LADWP (potable); Air Products Company (RO water[6])	2.5	1.75	0.75 (No current access but purchases non-pipelined recycled water)	0 (No wells)	Not applicable
Tesoro Refinery	LADWP	5.76	1.3	0 (No current access)	4.46 (non-potable)	3.06 [7]
Rhodia Inc.	CWS (retailer); WBMWD (wholesaler)	0.73	0.58	0 (No current access)	0.15 (non-potable)	0.47
ConocoPhillips Carson Plant	CWS (retailer); WBMWD (wholesaler)	2.88	0.30	0 (No current access)	2.59 (non-potable treated prior to use)	Not provided by the facility
BP Wilmington Calciner Plant	Port of Long Beach	1.08	1.08	0 (No access)	0 (No wells)	Not applicable
CPCC	Riverside Highland Water Co (potable)	3.29	1.39	0 (No access)	1.9 (industrial, non-potable)	No limit
Owens-Brockway Glass Container Inc.	City of Vernon	0.13	0.13	0 (No access)	0 (No wells)	Not applicable

[1] Total Baseline Water Use = Potable Water Use + Recycled Water Use + Groundwater Use. Baseline data provided by facility operators, unless otherwise noted.

[2] Baseline data from *Final Mitigated Negative Declaration for BP Carson Refinery Compliance and Safety Project*, SCH No. 2005051150, certified July 13, 2005, p. 2-55. (http://www.aqmd.gov/ceqa/documents/2005/nonaqmd/BP-MND/bp_fmnd.html)

[3] Baseline data from *Final Environmental Impact Report for ConocoPhillips Los Angeles Refinery PM10 and NOx Reduction Projects*, SCH No. 2006111138, certified June 12, 2007, Appendix A, p. 2-30. (http://www.aqmd.gov/ceqa/documents/2007/nonaqmd/cp/NOP_IS.pdf)

[4] Baseline data from *Final Environmental Impact Report for Mobil California Air Resources Board (CARB) Phase 3 – Reformulated Gasoline Project*, SCH No. 2000081105, certified October 12, 2001, p. 3-57. (http://www.aqmd.gov/ceqa/documents/2001/nonaqmd/mobil/final/mobil_f.html)

[5] Baseline data from: 1) *Final Environmental Impact Report for: Ultramar Inc. - Valero Wilmington Refinery Alkylation Improvement Project*, SCH No. 20030536, certified December 16, 2004, p. 4-40. (http://www.aqmd.gov/ceqa/documents/2004/nonaqmd/valero/final/valero_FEIR.html); and, 2) *Addendum to the Final Environmental Impact Report for the Ultramar Inc. – Valero Wilmington Refinery Akylation Improvement Project*, SCH No. 20030536, certified December 7, 2005, p. 18. (http://www.aqmd.gov/ceqa/documents/2005/nonaqmd/valero/addendum.doc).

[6] RO = reverse osmosis

[7] Tesoro obtains additional groundwater beyond permitted pumping amount through lease agreements.

Table 3-11
Facility-Specific Existing Setting Summary for Wastewater

Facility Name	Wastewater Regulator	Wastewater Discharge Point	Current Discharge Amount (MMgal/day)	Discharge Limit (MMgal/day)	On-site Treatment System?	On-site Treatment Capacity? (MMgal/day)
BP Carson Refinery	LACSD	LACSD	5.76	11.52 (max.); 7.49 (wet weather)	Yes	11.52 (max.); 5.76 (avg.)
ConocoPhillips Wilmington Refinery[1]	LACBS	Terminal Island via LACBS	2.69	No limit	Yes	2.69 (avg.); 7.2 (max)
Chevron Refinery	RWQCB	Santa Monica Bay	6.91	8.8 (dry weather); 27 (wet weather)	Yes – Two systems	1. 7.2 (max.); 4.32 (avg.) 2. 2.88 (max.; 2.59 (avg.)
ExxonMobil Refinery	LACSD	LACSD	4.32	14.4 (dry weather); 7.63 (wet weather)	Yes	5.04 (max.); 4.32 (avg.)
Ultramar/ Valero Refinery	LACSB & LACSD	LACSD via LACSB	1.14	2.88 (peak); 1.44 (wet weather)	No	N/A
Tesoro Refinery	LACSD	LACSD	3.19 (dry weather); 3.25 (wet weather)	14.4 (dry weather); 7.63 (wet weather)	Yes	8.64 (max.); 3.19 (avg. dry weather); 3.25 (avg. wet weather)
Rhodia Inc.	LACSD & LADPW	LACSD	0.56 (peak); 0.25 (avg.)	0.61 (peak); 0.21 (avg.)	Yes	0.21 (24-hr avg.)[2]
ConocoPhillips Carson Plant	LACSD	LACSD	2.88	2.88 (avg.)	Yes	7.20
BP Wilmington Calciner Plant	LACSD & LACSB	LACSD via LACSB	0.09	0.18	Yes, for pH adjustments	0.18
CPCC	RWQCB	On-site septic system for sanitary wastewater & on-site percolation ponds for industrial wastewater	Not provided by the facility	1.05 (cooling water wastes to percolation ponds); 0.45 (slurry wastes to evaporation ponds); & 3) 0.008 (sanitary wastes to septic tanks)	No	N/A
Owens-Brockway Glass Container Inc.	City of Vernon and LACSD	LACSD	0.36	Not provided by the facility	Yes, oil skimmers	Not provided by the facility

[1] Discharge data from *Final Environmental Impact Report for ConocoPhillips Los Angeles Refinery PM10 and NOx Reduction Projects*, SCH No. 2006111138, certified June 12, 2007, p.4-21. (http://www.aqmd.gov/ceqa/documents/2007/nonaqmd/cp/ch4.pdf)
[2] Rhodia is also subject to a 425 gallon per minute (gpm) five-minute peak limit.

TRANSPORTION AND TRAFFIC

The transportation system in Southern California is a complex intermodal network designed to carry both people and goods. It consists of roads and highways, public transit, paratransit, bus and rail, freight railroads, airports, seaports and intermodal terminals. The regional highway system consists of an interconnected network of local streets, arterial streets, freeways, carpool lanes and toll roads. This highway network allows for the operation of private autos, carpools, private and public buses, and trucks. Non-motorized transportation modes, such as bicycles share many of these facilities. The regional public transit system includes local shuttles, municipal and area-wide public bus operations, rail rapid transit operations, regional commuter rail services, and inter-regional passenger rail service. The freight railroad network includes an extensive system of private railroads and several publicly owned freight rail lines serving industrial cargo and goods. The airport system consists of commercial, general, and military aviation facilities serving passenger, freight, business, recreational, and defense needs. The region's seaports support substantial international and interregional freight movement and tourist travel. Intermodal terminals consisting of freight processing facilities serve the function of transfer, storage and distribution of goods. The transportation system supports the region's economic needs as well as the demand for personal travel.

The regional transportation system is currently at capacity operations during peak periods. The highway system shows substantial freeway congestion in the morning and evening peak period, with random episodes of incident-related (i.e. accident) congestion throughout the day. The transit system is experiencing substantial overcrowding on a number of core urban bus routes with significant excess capacity on most off-peak and peripheral routes. Rail transit is very close to capacity during peak hours on the Metro Blue Line, Metro Red Line, and Metro Gold Line, while the Metro Green Line generally has some capacity available. Commuter rail service is at or near capacity during peak periods as the routes approach Union Station in downtown Los Angeles, but suburb-to-suburb capacity is available on most lines.

A state statute requires a Congestion Management Program (CMP) to be developed, adopted, and updated biennially for every county that includes an urbanized area, and shall include every city and the county government within that county. A CMP links transportation, land use, and air quality decisions for one of the most complex urban areas in the country. A CMP also addresses the impact of local growth on the regional transportation system. Elements of the CMP include Highway and Roadway System monitoring, multi-modal system performance analysis, the Transportation Demand Management program, the Land Use Analysis program, and local conformance for all the county's jurisdictions.

In the SCAG region, the CMP is comprised of the combined activities of the Regional Transportation Plan (RTP), the CMP and the Regional Transportation Improvement Program (RTIP). Under California law, CMPs are prepared and maintained by the Congestion Management Agencies (CMAs). The Los Angeles County Metropolitan Transportation Authority (Metro), Orange County Transportation Authority (OCTA), Riverside County Transportation Commission (RCTC), and San Bernardino Associated Governments (SANBAG), are the designated CMAs of each county in the District and are subject to state requirements.

In addition to SCAG's RTP and RTIP, the key elements of the federal Congestion Management Process are addressed through the counties CMPs. Because the magnitude of congestion and degree of urbanization differ among the counties, each CMP differs in form and local procedure. By state law, all CMPs perform the monitoring and management functions shown below which also fulfill the federal CMP requirements.

- Highway Performance – Each CMA monitors the performance of an identified highway system. This monitoring allows each county to track how their system, and its individual components, is performing against established standards, and how performance changes over time.
- Multi-Modal Performance – In addition to highway performance, each CMP contains an element to evaluate the performance of other transportation modes including transit.
- Transportation Demand Management (TDM) – Each CMP contains a TDM component geared at reducing travel demand and promoting alternative transportation methods.

The magnitude of traffic volumes on a particular street represents but one element of hierarchy in an overall circulation system. The system provides a balanced linkage between high traffic corridors and low volume streets. Traffic circulation systems typically consist of local streets, collector streets, secondary arterials, major arterials and freeways. There are a myriad of other categories or names for the components of a circulation system. However, it should be recognized that the classification is not as important as the function to be fulfilled.

The functions of the street categories are as follows:

- **Local Streets** principally provide vehicular, pedestrian, and bicycle access to property abutting the public right-of-way with movement of traffic acting only as a secondary function.
- **Collector Streets** are intended to serve as the intermediate route to handle traffic between local streets and arterials. In addition, collector streets provide access to abutting property.
- **Major and Secondary Arterials** function to connect traffic from collectors to the major freeway system. They move large volumes of automobiles, trucks and buses, and link the principal elements within a city to other adjacent regions.
- **Freeways** are controlled access, high speed roadways with grade separated interchanges intended to expedite movement between distant areas in a metropolitan community or region.

The basic principles of network circulation, using these various functional street types, is important because it establishes the rationale by which the existing circulation systems are evaluated, and by which new proposals should be evaluated in the future. The variety of street types is designed for a specific function to provide adequate service to the community.

In addition to the desired function within the circulation system, the differing roadway classifications should be designed to carry differing amounts of traffic volumes. The capacity of a specific roadway section will be affected by a number of factors, including street width, number of travel lanes, number of crossing arterials and collectors, the number and type of signals, amount of parking, and the number of driveways.

Most of the facilities affected by the proposed project are located within Los Angeles County in the cities of Carson, El Segundo, Torrance, Vernon, and Los Angeles (in the Wilmington district) while one facility is located within San Bernardino County in the City of Colton. In cooperation with these county's CMPs, the individual cities where the affected facilities are located can also establish specific objectives and goals for traffic management.

The following contains a brief description of the existing roadways setting for each of the cities where the affected facilities are located.

City of Carson[60]

The City of Carson is served by the existing network of roadways which is essentially a modified grid system of north/south and east/west roadways. The primary north/south roadways are Figueroa Street, Broadway, Main Street, Avalon Boulevard, Central Avenue, Wilmington Avenue, Alameda Street, and Santa Fe Avenue. The primary east/west streets are Alondra Boulevard, Gardena Boulevard, Artesia Boulevard, Albertoni Street, Walnut Street, Victoria Street, University Drive, Del Amo Boulevard, Carson Street, 223rd Street, Sepulveda Boulevard and Lomita Boulevard. The Artesia Freeway, also referred to as State Route (SR) 91 to the north, the Long Beach Freeway (I-710) to the east, the Harbor Freeway (I-110) to the west and the San Diego Freeway (I-405) provide regional access to the City of Carson. Access to the freeways is provided via an extensive freeway ramp system connecting the City of Carson's major arterials to the freeways.

While the majority of roadways in the City of Carson operate at level of service (LOS) "D" or better, the following three roadway segments currently operate at LOS E or F:

- Wilmington Avenue from 223rd Street to I-405 Freeway (AM/PM Peak);
- Wilmington Avenue from Carson Street to 213th Street (AM Peak);
- 223rd Street from Wilmington Avenue to Alameda Street (PM Peak).

City of Colton[61, 62]

The City of Colton is primarily served by the following two freeways:

- San Bernardino Freeway (I-10) – The San Bernardino Freeway travels east-west across the southern edge of Valley Region in San Bernardino County. This facility provides access to Los Angeles to the west and Arizona and beyond to the east.
- Interstate 215 (I-215) – Interstate 215 provides an alternative route to I-15 through San Bernardino County by splitting from I-15 near Devore and reconnecting south in Riverside County.

The majority of roadways in the City of Colton operate at LOS "D" or better, though there are some roadway segments that currently operate at LOS E or F. The City of Colton is primarily served by the following roadways. The LOS is identified in the AM/PM format.

- Agua Mansa Road – This secondary arterial travels through the southern portion of the City of Colton and provides a connection into Riverside County. (LOS A/A-D)
- Burton Road / Washington Street / Brookside Avenue / Citrus Avenue – This corridor begins at La Cadena Drive in the city of Grand Terrace and continues eastward along the border between the cities of Colton and San Bernardino, where its name is changed to Washington Street. (LOS B-C/C-F)

[60] City of Carson, 2004. City of Carson General Plan Update, Chapter 4 – Transportation and Infrastructure Element. October 11, 2004. http://ci.carson.ca.us/content/files/pdfs/GenPlan/Chapter04.Transportation.pdf

[61] City of Colton, 1993. City of Colton, General Plan, Circulation Element, January, 1993. http://www.ci.colton.ca.us/Documents/Community%20Development/GP%203.0%20Circulation%20Element.pdf

[62] County of San Bernardino, 2007. San Bernardino County 2076 General Plan Program, Final Environmental Impact Report, SCH# 2005101038. http://www.co.san-bernardino.ca.us/landuseservices/General%20Plan%20Update/Environmental%20Review/FEIR.pdf

- Colton Avenue / Inland Center Drive – This primary arterial is located between the cities of San Bernardino and Colton. (LOS B/C)
- San Bernardino Avenue / 4th Street – This roadway extends across a large portion of San Bernardino County and travels through the cities of Montclair, Ontario (as 4th Street), Rancho Cucamonga, unincorporated San Bernardino County, Fontana and Rialto before ending in the City of Colton. (LOS A-D/B-D)
- Valley Boulevard – This facility is a primary arterial that runs parallel to the I-10 Freeway to the north. Beginning just east of Etiwanda Avenue, this roadway continues east through unincorporated San Bernardino County and the Cities of Fontana and Rialto before terminating at Mount Vernon Avenue in the City of Colton. (LOS C-F/C-F)
- La Cadena Drive – La Cadena Drive splits from Mount Vernon Avenue in the City of Colton and continues south to I-10. From I-10, this roadway continues southwest until merging with I-215 at the Riverside County Line. (LOS B-C/C-D)
- Mount Vernon Avenue – Mount Vernon Avenue begins as a secondary arterial at Highland Avenue and travels south through the cities of San Bernardino, Colton and Grand Terrace before entering Riverside County. (LOS A-C/A-D)
- Pepper Avenue – Pepper Avenue begins Baseline Street as a minor arterial in the City of San Bernardino and continues south to Foothill Boulevard where it becomes a secondary arterial. This classification holds for its entire remaining length to Slover Avenue in the City of Colton. (LOS B-D/B-D)
- Reche Canyon Road – This secondary arterial extends southeast from Barton Road in the City of Colton into Riverside County. (LOS F/F)

There are two Class I freight railroads that operate lines in San Bernardino County and that serve the City of Colton as follows: 1) the BNSF Railway (owned by the Burlington Northern Santa Fe Corporation); and, 2) the Union Pacific (UP) Railroad. In addition, there are two Class III railroads are currently operating in San Bernardino County: 1) the Trona Railway; and 2) Arizona & California Railroad. Traffic along the Trona Railway covers over 31 total miles of track, operates near the Town of Trona in the northwestern portion of San Bernardino County. The Arizona & California Railroad covers 134 miles of track and operates along a branch line from the main BNSF Railway line that carries cargo to the Phoenix metropolitan area.

City of El Segundo[63]

The City of El Segundo is served by the existing network of roadways which is essentially a grid system of north/south and east/west roadways. The primary north/south roadways are Aviation Boulevard, Douglas Street, Nash Street, Sepulveda Boulevard, Center Street, Main Street, and Vista Del Mar. The primary east/west streets are Imperial Highway, Imperial Avenue, Maple Avenue, Mariposa Avenue, Grand Avenue, El Segundo Boulevard, and Rosecrans Avenue.

Daily operating conditions of El Segundo's street network were analyzed on each of the arterials designated on the City's Master Plan of Roadways by comparing the average daily traffic volume for each arterial to the estimated daily capacity and developing a corresponding LOS estimate of operating conditions. Most roadways in the City of El Segundo operate at LOS "C" or better while several roadway links operate at LOS "D," which is considered marginally acceptable. These are:

- Aviation Boulevard between Hawaii Street and Rosecrans Avenue

[63] City of El Segundo, 1992. El Segundo General Plan, Chapter - Circulation Element, 2004. http://www.elsegundo.org/civica/filebank/blobdload.asp?BlobID=3023

- Imperial Highway between Main Street and California Street
- Sepulveda Boulevard between El Segundo Boulevard and Rosecrans Avenue
- Sepulveda Boulevard between Mariposa Avenue and Grand Avenue

The following roadway segments operate at LOS "E," which is considered unacceptable:

- Sepulveda Boulevard between Imperial Avenue and Mariposa Avenue
- Rosecrans Avenue between Douglas Street and Aviation Boulevard

While no traffic volumes on any of the roadways in the City of El Segundo exceed LOS E traffic volume thresholds, portions of Rosecrans Avenue and Sepulveda Boulevard carry traffic volumes very close to the threshold.

In addition, several intersections within the City of El Segundo currently operate at unacceptable Levels of Service (LOS). The following intersections currently operate at LOS "E" or "F" during the AM or PM peak hour:

- Sepulveda Boulevard at Imperial Highway (LOS E AM Peak only)
- Sepulveda Boulevard at Mariposa Avenue (LOS E in AM Peak only)
- Sepulveda Boulevard at Grand Avenue (LOS E in both AM and PM Peak)
- Sepulveda Boulevard at El Segundo Boulevard (LOS E in AM Peak, LOS F in PM Peak)
- Sepulveda Boulevard at Rosecrans Avenue (LOS F in PM Peak only)
- Rosecrans Avenue at Aviation Boulevard (LOS E in AM Peak, LOS F in PM Peak)
- Aviation Boulevard at El Segundo Boulevard (LOS E in AM and PM Peak)

During the AM and PM peak hours, at least one movement carries higher volumes than the available capacity at the unsignalized intersection of Douglas Street at Utah Avenue.

City of Los Angeles – Wilmington District

The Wilmington district, based on its established boundaries when incorporated into the City of Los Angeles, is bounded by Lomita Boulevard, the City of Long Beach, the Port of Los Angeles, Gaffey Street and Normandie Avenue. A major freeway in the Wilmington district is the Harbor Interstate 110 Freeway which runs north-south and carries approximately 84,000 vehicles per day. The Harbor Interstate 110 Freeway also provides access to other major freeways including the San Diego Interstate 405 Freeway, the Riverside 91 Freeway, the Santa Ana Interstate 5 Freeway, and the Santa Monica Interstate 10 Freeway. Major streets in the Wilmington district area include Anaheim Street, Pacific Coast Highway, Sepulveda Boulevard and Alameda Street. Alameda Street has been upgraded, expanded and modified to provide a dedicated roadway system for trucks and railcars leaving the Port of Los Angeles and the Port of Long Beach to provide more efficient movement of goods and materials into and out of the port areas. In addition to the freeway system, railroad facilities service the Wilmington district. The area is served by the Union Pacific, and Atchison, Topeka, and Santa Fe Railroads.

The City of Los Angeles prepared a Transportation Improvement and Mitigation Program (TIMP) for the Wilmington-Harbor City Community Plan through an analysis of the land use impacts on transportation. The TIMP establishes a program of specific measures, which are recommended to be undertaken during the life of the Community Plan. The Wilmington-Harbor City Community Plan provides specific objectives and goals for traffic in the area. The City of Los Angeles has a policy that the traffic LOS on the street system in the community should not exceed LOS E and most of the Wilmington-Harbor City's major street intersections are in compliance with this policy. The City of Los Angeles has also prepared a Transportation Demand Management (TDM) program for the Wilmington area that includes: 1) encouragement

of the formation of Transportation Management Associations in order to assist employers in creating and managing trip reduction programs; 2) participation in local and regional TDM programs; 3) continued implementation of the Wilmington-Harbor City TDM which calls for several measures to be taken in developments to achieve trip reduction targets; 4) implementation of the recommendations in the Master Plan for bikeways for the area; 5) encouragement of telecommuting to minimize traffic; 6) encouragement of the development of pedestrian oriented areas; and, 7) development of a parking management strategy[64].

City of Torrance[65]

There are ten CMP intersections in Torrance: Artesia Boulevard at Crenshaw Boulevard and Hawthorne Boulevard, Hawthorne Boulevard at 190th Street and Sepulveda Boulevard, Pacific Coast Highway at Crenshaw Boulevard, Hawthorne Boulevard, and Palos Verdes Boulevard, and Western Avenue at 190th Street, Carson Street, and Sepulveda Boulevard.

The City of Torrance prepared a citywide traffic study and determined that 122 of the 171 study intersections operate at or are forecast to operate at an acceptable LOS D or better during weekend and weekday morning, mid-day and evening peak hours. For intersections that are operated at or are forecast to operate at a deficient LOS, recommended improvements to achieve acceptable LOS are included a part of the City of Torrance's Circulation and Infrastructure Element Implementation Program.

City of Vernon[66]

The City of Vernon lies two miles southeast of the industrial areas of downtown Los Angeles, and both the local roadway and freeway systems directly connect the industrial businesses in Vernon with industrial development in adjacent communities. Key connections include:

- Downtown Los Angeles, via Alameda Street and Santa Fe Avenue;
- The Boyle Heights district of the City of Los Angeles, via Soto Street, Washington Boulevard, and Downey Road;
- The City of Commerce, via Washington Boulevard, Interstate 710, and Atlantic Boulevard;
- The City of Bell, via Bandini Boulevard and Interstate 710;
- The City of Maywood, via Atlantic Boulevard;
- The City of Huntington Park, via Slauson Avenue, Soto Street, Pacific Boulevard, Santa Fe Avenue, and Alameda Street;
- Portions of the City of Los Angeles south of downtown, connected by many streets across the shared boundary of Alameda Street, including Vernon Avenue and Santa Fe Avenue.

Interstate 710 provides a direct connection from the City of Vernon to the ports of Long Beach and Los Angeles. Although less than half a mile of this freeway traverses Vernon, that portion contains the very busy Atlantic Boulevard/Bandini Boulevard interchange. This frequently congested interchange carries a substantial amount of truck traffic from Vernon, particularly from the adjacent Hobart Rail Yard.

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[64] City of Los Angeles, 1999. Wilmington-Harbor City Community Plan, A Part of the City of Los Angeles, General Plan, July 1999. http://cityplanning.lacity.org/complan/pdf/wlmcptxt.pdf

[65] City of Torrance, 2010. City of Torrance Draft General Plan, Chapter 2 – Circulation and Infrastructure Element, February, 2010. http://www.ci.torrance.ca.us/PDF/2_CirculationInfrastructure_Element.pdf

[66] City of Vernon, 2009. Vernon General Plan, Circulation and Infrastructure Element, February 2009. http://www.cityofvernon.org/assets/docs/General_plan.pdf

CHAPTER 4

ENVIRONMENTAL IMPACTS

INTRODUCTION

The CEQA Guidelines require environmental documents to identify significant environmental effects that may result from a proposed project [CEQA Guidelines §15126.2(a)]. Direct and indirect significant effects of a project on the environment should be identified and described, with consideration given to both short- and long-term impacts. The discussion of environmental impacts may include, but is not limited to: the resources involved; physical changes; alterations of ecological systems; health and safety problems caused by physical changes; and other aspects of the resource base, including water, scenic quality, and public services. If significant adverse environmental impacts are identified, the CEQA Guidelines require a discussion of measures that could either avoid or substantially reduce any adverse environmental impacts to the greatest extent feasible [CEQA Guidelines §15126.4].

CEQA Guidelines indicate that the degree of specificity required in a CEQA document depends on the type of project being proposed [CEQA Guidelines §15146]. The detail of the environmental analysis for certain types of projects cannot be as great as for others. For example, the environmental document for projects, such as the adoption or amendment of a comprehensive zoning ordinance or a local general plan, should focus on the secondary effects that can be expected to follow from the adoption or amendment, but the analysis need not be as detailed as the analysis of the specific construction projects that might follow. As a result, this ~~Draft~~ Final PEA analyzes impacts on a regional level and impacts on the level of individual industries or individual facilities only where feasible.

The categories of environmental impacts to be studied in a CEQA document are established by CEQA [Public Resources Code, §21000 et seq.], and the CEQA Guidelines, as promulgated by the State of California Secretary of Resources. Under the CEQA Guidelines, there are approximately 17 environmental categories in which potential adverse impacts from a project are evaluated. Projects are evaluated against the environmental categories in an Environmental Checklist and those environmental categories that may be adversely affected by the proposed project are further analyzed in the appropriate CEQA document.

POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Pursuant to CEQA, an Initial Study, including an environmental checklist, was prepared for this project (see Appendix C). Of the 17 potential environmental impact categories, six (aesthetics, air quality, energy, hydrology and water quality, hazards and hazardous materials, and transportation/traffic) were identified as being potentially adversely affected by the proposed project. Three comment letters were received on the Initial Study. These comment letters and responses to the comments can be found in Appendix D of this document.

The six environmental impact areas that were identified as potentially significant in the Initial Study are further evaluated in detail in this ~~Draft~~ Final PEA. The environmental impact analysis for each environmental topic incorporates a "worst-case" approach. This approach entails the premise that whenever the analysis requires that assumptions be made, those assumptions that result in the greatest adverse impacts are typically chosen. This method ensures that all potential effects of the proposed project are documented for the decision-makers and the public. Accordingly, the following analyses use a conservative "worst-case" approach for analyzing the potentially significant adverse environmental impacts associated with the implementation of the proposed project.

While the proposed project is based on reducing SOx RTC holdings from most SOx RECLAIM facilities, the likely possibility is that the affected source categories will reduce actual SOx emissions via physical modifications to FCCUs, SRU/TGUs, sulfuric acid plants, coke calciners, glass melting furnaces, cement manufacturers, and refinery boilers and heaters. SOx controls for FCCUs, SRU/TGUs, refinery boilers and heaters, sulfuric acid manufacturing process, container glass manufacturing process, coke calcining and, cement manufacturing are expected to involve physical changes associated with installing new or modifying existing SOx control equipment at the top 11 SOx-emitting RECLAIM facilities to reduce SOx emissions. These physical changes may cause potentially significant adverse impacts on aesthetics, air quality, energy, hazards and hazardous materials, hydrology and water quality, and transportation/traffic.

Table 4-1 summarizes the equipment/source categories at the affected facilities and shows the proposed SOx emission reductions as they correspond to the proposed BARCT and SOx emission limits in PAR 2002.

Table 4-1
Summary of Key Components in PAR 2002

Equipment/ Source Category	**BARCT**	**Proposed SOx Limit**	**Potential SOx Emission Reductions** (tons/day)
FCCU	WGS or SOx Reducing Additive	5 ppm SOx (3.25 lbs SOx/1000 bbl)	2.88[67]
SRU/TGU	WGS or Selective Oxidation Catalyst	5 ppm SOx (combusted tail gas) & 10 ppm H2S / 300 ppm non-H2S (non-combusted tail gas) (5.28 lbs SOx/hr)	0.73[68]
Sulfuric Acid Mfg.	WGS or Cansolv Unit Upgrade	10 ppm SOx (0.14 lbs SOx/ton acid)	1.03
Coke Calciner	WGS	10 ppm SOx (0.07 lbs SOx/ton coke)	0.28
Glass Melting Furnace	WGS	5 ppm SOx (0.03 lbs SOx/ton glass)	0.19
Cement Kiln	DGS (Limestone Absorber)	5 ppm SOx (0.04 lbs SOx/ton clinker)	0.25
Coal-fired Boiler	DGS (Limestone Absorber)	5 ppm SOx	0[69]
Refinery Boilers/ Heaters	FGT	40 ppm SOx (6.76 lbs SOx/mmscf)	0.85
Total Potential SOx Emission Reductions			**6.21**

Key: WGS = Wet Gas Scrubber; DGS = Dry Gas Scrubber; FGT = Fuel Gas Treatment

[67] The estimated amount of SOx potentially reduced excludes the data for Facility D because installing a WGS is not cost-effective for this facility. However, the estimated amount of SOx potentially reduced includes the data for Facility C because a WGS is already installed.

[68] The estimated amount of SOx potentially reduced excludes the data for Facility E and Facility G because installing a WGS or Selective Oxidation Catalyst system is not cost-effective for these facilities.

[69] This equipment is currently not operating at Facility K.

As shown in Table 4-1, implementation of PAR 2002 is expected to contribute to the overall improvement of air quality in the region by reducing SOx emissions by approximately 6.21 tons per day from affected sources. With the affected sources meeting the requirements of PAR 2002, the proposed project will be consistent with the overall goals and objectives of the 2007 Final AQMP to improve air quality in the Basin and satisfy specific reduction commitments in Control Measure CMB-02: Further SOx Reduction for RECLAIM (CM #2007CMB-02). Therefore, PAR 2002 will contribute to the emission reduction goals of the AQMP and will assist the Basin in maintaining the state and national ambient air quality standards for SO2 and sulfates (SOx) and attaining the state and national ambient air quality standards for PM10 and PM2.5.

There are multiple source categories with multiple approaches to reducing SOx. With so many possibilities or permutations of how operators of SOx RECLAIM facilities could achieve actual SOx reductions, there is no way to predict what each facility operator will do. For this reason, the proposed project analysis is bifurcated into two options to illustrate the worst-case effects of applying the various SOx control technologies along with demonstrating the flexibility that is provided by the RECLAIM program to facility operators when it comes to choosing the methods for reducing SOx emissions. Both options focus on the installation and operation of SOx control technologies for FCCUs, SRU/TGUs, sulfuric acid plants, coke calciners, glass melting furnaces, cement manufacturers, and refinery boilers and heaters. The main differences between Option 1 and Option 2 are: 1) the type of SOx control technique that may be applied to the FCCU source category; and, 2) the environmental impacts that may result from having different SOx control techniques applied to the FCCU source category. However, the type of SOx controls and associated environmental impacts for the remaining source categories will be the same for both Option 1 and Option 2.

The type of emission reduction projects that may be undertaken to comply with PAR 2002 are the main focus of the analysis in this ~~Draft~~ Final PEA. Table 4-2 summarizes the potential SOx control technologies by facility and equipment/source category. It also identifies the facilities and technologies that have been excluded from the proposed project. The types of control equipment (new and modified) considered for each affected source category and facility (referred to by Facility ID number as Facilities A through K) have been compiled based on the facility-specific SOx control engineering studies and analyses conducted by two contracted consultants (ETS Inc. and Nexidea Inc.) as part of the SOx RECLAIM rule development process[70].

[70] On July 11, 2008, the SCAQMD Governing Board approved release of a Request for Proposal to obtain proposals from qualified contractors with technical expertise and experience in SOx emissions control technologies. Two qualified contractors, ETS Inc. and Nexidea Inc., were selected to conduct engineering evaluations and cost estimates on existing commercially viable control technologies to further reduce SOx emissions from 11 SOx RECLAIM facilities. These evaluations resulted in facility-specific information that assisted staff in identifying potential BARCT to be implemented to help the Basin attain the PM2.5 ambient air quality standards.

Table 4-2
Potential SOx Control Technology By Equipment/Source Category

	Included in Proposed Project		Excluded From Proposed Project	
Equipment/ Source Category	**No. of Included Facilities** (Facility ID)	**Number & Type of Potential SOx Control Technologies to be Installed or Modified**	**No. of Excluded Facilities** (Facility ID)	**Reason for Exclusion**
FCCUs (Option 1)	4 (A, B, E & F)	WGSs (4 New)	2 (C & D)	1. Facility C already meets the proposed 5 ppm SOx limit; 2. It is not cost effective to install a WGS at Facility D
FCCUs (Option 2)	5 (A, B, D, E & F)	SOx Reducing Additive (1 new hopper and 4 modified hoppers)	1 (C)	1. Facility C already meets the proposed 5 ppm SOx limit.
SRU/TGUs	3 (A, B, & D)	WGSs (3 New) & Selective Oxidation Catalyst (1 New)	4 (E, F, & G)	1. It is not cost effective to install a Selective Oxidation Catalyst system at Facility E; 2. Facility F currently meets the proposed 5 ppm SOx limit; 3. It is not cost effective to install a WGS at Facility G.
Refinery Boilers/Heaters	6 (A, C, D, E, F, & G)	FGT by Sulfinol Conversion (3 Existing) FGT by Merox Treatment (2 Existing) FGT by Amine Additive (1 Existing)	1 (B)	FGT by Sulfinol Conversion is not cost-effective for Facility B.
Coke Calciner	1 (H)	WGS (1 New)	0	N/A
Glass Melting Furnaces	1 (I)	WGSs (2 New)	0	N/A
Sulfuric Acid Manufacturing	2 (C & J)	WGS (1 New) Cansolv Upgrade (1 Existing)	0	N/A
Cement Kilns	1 (K)	DGS (2) (Limestone Absorber)	0	N/A
Coal-fired Boiler	0	N/A	1 (K)	The coal-fired boiler is not in operation at Facility K.

Table 4-3 summarizes the potential SOx control technologies per source category for each option and Table 4-4 summarizes the potential SOx control technologies per facility for each option.

Table 4-3
Potential SOx Control Technology per Source-Category

Equipment/ Source Category	Proposed Project: Option 1	Proposed Project: Option 2
FCCU	• 4 WGSs for 4 facilities (new)	• SOx Reducing Additives for 5 facilities (1 new and 4 modified)
SRU/TGU	• 3 WGSs for 2 facilities (new) • 1 Selective Oxidation Catalyst system for 1 facility (new)	• 3 WGSs for 2 facilities (new) • 1 Selective Oxidation Catalyst system for 1 facility (new)
Sulfuric Acid Mfg.	• 1 WGS for 1 facility (new) • 1 Upgrade to Existing Cansolv Unit for 1 facility (modified)	• 1 WGS for 1 facility (new) • 1 Upgrade to Existing Cansolv Unit for 1 facility (modified)
Coke Calciner	• 1 WGS for 1 facility (new)	• 1 WGS for 1 facility (new)
Glass Melting Furnace	• 2 WGSs for 1 facility (new)	• 2 WGSs for 1 facility (new)
Cement Kiln	• 2 DGS (Limestone Absorber) for 1 facility (new)	• 2 DGS (Limestone Absorber) for 1 facility (new)
Coal-fired Boiler	Not Applicable	Not Applicable
Refinery Boilers/ Heaters	• 3 FGTs by Sulfinol Conversion for 3 facilities (modified) • 2 FGTs by Merox Treatment Upgrades for 2 facilities (modified) • 1 FGT by Amine Additive for 1 facility (modified)	• 3 FGTs by Sulfinol Conversion for 3 facilities (modified) • 2 FGTs by Merox Treatment Upgrades for 2 facilities (modified) • 1 FGT by Amine Additive for 1 facility (modified)
	• **NEW:** 11 WGSs, 2 DGSs, & 1 Selective Oxidation Catalyst system • **MODIFIED**: 1 Cansolv Unit, 3 FGTs by Sulfinol Conversion, 2 FGTs by Merox Treatment Upgrades, and 1 FGT by Amine Additive	• **NEW:** 7 WGSs, 2 DGSs, 1 SOx Reducing Additive Hopper, & 1 Selective Oxidation Catalyst system • **MODIFIED**: 4 SOx Reducing Additive Hoppers, 1 Cansolv Unit, 3 FGTs by Sulfinol Conversion, 2 FGTs by Merox Treatment Upgrades, and 1 FGT by Amine Additive

Key: WGS = Wet Gas Scrubber; DGS = Dry Gas Scrubber; FGT = Fuel Gas Treatment

Table 4-4
Potential SOx Control Technology per Facility

Facility ID	Proposed Project: Option 1	Proposed Project: Option 2
A	• 1 WGS for FCCU (new) • 1 Selective Oxidation Catalyst system for SRU/TGU (new) • 1 FGT by Sulfinol Conversion (modified)	• 1 SOx Reducing Additive Hopper for FCCU (modified) • 1 Selective Oxidation Catalyst system for SRU/TGU (new) • 1 FGT by Sulfinol Conversion (modified)
B	• 1 WGS for FCCU (new) • 2 WGSs for SRU/TGU (new)	• 1 SOx Reducing Additive Hopper for FCCU (modified) • 2 WGSs for SRU/TGU (new)
C	• 1 FGT by Sulfinol Conversion (modified) • 1 Upgrade to Existing Cansolv Unit for 1 facility	• 1 FGT by Sulfinol Conversion (modified) • 1 Upgrade to Existing Cansolv Unit for 1 facility
D	• 1 WGS for SRU/TGU (new) • 1 FGT by Merox Treatment Upgrade (modified)	• 1 SOx Reducing Additive Hopper for FCCU (new) • 1 WGS for SRU/TGU (new) • 1 FGT by Merox Treatment Upgrade (modified)
E	• 1 WGS for FCCU (new) • 1 FGT by Sulfinol Conversion (modified)	• 1 SOx Reducing Additive Hopper for FCCU (modified) • 1 FGT by Sulfinol Conversion (modified)
F	• 1 WGS for FCCU (new) • 1 FGT by Amine Additive (modified)	• 1 SOx Reducing Additive Hopper for FCCU (modified) • 1 FGT by Amine Additive (modified)
G	• 1 FGT by Merox Treatment Upgrade (modified)	• 1 FGT by Merox Treatment Upgrade (modified)
H	• 1 WGS for calciner (new)	• 1 WGS for calciner (new)
I	• 2 WGSs for glass melting furnaces (new)	• 2 WGSs for glass melting furnaces (new)
J	• 1 WGS for sulfuric acid unit (new)	• 1 WGS for sulfuric acid unit (new)
K	• 2 DGSs for cement kilns (new)	• 2 DGSs for cement kilns (new)
TOTAL: 11 facilities	• **NEW:** 11 WGSs, 2 DGSs, & 1 Selective Oxidation Catalyst system • **MODIFIED**: 1 Cansolv Unit, 3 FGTs by Sulfinol Conversion, 2 FGTs by Merox Treatment Upgrades, and 1 FGT by Amine Additive	• **NEW:** 7 WGSs, 2 DGSs, 1 SOx Reducing Additive Hopper, & 1 Selective Oxidation Catalyst system • **MODIFIED**: 4 SOx Reducing Additive Hoppers, 1 Cansolv Unit, 3 FGTs by Sulfinol Conversion, 2 FGTs by Merox Treatment Upgrades, and 1 FGT by Amine Additive

AESTHETICS

Significance Criteria

The proposed project impacts on aesthetics will be considered significant if:

- The project will block views from a scenic highway or corridor.
- The project will adversely affect the visual continuity of the surrounding area.
- The impacts on light and glare will be considered significant if the project adds lighting which would add glare to residential areas or sensitive receptors.

Project-Specific Construction Impacts: Implementation of the proposed project is expected to result in construction activities at all of the 11 affected facilities, which are complex industrial facilities. The physical changes that are expected focus on the installation of new or the modification of existing control equipment at the following stationary sources of SOx: petroleum coke calciner, cement kilns, container glass melting furnaces, FCCUs, refinery boilers and process heaters, SRU/TGUs, and sulfuric acid manufacturing facilities. As previously summarized in Table 4-2, Option 1 of the proposed project is expected to result in the installation of the following new SOx air pollution control equipment: 11 WGSs, two DGSs, and one Selective Oxidation Catalyst system. In addition, Option 1 of the proposed project is expected to result in the modification of the following existing SOx air pollution control equipment: one Cansolv unit, three FGTs by Sulfinol conversion, two FGTs by Merox treatment upgrades, and one FGT by amine additive. Option 2 of the proposed project is expected to result in the installation of the following new SOx air pollution control equipment: seven WGSs, two DGSs, one SOx reducing additive hopper, and one Selective Oxidation Catalyst system. In addition, Option 2 of the proposed project is expected to result in the modification of the following existing SOx air pollution control equipment: four SOx reducing additive hoppers, one Cansolv unit, three FGTs by Sulfinol conversion, two FGTs by Merox treatment upgrades, and one FGT by amine additive.

Due to the large size profiles of the affected equipment involved for both Options 1 and 2, the construction activities that may be associated with installing new or modifying existing SOx control equipment are expected to require the use of heavy-duty construction equipment, such as cranes, which may be visible to the surrounding areas and temporarily change the skyline of the affected facilities, depending on where they are located within each facility's property. Except for the use of cranes, the majority of the construction equipment is expected to be low in height and not substantially visible to the surrounding area due to existing fencing along the property lines and existing structures currently within the facilities that would buffer the views of the construction activities.

Because each affected facility is located in heavy industrial areas, the construction equipment is not expected to be substantially discernable from what exists on-site for routine operations and maintenance activities. Further, the construction activities are not expected to adversely impact views and aesthetics resources since most of the heavy equipment and activities are expected to occur within the confines of each existing facility and are expected to introduce only minor visual changes to areas outside each facility, if at all, depending on the location of the construction activities within the facility.

Lastly, the construction activities are expected to be temporary in nature and will cease following completion of the equipment installation or modifications. All construction equipment will be removed following completion of the proposed project. For these reasons, the construction

activities are not expected to affect the visual continuity of the surrounding areas. Thus, adverse visual continuity aesthetics impacts during construction are expected to be less than significant.

There are no components in the proposed project that would require construction activities to occur at night. Therefore, no additional lighting at the affected facilities would be required as a result of complying with the proposed project. However, if facility operators determine that the construction schedule requires nighttime activities, temporary lighting may be required. Nonetheless, since construction of the proposed project would be completely located within the boundaries of each affected facility, additional temporary lighting is not expected to be discernable from the existing permanent night lighting. Therefore, less than significant impacts to light and glare during construction are expected from the proposed project.

Overall, the aesthetics impacts are expected to be less than significant during construction for the proposed project.

Project-Specific Operation Impacts: Of the technologies proposed as BARCT for SOx control, only WGSs were identified as having the potential to generate adverse aesthetic operational impacts. WGS technology is potentially BARCT for four FCCUs under Option 1 but not for Option 2 which relies on SOx reducing additives. For both Options 1 and 2, WGS technology is also potentially BARCT for three SRU/TGUs, one sulfuric acid manufacturing plant, one coke calciner plant, and one container glass manufacturing plant. Under Option 1 of the proposed project, a maximum of 11 new WGSs could potentially be installed. Similarly, under Option 2, of the proposed project, a maximum of seven new WGSs could potentially be installed.

DGSs, FGTs, SOx reducing additives, and selective oxidation catalyst injection systems that, if installed (or modified) and operated, would be expected to blend in with the existing industrial profile at the affected facilities. However, operation of one WGS is expected to generate a substantial, continuous steam plume that is white in appearance. A steam plume is generated as the result of using water to reduce particulate emissions in the WGS, and consists of water vapor and clean, but warm flue gas in the exit stream of the scrubber. As a result of atmospheric changes in temperature and humidity, the vapor plume is expected to be smaller on warm, dry days and larger on cool, damp days. Under certain atmospheric conditions, the steam plume from a WGS could extend as much as 1,500 feet in length from a relatively high flue gas stack at approximately 200 feet above grade. As the vapor travels away from the stack, the plume will eventually evaporate and become clear.

As a point of comparison, other equipment operating at these industrial facilities routinely generates steam plumes on a similar scale as part of their day-to-day operations (e.g., cooling towers, cogeneration plants, etc.). In addition, the refineries, the coke calciner and the sulfuric acid plants are located near the Ports of Los Angeles and Long Beach whose facilities, such as the Harbor Cogeneration Plant and the Long Beach SERRF, routinely generate multiple steam plumes. If any WGS is installed as part of the proposed project under Option 1 or Option 2 at any of the affected facilities, the steam plume, though visible, is not expected to significantly adversely affect the visual continuity of the surrounding area of each affected facility because no scenic highways or corridors exist within the areas of the refineries, the coke calciner, the sulfuric acid plants and the glass melting plant. Further, the visual continuity of the surrounding area is not expected to be adversely impacted because each WGS, if constructed, will be built within the confines of industrial areas and would be visually consistent with the profiles of the

existing affected facilities. Thus, even if each WGS could be visible, depending on the location within each property boundary, the aesthetic significance criteria would not be exceeded.

Additional permanent light sources may be installed on any installation of new equipment, to provide illumination for operations personnel at night, in accordance with applicable safety standards. Similarly, any existing equipment that would be modified as part of the proposed project are located in existing structures or areas that already have lighting systems in place for the same reasons. These additional light sources are not expected to create an impact because each component of the proposed project will be located within an existing industrial facility that operates up to 24 hours per day and the equipment is not restricted to operate during a specific time of day. The proposed project contains no provisions that would require the affected equipment to operate differently during existing daytime or nighttime operations. Further, any new lighting that will be installed on the proposed equipment will be consistent in intensity and type with the existing lighting on equipment and other structures within each affected facility. While residential areas are located near some of the affected facilities, any additional lighting will be placed by and focused on the new equipment. For the aforementioned reasons, the proposed project is not expected to create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. Therefore, less than significant impacts to light and glare during operation are expected from the proposed project.

Overall, the aesthetics impacts are expected to be less than significant during operation for the proposed project.

Project-Specific Mitigation: No significant adverse impacts associated with aesthetics are expected from the proposed project during construction or operation, so no mitigation measures are required.

Level of Significance After Mitigation: The analysis concluded that the aesthetic impacts from implementing the proposed project are considered to be adverse, but not significant because even though they may be visible to the surrounding community depending on their location, the new WGSs structures and corresponding steam plume will be consistent with the heavy industrial surroundings and profile at each of the affected facilities.

Cumulative Aesthetics Impacts: Because the project-specific aesthetic impacts do not exceed any applicable significance thresholds, they are not considered to be cumulatively considerable pursuant to CEQA Guidelines §15064 (h)(1) and therefore, do not generate significant adverse cumulative aesthetics impacts.
Cumulative Mitigation Measures: None required.

AIR QUALITY

Significance Criteria

To determine whether air quality impacts from adopting and implementing the proposed project are significant, impacts will be evaluated and compared to the following criteria. If impacts exceed any of the significance thresholds in Table 4-5, they will be considered significant. All feasible mitigation measures will be identified and implemented to reduce significant impacts to the maximum extent feasible. The proposed project will be considered to have significant adverse air quality impacts if any one of the thresholds in Table 4-5 are equaled or exceeded.

The SCAQMD makes significance determinations for construction impacts based on the maximum or peak daily emissions during the construction period, which provides a "worst-case" analysis of the construction emissions. Similarly, significance determinations for operational emissions are based on the maximum or peak daily allowable emissions during the operational phase.

Air Quality Impacts

While the proposed project is based on reducing SOx RTC holdings from most SOx RECLAIM facilities, the possibility that the affected source categories may reduce actual SOx emissions via physical modifications to FCCUs, SRU/TGUs, sulfuric acid plants, coke calciners, glass melting furnaces, cement manufacturers, and refinery boilers and heaters must also be considered. Thus, the portion of the proposed project that is the main focus of this analysis is bifurcated into two options, with both options primarily focusing on the installation and operation of SOx control technologies for FCCUs, SRU/TGUs, sulfuric acid plants, coke calciners, glass melting furnaces, cement manufacturers, and refinery boilers and heaters. The main difference between Option 1 and Option 2 is the type of SOx control that may be applied to the FCCU source category. The remaining source categories and the type of SOx controls will be the same for both Option 1 and Option 2. Tables 4-3 and 4-4 summarize the potential SOx control technologies per source category and per facility, respectively, for each option.

Potentially significant impacts that may result from implementing the proposed project are related to the construction activities associated with installing the SOx controls for these equipment/source categories. Specifically, the physical changes involved with the type of construction activities that may occur focus mainly on the modification of existing equipment by installing new SOx controls or modifying existing SOx controls. Under Option 1 of the proposed project, 11 new WGSs, two new DGSs, and one new selective oxidation catalyst system could be installed and seven existing SOx control systems by converting existing FGT amine absorbers to using Sulfinol, treating coker gas with Merox, supplementing existing amine additives with other proprietary amines, or upgrading an existing Cansolv unit could be modified.

Similarly, under Option 2 of the proposed project, seven new WGSs, two new DGSs, one new SOx reducing additive hopper, and one new selective oxidation catalyst system could be installed. In addition, Option 2 of the proposed project could result in the modification of four SOx reducing additive hoppers. Lastly, as is the case under Option 1, the following existing SOx air pollution control equipment will be modified under Option 2 of the proposed project: one Cansolv unit, three FGTs by Sulfinol conversion, two FGTs by Merox treatment upgrades, and one FGT by amine additive.

Table 4-5
SCAQMD Air Quality Significance Thresholds[71]

Mass Daily Thresholds		
Pollutant	**Construction**	**Operation**
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
SOx	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants and Odor Thresholds		
Toxic Air Contaminants (TACs) Accidental Release of Acutely Hazardous Materials (AHMs)	MICR $\geq$ 10 in 1 million ; HI $\geq$ 1.0 (project increment) CAA §112(r) threshold quantities	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality for Criteria Pollutants [(a)]		
NO2 1-hour average annual average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.25 ppm (state) 0.053 ppm (federal)	
PM10 24-hour average annual geometric average annual arithmetic mean	10.4 $\mu g/m^3$ (construction)[(b)] & 2.5 $\mu g/m^3$ (operation) 1.0 $\mu g/m^3$ 20 $\mu g/m^3$	
PM2.5 24-hour average	10.4 $\mu g/m^3$ (construction)[(b)] & 2.5 $\mu g/m^3$ (operation)	
Sulfate 24-hour average	1 ug/m^3	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) 9.0 ppm (state/federal)	

(a) Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.

(b) Ambient air quality threshold based on SCAQMD Rule 403.

KEY: MICR = maximum individual cancer risk; HI = Hazard Index; ug/m^3 = microgram per cubic meter; ppm = parts per million; AHM = acutely hazardous material; TAC = toxic air contaminant

[71] CEQA Air Quality Handbook, SCAQMD, November 1993.

Of the differing control equipment likely to be installed or modified, preliminary analysis showed that WGS installation had the greatest potential for generating potentially significant adverse impacts for an individual project. Thus, construction of a WGS is considered the worst-case scenario and is the primary focus of construction analysis in this ~~Draft~~ Final PEA.

Based on the proposed SOx emission limits as outlined in Table 4-1 and the facility-specific data in Table 4-4, either Option 1 or Option 2 of the proposed project could potentially reduce up to 6.21 tons per day of SOx emissions from four FCCUs via Option 1 or five FCCUs via Option 2; three SRU/TGUs; one sulfuric acid plant; one coke calciner; two glass melting furnaces; and, 15 refinery boilers and heaters. In order to achieve the overall net air quality benefit from implementing the proposed project, some of the affected facility operators may choose to modify existing equipment by retrofitting with air pollution control equipment or modifying existing control equipment in order to comply with the SOx emission standards.

Consequently, reducing SOx emissions from the affected facilities will provide an air quality benefit in the near- and long-term. Direct air quality impacts from the proposed project are expected to result in a reduction of SOx at the affected facilities, which will provide air quality and human health benefits to the public.

The environmental analysis assumes that installation of SOx control technologies for the affected sources will reduce SOx emissions overall, but construction activities associated with both the installation of new control devices and the modification of existing control devices will create secondary air quality impacts (e.g., emissions), which can adversely affect local and regional air quality. A project generates emissions both during the period of its construction and through ongoing daily operations. During installation or modification of add-on air pollution control devices, emissions may be generated by onsite construction equipment and by offsite vehicles used for worker commuting. After construction activities are completed, emissions may be generated by the operation of the add-on air pollution control devices (as greenhouse gases) and offsite vehicles used for delivering fresh materials needed for operations (e.g., fresh catalyst, caustic, amine, etc.) and hauling away solid waste for disposal or recycling (e.g., spent catalyst).

The air quality analysis in this document focuses on the installation of new WGS equipment as most of the affected facilities are expected to install WGSs (11 new units are assumed under Option 1 and seven are assumed under Option 2). Also, when compared to the other potential control technologies that may be employed (DGS, FGT, SOx reducing catalyst, or selective oxidation catalyst), WGS installation is expected to result in the greatest amount of construction emissions for an individual project. To estimate the "worst-case" construction- and operational-related emissions associated with installing WGSs in order to implement the proposed project, assumptions were made that are mostly based on one local refinery's experience with installing a WGS on its FCCU, to estimate combustion emissions from construction emissions onsite, off-site on-road emissions from worker trips and deliveries, on-site fugitive dust emissions, and operational emissions[72]. Refer to Appendix B for the assumptions used to estimate secondary construction- and operational-related air quality impacts.

Implementation of the proposed project is expected to result in direct air quality benefits from the anticipated SOx emission reductions of approximately 6.21 tons per day by 2019. In order to

[72] ConocoPhillips Los Angeles Refinery PM10 and NOx Reduction Projects, Final Environmental Impact Report, SCH No. 2006111138, April 2007.

achieve these benefits, construction associated with the installation of new SOx control equipment or the modifications of existing SOx control equipment would be expected to occur anytime between the adoption of the proposed project in 2010 and January 1, 2019. From a construction point of view, the installation of a WGS is a rather complex process. If a facility operator chooses to install a WGS, 18 months will be needed for pre-construction/advance planning activities such as engineering analysis of the affected equipment, engineering design of the potential control equipment, contracting with a vendor, securing financing, ordering and purchasing the equipment, obtaining permits and clearances, and lining up contractors and workers.

To physically build a WGS, an additional 18 months would be needed. Depending on where the new WGS will be sited will determine if any demolition activities would be required. For this analysis, to be conservative, one month of demolition activities is assumed to occur at each affected facility and an additional 17 months is assumed for site preparation, assembly and installation of the unit and ancillary support equipment, preparation of the affected unit for a turnaround/shutdown, and tying-in the new WGS to the affected equipment.

The decision when construction would commence between 2010 and 2019 is also dependent upon the turnaround schedule of the affected equipment; once construction of the control equipment is completed, it will need to be "tied-in" to the main equipment prior to start-up which typically occurs during a scheduled turnaround period.

The overall objective of the proposed project is to reduce SOx emissions. However, in consideration of the complexity involved with operating FCCUs, SRU/TGUs, refinery boilers and heaters, sulfuric acid manufacturing, container glass manufacturing process, coke calcining, and, portland cement manufacturing, the equipment operators utilize a combination of various emission control equipment and techniques to control not only SOx, but NOx, CO, PM10, PM2.5, and ammonia slip, as applicable, while maintaining overall efficiency. As there is no way to fully predict on a case-by-case basis what each facility operator will do to comply with the proposed project, the estimates in this analysis will be based on the estimates provided by the consultant reports prepared for each affected facility combined with the assumptions applied to the ConocoPhillips WGS project because controlling SOx emissions via a WGS has been shown to result in the greatest amount of construction and operational emissions and, thus, represents the "worst-case." Further, if a particular technology was identified as having a cost that exceeds $50,000 per ton for a particular facility, this CEQA analysis excluded the emission estimates for that facility.

For any facility operator that plans to undergo construction to install SOx control equipment, and prior to receiving any permit to construct from the SCAQMD, a site-specific CEQA analysis in addition to this ~~Draft~~ Final PEA may also be necessary depending on how much the construction (i.e., demolition, site grading, etc.) would be involved and if the analysis varies from the assumptions in this document. For these reasons, the timing of constructing four WGSs is conservatively estimated to occur over the same 18-month period, at the earliest in 2012. This means that any on-road or off-road emission factors applied to calculate construction and operational impacts will be for fleet year 2012.

However, since it is difficult to predict what each facility owner/operator will do, in reality, the actual number of SOx control equipment installed for the entire project may be less. Each facility operator will need to conduct a case-by-case analysis to determine the best approach for

their facility and affected equipment. Further, the potential for installing new equipment will depend on available space, location of the affected equipment and the proximity to the proposed control equipment and utilities distribution infrastructure. Lastly, facility operators will need to take into account the turnaround schedule of each affected equipment to appropriately time construction and operational tie-in activities. Ultimately, the action taken and type of SOx control equipment to be installed in response to the proposed project will depend on each facility's individual operational needs.

To conduct a conservative "worst-case" analysis, this document examines the possibility that the affected facility operators will install SOx control equipment, including but not limited to exhaust stacks, cooling units, injection support equipment for catalyst, amine, or sorbents including the associated storage vessels, associated piping designs, pumps, plus other ancillary equipment, as applicable. As a practical matter, construction activities that are anticipated to occur as a result of implementing the proposed project would likely occur prior to a scheduled maintenance (e.g., turnaround) of the affected unit.

Typically construction projects have staggered construction schedules which take into account design and engineering, ordering, purchasing and delivery of equipment, permitting and environmental review, availability of construction crews, budgeting, and any other construction projects on site. However, due to the lengthy construction time necessary to build one WGS (18 months), the construction activities of other WGSs at other affected facilities could overlap. However, because of widely varying turnaround schedules of affected equipment within any given facility and based on past construction projects involving major construction equipment where the SCAQMD was the lead agency, the analysis in this PEA includes a conservative assumption that up to four WGSs could be installed within the same 18-month timeframe.

Assumptions

As part of installing a WGS, heavy-duty construction activities or equipment, major construction activities and operational maintenance requirements are anticipated. To estimate what the impacts would be for installing a WGS, the following general assumptions were made to determine the peak daily construction emissions:

- Under Option 1, 11 units may be retrofitted with one WGS each at eight facilities by December 31, 2018.
- Under Option 2, seven units may be retrofitted with one WGS each at five facilities by December 31, 2018
- Two units may be retrofitted with two DGSs at one facility by December 31, 2018. (For the construction air quality analysis, the assumptions relied upon for WGSs will also be applied to DGSs.)
- Under Option 1, one facility may have a maximum of three WGSs installed and two facilities may have a maximum of two WGSs installed at each facility.
- Under Option 2, two facilities may have a maximum of two WGSs installed at each facility.
- Installation of one WGS is estimated to take 18 months (one month for demolition plus 17 months for construction).
- For a "worst-case" analysis, four WGSs will be installed within in the same 18-month timeframe.

- For all other construction activities associated with installing a new selective oxidation catalyst system, modifying an existing Cansolv system, or modifying FGTs by Sulfinol, Merox or amine upgrades, the peak daily construction emissions associated with each these individual activities or overlapping are assumed to be less than the peak daily construction emissions associated with installing four WGS during the same 18-month period.
- As a practical matter, the earliest construction could begin would be approximately 18 months after adoption of the proposed project, in construction year 2012. Therefore, for a conservative construction analysis, the on-road and off-road emission factors will be based on the 2012 fleet year.

In addition, based on past experience with construction and operational data from previously analyzed projects, the following assumptions were made for the construction and operational phases:

Assumptions for Phase I – Demolition

The site where the new SOx control equipment may be located could be occupied by other equipment on-site. To remove any existing equipment or structures and prepare the site for the new equipment, the following assumptions are made with regard to demolition activities:

- Demolition activities are assumed to take approximately one month (five days per week at 10 hours per day) with a crew of 50 workers.
- Demolition activities are assumed to require the use of: one crane, one front-end loader, one forklift, one demolition hammer, one water truck, and one medium-duty flatbed truck.
- To provide a "worst-case" analysis, it is assumed that each facility will have its own demolition crew and equipment.

Assumptions for Phase II – Construction of One WGS

- Construction activities are assumed to take approximately 17 months (five days per week at 10 hours per day) with a crew of 175 workers. This construction schedule also includes the time needed for installing ancillary support equipment.
- The construction of each WGS is assumed to require the use of: one backhoe, two cranes, three manlifts, one forklift, one generator, three diesel welding machines, one medium-duty flatbed truck, one medium-duty dump truck, and one cement mixer.
- To provide a "worst-case" analysis, it is assumed that each facility will have its own construction crew and equipment.
- In addition to the WGS, the following ancillary equipment will also be installed: one 10,000 gallon caustic storage tank, one 9,000 gallon clarifier tank, one 11,000 gallon oxidation tank, one 8,000 gallon wet fines tank, one 100 gallon sump, and multiple pumps and piping connections.

Assumptions for Phase III – Operation of One New WGS

- The WGS will need a turnaround once every five years.
- The caustic tank will need refilling one truck load per week. The capacity of one caustic tank truck is approximately 6,000 gallons per delivery. The caustic is 50 percent aqueous and arrives as a pre-mixed liquid.

- Wet solids collected from the wet fines tank will be off-loaded into a vacuum truck that will be emptied twice a week. The collected wet solids will be sent either to a cement plant for recycling or a Class III landfill for disposal.
- Dry solids will be collected in roll-off bins that will be emptied once a week. The collected dry solids will either be sent to a cement plant for recycling or a Class III landfill for disposal.

Construction Emissions

Construction-related emissions can be distinguished as either onsite or offsite. Onsite emissions generated during construction principally consist of exhaust emissions (NOx, SOx, CO, VOC, PM2.5 and PM10) from heavy-duty construction equipment operation, fugitive dust (primarily as PM10) from disturbed soil, and VOC emissions from asphaltic paving and painting. Offsite emissions during the construction phase normally consist of exhaust emissions and entrained paved road dust (primarily as PM10) from worker commute trips, material delivery trips, and haul truck material trips to and from the construction site.

In general, limited construction emissions from site preparation activities, which may include earthmoving/grading, are anticipated because the sites, typically, have already been graded and paved. Further, operators at each affected facility who construct a new caustic storage tank will need to build a containment berm large enough to hold 110 percent of the tank capacity in the event of an accidental release. Because of space limitations within each affected facility, installation of a new WGS is likely to occupy the space of previous equipment. Therefore, demolition activities would be expected prior to the installation of the WGS to remove any existing equipment or structures (as applicable), remove the old piping and electrical connections, and break up the old foundation with a demolition hammer. For these reasons, digging, earthmoving, grading, slab pouring, or paving activities are anticipated.

The type of construction-related activities attributable to installing a new WGS would consist predominantly of deliveries of steel, piping, wiring, caustic solution, and other materials, maneuvering the materials within the site via a crane, forklift or truck, and welding. If a new foundation is not needed, to establish footings or structure supports, some concrete cutting and digging may be necessary in order to re-pour new footings prior to building above the existing foundation.

PROJECT-SPECIFIC CONSTRUCTION IMPACTS: The implementation of the proposed project is anticipated to trigger construction activities associated with the installation of new WGSs. Construction activities associated with the proposed project would result in emissions of VOC, NOx, SOx, CO PM10, and PM2.5. Significance determinations are based on the maximum peak daily emissions during the construction period for four WGSs being built within the same 18-month period, which provides a "worst-case" analysis of the anticipated construction emissions. Construction emissions are expected from the following equipment and processes:

Construction equipment (i.e., fork lifts, man lifts, cranes, front end loaders, generators, backhoes, cement trucks, jack hammers and welders, etc.)
Equipment delivery and on-site travel (includes fugitive dust associated with travel on paved roads)
Heavy-duty diesel trucks
Construction workers commuting
Fugitive dust associated with building caustic containment berms

Using a 1.0 average vehicle ridership, the construction worker labor force would be approximately 50 workers for demolition and 175 workers for construction activities associated with the installation of one WGS. Each worker would generate two one-way vehicle trips per day. Construction worker's travel emissions are based on assuming an estimated 30-mile round trip each day per vehicle (two start-ups per day). The total peak daily emissions that would be attributed to all construction-related activities for the installation of one WGS are approximately 22 pounds of VOC, 115 pounds of CO, 116 pounds of NOx, 40 pounds of PM10, and 13 pounds of PM2.5 (see Table 4-6). These numbers include the truck emissions associated with delivering the 50 percent caustic solution to initially fill the storage tank. Peak construction emissions from the proposed project are calculated based on on-road and off-road vehicle fleet year 2012 because this is the earliest possible year construction could occur when taking into consideration the timing of adopting the proposed project combined with the substantial lead time necessary to engineer the design of a WGS for an affected facility. Should construction occur in later years, the emission factors will not be as conservative as would be for year 2012, since newer fleets are expected to have reduced emissions when compared to older fleets.

Table 4-6 presents the results of the SCAQMD staff's construction air quality analysis and lists the total daily construction emissions from construction worker trips and use of equipment for the installation of one WGS and the overlapping construction of four WGSs, respectively. For the installation of one WGS, the calculations show the total daily construction emissions exceed the SCAQMD's CEQA air quality significance threshold of 100 pounds of NOx per day. For the simultaneous construction of four WGSs, the calculations show the total daily construction emissions exceed the SCAQMD's CEQA air quality significance thresholds of 100 pounds of NOx per day, 75 pounds of VOC per day, and 150 pounds of PM10 per day. Appendix B contains the spreadsheets with the results, assumptions, and methodologies used by the SCAQMD staff for this analysis.

Table 4-6
Peak Daily "Worst-Case" Construction Emissions
from the Installation of WGS Technology in 2012 or later

Peak Construction Activity	VOC (lbs/day)	CO (lbs/day)	NOx (lbs/day)	SOx (lbs/day)	PM10[1] (lbs/day)	PM2.5[1] (lbs/day)
Phase I: Demolition	6	32	40	0	2	2
Phase II: Construction	16	83	76	0	38	11
Total for 1 WGS Installation	**22**	**115**	**116**	**0**	**40**	**13**
SIGNIFICANCE THRESHOLD	75	550	100	150	150	55
SIGNIFICANT?	**NO**	**NO**	**YES**	**NO**	**NO**	**NO**
Phase I: Demolition	24	129	161	0	9	8
Phase II: Construction	65	332	303	1	150	45
Total for 4 WGS Installations	**89**	**461**	**464**	**1**	**159**	**53**
SIGNIFICANCE THRESHOLD	75	550	100	150	150	55
SIGNIFICANT?	**YES**	**NO**	**YES**	**NO**	**YES**	**NO**

[1] The fugitive dust analysis for PM10 and PM2.5 assumes watering disturbed sites two times per day to comply with SCAQMD Rule 403 – Fugitive Dust.

PROJECT-SPECIFIC CONSTRUCTION MITIGATION: The VOC, NOx, and PM10 emissions exceed the applicable significance thresholds during construction. As a result, the proposed project is expected to have significant adverse construction air quality impacts. If significant adverse environmental impacts are identified in a CEQA document, the CEQA document shall describe feasible measures that could minimize the significant adverse impacts (CEQA Guidelines §15126.4). Mitigation measures focus on the construction emissions of VOC, NOx, and PM10 emissions. Therefore, feasible mitigation measures to reduce emissions associated with construction activities at the affected facilities are necessary to control emissions from heavy construction equipment and worker travel. The following construction mitigation measures are required for each of the affected facilities.

<u>On-Road Mobile Sources</u>

AQ-1 Develop a Construction Emission Management Plan for each affected facility to minimize emissions from vehicles including, but not limited to: consolidating truck deliveries; scheduling deliveries to avoid peak hour traffic conditions; describing truck routing; describing deliveries including logging delivery times; describing entry/exit points; identifying locations of parking; identifying construction schedule; and prohibiting truck idling in excess of five consecutive minutes or another time-frame as allowed by the California Code of Regulations, Title 13 §2485 - CARB's Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.

Off-Road Mobile Sources

AQ-2 Suspend all construction activities that generate air pollutant emissions during first stage smog alerts.

AQ-3 Prohibit construction equipment from idling longer than five minutes.

AQ-4 Use electricity or alternate fuels for on-site mobile equipment instead of diesel equipment to the extent feasible.

AQ-5 Tune-up construction equipment and maintain a two- to four-degree retard diesel engine timing, to the extent feasible.

AQ-6 Use electric welders to avoid emissions from gasoline or diesel welders in portions of the project sites where electricity is available.

AQ-7 Use on-site electricity rather than temporary power generators in portions of the project sites where electricity is available.

AQ-8 Prior to use in construction, each project applicant will evaluate the feasibility of retrofitting the large off-road construction equipment that will be operating for substantial periods. Retrofit technologies such as particulate traps, selective catalytic reduction, oxidation catalysts, air enhancement technologies, etc., will be included in the evaluation. These technologies will be required if they are certified by CARB and/or USEPA and are commercially available and can feasibly be retrofitted onto construction equipment.

Operational Emissions

PROJECT-SPECIFIC OPERATIONAL IMPACTS: The objective of the proposed project is to reduce SOx emissions from equipment operated by the top RECLAIM emitters. The benefits of full implementation of the proposed project (i.e., after construction activities are completed) are the decrease of SOx emissions by approximately 6.21 tons per day by the year 2019. Implementation is expected to be achieved by either installing new SOx control equipment (e.g., WGS, DGS, or a selective oxidation catalyst system) or modifying existing equipment (e.g., Cansolv unit and existing FGT systems).

The operational-related activities are simultaneously expected to reduce SOx emissions while generating emissions from specific mobile sources and stationary source equipment. As no additional employees are anticipated to be needed to operate any new or modified SOx control equipment, the existing work force per affected facility is expected to be sufficient. As such, no workers' travel emissions are anticipated for the operation of the new or modified SOx control equipment. However, there will be haul truck emissions associated with hauling away solid waste (i.e., collected wet fines) and delivering supplies (i.e., fresh catalyst and caustic solution to refill the storage tanks) on a regular basis.

The offsite truck hauling and deliveries principally consist of exhaust emissions (NOx, SOx, CO, VOC, PM10, and PM2.5) from the operation of hauling and delivery vehicles to and from each affected facility. Once constructed, all of the affected facilities will have some sort of

operational truck trips associated with hauling additional solid waste away, or delivering additional supplies. For example, truck trips would be needed to have additional fresh catalyst delivered, wet fines hauled for disposal or recycling, and caustic storage tanks refilled. The worst-case annual mileage has been estimated based on the consultants' projections of solid waste disposal and the varying fresh supply needs for each facility and converted to peak daily values.

The proposed project will result in an increase of VOC, CO, NOx, PM10 and PM2.5 operational emissions produced from additional truck hauling and deliveries necessary to accommodate the additional solid waste generation and increased use of supplies such as catalyst and caustic. Table 4-7 summarizes the increase in peak operational emissions due to the anticipated increase in truck hauling and deliveries as a result of implementing either Option 1 or Option 2 of the proposed project. Based on the assumption that the earliest construction can occur would be in 2012 and with 18 months needed for construction, the peak operational emission increases are assumed to occur in 2013 at the earliest and all operational emission increases are expected to occur by the end of year 2018 because the compliance date of the proposed project is January 1, 2019.

The total daily operational emissions do not exceed any of SCAQMD's CEQA air quality operation emissions significance thresholds. In addition, based on the fact that the proposed project overall is expected to generate a net reduction in SOx emissions during operation, less than significant adverse air quality impacts are expected as a result of implementing the proposed project. Appendix B contains the spreadsheets for the proposed project with the results based on the assumptions used by the SCAQMD staff for this analysis.

Table 4-7
Summary of Peak Daily "Worst-Case" Operational Emissions for Options 1 and 2

Operational Activity	VOC (lbs/day)	CO (lbs/day)	NOx (lbs/day)	SOx (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)
OPTION 1: Offsite Truck Delivery of Fresh Supplies & Removal of Solid Waste	1	5	15	0	1	1
SIGNIFICANCE THRESHOLD	55	550	55	150	150	55
SIGNIFICANT?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
OPTION 2: Offsite Truck Delivery of Fresh Supplies & Removal of Solid Waste	**1**	**4**	**13**	**0**	**1**	**1**
SIGNIFICANCE THRESHOLD	**55**	**550**	**55**	**150**	**150**	**55**
SIGNIFICANT?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Emission sources associated with the operational-related activities as a result of implementing the proposed project may emit toxic air contaminants. For example, caustic is used in the operation of a WGS and some FGT applications. With the potential for the installation of 11 WGSs plus two FGT modifications under Option 1 and seven WGSs plus two FGT modifications under Option 2, that means a maximum of 13 caustic storage tanks under Option 1

and nine caustic storage tanks under Option 2 may be installed. There are several types of caustic solutions that can be used in WGS operations, but sodium hydroxide (NaOH) is the most commonly used. NaOH is a toxic air contaminant (TAC) that is a non-cancerous but acutely hazardous substance. For "worst-case" operations, 13.24 tons per day of NaOH (50 percent solution, by weight) is estimated to be needed to operate eight of the 11 total WGSs plus two FGTs for Option 1 and 8.79 tons per day of NaOH is estimated to be needed to operate four of the seven total WGSs plus two FGTs for Option 2. Three of the 11 WGSs under Option 1 and there of the seven WGSs under Option 2 are expected to use a caustic solution other than NaOH.

Even though the facilities that may be affected by the proposed project may already use NaOH elsewhere in their facilities, for the purpose of conducting a "worst-case" construction analysis, one 10,000 gallon storage tank for caustic solution was assumed to be constructed for every WGS installed. However, of the 11 facilities affected by the proposed project overall, only nine facilities were projected to have an increased demand in NaOH use for WGS operations or FGT modifications under Option 1 and only five facilities were projected to have an increased demand in NaOH use for WGS operations or FGT modifications under Option 2. The remaining facilities were projected to have an increased demand in caustic that is made of sodium carbonate (Na2CO3) which is commonly known as soda ash, a non-toxic, non-cancerous, and non-hazardous substance. As summarized in Tables 4-8 and 4-9, for each facility that was projected to increase the use in the acutely hazardous substance NaOH under Options 1 and 2, respectively, the filling loss and the working loss of each NaOH tank were calculated, added together, and that sum was compared to the most stringent Rule 1401 Screening Emission Level for NaOH (0.004 pounds per hour at the nearest receptor distance of 25 meters). None of the total hourly loss projections exceeded the acute screening level for NaOH for any of the affected facilities for either option. It is important to note that the toxics analysis is a localized analysis and because of the distances between the affected facility locations, the NaOH emission impacts would not overlap. Thus, because the screening level for NaOH was not exceeded for any of the affected facilities for either option, no significant air quality operational impacts with respect to toxics are expected from the proposed project. NaOH is not classified as a carcinogen, so a cancer risk analysis was not performed.

Table 4-8
Summary of Filling and Working Losses for NaOH Storage Tanks for Option 1

Facility ID	Projected Increase in NaOH Demand (tons/day)	A: Hourly NaOH (as PM10) Filling Loss (lb/hr)	B: Hourly NaOH (as PM10) Working Loss (lb/hr)	A + B = Total Hourly NaOH (as PM10) Losses (lb/hr)	NaOH Acute Screening Level at 25 meters (lb/hr)	Do Total Hourly Losses Exceed Acute Screening Level For NaOH? (Yes/No)
A	0.81	1.82E-04	5.46E-04	7.28E-04	4.00E-03	NO
B	1.17	2.64E-04	7.93E-04	1.06E-03	4.00E-03	NO
C	0.00	0	0	0	4.00E-03	NO
D	0.44	9.90E-05	2.97E-04	3.96E-04	4.00E-03	NO
E	0.45	1.01E-04	3.04E-04	4.06E-04	4.00E-03	NO
F	2.02	4.57E-04	1.37E-03	1.83E-03	4.00E-03	NO
G	2.90	6.56E-04	1.97E-03	2.62E-03	4.00E-03	NO
H	3.37	7.60E-04	2.28E-03	3.04E-03	4.00E-03	NO
I	0.79	1.78E-04	5.35E-04	7.14E-04	4.00E-03	NO
J	1.30	2.93E-04	8.78E-04	1.17E-03	4.00E-03	NO
K	0	0	0	0	4.00E-03	NO
Total	13.24					

Table 4-9
Summary of Filling and Working Losses for NaOH Storage Tanks for Option 2

Facility ID	Projected Increase in NaOH Demand (tons/day)	A: Hourly NaOH (as PM10) Filling Loss (lb/hr)	B: Hourly NaOH (as PM10) Working Loss (lb/hr)	A + B = Total Hourly NaOH (as PM10) Losses (lb/hr)	NaOH Acute Screening Level at 25 meters (lb/hr)	Do Total Hourly Losses Exceed Acute Screening Level For NaOH? (Yes/No)
A	0	0	0	0	4.00E-03	NO
B	0	0	0	0	4.00E-03	NO
C	0	0	0	0	4.00E-03	NO
D	0.44	9.90E-05	2.97E-04	3.96E-04	4.00E-03	NO
E	0	0	0	0	4.00E-03	NO
F	0	0	0	0	4.00E-03	NO
G	2.90	6.56E-04	1.97E-03	2.62E-03	4.00E-03	NO
H	3.37	7.60E-04	2.28E-03	3.04E-03	4.00E-03	NO
I	0.79	1.78E-04	5.35E-04	7.14E-04	4.00E-03	NO
J	1.30	2.93E-04	8.78E-04	1.17E-03	4.00E-03	NO
K	0	0	0	0	4.00E-03	NO
Total	**8.79**					

As indicated in the analyses of potentially overlapping construction and operational air quality impacts, even though the proposed project will cause a temporary increase in emissions during construction, the net effect overall is a reduction in SOx emissions.

ODOR IMPACTS

Implementation of both Options 1 and 2 of the proposed project is designed to reduce SOx emissions by 6.21 tons per day and the majority of the SOx reductions would be achieved by WGSs. Under normal operating and permitted conditions for a WGS, the absorbent used in WGS operations captures sulfur dioxide (SO2) and sulfuric acid mist (H2SO4) and converts it to sodium bisulfate (NaHSO3), sodium sulfite (Na2SO3), and sodium sulfate (Na2SO4). Sulfur dioxide is nonflammable, colorless gas with a very strong, pungent odor. Most people can smell sulfur dioxide at levels of 0.3 to 1.0 ppm. The odor threshold is five times lower than the OSHA permissible exposure limit (PEL) of 5 ppm. Similarly, sulfuric acid is a clear, colorless, oily liquid that is very corrosive. An odor threshold of sulfuric acid in air has been reported to be one milligram per cubic meter of air (mg/m^3). If you are exposed to concentrated sulfuric acid in air, your nose will be irritated and it may seem like sulfuric acid has a pungent odor.

While sulfur dioxide, sodium bisulfate and sulfuric acid may have a pungent odor, sodium sulfite, and sodium sulfate are mostly odorless. Overall, based on the chemical composition and the odor thresholds of the resulting products when compared to the odor thresholds of sulfur dioxide and sulfuric acid, the overall SOx reductions that may result from the proposed project may also have the potential to reduce odor emissions.

In addition, some of the main equipment units affected by the proposed project such as sulfur recovery units are by design intended to capture sulfur compounds, including and especially malodorous H2S, and convert them into less odorous, elemental sulfur. Thus, any additional improvements (i.e. switching amine solutions) that may be implemented to reduce SOx emissions further from these units will only improve the ability to capture SOx (especially H2S) and reduce sulfur-based odors beyond what is being currently achieved. For these reasons, implementation of the proposed project is expected to reduce odor emissions from sulfurous compounds. Thus, odor impacts are expected to be less than significant.

PROJECT-SPECIFIC OPERATIONAL MITIGATION: The analysis indicates that there will be an overall reduction in SOx emissions during the operational phase of the proposed project. Further, no pollutant emissions exceed the applicable significance thresholds during operation for the proposed project. Thus, there are no adverse significant air quality impacts with the operational phase of the proposed project and as such, no mitigation measures are required.

REMAINING AIR QUALITY IMPACTS: The air quality analysis concluded that significant adverse construction air quality impacts could be created by the proposed project because the construction activities will produce emissions that would exceed the SCAQMD's significance thresholds of 75 pounds per day of VOC, 100 pounds per day of NOx, and 150 pounds per day of PM10. To minimize the significant air quality impacts associated with the aforementioned construction activities, feasible construction mitigation measures are required to control emissions from heavy construction equipment and worker travel (e.g., off-road and on-road mobile sources. While these mitigation measures may reduce emissions associated with construction activities at the affected facilities to the maximum extent feasible, none are mitigation measures that will avoid the significant impact or reduce the impact to less than significant.

The analysis also indicates that there will be an overall reduction in SOx emissions and slight increases in VOC, CO, NOx, PM10 and PM2.5 emissions during the operational phase of the

proposed project. None of these pollutants exceed the SCAQMD's significance thresholds for operation. Therefore, no operational mitigation measures are required.

It is concluded that the proposed project overall has the potential to generate significant adverse air quality impacts for construction. As a result, a Statement of Findings and a Statement of Overriding Considerations will be prepared for the Governing Board's consideration and approval prior to the public hearing for the proposed project.

CUMULATIVE AIR QUALITY IMPACTS: In general, the preceding analysis concluded that air quality impacts from any construction activities would be significant from implementing the proposed project because the SCAQMD's significance thresholds for construction will be exceeded for VOC, NOx, and PM10. Thus, the air quality impacts due to construction are considered to be cumulatively considerable pursuant to CEQA Guidelines §15064 (h)(1) and therefore, generate significant adverse cumulative air quality impacts. It should be noted, however, that the air quality analysis is a conservative, "worst-case" analysis so the actual construction impacts are not expected to be as great as estimated here. Further, the construction activities are temporary when compared to the permanent projected emission reductions of SOx as a result of the proposed project.

The analysis also indicates that, in addition to the overall reduction in SOx emissions, the proposed project will result in less than significant increases of VOC, CO, NOx, PM10 and PM2.5 emissions during the operational phase of the proposed project. Because operational emissions do not exceed the project-specific air quality significance thresholds, which also serve as the cumulative significance thresholds, they are not considered to be cumulatively considerable (CEQA Guidelines §15064 (h)(1)). Further, the amount of emission reductions to be achieved by the proposed project for SOx will, at the very least, meet the emission reduction projections and commitments made in the AQMP. Even though the proposed project will cause a temporary and significant adverse increase in air emissions during the construction phase and less than significant increases in air emissions during the operation phase, the temporary net increase in construction emissions combined with the total permanent emission reductions projected overall during operation would not interfere with the air quality progress and attainment demonstration projected in the AQMP. Further, based on regional modeling analyses performed for the 2007 AQMP, implementing control measures contained in the 2007 AQMP, in addition to the air quality benefits of the existing rules, is anticipated to bring the District into attainment with all national and most state ambient air quality standards by the year 2023. Therefore, cumulative operational air quality impacts from the proposed project, previous amendments and all other AQMP control measures considered together, are not expected to be significant because implementation of all AQMP control measures is expected to result in net emission reductions and overall air quality improvement. This determination is consistent with the conclusion in the 2007 AQMP Final Program EIR that cumulative air quality impacts from all AQMP control measures are not expected to be significant (SCAQMD, 2007). Therefore, there will be no significant cumulative adverse operational air quality impacts from implementing the proposed project.

Though the proposed project involves combustion processes which could generate GHG emissions such as CO2, CH4, and N2O, the proposed project does not affect equipment or operations that have the potential to emit other GHGs such as SF6, HFCs or PFCs. Relative to GHGs, implementing the proposed project is expected to increase GHG emissions that exceed the SCAQMD's GHG significance threshold for industrial sources. In addition, implementing

the proposed project is expected to generate significant adverse cumulative GHG air quality impacts. The GHG analysis for the proposed project can be found in the "Global Climate Change Impacts" section of this chapter.

CUMULATIVE MITIGATION MEASURES: The analysis indicates that, in addition to the overall reduction in SOx emissions, the proposed project will result in slight increases of VOC, CO, NOx, PM10 and PM2.5 emissions during the operational phase of the proposed project. However, no pollutant emissions exceed the applicable significance thresholds during operation for the proposed project. Thus, there are no adverse significant cumulative air quality impacts with the operational phase of the proposed project and as such, no cumulative mitigation measures for operation are required.

The analysis also indicates that the VOC, NOx, and PM10 emissions will exceed the applicable significance thresholds during construction. As a result, the proposed project is expected to have significant cumulative adverse construction air quality impacts. Mitigation measures that focus on the VOC, NOx, and PM10 emissions that may be generated during construction are required to minimize the significant air quality impacts associated with construction activities. Therefore, feasible mitigation measures to reduce emissions associated with construction activities at the affected facilities are necessary to control emissions from heavy construction equipment and worker travel. While the mitigation measures may reduce emissions associated with construction activities at the affected facilities to the maximum extent feasible, none will avoid the significant impact or reduce the impact to less than significant.

The following construction mitigation measures are required for construction activities from the proposed project:

<u>On-Road Mobile Sources</u>

AQ-1 Develop a Construction Emission Management Plan for each affected facility to minimize emissions from vehicles including, but not limited to: consolidating truck deliveries; scheduling deliveries to avoid peak hour traffic conditions; describing and truck routing; describing deliveries including logging delivery times; describing entry/exit points; identifying locations of parking; identifying construction schedule; and prohibiting truck idling in excess of five consecutive minutes or another time-frame as allowed by the California Code of Regulations, Title 13 §2485 - CARB's Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.

<u>Off-Road Mobile Sources</u>

AQ-2 Suspend all construction activities that generate air pollutant emissions during first stage smog alerts.

AQ-3 Prohibit construction equipment from idling longer than five minutes.

AQ-4 Use electricity or alternate fuels for on-site mobile equipment instead of diesel equipment to the extent feasible.

AQ-5 Tune-up construction equipment and maintain a two- to four-degree retard diesel engine timing, to the extent feasible.

AQ-6 Use electric welders to avoid emissions from gasoline or diesel welders in portions of the project sites where electricity is available.

AQ-7 Use on-site electricity rather than temporary power generators in portions of the project sites where electricity is available.

AQ-8 Prior to use in construction, each project applicant will evaluate the feasibility of retrofitting the large off-road construction equipment that will be operating for substantial periods. Retrofit technologies such as particulate traps, selective catalytic reduction, oxidation catalysts, air enhancement technologies, etc., will be included in the evaluation. These technologies will be required if they are certified by CARB and/or USEPA and are commercially available and can feasibly be retrofitted onto construction equipment.

GLOBAL CLIMATE CHANGE IMPACTS

Significant changes in global climate patterns have recently been associated with global warming, an average increase in the temperature of the atmosphere near the Earth's surface, attributed to accumulation of GHG emissions in the atmosphere. GHGs trap heat in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through the combustion of fossil fuels (i.e., fuels containing carbon) in conjunction with other human activities, appears to be closely associated with global warming. State law defines GHG to include the following: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6) (HSC §38505(g)). The most common GHG that results from human activity is CO2, followed by CH4 and N2O.

Traditionally, GHGs and other global warming pollutants are perceived as solely global in their impacts and that increasing emissions anywhere in the world contributes to climate change anywhere in the world. A study conducted on the health impacts of CO2 "domes" that form over urban areas cause increases in local temperatures and local criteria pollutants, which have adverse health effects[73].

The analysis of GHGs is a much different analysis than the analysis of criteria pollutants for the following reasons. For criteria pollutants, the significance thresholds are based on daily emissions because attainment or non-attainment is primarily based on daily exceedances of applicable ambient air quality standards. Further, several ambient air quality standards are based on relatively short-term exposure effects on human health (e.g., one-hour and eight-hour standards). Since the half-life of CO2 is approximately 100 years, for example, the effects of GHGs occur over a longer term which means they affect the global climate over a relatively long time frame. As a result, the SCAQMD's current position is to evaluate the effects of GHGs over a longer timeframe than a single day (i.e., annual emissions). GHG emissions are typically

[73] Jacobsen, Mark Z. "Enhancement of Local Air Pollution by Urban CO2 Domes," Environmental Science and Technology, as describe in Stanford University press release on March 16, 2010 available at: http://news.stanford.edu/news/2010/march/urban-carbon-domes-031610.html.

considered to be cumulative impacts because they contribute to global climate effects. GHG emission impacts from implementing the proposed project were calculated at the project-specific level for both Options 1 and 2. For example, installation of SOx control equipment such as WGSs and DGSs has the potential to increase the electricity, fuel, and water use which will in turn increase CO2 emissions.

The SCAQMD has convened a "Greenhouse Gas CEQA Significance Threshold Working Group" to consider a variety of benchmarks and potential significance thresholds to evaluate GHG impacts. On December 5, 2008, the SCAQMD adopted an interim CEQA GHG Significance Threshold for projects where SCAQMD is the lead agency (SCAQMD, 2008). This interim threshold is set at 10,000 metric tons of CO2 equivalent emissions (MTCO2eq) per year. The SCAQMD prepared a "Draft Guidance Document – Interim CEQA GHG Significance Thresholds" that outlined the approved tiered approach to determine GHG significance of projects (SCAQMD, 2008, pg. 3-10). The first two tiers involve: 1) exempting the project because of potential reductions of GHG emissions allowed under CEQA; and, 2) demonstrating that the project's GHG emissions are consistent with a local general plan. Tier 3 proposes a limit of 10,000 MTCO2eq per year as the incremental increase signifying significance for industrial projects where SCAQMD is the lead agency (SCAQMD, 2008, pg. 3-11). Tier 4 (performance standards) is yet to be developed. Tier 5 allows offsets that would reduce the GHG impacts to below the Tier 3 brightline threshold. Projects with incremental increases below this threshold will not be cumulatively considerable.

As indicated in Chapter 3, combustion processes generate GHG emissions in addition to criteria pollutants. The following analysis mainly focuses on directly emitted CO2 because this is the primary GHG pollutant emitted during the combustion process and is the GHG pollutant for which emission factors are most readily available. CO2 emissions were estimated using emission factors from CARB's EMFAC2007 and Offroad2007 models and USEPA's AP-42. In addition, CH4 and N20 emissions were also estimated and are included in the overall GHG calculations. No other GHGs are expected to be emitted because the proposed project does not affect equipment or operations that have the potential to emit other GHGs such as SF6, HFCs or PFCs.

Installation of SOx control equipment as part of implementing the proposed project is expected to generate construction-related CO2 emissions. In addition, based on the type and size of equipment affected by the proposed project, CO2 emissions from the operation of the SOx control equipment are likely to increase from current levels due to electricity, fuel and water use. The proposed project will also result in an increase of GHG operational emissions produced from additional truck hauling and deliveries necessary to accommodate the additional solid waste generation and increased use of supplies such as catalyst and caustic.

For the purposes of addressing the GHG impacts of the proposed project, the overall impacts of CO2eq emissions from the project were estimated and evaluated from the earliest possible initial implementation of the proposed project with construction beginning in 2012. Once the proposed project is fully implemented, the potential SOx emission reductions would continue through the end of the useful life of the equipment. The analysis estimated CO2eq emissions from all sources subject to the proposed project (construction and operation) from the beginning of the proposed project (2012) to the end of the project (2019). The beginning of the proposed project was assumed to be no sooner than 2012, since installing SOx control equipment such as a WGS takes considerable advance planning and engineering. Full implementation of the proposed

project is expected to occur by the end of 2018 since all the affected facilities would be required to comply with the proposed project by January 1, 2019, such that any installed or modified SOx controls would be constructed and operational by the final compliance date. Thus, once construction is complete and the equipment is operational, no further changes in CO2eq emissions are anticipated.

For Options 1 and 2 respectively, Tables 4-10 and 4-12 summarize the CO2eq impacts from both construction activities and operation activities per facility and Tables 4-11 and 4-13 summarize the same CO2eq impacts per source category. In all of these tables, the CO2eq impacts from construction were amortized over a 30-year period. The peak operational emissions are based on the operations of the SOx control equipment plus the anticipated increase in truck hauling and deliveries as a result of maintaining the SOx control equipment. Though the peak operational emissions are assumed to occur as early as 2013, all operational emissions are expected to occur by the end of year 2018 because the compliance date of the proposed project is January 1, 2019.

Table 4-10
Option 1: Overall CO2eq Increases Due to Construction and Operation Activities per Facility (metric tons/year)[1]

Facility ID	Temporary Construction Activities (diesel and gasoline fuel use)[2] (MT/yr)	Operational Natural Gas Use (MT/yr) [3]	Operational Electricity Use (MT/yr)	Operational Water Use/ Conveyance (MT/yr)	Operational Wastewater Generation (MT/yr)	Operational Truck Trips (diesel fuel use) (MT/yr)	Total CO2eq (MT/yr)
A	78	477	6,174	10	5	30	6,773
B	233	0	8,702	28	8	29	9,000
C	78	-55	238	12	4	40	317
D	78	24	1,480	29	7	16	1,633
E	78	-790	4,828	85	44	62	4,307
F	78	107	3,733	59	30	24	4,030
G	78	158	1,719	2	2	27	1,985
H	78	0	3,225	55	23	8	3,389
I	155	0	1,037	79	17	1	1,289
J	78	0	1,759	26	15	1	1,879
K	155	0	4,240	14	0	5	4,415
TOTAL	**1,168**	**-80**	**37,134**	**399**	**154**	**244**	**39,020**

[1] 1 metric ton = 2,205 pounds
[2] GHGs from temporary construction activities are amortized over 30 years.
[3] A negative number means a reduction in usage or demand.

Table 4-11
Option 1: Overall CO2eq Increases Due to Construction and Operation Activities per Source Category (metric tons/year)[1]

Equipment/ Source Category	Temporary Construction Activities (diesel and gasoline fuel use)[2] (MT/yr)	Operational Natural Gas Use (MT/yr) [3]	Operational Electricity Use (MT/yr)	Operational Water Use/ Conveyance (MT/yr)	Operational Wastewater Generation (MT/yr)	Operational Truck Trips (diesel fuel use) (MT/yr)	Total CO2eq (MT/yr)
FCCUs	310	0	18,794	144	68	53	19,370
SRU/TGUs	233	588	3,955	45	9	27	4,858
Refinery Boilers/Heaters	155	-668	4,124	27	23	149	3,809
Coke Calciner	78	0	3,225	55	23	8	3,389
Glass Melting Furnaces	155	0	1,037	79	17	1	1,289
Sulfuric Acid Manufacturing	78	0	1,759	35	15	1	1,887
Cement Kilns	155	0	4,240	14	0	5	4,415
TOTAL	**1,168**	**-80**	**37,134**	**399**	**154**	**244**	**39,020**

[1] 1 metric ton = 2,205 pounds
[2] GHGs from temporary construction activities are amortized over 30 years.
[3] A negative number means a reduction in usage or demand.

Table 4-12
Option 2: Overall CO2eq Increases Due to Construction and Operation Activities per Facility (metric tons/year)[1]

Facility ID	Temporary Construction Activities (diesel and gasoline fuel use)[2] (MT/yr)	Operational Natural Gas Use (MT/yr) [3]	Operational Electricity Use (MT/yr)	Operational Water Use/ Conveyance (MT/yr)	Operational Wastewater Generation (MT/yr)	Operational Truck Trips (diesel fuel use) (MT/yr)	Total CO2eq (MT/yr)
A	0	477	1,233	1	1	23	1,734
B	155	0	2,193	18	4	19	2,389
C	78	-55	238	12	4	40	317
D	78	24	1,480	29	7	19	1,636
E	0	-790	1,207	18	15	59	509
F	0	107	10	0	0	4	121
G	78	158	1,719	2	2	27	1,985
H	78	0	3,225	55	23	8	3,389
I	155	0	1,037	79	17	1	1,289
J	78	0	1,759	26	15	1	1,879
K	155	0	4,240	14	0	5	4,415
TOTAL	**854**	**-80**	**18,340**	**255**	**87**	**207**	**19,662**

[1] 1 metric ton = 2,205 pounds
[2] GHGs from temporary construction activities are amortized over 30 years.
[3] A negative number means a reduction in usage or demand.

Table 4-13
Option 2: Overall CO2eq Increases Due to Construction and Operation Activities per Source Category (metric tons/year)[1]

Equipment/ Source Category	Temporary Construction Activities (diesel and gasoline fuel use)[2] (MT/yr)	Operational Natural Gas Use (MT/yr) [3]	Operational Electricity Use (MT/yr)	Operational Water Use/ Conveyance (MT/yr)	Operational Wastewater Generation (MT/yr)	Operational Truck Trips (diesel fuel use) (MT/yr)	Total CO2eq (MT/yr)
FCCUs	0	0	0	0	0	15	15
SRU/TGUs	233	588	3,955	45	9	27	4,858
Refinery Boilers/Heaters	155	-668	4,124	27	23	149	3,809
Coke Calciner	78	0	3,225	55	23	8	3,389
Glass Melting Furnaces	155	0	1,037	79	17	1	1,289
Sulfuric Acid Manufacturing	78	0	1,759	35	15	1	1,887
Cement Kilns	155	0	4,240	14	0	5	4,415
TOTAL	**854**	**-80**	**18,340**	**255**	**87**	**207**	**19,662**

[1] 1 metric ton = 2,205 pounds
[2] GHGs from temporary construction activities are amortized over 30 years.
[3] A negative number means a reduction in usage or demand.

As demonstrated in Tables 4-10 and 4-12, none of the affected facilities individually exceed the industrial GHG significance threshold of 10,000 MT/day. However, the GHG emissions from the project as a whole under Options 1 and 2, respectively, exceed the threshold and therefore, the proposed project is considered to have adverse significant GHG impacts. Because the proposed project is expected to generate construction-related CO2 emissions, and the operational phase of the proposed project is also expected to generate additional GHG emissions, adverse significant GHG cumulative impacts from the proposed project are expected.

GHG MITIGATION: If the proposed project gets implemented, the analysis indicates that there will be a significant increase in GHG emissions. Because, there are adverse significant GHG impacts from the proposed project and as such, feasible GHG mitigation measures are required.

GHG mitigation measures for industrial sources are under development. However, there are some existing GHG reducing protocols that have been approved or adopted by various organizations and some of these are already used in the SCAQMD's SoCal Climate Solutions Exchange, a voluntary program where facilities in the district can undertake projects to voluntarily reduce GHG emissions in advance of any regulatory requirement. In order to participate in the exchange, the GHG reductions need to be real, additional (surplus), quantifiable, verifiable, permanent over a specific time, and enforceable. These early reductions can be helpful to facilities that would need offsets for GHG mitigation.

The California Climate Action Registry (CCAR) is currently developing the following protocols: 1) bus rapid transit; 2) blended cement; 3) tidal wetland sequestration (farms converting to wetlands). CCAR is also evaluating several categories for potential protocol development, including waste diversion, local government operations, boiler efficiency; and truck stop electrification. CCAR has been asked to look at other areas, such as waste water biogas, natural

gas pipelines, agricultural soil sequestration, and CO2 capture and storage, and those will be evaluated in the future.

In addition, the California Air Pollution Control Officers Association (CAPCOA) has suggested that lead agencies develop a "Green List of Projects" (Green List) to be consistent with and achieve the goals of AB 32 and to encourage projects that can provide overall GHG emission reduction benefits. Of the Green List projects, especially in consideration that compliance with the proposed project could result in the installation of water-intensive scrubbers, recycled water projects and the utilization of recycled water seem to be among the most direct ways to mitigate GHG emissions for the proposed project. Specifically, the energy it would take to treat and convey reclaimed water to a facility (e.g., 1,200 kWh/MMgallons[74]) is approximately 10 times less than the amount of energy it would take for potable water (e.g., 12,700 kWh/MMgallons[75]) to be supplied, conveyed and distributed. Thus, for each facility that will have future access to recycled water and uses reclaimed wastewater to satisfy the water demands for the proposed project and in turn, mitigate CO2eq emissions, less GHG emissions would be generated for the operational water use/conveyance and operational wastewater generation portions of the proposed project.

Based on the preceding discussion, the following mitigation measure will apply to the proposed project:

GHG-1 When SOx control equipment is installed and water is required for its operation, the facility operator is required to use recycled water, if available, to satisfy the water demand for the SOx control equipment.

GHG-2 In the event that recycled water cannot be delivered to the affected facility, the facility operator is required to submit a written declaration with the application for a Permit to Construct for the SOx control equipment, to be signed by an official of the water purveyor indicating the reason(s) why recycled water cannot be supplied to the project.

For Options 1 and 2 respectively, Tables 4-14 and 4-16 summarize the mitigated CO2eq impacts from both construction activities and operation activities per facility and Tables 4-15 and 4-17 summarize the same CO2eq impacts per source category. Thus, utilizing recycled water to mitigate GHG emissions from the proposed project would result in a savings of GHG emissions of 597 MT/year for Option 1 and 430 MT/year for Option 2.

As demonstrated in Tables 4-14 and 4-16, none of the affected facilities individually exceed the GHG industrial significance threshold of 10,000 MT/yr before or after mitigation. However, the GHG emissions from the project as a whole under Options 1 and 2, respectively, exceed the threshold and therefore, the proposed project is considered to have adverse significant GHG impacts after mitigation. Because the proposed project is expected to generate construction-related CO2eq emissions, and the operational phase of the proposed project is also expected to

[74] California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[75] California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

generate additional GHG emissions, cumulative GHG adverse impacts after mitigation from the proposed project are considered significant.

Table 4-14
Option 1: Overall Mitigated CO2eq Increases Due to Construction and Operation Activities per Facility (metric tons/year)[1]

Facility ID	Temporary Construction Activities (diesel and gasoline fuel use)[2] (MT/yr)	Operational Natural Gas Use [3] (MT/yr)	Operational Electricity Use (MT/yr)	Operational Water Use/ Conveyance (MT/yr)	Operational Wastewater Generation (MT/yr)	Operational Truck Trips (diesel fuel use) (MT/yr)	Total CO2eq (MT/yr)
A	78	477	6,174	10	5	30	6,773
B	233	0	8,702	28	8	29	9,000
C	78	-55	238	1	0	40	302
D	78	24	1,480	29	7	16	1,633
E	78	-790	4,828	8	4	62	4,190
F	78	107	3,733	6	3	24	3,950
G	78	158	1,719	2	2	27	1,985
H	78	0	3,225	55	23	8	3,389
I	155	0	1,037	79	17	1	1,289
J	78	0	1,759	2	1	1	1,841
K	155	0	4,240	14	0	5	4,415
TOTAL	**1,168**	**-80**	**37,134**	**234**	**71**	**244**	**38,771**

[1] 1 metric ton = 2,205 pounds
[2] GHGs from temporary construction activities are amortized over 30 years.
[3] A negative number means a reduction in usage or demand.

Table 4-15
Option 1: Overall Mitigated CO2eq Increases Due to Construction and Operation Activities per Source Category (metric tons/year)[1]

Equipment/ Source Category	Temporary Construction Activities (diesel and gasoline fuel use)[2] (MT/yr)	Operational Natural Gas Use (MT/yr) [3]	Operational Electricity Use (MT/yr)	Operational Water Use/ Conveyance (MT/yr)	Operational Wastewater Generation (MT/yr)	Operational Truck Trips (diesel fuel use) (MT/yr)	Total CO2eq (MT/yr)
FCCUs	314	0	18,794	31	14	53	19,202
SRU/TGUs	233	588	3,955	45	9	27	4,858
Refinery Boilers/Heaters	155	-668	4,124	7	6	149	3,772
Coke Calciner	78	0	3,225	55	23	8	3,389
Glass Melting Furnaces	155	0	1,037	79	17	1	1,289
Sulfuric Acid Manufacturing	78	0	1,759	3	1	1	1,842
Cement Kilns	155	0	4,240	14	0	5	4,415
TOTAL	**1,168**	**-80**	**37,134**	**234**	**71**	**244**	**38,771**

[1] 1 metric ton = 2,205 pounds
[2] GHGs from temporary construction activities are amortized over 30 years.
[3] A negative number means a reduction in usage or demand.

Table 4-16
Option 2: Overall Mitigated CO2eq Increases Due to Construction and Operation Activities per Facility (metric tons/year)[1]

Facility ID	Temporary Construction Activities (diesel and gasoline fuel use)[2] (MT/yr)	Operational Natural Gas Use (MT/yr) [3]	Operational Electricity Use (MT/yr)	Operational Water Use/ Conveyance (MT/yr)	Operational Wastewater Generation (MT/yr)	Operational Truck Trips (diesel fuel use) (MT/yr)	Total CO2eq (MT/yr)
A	0	477	1,233	1	1	23	1,734
B	155	0	2,193	18	4	19	2,389
C	78	-55	238	1	0	40	302
D	78	24	1,480	29	7	19	1,636
E	0	-790	1,207	2	1	59	479
F	0	107	10	0	0	4	121
G	78	158	1,719	2	2	27	1,985
H	78	0	3,225	55	23	8	3,389
I	155	0	1,037	79	17	1	1,289
J	78	0	1,759	2	1	1	1,841
K	155	0	4,240	14	0	5	4,415
TOTAL	**854**	**-80**	**18,340**	**203**	**57**	**207**	**19,580**

[1] 1 metric ton = 2,205 pounds
[2] GHGs from temporary construction activities are amortized over 30 years.
[3] A negative number means a reduction in usage or demand.

Table 4-17
Option 2: Overall Mitigated CO2eq Increases Due to Construction and Operation Activities per Source Category (metric tons/year)[1]

Equipment/ Source Category	Temporary Construction Activities (diesel and gasoline fuel use)[2] (MT/yr)	Operational Natural Gas Use (MT/yr) [3]	Operational Electricity Use (MT/yr)	Operational Water Use/ Conveyance (MT/yr)	Operational Wastewater Generation (MT/yr)	Operational Truck Trips (diesel fuel use) (MT/yr)	Total CO2eq (MT/yr)
FCCUs	0	0	0	0	0	15	15
SRU/TGUs	233	588	3,955	45	9	27	4,858
Refinery Boilers/Heaters	155	-668	4,124	7	6	149	3,772
Coke Calciner	78	0	3,225	55	23	8	3,389
Glass Melting Furnaces	155	0	1,037	79	17	1	1,289
Sulfuric Acid Manufacturing	78	0	1,759	3	1	1	1,842
Cement Kilns	155	0	4,240	14	0	5	4,415
TOTAL	**854**	**-80**	**18,340**	**203**	**57**	**207**	**19,580**

[1] 1 metric ton = 2,205 pounds
[2] GHGs from temporary construction activities are amortized over 30 years.
[3] A negative number means a reduction in usage or demand.

While there may be additional measures that could eventually be imposed upon sources with potential increases in GHG emissions, CARB is adopting measures pursuant to AB 32 that would require the maximum technically feasible and cost-effective GHG emission reductions

from most of the industry categories affected by the proposed project. CEQA Guidelines §15364 defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time…" Specifically, CARB's adopted "early action measures" include a measure to limit methane emissions from landfills, which SCAQMD staff will enforce. CARB also has adopted a Low Carbon Fuel Standard for motor vehicle fuels. As of this writing, it is expected that CARB will adopt in October 2010 a GHG reduction cap and trade program that will apply to projects that will need to receive permits, including any projects that may occur as a result of amending the SOx RECLAIM program. CARB greenhouse gas reduction measures are required to "achieve the maximum technologically feasible and cost-effective greenhouse gas reductions from sources or categories of sources" (Health & Safety Code §38560). CARB has published a scoping plan, as required by Health and Safety Code §38561, that identifies additional measures CARB intends to adopt that will reduce GHG emissions. The scoping plan is required to identify measures that will achieve "the maximum feasible and cost-effective reductions of greenhouse gas emissions by 2020." (Health and Safety Code §38561(b)).

All CARB GHG measures are required to meet the "maximum feasible and cost-effective" reductions test. This test is equally as stringent as the CEQA definition of "feasible." Given that CARB has been working on this statutory mandate for four years, and has an entire office and staff devoted to GHG rulemaking, it would not be feasible for SCAQMD staff to develop generally applicable GHG reduction measures that go beyond CARB measures. Thus, application of CARB rules will require the maximum feasible GHG reductions for existing sources.

SCAQMD rules do not currently require BACT for GHGs, except GHGs that are also ozone depleters. (See SCAQMD Rule 1303(a)(1).) However, by 2011, SCAQMD will be required under federal law to specify GHG BACT for larger sources of GHG emissions. On June 3, 2010, EPA published in the Federal Register its Greenhouse Gas Tailoring Rule (75 FR 31513).

EPA has stated that because there is no national ambient air quality standard for CO2, or any of the other primary GHGs, and EPA does not plan to promulgate any, the "nonattainment" NSR program that applies to criteria pollutants will not apply to GHGs[76]. However, for a NSR program that applies to attainment pollutants, prevention of significant deterioration (PSD) will also apply. PSD applies to any "major stationary source" of pollutants subject to regulation under the federal CAA. Accordingly, because EPA has promulgated its GHG reduction rules for motor vehicles, GHGs will become a pollutant subject to regulation under the federal Clean Air Act. EPA has issued its interpretation that GHGs become regulated pollutants as of the time the motor vehicle rule becomes effective (i.e., January 2011). SCAQMD staff concludes it would not be feasible to begin requiring GHG BACT prior to January 2011, because it would be necessary to amend the agency's rules in order to do so.

Under the federal CAA, the PSD definition of major source includes facilities with the potential to emit 250 tons per year of the relevant pollutant, or 100 tons per year for certain specified types of facilities. At these thresholds of GHG emissions, EPA estimated that there would be approximately 80,000 additional PSD permit actions annually nationwide. In addition, the Title V permit program for existing sources is also triggered when a pollutant becomes regulated under the federal Clean Air Act, and its threshold is 100 tons per year. At that threshold of GHG

[76] "Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule; Proposed Rule" ("Tailoring Rule Proposal") 74 FR 55292, 55297 (October 27, 2009).

emissions, EPA estimated that there would be an additional six million Title V permits nationwide. Since the SCAQMD encompasses about five percent of the nation's population, SCAQMD would be expected to experience at least 300,000 additional Title V permits added to its system. By way of contrast, SCAQMD has currently about 600 Title V permits. Thus, the permit inventory would increase by 500 times. It is not feasible for SCAQMD to issue and enforce 500 times as many Title V permits as it already has. Because of the anticipated burdens on permitting agencies and facilities from applying the federal CAA thresholds literally, EPA proposed to use the doctrines of administrative necessity and absurd results to support establishing a different threshold for BACT (PSD) and Title V applicability. EPA's initial proposal was a threshold of 25,000 MT/yr GHG for applicability, and a significance threshold for modifications triggering PSD in the range of 10,000 to 25,000 MT/yr. In the final rule, EPA recognized that it had substantially underestimated the impacts of applying the Title V and PSD programs at the 25,000 MT/yr level and decided to adopt a phased-in approach.

In Step 1, which begins January 2, 2011, only facilities that would already be subject to Title V or PSD would be subject to GHG requirements under these programs. In addition, a facility modification would only trigger PSD for GHGs if the modification resulted in an increase of 75,000 MT/yr CO2eq. Therefore, SCAQMD would begin to require GHG BACT for sources already subject to PSD and having a GHG increase of 75,000 MT/yr or more, effective January 2, 2011.

In Step 2, which begins July 1, 2011, facilities with a potential to emit 100,000 MT/yr CO2eq or more would be subject to Title V and PSD, regardless of whether they would otherwise be subject to these programs as a result of emissions of other pollutants. Therefore, SCAQMD would begin to require GHG BACT for all new and modified facilities having the potential to emit 100,000 MT/yr CO2eq and having an increase of at least 75,000 MT/yr CO2eq effective July 1, 2011.

For future phases of the program, EPA has committed to a further rulemaking to be completed in 2012 which will consider whether it is feasible to further lower the thresholds for GHG coverage under these programs. However, it is unknown at this time whether the thresholds will be further lowered. EPA has, however, committed that the threshold will not be lowered below 50,000 MT/yr CO2eq until at least May 1, 2016.

Although the definition of federal BACT for PSD sources is somewhat different from the definition of BACT that SCAQMD uses for nonattainment NSR, this definition is still at least as stringent as the CEQA definition of feasible. Pursuant to federal CAA §169(3) (42 U.S.C. §7479(3)), the term "best available control technology" means in pertinent part "an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this chapter emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant." Therefore, GHG BACT is at least as stringent as CEQA's definition of feasible mitigation, which similarly allows consideration of economic, technological and environmental factors. Thus, application of BACT will require the maximum feasible reductions of GHGs at new or modified sources.

All 11 facilities that may be affected by the proposed project are Title V facilities and nine of the 11 facilities currently hold PSD permits. However, because the potential GHG increases at each affected facility are individually well below EPA's tiered thresholds, GHG BACT would not be required for any of the individual facilities making facility modifications to comply with the proposed project.

Further, in light of the uncertainty associated with the effects of the proposed project on individual facilities whose operators have not submitted any applications for permits to construct as a result of the proposed project, the adoption and implementation of feasible mitigation beyond the requirement of using recycled water when available will not reduce significant air quality and climate change impacts to a less-than-significant level. In other words, it would not be feasible for the SCAQMD to attempt to develop and impose additional GHG mitigation measures for the myriad of source categories that may be affected by the proposed project. Accordingly, the project-level and cumulative impacts identified as significant in this chapter cannot feasibly be mitigated to a less-than-significant level and remain significant and unavoidable.

ENERGY IMPACTS

Significance Criteria

Impacts to energy and mineral resources will be considered significant if any of the following criteria are met:

- The project conflicts with adopted energy conservation plans or standards.
- The project results in substantial depletion of existing energy resource supplies.
- An increase in demand for utilities impacts the current capacities of the electric and natural gas utilities[77].
- The project uses non-renewable resources in a wasteful and/or inefficient manner.

Project-Specific Construction and Operation Impacts: In order to achieve the overall net air quality benefit (SOx emission reductions) from implementing the proposed project, the affected facility operators may choose to modify existing equipment by retrofitting with air pollution control equipment or modifying existing control equipment. As part of these modifications, electricity could be utilized to operate certain construction equipment, such as welders, if access to electricity is available. (In fact, utilizing electricity for welders, in lieu of diesel welders is encouraged and required as part of mitigation for air quality construction emissions.) Further, after installation of any SOx control equipment to comply with the proposed project, increased operational demand for energy used for operating the main control equipment plus ancillary equipment such as pumps, controllers, et cetera is expected.

Any additional electricity that may be needed as part of implementing the proposed project is typically supplied by each affected facility's local electrical utility and if applicable, supplemented by the facility's own cogeneration unit. Similarly, any additional natural gas that may be needed is typically supplied by each affected facility's local natural gas utility, unless the facility self-generates fuel on-site. Table 4-18 summarizes the energy sources and local utility service providers for the 11 affected facilities.

[77] SCAQMD's Energy Threshold is considered an increase at or above one percent of available supply.

Energy information as it relates to construction and operational activities was derived as part of the air quality analysis in this chapter and the calculations are shown in Appendix B of this ~~Draft~~ Final PEA. If the potential SOx controls are installed and operated on a per facility and per source category basis, respectively, Tables 4-19 and 4-20 summarize the estimated impacts on operational natural gas and electricity use for Option 1. Similarly, Tables 4-21 and 4-22 summarize the estimated impacts on operational natural gas and electricity use for Option 2.

Table 4-18
Facility-Specific Sources of Energy

Facility ID	ENERGY	
	Electricity Source	**Natural Gas Source**
A	1. Existing onsite cogeneration plant 2. SCE	1. Self-generates refinery fuel gas 2. Southern California Gas Company
B	1. Existing onsite cogeneration plant 2. SCE	Self-generates natural gas from existing utility system
C	1. Existing onsite cogeneration plant 2. LADWP	Southern California Gas Company
D	SCE	Southern California Gas Company
E	1. Existing onsite cogeneration plant 2. LADWP	Southern California Gas Company
F	LADWP	Southern California Gas Company
G	SCE	Southern California Gas Company
H	1. Existing onsite cogeneration plant 2. SCE	Southern California Gas Company
I	City of Vernon	Shell Energy
J	SCE	1. Coral Energy Resources 2. Southern California Gas Company for transmission/metering
K	1. Existing onsite cogeneration plant 2. Constellation New Energy	Occidental Petroleum

Table 4-19
Option 1: Operational Energy Use By Facility

Facility ID	Potential SOx Control per Equipment/Source Category	Natural Gas (MMBTU/day)	Electricity (kWh/day)
A	1 WGS for FCCU (new) 1 Selective Oxidation Catalyst system for SRU/TGU (new) 1 FGT by Sulfinol Conversion (modified)	0 + 30.14 + - 5.70 **24.44**	27,136 + 2,973 + 3,797 **33,906**
B	1 WGS for FCCU (new) 2 WGSs for SRU/TGU (new)	0 + 0 **0**	35,749 + 12,043 **47,791**
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Cansolv unit/sulfuric acid unit (modified)	**-2.82**+ 0 **-2.82**	**1,306**+ 0 **1,306**
D	1 WGS for SRU/TGU (new) 1 FGT by Merox Treatment Upgrade (modified)	0 + 1.21 **1.21**	6,705 + 1,422 **8,128**
E	1 WGS for FCCU (new) 1 FGT by Sulfinol Conversion (modified)	0 + -40.49 **-40.49**	19,887 + 6,626 **26,514**
F	1 WGS for FCCU (new) 1 FGT by Amine Additive (modified)	0 + 5.48 **5.48**	20,445 + 55 **20,500**
G	1 FGT by Merox Treatment Upgrade (modified)	**8.08**	**9,443**
H	1 WGS for calciner (new)	**0**	**17,711**
I	2 WGSs for glass melting furnaces (new)	**0**	**5,694**
J	1 WGS for sulfuric acid unit (new)	**0**	**9,659**
K	2 DGSs for cement kilns (new)	**0**	**23,288**
	TOTAL	**-4.1***	**203,938**

* A negative number means a reduction in usage or demand.

Table 4-20
Option 1: Operational Energy Use By Source Category

Equipment/ Source Category	Natural Gas (MMBTU/day)	Electricity (kWh/day)
FCCUs	0	103,217
SRU/TGUs	30	21,721
Refinery Boilers/Heaters	-34*	22,649
Petroleum Coke Calciner	0	17,711
Glass Melting Furnaces	0	5,694
Sulfuric Acid Manufacturing	0	9,659
Cement Kilns	0	23,288
TOTAL	**-4.1***	**203,938**

* A negative number means a reduction in usage or demand.

Table 4-21
Option 2: Operational Energy Use By Facility

Facility ID	Potential SOx Control per Equipment/Source Category	Natural Gas (MMBTU/day)	Electricity (kWh/day)
A	1 SOx Reducing Additive Hopper for FCCU (modified) 1 Selective Oxidation Catalyst system for SRU/TGU (new) 1 FGT by Sulfinol Conversion (modified)	0 + 30.14 + - 5.70 **24.44**	0 + 2,973 + 3,797 **6,769**
B	1 SOx Reducing Additive Hopper for FCCU (modified) 2 WGSs for SRU/TGU (new)	0 + 0 **0**	0 + 12,043 **12,043**
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Cansolv unit/sulfuric acid unit (modified)	**-2.82**+ 0 **-2.82**	**1,306**+ 0 **1,306**
D	1 SOx Reducing Additive Hopper for FCCU (new) 1 WGS for SRU/TGU (new) 1 FGT by Merox Treatment Upgrade (modified)	0 + 0 + 1.21 **1.21**	0 + 6,705 + 1,422 **8,128**
E	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Sulfinol Conversion (modified)	0 + -40.49 **-40.49**	0 + 6,626 **6,626**
F	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Amine Additive (modified)	0 + 5.48 **5.48**	0 + 55 **55**
G	1 FGT by Merox Treatment Upgrade (modified)	**8.08**	**9,443**
H	1 WGS for calciner (new)	**0**	**17,711**
I	2 WGSs for glass melting furnaces (new)	**0**	**5,694**
J	1 WGS for sulfuric acid unit (new)	**0**	**9,659**
K	2 DGSs for cement kilns (new)	**0**	**23,288**
	TOTAL	**-4.1***	**100,721**

* A negative number means a reduction in usage or demand.

Table 4-22
Option 2: Operational Energy Use By Source Category

Equipment/ Source Category	Natural Gas (MMBTU/day)	Electricity (kWh/day)
FCCUs	0	0
SRU/TGUs	30	21,721
Refinery Boilers/Heaters	-34*	22,649
Petroleum Coke Calciner	0	17,711
Glass Melting Furnaces	0	5,694
Sulfuric Acid Manufacturing	0	9,659
Cement Kilns	0	23,288
TOTAL	**-4.1***	**100,721**

* A negative number means a reduction in usage or demand.

For Option 1, the analysis shows an overall decrease in natural gas demand of approximately 4.1 MMBTU per day (equivalent to 0.004 MMcf/day) and an overall increase in electricity demand of 203,938 kWh/day (equivalent to 204 MWh/day) for the affected source categories. For Option 2, the analysis shows an overall decrease in natural gas demand of approximately 4.1 MMBTU/day (equivalent to 0.004 MMcf/day) and an overall increase in electricity demand of 100,721 kWh/day (equivalent to 101 MWh/day) for the affected source categories.

In addition, as part of operation for some WGSs, NaOH caustic soda solution is required. For Option 1 of the proposed project, 13.24 tons per day of NaOH is estimated to be needed and for Option 2, 8.79 tons per day of NaOH may be needed. NaOH is produced locally by several chemical processing companies and as such, is locally available for transport. Further, it is likely that the existing local caustic manufacturers can handle the proposed increase in caustic for the entire project. To accommodate the estimated increase in caustic demand, the chemical processing companies may need to increase production, which, in turn, will use more electricity. It takes approximately 2,500 kWh to produce one metric ton of NaOH. Thus, the approximate amount of additional electricity that may be needed to produce additional caustic to meet the needs of Option 1 and Option 2 of the proposed project, are 30,023 kWh/day and 19,932 kWh/day, respectively, and are calculated as follows:

Option 1:

$$\frac{13.24 \text{ tons NaOH}}{\text{Day}} \times \frac{2{,}000 \text{ lbs}}{\text{Ton}} \times \frac{1 \text{ metric ton}}{2{,}205 \text{ lbs}} \times \frac{2{,}500 \text{ kWh}}{1 \text{ metric ton of NaOH produced}} = \mathbf{30{,}023 \text{ kWh/day}}$$

Option 2:

$$\frac{8.79 \text{ tons NaOH}}{\text{Day}} \times \frac{2{,}000 \text{ lbs}}{\text{Ton}} \times \frac{1 \text{ metric ton}}{2{,}205 \text{ lbs}} \times \frac{2{,}500 \text{ kWh}}{1 \text{ metric ton of NaOH produced}} = \mathbf{19{,}932 \text{ kWh/day}}$$

The overall electricity needed to implement both Options 1 and 2 of the proposed project as summarized in Tables 4-19, 4-20, 4-21 and 4-22 include the amount of electricity that may be needed to produce additional NaOH. To determine if the operational energy use is significant for Options 1 and 2, the total for natural gas and electricity was compared to the threshold fuel supply as shown in Table 4-23. California utilities and non-utilities have the ability to receive approximately 9,330 MMcf/day of natural gas[78], [79], [80]. Since both Options 1 and 2 of the proposed project do not exceed the SCAQMD's energy threshold of one percent of supply for both natural gas and electricity, the proposed project is expected to have less than significant energy impacts. Further, because the increase in electricity demand for both Options 1 and 2 is below the SCAQMD's energy significance threshold of one percent above available supplies, any increased demand that may result from either Option 1 or 2 of the proposed project can be met with the existing electrical capacity at each of the affected facilities. Lastly, based on this analysis, it is not anticipated that new or substantially altered power utility systems will need to be built to accommodate any additional electricity demands created by either Option 1 or 2 of the proposed project.

[78] Natural Gas Infrastructure – Draft Staff Paper, California Energy Commission, CEC-200-2009-004-SD, May 2009. http://www.energy.ca.gov/2009publications/CEC-200-2009-004/CEC-200-2009-004-SD.PDF

[79] 2008 California Gas Report, Prepared by the California Gas and Electric Utilities. http://www.energy.ca.gov/2008publications/GAS-1000-2008-020/GAS-1000-2008-020.PDF

[80] An Overview of Natural Gas in California, California Energy Commission, CEC-180-2008-005, April 2008. http://www.energy.ca.gov/2008publications/CEC-180-2008-005/CEC-180-2008-005.PDF

Table 4-23
Total Projected Natural Gas and
Electricity Impacts for Operation Activities

Operation Activity	Total Energy Usage per Activity	
	Natural Gas[a]	Electricity
Option 1	-0.004 MMcf	204 MWh/day = 8.5 MW (instantaneous)
Threshold Fuel Supply	9,330 MMcf [b]	8,362 MW [c] (instantaneous)
% of Fuel Supply	-0.00004 %	0.1%
Significant (Yes/No) [d]	No	No
Option 2	-0.004 MMcf	101 MWh/day = 4.2 MW (instantaneous)
Threshold Fuel Supply	9,330 MMcf [b]	8,362 MW [c] (instantaneous)
% of Fuel Supply	-0.00004 %	0.05%
Significant (Yes/No) [d]	No	No

[a] A negative number is a reduction in the use of natural gas consumption.

[b] Natural Gas Infrastructure Draft Staff Paper, California Energy Commission, May 2009 (CEC-200-2009-004-SD). http://www.energy.ca.gov/2009publications/CEC-200-2009-004/CEC-200-2009-004-SD.PDF

[c] California Energy Demand 2008-2018 Staff Revised Forecast, Staff Final Report, California Energy Commission, , November 2007 (CEC-200-2007-015-SF2). See Form 1.4 b, Peak Demand by LSE: summer Peak Demand Coincident with Planning Area Peak for the following agencies/areas: SCE (Anaheim, Azusa, Banning, Colton, Metropolitan Water District, Rancho Cucamonga, Riverside and Vernon), Cities of Burbank, Glendale and Pasadena, and LADWP. http://www.energy.ca.gov/2007publications/CEC-200-2007-015/CEC-200-2007-015-SF2.PDF

[d] SCAQMD's Energy Threshold for both Natural Gas and Electricity is 1% of Supply.

KEY: MMcf = million standard cubic feet
MW(Megawatt) = 1 MW = 1,000 kilowatts (KW)

In addition, Table 4-24 presents a summary of the total projected fuel usage (i.e., diesel and gasoline) for both construction and operational activities for both Options 1 and 2 of the proposed project. For Option 1, the analysis shows an overall increase in diesel and gasoline use of approximately 3,763 gallons per day and 1,354 gallons per day, respectively. Similarly for Option 2, the analysis shows an overall increase in diesel and gasoline use of approximately 3,397 gallons per day and 1,354 gallons per day, respectively.

Since neither Option 1 nor Option 2 of the proposed project exceeds the SCAQMD's energy threshold of one percent of supply for both diesel and gasoline fuels, both Option 1 and Option 2 of the proposed project are expected to have less than significant energy impacts due to fuel use. Further, once construction is completed, the fuel use projected during the temporary phases (e.g., Phase I: Demolition and Phase II: Construction) will end and only the fuel use for truck trips associated with chemical deliveries and solid waste removal activities during Phase III: Operations will continue. Thus, any potential adverse fuel impacts will be less than what has been analyzed during the peak for the proposed project.

Table 4-24
Total Projected Fuel Usage

Activity	Total Fuel Usage per Activity (gallons/day)	
	Diesel	**Gasoline**
Proposed Project - Option 1: Phase I - Demolition Overlapping with Phase II - Construction at Four Facilities (Construction Equipment and Workers Vehicles)	1,360	1,354
Proposed Project - Option 1: Phase III: Operation (Chemical Deliveries & Solid Waste Removal)	2,403	0
Total Usage for Proposed Project - Option 1:	3,763	1,354
Threshold Fuel Supply[a]	1,086,000,000	6,469,000,000
% of Fuel Supply	0.0003%	0.00002%
Significant (Yes/No)[b]	No	No
Proposed Project - Option 2: Phase I - Demolition Overlapping with Phase II - Construction at Four Facilities (Construction Equipment and Workers Vehicles)	1,360	1,354
Proposed Project - Option 2: Phase III: Operation (Chemical Deliveries & Solid Waste Removal)	2,037	0
Total Usage for Proposed Project - Option 2:	3,397	1,354
Threshold Fuel Supply[a]	1,086,000,000	6,469,000,000
% of Fuel Supply	0.0003%	0.00002%
Significant (Yes/No)[b]	No	No

[a] Year 2000 California Energy Commission (CEC) projections. Construction activities in future years would yield similar results.
[b] SCAQMD's energy threshold for both diesel and gasoline is 1% or more of supply.

The proposed project is not subject to any existing energy conservation plans. If any facility that is subject to the proposed project is also subject to energy conservation plans, it is not expected that the proposed project will affect in any way or interfere with that individual facility's ability to comply with its energy conservation plan or energy standards. Further, project construction and operation activities will not utilize non-renewable resources in a wasteful or inefficient manner. Lastly, it is expected that the installation and operation of any equipment used to comply with the proposed project will also comply with all applicable existing energy standards.

In summary, the energy impacts from both Option 1 and Option 2 of the proposed project are concluded to be less than significant.

Project-Specific Mitigation: Less than significant adverse impacts associated with energy are expected from the proposed project during both construction and operation, so no mitigation measures are required.

Level of Significance After Mitigation: The analysis concluded that the energy impacts from implementing the proposed project are considered to be adverse, but less than significant. Therefore, mitigation measures are not required.

Cumulative Energy Impacts: Because the project-specific energy impacts do not exceed any applicable significance thresholds, they are not considered to be cumulatively considerable pursuant to CEQA Guidelines §15064 (h)(1) and therefore, do not generate significant adverse cumulative energy impacts.

Cumulative Mitigation Measures: None required.

HAZARDS AND HAZARDOUS MATERIALS IMPACTS

The NOP/IS (see Appendix A) determined that the proposed project has the potential to generate significant adverse hazards and hazardous materials impacts. The hazard and hazardous materials impacts associated with the operation of the proposed project are potentially significant and the impacts are evaluated in this section.

Hazards and Hazardous Materials Significance Criteria

The impacts associated with hazards and hazardous materials will be considered significant if any of the following occur:

- Non-compliance with any applicable design code or regulation.
- Non-conformance to National Fire Protection Association (NFPA) standards.
- Non-conformance to regulations or generally accepted industry practices related to operating policy and procedures concerning the design, construction, security, leak detection, spill containment or fire protection.
- Exposure to hazardous chemicals in concentrations equal to or greater than the Emergency Response Planning Guideline (ERPG) 2 levels.

PROJECT-SPECIFIC IMPACTS - HAZARD ANALYSIS: Several components with regard to reducing SOx emissions by installing new or modifying existing SOx controls or by using SOx reducing additives as part of implementing the proposed project may affect the use, storage and transport of hazards and hazardous materials during operational-related activities. Thus, the routine transport of hazardous materials, use, and disposal of hazardous materials may increase as a result of implementing the proposed project.

The key effects of implementing the proposed project and the determination of which aspects involve hazards and hazardous materials focus on: 1) the anticipated increase of substances used to operate the new SOx controls and the anticipated replacement and/or supplement of substances used to modify or upgrade existing SOx control systems; and, 2) the increased capture of hazardous substances as part of the overall SOx reduction effort. For example, with FCCU source category, Option 1 of the proposed project may involve the use of NaOH caustic, a TAC, to operate WGSs and Option 2 may involve an anticipated increase of catalyst use (e.g., as SOx reducing additives) and the catalyst fines collected overall (comprised of PM10) may qualify as either a hazardous material or hazardous waste. In addition, implementation of the

various control techniques for multiple source categories may have the effect of reducing hazardous components of SOx, such as capturing more SO2, SO3, H2S, COS, and ethyl- and methyl-mercaptans. Table 4-25 contains a summary of the substances that may be used, stored and transported as part of implementing the proposed project.

Table 4-25
Substances Used by SOx Control Technologies

Equipment/ Source Category	Current SOx Control Technology	Substances Currently Used for SOx Control	Proposed SOx Control Technology	Proposed Substances To Be Used/Increased for SOx Control
FCCU	SOx Reducing Additives	Specialty Catalyst	Option 1: WGSs Option 2: Increase amount of SOx Reducing Additives	Option 1: NaOH Caustic Option 2: Specialty Catalyst
SRU/TGU	Sour Water Strippers, Claus Units with Tail Gas Treatment, Amine Absorbers	Catalyst and Amines (MDEA and TG-10)	3 WGSs for 2 facilities (new)	Soda Ash Caustic
SRU/TGU	Sour Water Strippers	Catalyst	1 Selective Oxidation Catalyst system for 1 facility (new)	ESx Catalyst
Sulfuric Acid	Catalytic Converter	Catalyst	1 WGS for 1 facility (new)	NaOH Caustic
Sulfuric Acid	Cansolv Unit	Cansolv amine	1 Upgrade to Existing Cansolv Unit for 1 facility (modified)	Water
Coke Calciner	DGS	CaOH absorbent	1 WGS for 1 facility (new)	NaOH Caustic
Glass Melting Furnace	DGSs	Trona	2 WGSs for 1 facility (new)	NaOH Caustic
Cement Kiln	None	None	2 DGS (Limestone Absorber) for 1 facility (new)	Limestone
Refinery Boilers/ Heaters	Amine Absorbers	Amines (MEA & DEA)	3 FGTs by Sulfinol Conversion for 3 facilities (modified)	Sulfolane and DIPA
Refinery Boilers/ Heaters	Amine Absorbers	Amine (MEA) & Caustic (NaOH)	2 FGTs by Merox Treatment Upgrades for 2 facilities (modified)	1. Merox Catalyst 2. NaOH Caustic
Refinery Boilers/ Heaters	Amine Absorbers	Amine (MDEA)	1 FGT by Amine Additive for 1 facility (modified)	TG-10 amine

Key: WGS = Wet Gas Scrubber; DGS = Dry Gas Scrubber; FGT = Fuel Gas Treatment

Hazard Safety Regulations

Notwithstanding implementation of the proposed project, operators of each affected facility must comply or continue to comply with various regulations, including Occupational Safety and Health Administration (OSHA) regulations (29 Code of Federal Regulations (CFR) Part 1910) that require the preparation of a fire prevention plan, and 20 CFR Part 1910 and CCR Title 8 that require prevention programs to protect workers who handle toxic, flammable, reactive, or explosive materials. In addition, §112 (r) of the CAA Amendments of 1990 [42 United States Code (USC) 7401 et. seq.] and Article 2, Chapter 6.95 of the California HSC require facilities that handle listed regulated substances to develop Risk Management Programs (RMPs) to prevent accidental releases of these substances. If any of the affected facilities has already prepared an RMP, it may need to be revised to incorporate any changes that may be associated with the proposed project. The Hazardous Materials Transportation Act is the federal legislation that regulates transportation of hazardous materials.

A number of physical or chemical properties may cause a substance to be hazardous. With respect to determining whether any material identified in Table 4-25 is hazardous, each Material Safety Data Sheet (MSDS) has also been consulted for the National Fire Protection Association (NFPA) 704 hazard rating system (i.e. NFPA 704). NFPA 704 is a "standard (that) provides a readily recognized, easily understood system for identifying specific hazards and their severity using spatial, visual, and numerical methods to describe in simple terms the relative hazards of a material. It addresses the health, flammability, instability, and related hazards that may be presented as short-term, acute exposures that are most likely to occur as a result of fire, spill, or similar emergency[81]." In addition, the hazard ratings per NFPA 704 are used by emergency personnel to quickly and easily identify the risks posed by nearby hazardous materials in order to help determine what, if any, specialty equipment should be used, procedures followed, or precautions taken during the first moments of an emergency response. The scale is divided into four color-coded categories, with blue indicating level of health hazard, red indicating the flammability hazard, yellow indicating the chemical reactivity, and white containing special codes for unique hazards such as corrosivity and radioactivity. Each hazard category is rated on a scale from 0 (no hazard; normal substance) to 4 (extreme risk). Table 4-26 summarizes what the codes mean for each hazards category.

It is expected that the operators of affected facilities will comply with all applicable design codes and regulations, conform to NFPA standards, and conform to policies and procedures concerning leak detection containment and fire protection. Therefore, no significant adverse offsite hazard impacts are expected as explained in the following sections.

[81] National Fire Protection Association, FAQ for Standard 704. http://www.nfpa.org/faq.asp?categoryID=928&cookie%5Ftest=1#23057

Table 4-26
NFPA 704 Hazards Rating Codes

Hazard Rating Code	Health (Blue)	Flammability (Red)	Reactivity (Yellow)	Special (White)
4 = Extreme	Very short exposure could cause death or major residual injury (extreme hazard)	Will rapidly or completely vaporize at normal atmospheric pressure and temperature, or is readily dispersed in air and will burn readily. Flash point below 73°F.	Readily capable of detonation or explosive decomposition at normal temperatures and pressures.	**~~W~~** = Reacts with water in an unusual or dangerous manner.
3 = High	Short exposure could cause serious temporary or moderate residual injury	Liquids and solids that can be ignited under almost all ambient temperature conditions. Flash point between 73°F and 100°F.	Capable of detonation or explosive decomposition but requires a strong initiating source, must be heated under confinement before initiation, reacts explosively with water, or will detonate if severely shocked.	**OXY** = Oxidizer
2 = Moderate	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury.	Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur. Flash point between 100°F and 200°F.	Undergoes violent chemical change at elevated temperatures and pressures, reacts violently with water, or may form explosive mixtures with water.	**SA** = Simple asphyxiant gas (includes nitrogen, helium, neon, argon, krypton and xenon).
1 = Slight	Exposure would cause irritation with only minor residual injury.	Must be heated before ignition can occur. Flash point over 200°F.	Normally stable, but can become unstable at elevated temperatures and pressures	
0 = Insignificant	Poses no health hazard, no precautions necessary	Will not burn	Normally stable, even under fire exposure conditions, and is not reactive with water.	

Hazard Impacts on Water Quality

A spill of any hazardous material that is used and stored at any of the affected facilities could occur under upset conditions such as an earthquake, tank rupture, or tank overflow. Spills could also occur from corrosion of containers, piping and process equipment; and leaks from seals or gaskets at pumps and flanges. A major earthquake would be a potential cause of a large spill. Other causes could include human or mechanical error. Construction of the vessels and foundations in accordance with the Uniform Building Code Zone 4 requirements helps structures to resist major earthquakes without collapse, but may result in some structural and non-structural damage following a major earthquake. Any facility with storage tanks on-site is currently required to have emergency spill containment equipment and would implement spill control

measures in the event of an earthquake. Storage tanks typically have secondary containment such as a berm which would be capable of containing 110 percent of the contents of the storage tanks. Therefore, should a rupture occur, the contents of the tank would be collected within the containment system and pumped to an appropriate storage tank.

Spills at the affected facilities would generally be collected within containment areas. Large spills outside of containment areas at the affected facilities are expected to be captured by the process water system where they could be collected and controlled. Spilled material would be collected and pumped to an appropriate tank or sent off-site if the materials cannot be used on-site. Because of the containment system design, spills are not expected to migrate from the spill site and as such, potential adverse water quality hazard impacts are considered to be less than significant.

Project Specific Impacts

The following discussion describes the hazards profile for each substance involved with proposed SOx control equipment or techniques.

Hazard Impacts from SOx Reducing Additives

FCCUs are operated at six refineries in the Basin (e.g., at Facilities A through F). Operation of FCCUs is reliant on a catalyst, sometimes referred to as a "base catalyst" or an "equilibrium catalyst" in order to function. FCCU operators may also mix in additives (also catalysts) to change the composition of the flue gas to reduce emissions such as NOx and SOx. As shown in Table 4-27, four of the six facilities that operate FCCUs currently use SOx reducing additives.

Table 4-27
Summary of Current SOx Reducing Additive Use for FCCUs at Affected Refineries

	Refinery					
	A	**B**	**C**	**D**	**E**	**F**
Uses SOx Reducing Additive?	Yes	Yes	No	No	Yes	Yes

The amount of SOx reducing additives introduced into each FCCU varies from unit to unit, depends on the inlet concentration of SO2, and is typically a percentage of the fresh base catalyst addition rate, which can range between five and 10 weight percent, but can go as high as 20 weight percent for handling SOx emission spikes. As with the base catalyst, eventually the SOx reducing additives cannot be regenerated and as such, need to be replaced with a fresh supply. The constant replenishment of base catalyst and SOx reducing additives means a constant generation of solid waste in the form of catalyst fines. The composition of the catalyst fines in the solid waste is mostly comprised of base catalyst with a small portion (approximately two to ten weight percent) attributed to SOx reducing additives.

Nonetheless, for any additional increase in the use of SOx reducing catalysts in any FCCU, a directly proportional reduction in the amount of FCCU base catalyst used would be expected because the capacity of the FCCU regenerator vessel is a fixed volume. This means that the total amount of catalysts (FCCU base catalyst plus SOx reducing catalyst) used is expected to remain about the same. Thus, the amount of catalyst-based solid waste generated and disposed of or recycled from the FCCU process as part of utilizing additional SOx reducing catalyst is also expected to remain about the same. To accommodate the increased amount of SOx reducing additives that may be needed for the proposed project (up to 500 pounds per day per affected

facility), there will be a slight increase in the frequency of truck transportation trips (one trip per day) to deliver fresh SOx reducing additives to each affected facility.

SOx reducing additives are made up of a mixture of metal oxide compounds such as aluminum oxide, magnesium oxide, cerium oxide, ceric oxide, magnesium aluminate, magnesium vanadate, cerium vanadium oxide, calcium aluminate, and ferric oxide. There are two manufacturers of SOx reducing additives for FCCUs: Grace Davison and Intercat. Grace Davison manufacturers a product called "Super DeSOx" and Intercat's products are called "SOxGetter" and "Super SOxGetter." While these products vary from each other, in general, they are similar in composition to FCCU "base catalyst" in that they are made of metal oxide compounds and that they are compatible with SOx reducing additives. Located on the MSDS for Intercat's SOx reducing additives (e.g., "SOxGetter" and "Super SOxGetter"), the hazards ratings are as follows: health is rated 1 (slightly hazardous), flammability is rated 0 (none) and reactivity is rated 0 (none). Similarly, the hazard ratings for Grace Davison's "Super DESOX" additive are: health is rated 2 (moderately hazardous), flammability is rated 0 (none) and reactivity is rated 0 (none).

The particular composition of the catalyst used (base plus additives), combined with the metals content of the flue gas, will determine the hazard rating and whether the spent catalyst mixture is considered a hazardous material or hazardous waste. For example, if nickel is deposited on the catalyst, the hazard rating is 2 for health (moderately toxic), 4 (extreme fire hazard) for flammability, 1 for reactivity (slightly hazardous if heated or exposed to water). In this example, the spent catalyst may qualify as a hazardous material, but if it can be recycled or reused by another industry (such as manufacturing Portland cement), then it would not be considered as hazardous waste. However, spent catalyst that is considered hazardous waste must be disposed of in a Class III landfill.

Survey responses from each of the affected refineries have indicated that none of the catalyst-based solid waste generated is classified as hazardous. For this reason, any increase in the use of SOx reducing additives would not be expected to substantially change the composition of the current waste generated. There are two facilities that current do not use SOx reducing additives, Facilities C and D. Facility C no longer uses SOx reducing additives because the facility's current SOx control system can achieve the five ppm SOx levels at the outlet. Should operators of Facility D decide to start using SOx reducing additives, based on the experience with the other refineries, it is unlikely that the composition of the solid waste generated would change from non-hazardous waste to hazardous waste. (Facility D currently sends its catalyst fines to a cement plant for recycling.)

Spent catalyst fines from FCCUs can be transported to a Class III landfill for disposal as non-hazardous waste. However, due to the heavy metal content and relatively high cost of catalysts, recycling can be more lucrative than disposal. As such, the catalyst fines currently collected from the FCCUs at each of these affected facilities are loaded into a truck and transported to a local cement plant for recycling. Thus, any increase or new use of SOx reducing additives as a result of the proposed project is not expected to substantially change the profile of the catalysts fines in a way that would prevent the spent catalyst mixture from continuing to be recycled. For this reason, the affected facilities are expected to continue to recycle the spent catalyst that may be generated as a result of the proposed project.

Although recycling may be the more popular consideration, it is possible that facilities may choose to dispose of the spent catalyst in a landfill. The composition and type of the catalyst will determine the type of landfill that would be eligible to handle the disposal. For example, catalysts with a metal structure would be considered a metal waste, like copper pipes, and not a hazardous waste. Therefore, metal structure catalysts would not be a regulated waste requiring disposal in a Class I landfill unless it is friable or brittle. As ceramic-based catalysts contain a fiber-binding material, they are not considered friable or brittle and, thus, would not be a regulated waste requiring disposal in a Class I landfill. Furthermore, typical catalyst materials are not considered to be water soluble, which also means they would not require disposal in a Class I landfill. In both cases, spent catalyst would not require disposal in a Class I landfill.

Based on the aforementioned information, it is likely that spent catalysts would be considered a "designated waste," which is characterized as a non-hazardous waste consisting of, or containing pollutants that, under ambient environmental conditions, could be released at concentrations in excess of applicable water objectives, or which could cause degradation of the waters of the state (California Code of Regulations, Title 23, Chapter 3, Subparagraph 2522(a)(1)). Depending on its actual waste designation, spent catalysts would likely be disposed of in a Class II landfill or a Class III landfill that is fitted with liners. According to the Final Program EIR for the 2007 AQMP (SCAQMD, 2007), total Class III landfill waste disposal capacity in the District is approximately 97,269 tons per day, many of which have liners and can handle Class II and Class III wastes.

Disposal of spent catalyst would typically involve crushing the material and encasing it in concrete prior to disposal. Since it is expected that most spent catalysts will be recycled and regenerated, it is anticipated that there will be sufficient landfill capacity in the District to accommodate disposal of any spent catalyst materials.

In conclusion, the hazards and hazardous materials impacts due to the use of SOx reducing additives and the handling of the spent catalyst for recycling or disposal as non-hazardous waste is expected to be less than significant for the proposed project.

Caustic

For any operator that chooses to install a WGS, hazardous materials may be needed to operate the WGSs depending on the source category and additional solid waste is expected to be generated. Caustic is a key ingredient needed for the operation of a WGS; it is the most widely used substance for several SOx control applications spanning multiple equipment/source categories. While there are several types of caustic solutions that can be used in WGS operations, caustic made from sodium hydroxide (NaOH) is the most commonly used for WGSs for FCCUs, sulfuric acid units, coke calciners, and glass melting furnaces.

For WGSs that may be installed to control SOx from SRU/TGUs, the caustic used in the WGS is made from soda ash, instead of NaOH. Soda ash is the common name for sodium carbonate (Na2CO3), a non-toxic, non-cancerous, and non-hazardous substance. Located on the MSDS for Na2CO3, the hazards ratings are as follows: health is rated 2 (moderate), flammability is rated 0 (none) and reactivity is rated 0 (none).

NaOH caustic is also used with Merox catalyst treatment for FGT of refinery boilers and heaters. (For a discussion on Merox systems, see the "Amines" discussion in the following section.) NaOH is a toxic air contaminant (TAC); it is also a non-cancerous but acutely hazardous

substance. Located on the MSDS for NaOH (50 percent by weight), the hazards ratings are as follows: health is rated 3 (highly hazardous), flammability is rated 0 (none) and reactivity is rated 1 (slightly hazardous).

As previously analyzed in the Air Quality discussion, for "worst-case" operations, 13.24 tons per day of NaOH (50 percent solution, by weight) is estimated to be needed to operate eight of the 11 total WGSs plus two FGTs for Option 1 and 8.79 tons per day of NaOH is estimated to be needed to operate four of the seven total WGSs plus two FGTs for Option 2. In addition, even though the facilities that may be affected by the proposed project may already use NaOH elsewhere in their facilities, for the purpose of conducting a "worst-case" construction analysis, one 10,000 gallon storage tank for caustic solution was assumed to be constructed for every WGS installed or FGT system using Merox catalyst. However, of the 11 facilities affected by the proposed project overall, only nine facilities were projected to have an increased demand in NaOH use for WGS operations or FGT modifications under Option 1 and only five facilities were projected to have an increased demand in NaOH use for WGS operations or FGT modifications under Option 2.

As previously summarized in Tables 4-8 and 4-9, for each facility that was projected to increase the use in the acutely hazardous substance NaOH under Options 1 and 2, respectively, the filling loss and the working loss of each NaOH tank was calculated, added together, and that sum was compared to the most stringent Rule 1401 Screening Emission Level for NaOH (0.004 pounds per hour at the nearest receptor distance of 25 meters). None of the total hourly loss projections exceeded the acute screening level for NaOH for any of the affected facilities for either option. Because the screening level for NaOH was not exceeded for any of the affected facilities for either option, no significant hazards and hazardous materials impacts with respect to NaOH uses are expected from the proposed project. NaOH is not classified as a carcinogen, so a cancer risk analysis was not performed.

It is expected that the affected facilities will receive NaOH from a local supplier located in the greater Los Angeles area. Deliveries of NaOH (50 percent by weight) would be made by tanker truck via public roads. The maximum capacity of a NaOH tanker truck is approximately 6,000 gallons. The projected onsite storage capacity and consumption rates of NaOH are summarized in Tables 4-8 and 4-9 and the projected annual deliveries are summarized in Tables 4-28 and 4-29. Based on the annual deliveries estimates, each facility is not expected to exceed the peak daily of one delivery per day per facility. However, the "worst-case" assumption for a peak daily delivery frequency from a supplier would be to deliver 6,000 gallons of NaOH to each of four facilities to fill four new NaOH tanks on the same day. Regulations for the transport of hazardous materials by public highway are described in 49 CFR §§ 173 and 177.

To accommodate the increased demand in NaOH, there will be an increase in truck deliveries to supply NaOH to the facilities that need it. Tables 4-28 and 4-29 summarize the annual and peak daily truck deliveries needed to supply NaOH for Options 1 and 2 of the proposed project, respectively. Based on the volume of NaOH solution (50 percent by weight) needed, the calculations assume that one 10,000 gallon capacity storage tank will be installed at each affected facility for NaOH storage. The amount of annual deliveries is based on the assumption that one delivery truck can hold 6,000 gallons per truck load. While the number of annual NaOH deliveries will vary based on each facility's needs, the peak daily truck deliveries would be one truck per day per facility.

Table 4-28
Option 1: Summary of NaOH Deliveries

Facility ID	Daily Increase in NaOH Demand (tons/day)	Annual Increase in NaOH Demand (tons/year)	Annual NaOH Deliveries [1] (truck trips/year)
A	0.81	294	8
B	1.17	427	12
C	0	0	0
D	0.44	160	5
E	0.45	164	5
F	2.02	738	20
G	2.90	1,060	28
H	3.37	1,228	32
I	0.79	289	8
J	1.30	473	13
K	0	0	0
Total	**13.24**	**4,833**	**131**

[1] Annual NaOH deliveries are calculated based on one delivery truck holding 6,000 gallons per truck load. For example, for Facility A: 294 tons/yr NaOH x 2,000 lbs/ ton = 328,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 46,045 gal/year x 1 truck/6,000 gallons = 8 trucks/year.

Table 4-29
Option 2: Summary of NaOH Deliveries

Facility ID	Daily Increase in NaOH Demand (tons/day)	Annual Increase in NaOH Demand (tons/year)	Annual NaOH Deliveries [1] (truck trips/year)
A	0	0	0
B	0	0	0
C	0	0	0
D	0.44	160	5
E	0	0	0
F	0	0	0
G	2.90	1,060	28
H	3.37	1,228	32
I	0.79	289	8
J	1.30	473	13
K	0	0	0
Total	**8.79**	**3,210**	**86**

[1] Annual NaOH deliveries are calculated based on one delivery truck holding 6,000 gallons per truck load. For example, for Facility A: 294 tons/yr NaOH x 2,000 lbs/ ton = 328,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 46,045 gal/year x 1 truck/6,000 gallons = 8 trucks/year.

All of the refineries (Facilities A through G) currently receive NaOH from local suppliers located in the greater Los Angeles area. For the remaining facilities that do not currently use NaOH, but will begin using it, the local suppliers are expected to be able to accommodate the additional demand. As is currently the case with existing NaOH deliveries, deliveries of additional NaOH would be made to each facility by tanker truck via public roads. NaOH is typically delivered in 6,000 gallon trucks, so the proposed project would not introduce any new transportation hazards for NaOH.

The onsite storage and handling of NaOH creates the possibility of an accidental spill and release of NaOH. However, because NaOH has such a low vapor pressure (6.33 mm Hg at 40 ^{o}C or 104

^{o}F) when compared to water (55.3 mm Hg at 40 ^{o}C or 104 ^{o}F) at the same temperature, any spill of NaOH would not be expected to evaporate faster than water. Thus any spill of NaOH would be expected to stay in liquid form and would not likely exceed the ERPG-2 vapor concentration of five milligrams per cubic meter for NaOH. Further, operators at each affected facility who construct a new NaOH storage tank will need to build a containment berm large enough to hold 110 percent of the tank capacity in the event of an accidental release due to tank rupture. Thus, any spill of NaOH would not be expected to migrate beyond the boundaries of the berm on-site. Thus, any spill of NaOH is not expected to present a potential offsite public and sensitive receptor exposure. Lastly, since NaOH is not a flammable compound, other types of heat-related hazard impacts such as fires, explosions, boiling liquid – expanding vapor explosion (BLEVE) are not expected to occur and, therefore, will not be evaluated as part of this hazards analysis.

In conclusion, the hazards and hazardous materials impacts due to the use, tank rupture and the accidental release of NaOH will be less than significant for the proposed project.

Limestone

In DGSs, a dry calcium- and sodium-based alkaline powdered sorbent is used to absorb SO2 from the flue (outlet) gas stream. Only one source category, cement kilns located at Facility K, may be retrofitted with two DGSs to comply with the proposed project. The sorbent expected to be used in the DGSs will be limestone. Limestone is an existent component needed for manufacturing cement and Facility K is located adjacent to its own limestone quarry. Thus, the additional limestone that would be needed to operate the DGSs (approximately three tons per day under both Options 1 and 2 of the proposed project) is expected to also be supplied by the quarry. Limestone, also known as calcium carbonate (CaCO3), is a non-toxic, non-cancerous, and non-hazardous substance. The NFPA has not assigned a rating for calcium carbonate.

As the limestone absorbs the sulfur compounds in the flue gas, a solid waste by-product is produced that is comprised of 90 percent calcium sulfate (CaSO4) and 10 percent calcium sulfite (CaSO3). Both CaSO4 and CaSO3 are non-toxic, non-cancerous, and non-hazardous substances. Located on the MSDSs for CaSO4 and CaSO3, the NFPA hazards ratings are the same for both compounds, as follows: health is rated 1 (slightly hazardous), flammability is rated 0 (none) and reactivity is rated 0 (none).

Operation of the DGSs is expected to generate approximately two tons per day of this by-product mixture. Since CaSO4 is stable at high temperatures and since most of the by-product is comprised of CaSO4, the by-product can be re-introduced into the kiln with the raw feed to manufacture cement. Even though some SO2 may be liberated from the CaSO3 portion of the by-product as it enters the kiln feed, the DGS will be able to re-capture the SO2. Any portion of the solid waste by-product generated that cannot be re-introduced into the kiln, can either be sent to a landfill, used for agricultural purposes, or mixed in with aggregate. In any case, the solid waste by-products that may be generated from this process would not be considered hazardous waste.

In conclusion, the hazards and hazardous materials impacts due to the use of limestone and the recycling or disposal of its solid, non-hazardous waste by-product mixture of CaSO4 and CaSO3, is expected to be less than significant for the proposed project.

Selective Oxidation Catalyst

The proposed project may result in the replacement of an existing catalytic emission reduction system with a selective oxidation catalyst system to treat flue gas from a SRU/TGU. The selective oxidation catalyst, ESx, is a proprietary product manufactured by EmeraChem. ESx, is a platinum- and titanium-based catalyst that is manufactured in module form. The modules consist of six inch-by-six inch coated ceramic blocks that are stacked in a fixed bed. The amount of blocks that are needed depends on the amount of exhaust gas being treated and the amount of sulfur in the exhaust. The ESx catalyst acts as a sulfur trap and is continuously regenerated. At the end of its useful life, the spent ESx modules are replaced with fresh modules. The precious metals in the spent catalyst are reclaimed from the modules and the remaining material is crushed, and then recycled or disposed of in a landfill as non-hazardous waste. The NFPA has not assigned a rating for the ESx catalyst, but the MSDS for ESx indicates that it is non-hazardous according to the definition for "health hazard" and "physical hazard" provided in the OSHA Hazard Communication Law (29 CFR Part 1910).

Only one facility, Facility A, may consider using ESx catalyst, the equivalent to 400 pounds per year, for its SRU/TGU system. Delivery of the catalyst modules can be accomplished in one truck trip. In conclusion, the hazards and hazardous materials impacts due to the use of ESx catalyst and the recycling or disposal of the spent catalyst modules, is expected to be less than significant for the proposed project.

Sulfuric Acid

There are two facilities that manufacture sulfuric acid (H2SO4) in the Basin (Facilities C and J). H2SO4 is a considered a hazardous substance because it is a poisonous, corrosive liquid that is highly reactive with water. H2S04 has proposed risk values for both cancer/chronic and acute effects per SCAQMD Rule 1401. The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mists containing sulfuric acid" as a known human carcinogen, (IARC category 1). However, this classification applies only to mists containing sulfuric acid, and not to sulfuric acid or sulfuric acid solutions. H2SO4 is also a regulated substance pursuant to CalARP threshold under certain conditions. Located on the MSDSs for H2SO4 solution (52 to 100 percent, weight), the NFPA hazards ratings are as follows: health is rated 3 (highly hazardous), flammability is rated 0 (none), reactivity is rated 2 (moderately hazardous), and the special category is rated as water reactive.

Implementation of the proposed project may result in operators of Facility C upgrading their existing Cansolv unit by increasing the amount of steam throughput and operators of Facility J installing a WGS to further reduce SOx from their H2SO4 processes. While the nature of this source category involves the manufacture of a highly hazardous substance, the amount of H2SO4 produced is limited by the amount of available feedstock and the permit limits in place. Thus, the possible changes that may occur at the back-end of each of the affected facilities to reduce SOx are not anticipated to increase the production of H2SO4. Therefore, no changes to the existing hazards setting with respect to H2SO4 production is expected to result from the proposed project

Cansolv is a proprietary hydroxyalkyamine mixture that contains the following hazardous materials: 1,4-dioxane, acetaldehyde, formaldehyde, ethylene glycol, and ethylene oxide. All of these substances are regulated hazardous substances though the NFPA has not assigned hazards ratings to Cansolv. Acetaldehyde, ethylene glycol, and ethylene oxide are assigned chronic/cancer risk values while 1,4-dioxane and formaldehyde are assigned risk values for both

chronic/cancer and acute exposures pursuant to SCAQMD Rule 1401. In addition, all of these substances except ethylene glycol are regulated by CalARP.

Though Cansolv is considered a hazardous material, it is important to note that the potential modifications to the Cansolv Unit at Facility C will focus on increasing the amount of steam input to the existing amine regenerator tower. The amount of steam introduced into the unit is inversely proportional to the amount of SO2 in the exhaust stream (i.e., more steam in, less SO2 in the exhaust gas). The increase in steam to the amine regenerator tower will not change the amount of Cansolv amine currently used in the process and further, is not expected to involve the use of any new hazardous substance or increase any hazardous waste that may already be generated by the unit.

Lastly, the installation of a WGS at Facility J will increase the amount of NaOH caustic, a hazardous material. However, the hazards analysis for the increased use of NaOH for the sulfuric acid source category along with the other source categories that may employ WGSs is previously addressed in the "Caustic" discussion in this section.

In conclusion, installing new controls and upgrading existing controls for sulfuric acid manufacturing units will not entail the use of hazardous materials or require any disposal of hazardous waste. Thus, based on the preceding analysis, the hazards and hazardous materials impacts are expected to be less than significant for the proposed project.

Amines

Amine absorbers are currently utilized for reducing SOx emissions as part of FGT or as part of SRU/TGU systems operated at refineries. The type of amine used in these absorbers varies from process to process and sometimes the amines are paired up with a proprietary catalyst such as Merox for additional SOx control. The most common amines are DEA, MDEA, and MEA and their use is limited to removing H2S and CO2 from gas streams. While none of these amines can remove mercaptans, DEA and MEA can be used to remove COS.

Of these three amines, DEA is the only amine that is a TAC and carcinogenic. DEA is regulated as a hazardous compound/regulated substance per SCAQMD's Rule 1401. Located on the MSDSs for DEA, the NFPA hazards ratings are follows: health is rated 1 (slightly hazardous), flammability is rated 1 (slightly flammable) and reactivity is rated 0 (none). Located on the MSDSs for MEA, the NFPA hazards ratings are follows: health is rated 3 (highly hazardous), flammability is rated 2 (moderately flammable) and reactivity is rated 0 (none). The NFPA has not assigned a rating for MDEA.

The proposed project may entail modifications to FGT systems at five refineries. These modifications are summarized in Table 4-30.

Table 4-30
Summary of Potential FGT Modifications Per Facility

Facility ID	FGT Modification
A	Convert two DEA absorbers to Sulfinol
C	Convert all MEA absorbers to Sulfinol
D	Add Merox treatment to existing MEA and NaOH treatment of coker off-gas
E	Convert all DEA absorbers to Sulfinol
F	Add TG-10 to existing MDEA amine in the absorber
G	Add Merox treatment to existing MEA and NaOH treatment of coker off-gas

Sulfinol

The Sulfinol process is a proprietary mixed solvent process that removes H2S, CO2, COS, mercaptans and other organic sulfur compounds from gas streams. Sulfinol is the combination of two proprietary solvents mixed with water (25 percent by weight): 1) Sulfolane (tetrahydrothiopene dioxide) (25 percent by weight); and, 2) di-isopropanolamine (DIPA) (50 percent by weight). Neither Sulfolane nor DIPA are regulated substances pursuant to SCAQMD Rule 1401 or CalARP. Located on the MSDSs for Sulfolane, the NFPA hazards ratings are as follows: health is rated 1 (slightly hazardous), flammability is rated 1 (slightly flammable) and reactivity is rated 0 (none). Similarly, the NFPA hazards ratings for DIPA are as follows: health is rated 3 (highly hazardous), flammability is rated 1 (slightly flammable) and reactivity is rated 0 (none).

Operators of three facilities (Facilities A, C and E) may consider implementing a solvent change out to Sulfinol. If implemented, each of these facilities may use their existing amine storage tanks to store Sulfinol instead.

Facility A currently uses approximately 127,000 gallons per year of DEA for two absorbers. By switching over to Sulfinol for these units, the DEA will no longer be necessary and instead the usage of Sulfinol will be approximately 131,000 gallons per year. Since DEA is a regulated TAC with chronic/cancer risks, the Sulfinol change out at Facility A may reduce the existing toxics hazards for DEA amine use in their two absorbers.

Facility C currently uses approximately 288,000 gallons per year of MEA for their absorbers. By switching over to Sulfinol for these units, the MEA will no longer be necessary and instead the usage of Sulfinol will be approximately 278,000 gallons per year. While the solvent change out from MEA to Sulfinol is not expected to change existing health hazard, it is expected to reduce the flammability from moderately flammable to slightly flammable.

Facility E currently uses approximately 375,000 gallons per year of DEA for their absorbers. By switching over to Sulfinol for these units, the DEA will no longer be necessary and instead the usage of Sulfinol will be approximately 385,000 gallons per year. Since DEA is a regulated TAC with chronic/cancer risks, the Sulfinol change out at Facility E may reduce the existing toxics hazards for DEA amine use in their absorbers.

Implementing FGT modifications at three facilities by employing a Sulfinol amine swap is expected to reduce the hazards profile of the affected units because Sulfinol is less hazardous (e.g., less toxic when compared to DEA and less flammable when compared to MEA) than the existing amines currently used in these units. Thus, based on the preceding analysis, the hazards and hazardous materials impacts relative to the use of Sulfinol are expected to be less than significant for the proposed project.

Merox

Merox is a proprietary caustic scrubbing technology used for removing mercaptans and residual H2S from fuel gas. A Merox unit will typically consist of a column with three sections: 1) pre-wash; 2) extraction; and, 3) water wash. Feedstock enters the bottom of the column in the prewash section. The gas flows upward in the column where NaOH caustic is injected into the extraction section; the caustic acts as an absorbing agent to capture the mercaptans and convert them to sodium mercaptides. The spent caustic solution is regenerated by an oxidizer unit with catalyst injection to convert the mercaptides to disulfide oil. The disulfide oil is separated and sent elsewhere within the refinery for further processing while the regenerated caustic soda is returned to the extraction section of the column.

The addition of a Merox system to an existing absorber system means that the current amine solution will continue to be used. For example, in the cases of Facility D and G, MEA amine and NaOH caustic are currently used to treat the coker off-gas. Even if a Merox system is installed at each facility, MEA and NaOH will continue to be used and the amount of MEA needed will remain unchanged. The amount of NaOH needed will increase. It is important to note that Facility D and G already use NaOH in their FGT systems. However, the conversion to Merox technology will increase the amount of NaOH needed at these facilities. The analysis for the potential increases in NaOH for FGT are addressed in the previous discussion in the "Caustic" section. Lastly, Merox catalyst will be needed, approximately eight pounds per day or 3,000 pounds per year per facility, for the caustic regeneration portion of the Merox process.

Merox catalyst is comprised of a proprietary, cobalt-based reagent (a trade secret cobalt phthalocyanine sulfonate compound) that contains mostly water. The MSDS for Merox catalyst indicates that none of the ingredients in the catalyst have components that are classified or regulated by OSHA or by the United States National Toxicology Program (NTP). However, all of the ingredients in the catalyst are registered on the Toxic Substances Control Act (TSCA) Chemical Substance Inventory. Cobalt compounds are also specified as toxic chemicals under SARA Section 313 and may be subject to the Toxic Release Inventory (TRI) reporting requirements under 40 CFR 372. In addition, cobalt compounds are regulated pursuant to the State of California's Proposition 65 noticing requirements. Cobalt and cobalt compounds are not regulated by SCAQMD Rule 1401 or CalARP. The NFPA has not assigned a rating for Merox catalyst. Lastly, Merox catalyst is not listed in the USEPA's RCRA regulations because it does not possess any of the four identifying characteristics of hazardous waste (e.g., ignitibility, corrosivity, reactivity or toxicity).

Implementing FGT modifications at two facilities by installing Merox treatment systems is not expected to change the hazards profile of the affected units because Merox is not regulated as a hazardous substance. Thus, based on the preceding analysis, the hazards

and hazardous materials impacts relative to the use of Merox are expected to be less than significant for the proposed project. .

TG-10

TG-10 is a proprietary amine additive that is specifically designed for meeting a 10 ppmv H2S specification in tail gas treating applications. Operators of Facility F may consider adding TG-10 to the existing MDEA amine used in their absorber. Facility F is estimated to need approximately 11 gallons per day or 4,000 gallons per year of TG-10 to mix in with the MDEA for their absorber.

As previously mentioned, MDEA is not a TAC and it is not a regulated substance pursuant to SCAQMD Rule 1401 or CalARP. The NFPA has not assigned a rating for MDEA. Located on the MSDS for TG-10, the NFPA hazards ratings are follows: health is rated 1 (slightly hazardous), flammability is rated 1 (slightly flammable) and reactivity is rated 0 (none). TG-10 is not considered hazardous according to DOT Guidelines and it contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

Implementing FGT modifications at one facility by adding TG-10 to the existing MDEA amine is not expected to change the hazards profile of the affected unit because TG-10 contains mostly MDEA, which is not regulated as a hazardous substance. Thus, based on the preceding analysis, the hazards and hazardous materials impacts relative to the use of the MDEA/TG-10 blend are expected to be less than significant for the proposed project.

In conclusion, implementing the various FGT modifications at six facilities is not expected to make the existing hazards setting worse at the affected units. Thus, based on the preceding analysis, the hazards and hazardous materials impacts relative to the use of amines and Merox catalyst are expected to be less than significant for the proposed project.

Reduction of SOx Emissions

In addition, implementation of the proposed project is designed to reduce overall SOx emissions by up to 6.21 tons per day. Components of the SOx reductions are SO2, SO3, H2S, COS and mercaptans (ethyl- and methyl-). The following is a brief discussion of whether the components of SOx are hazardous.

SO2

SO2 is not a carcinogen or a TAC, but it is a regulated compound per CalARP. Located on the MSDSs for SO2, the NFPA hazards ratings are as follows: health is rated 3 (serious hazard), flammability is rated 0 (none) and reactivity is rated 0 (none). A reduction of SO2 would be beneficial because it would result in a reduction in a serious health hazard.

SO3

SO3 is a TAC with proposed risk values for cancer or non-cancer that are pending approval. SO3 is also a regulated compound per CalARP. The NFPA hazards ratings for SO3 are as follows: health is rated 3 (serious hazard), flammability is rated 0 (none) and reactivity is rated 2 (moderately reactive). A reduction of SO3 would be beneficial because it would result in a reduction of a toxic compound and a serious health hazard.

H2S

H2S is a carcinogen and a TAC with cancer/chronic and acute risk values per SCAQMD Rule 1401. H2S is also a regulated compound per CalARP. The NFPA hazards ratings for H2S are as follows: health is rated 4 (severely hazardous), flammability is rated 4 (severely flammable) and reactivity is rated 0 (none). H2S is listed as an extremely hazardous substance (EHS) subject to state and local reporting under Section 304 of SARA Title III. A reduction of H2S would be beneficial because it would result in a reduction of a toxic, carcinogenic compound and a severely hazardous health and flammability hazard.

COS

COS is not a carcinogen or a TAC, but it is a regulated compound per CalARP. Located on the MSDSs for COS, the NFPA hazards ratings are as follows: health is rated 2 (moderately hazardous), flammability is rated 0 (none) and reactivity is rated 1 (slightly reactive). A reduction of COS would be beneficial because it would result in a reduction of a moderate health hazard.

Mercaptans

Ethyl- and methyl-mercaptans are not carcinogenic or TACs, but they are regulated compounds per CalARP. The NFPA hazards ratings for ethyl-mercaptan are as follows: health is rated 1 (slightly hazardous), flammability is rated 4 (severely flammable) and reactivity is rated 1 (slightly reactive). The NFPA hazards ratings for methyl-mercaptan are as follows: health is rated 3 (highly hazardous), flammability is rated 4 (severely flammable) and reactivity is rated 0 (none). A reduction of mercaptans would be beneficial because it would result in a reduction of a severely flammable hazard for both ethyl- and methyl-mercaptans and a reduction of a high health hazard for methyl-mercaptan.

Elemental Sulfur

As part of reducing SOx in FGT and SRU/TGUs, additional elemental sulfur is expected to be captured and sold as a commodity from Facilities A, C, D, E, F and G. Table 4-31 summarizes that additional sulfur that may be collected and sold as a result of implementing the proposed project. Some commercial uses of sulfur are primarily in manufacturing sulfuric acid, fertilizers, gunpowder, matches, insecticides and fungicides. However, because sulfur dust may form flammable or explosive mixtures with air, each of the affected facilities is currently equipped with sulfur pits that are specifically designed to handle this potential explosion hazard. The capacity of these existing sulfur pits is expected to be able to handle the additional increase in collected elemental sulfur.

Elemental sulfur is not a regulated substance pursuant to SCAQMD Rule 1401 or CalARP. The NFPA hazards ratings for elemental sulfur are as follows: health is rated 2 (moderately hazardous), flammability is rated 1 (slightly flammable) and reactivity is rated 0 (none). Therefore, the capture and sale of additional elemental sulfur is not expected in change the existing hazards setting at each affected facility.

Table 4-31
Amount of Potential Increase in Sulfur Sales

Facility ID	Affected Source Category	SOx Control Technology	Amount of Sulfur Collected (lbs/day)	Amount of Sulfur Collected (long tons/year)*
A	SRU/TGU	New Selective Oxidation Catalyst system	145.2	23.7
C	FGT	Convert all MEA absorbers to Sulfinol	40.4	6.6
D	FGT	Convert MEA and NaOH treatment of coker off-gas to Merox	67.5	11
E	FGT	Convert all DEA absorbers to Sulfinol	347.1	56.6
F	FGT	Add TG-10 to existing MDEA amine in the absorber	63.5	10.4
G	FGT	Convert MEA and NaOH treatment of coker off-gas to Merox	288.4	47
		TOTAL	**952.2**	**155.1**

* 1 long ton = 2,240 pounds

In conclusion, implementing the proposed project is expected to reduce SOx which will, in turn, reduce the hazardous component of SOx. Thus, based on the preceding analysis, the hazards and hazardous materials impacts from reducing SOx in flue gas exhaust streams are expected to be a benefit, and as such, less than significant for the proposed project.

Transportation Release

The transportation of hazardous materials can result in offsite releases through accidents or equipment failure. The proposed project is expected to increase the amount of NaOH, a hazardous material transported to or from the affected facilities. Refer to the "Caustic" discussion for this analysis.

Additional soda ash, catalyst and SOx reducing additives are expected to be delivered to some of the affected facilities, but no increase in transportation hazards is expected as none of these materials are considered to be hazardous. Further, limestone will be removed from an existing quarry on the property of Facility K and trucked within the location of the facility's boundaries, but no increase in transportation hazards is expected as limestone is not considered to be a hazardous substance

Lastly, additional amines (e.g., Sulfinol) may be delivered to some of the affected facilities causing the elimination or reduction of other amines (e.g., MEA and DEA) deliveries, but no increase in transportation hazards is expected as Sulfinol is considered to be less hazardous overall when compared to the existing amine deliveries.

Solid Waste

Each affected facility operator was asked to complete a survey about their solid waste and how it is currently handled. Table 4-32 summarizes the results of the survey. If the proposed project is implemented, additional solid waste may be generated. Tables 4-33 and 4-34 summarize the

increased amount of solid waste expected to be generated for implementation of Option 1 (i.e., if WGSs are installed) and Option 2 (i.e., if additional SOx reduction additives are used), respectively. In both cases, neither Option 1 nor Option 2 will result in the generation of solid hazardous waste.

Table 4-32
Current Amount of Solid Waste Generated

Facility ID	Current Amount of Solid Waste Generated (tons/day)	Type of Solid Waste	Is Solid Waste Hazardous?	Solid Waste is trucked to:
A	1.12	Catalyst Fines	NO	Cement Plant for Recycling
B	4.66	Catalyst Fines	NO	1. Cement Plant for Recycling; or, 2. Class III landfill for disposal as non- hazardous waste
C	2.16	Catalyst Fines	NO	Cement Plant for Recycling
D	0.41	Catalyst Fines	NO	Cement Plant for Recycling
E	0.99	Catalyst Fines	NO	Cement Plant for Recycling
F	2.00	Catalyst Fines	NO	Cement Plant for Recycling
G	Not reported	Catalyst Fines	NO	Cement Plant for Recycling
H	175	Baghouse fines	NO	Cement Plant for Recycling
I	Not reported	ESP fines	Not reported	Most of the waste is reused on site, but some is sent to a Class III landfill for disposal.
J	Not reported	Not reported	Not reported	Not reported
K	Not reported	Not reported	Not reported	Most of the waste is reused on site, but some is sent to a Class III landfill for disposal.
Total	**186.34**			

Table 4-33
Option 1: Potential Increase in Solid Waste

Facility ID	Current Amount of Solids Collected by Existing Controls (tons/day)	Proposed Increase in Amount of Solids Collected Due to New SOx Controls (tons/day)	Is the proposed increase in Solid Waste Hazardous?	Solid Waste will be trucked to:
A	1.12	0.77	NO	Cement Plant for Recycling
B	4.66	2.47	NO	Cement Plant for Recycling
C	2.16	0	NO	Not Applicable
D	0.41	1.18	NO	Cement Plant for Recycling
E	0.99	0.44	NO	Cement Plant for Recycling
F	2.00	1.89	NO	Cement Plant for Recycling
G	Not reported	2.03	NO	Cement Plant for Recycling
H	175	0.44	NO	Cement Plant for Recycling
I	Not reported	0.05	NO	1. Cement Plant for Recycling; or, 2. Class III landfill for disposal as non- hazardous waste
J	Not reported	0	NO	Not Applicable
K	Not reported	2.49	NO	Reused on-site
Total	**186.34**	**11.75**		

Table 4-34
Option 2: Potential Increase in Solid Waste

Facility ID	Current Amount of Solids Collected by Existing Controls (tons/day)	Proposed Increase in Amount of Solids Collected Due to New SOx Controls (tons/day)	Is the proposed increase in Solid Waste Hazardous?	Solid Waste will be trucked to:
A	1.12	0	NO	Not Applicable
B	4.66	1.37	NO	Cement Plant for Recycling
C	2.16	0	NO	Not Applicable
D	0.41	1.18	NO	Cement Plant for Recycling
E	0.99	0	NO	Not Applicable
F	2.00	0	NO	Not Applicable
G	Not reported	2.03	NO	Cement Plant for Recycling
H	175	0.44	NO	Cement Plant for Recycling
I	Not reported	0.05	NO	1. Cement Plant for Recycling; or, 2. Class III landfill for disposal as non- hazardous waste
J	Not reported	0	NO	Not Applicable
K	Not reported	2.49	NO	Reused on-site
Total	**186.34**	**7.56**		

Sensitive Receptors

None of the affected units operating at the existing facilities that may be altered by the proposed project are located within 1,000 feet or one-quarter mile of a sensitive receptor, including individuals at hospitals, nursing facilities, daycare centers, schools, and elderly intensive care facilities, as well as residential and off-site occupational areas. Therefore, no adverse significant impacts from hazardous emissions onsite or the handling of acutely hazardous materials, substances and wastes on sensitive receptors is expected from the proposed project.

Summary

Table 4-35 summarizes the substances that may be involved in the various processes at the affected facilities. Some of the substances listed are considered hazardous while others are not. Of the substances listed in Table 4-35, the only net increase in the use of a hazardous material will be for NaOH and the effects of this potential increase has been previously analyzed in the "Caustic" discussion. For the remaining substances identified, there will be either a decrease in use or no change from the existing setting. Thus, none of the changes to the existing setting is expected to result in a significant adverse impact for hazards and hazardous materials.

Table 4-35
Substances that May Be Affected By The Proposed Project

Substance	Potential Overall Increase, Decrease, or No Change from Existing Setting?	Contains TAC(s) per SCAQMD Rule 1401?	Hazardous per CalARP?	NFPA Rating: Health (Blue)	NFPA Rating: Flammability (Red)	NFPA Rating: Reactivity (Yellow)	NFPA Rating: Special (White)
DIPA	Increase	No	No	3	1	0	None
ESx Catalyst	Increase	No	No	N/A	N/A	N/A	N/A
Limestone (calcium carbonate)	Increase	No	No	N/A	N/A	N/A	N/A
Merox Catalyst	Increase	No	No	N/A	N/A	N/A	N/A
NaOH Caustic (50% by weight)	Increase	Yes, Acute (non-cancer)	Yes	3	0	1	None
Soda Ash Caustic (sodium carbonate)	Increase	No	No	2	0	0	None
SOxGetter/ Super SOxGetter Catalyst	Increase	No	No	1	0	0	None
Sulfur (Elemental)	Increase	No	No	2	1	0	None
Sulfolane	Increase	No	No	1	1	0	None
Super DeSOx Catalyst	Increase	No	No	2	0	0	None
TG-10	Increase	No	No	1	1	0	None
Sulfuric Acid	No Change	Yes, cancer/ chronic & acute	Yes	3	0	2	Water Reactive
Cansolv	No Change	Yes, cancer/ chronic & acute	Yes	N/A	N/A	N/A	N/A
MDEA	No Change	No	No	N/A	N/A	N/A	N/A
COS	Decrease	No	Yes	2	0	1	None
DEA	Decrease	Yes, cancer/ chronic	No	1	1	0	None
Ethyl-Mercaptan	Decrease	No	Yes	1	4	1	None
H2S	Decrease	Yes, cancer/ chronic & acute	Yes	4	4	0	None
MEA	Decrease	No	No	3	2	0	None
Methyl Mercaptan	Decrease	No	Yes	3	4	0	None
SO2	Decrease	No	Yes	3	0	0	None
SO3	Decrease	Yes, cancer/ chronic & acute (pending)	Yes	3	0	2	None

NFPA Hazard Code Key: 4 = Extreme; 3 = High; 2 = Moderate; 1 = Slight; 0 = Insignificant; N/A = NFPA hazard is not assigned.

Project-Specific Impacts – Conclusion: Based on the preceding description of hazards and hazardous materials impacts, the proposed project is expected to generate less than significant adverse impacts related to any of the substances listed in Table 4-35. The analysis of hazard impacts has relied on information from past similar projects (i.e., installing new, or retrofitting

existing equipment to comply with SCAQMD rules and regulations and installation of associated NaOH storage tanks) where the SCAQMD was the lead agency responsible for preparing an environmental analysis pursuant to CEQA. To the extent that future projects to install new or modify existing SOx controls conform with the hazard analysis in this PEA, no further hazard analysis may be necessary. However, if site-specific characteristics are involved with future projects that are outside the scope of this analysis, further hazards analysis may be warranted.

Project-Specific Mitigation: Less than significant adverse impacts associated with hazards and hazardous materials are expected from the proposed project during both construction and operation, so no mitigation measures are required.

Level of Significance After Mitigation: The analysis concluded that the hazards and hazardous materials impacts from implementing the proposed project are considered to be adverse, but less than significant. Therefore, mitigation measures are not required.

Cumulative Hazards and Hazardous Materials Impacts: Because the project-specific hazards and hazardous materials impacts do not exceed any applicable significance thresholds, they are not considered to be cumulatively considerable pursuant to CEQA Guidelines §15064 (h)(1) and therefore, do not generate significant adverse cumulative hazards and hazardous materials impacts.

Cumulative Mitigation Measures: None required.

HYDROLOGY AND WATER QUALITY IMPACTS

Significance Criteria

Potential impacts on water resources will be considered significant if any of the following criteria apply:

Water Demand:

- The existing water supply does not have the capacity to meet the increased demands of the project, or the project would use a substantial amount of potable water. For the purposes of this analysis, substantial amount of potable water demand is defined as the amount of water necessary to supply 500 dwelling units or approximately 133,911 to 223,186 gallons of potable water per day.
- The project increases demand for water by more than five million gallons per day.

Water Quality:

- The project will cause degradation or depletion of groundwater resources substantially affecting current or future uses.
- The project will cause the degradation of surface water substantially affecting current or future uses.
- The project will result in a violation of National Pollutant Discharge Elimination System (NPDES) permit requirements.
- The capacities of existing or proposed wastewater treatment facilities and the sanitary sewer system are not sufficient to meet the needs of the project.
- The project results in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.

- The project results in alterations to the course or flow of floodwaters.

Project-Specific Construction Impacts

Construction Background

Implementation of the proposed project is expected to result in construction activities associated with installing new or modifying existing SOx control equipment at the affected facilities, which are complex, well-established and mostly paved, industrial facilities. Depending on the proposed location within each facility's boundaries for the siting of any new control equipment that may be installed as a result of implementing the proposed project, construction activities such as digging, earthmoving, grading, slab pouring, or paving could occur if the proposed site for the new equipment is not suitable in its present form (e.g., graded with a foundation slab). Tables 4-36 and 4-37 contain a summary of the estimates of plot space needed per facility for Option 1 and Option 2 of the proposed project.

Based on the consultant's surveys of the affected facilities, if all affected facilities conduct site preparation activities, the total amount of disturbed area for all of the facilities combined is estimated to be 48,126 square feet (1.1 acres) for Option 1 and 40,976 square feet (0.9 acre) for Option 2. However, even if all affected facilities intend to conduct site preparation, not much overlap of site preparation activities would be expected since there are several years between the proposed rule amendment date (2010) and the proposed compliance date (January 1, 2019) and because the plot spaces are relatively small. Further, depending on the scale, site preparation typically can take anywhere from two weeks to one month. Therefore, it is unlikely that all affected facilities will do site preparation both in the same month of the same year. The largest parcel of land to be potentially disturbed at any one facility for both Options 1 and 2 of the proposed project could occur at Facility D and is approximately 11,930 square feet which represents approximately 25 percent of the total area to be disturbed for Option 1 and 29 percent of the total area to be disturbed for Option 2. On average, 4,384 square feet may be disturbed per facility under Option 2 and 3,725 square feet may be disturbed per facility under Option 2. Consistent with the assumption that, as a worst-case, up to four facilities could conduct overlapping site preparation activities, then the potential peak area that could be disturbed at any one time would be 33,836 square feet under Option 1 and 31,836 square feet under Option 2.

Under either option, the amount of area to be disturbed is relatively small such that one backhoe should be sufficient for site preparation activities. Since one backhoe can trench approximately 0.1 acre per day or 4,356 square feet per day, earthmoving activities at Facility D would take approximately three days under either Option 1 or Option 2. Even if four facilities conduct overlapping site preparation, earthmoving activities would take about the same amount of time since each plot space is relatively small (i.e., a ¼-acre plot or smaller) and there would be one backhoe in operation at each of the four facilities.

Table 4-36
Option 1: Potential Plot Space Needed For Proposed Control Technologies

Facility ID	Option 1: Potential SOx Control per Equipment/Source Category	Plot Space Needed for Proposed Controls (square feet)
A	1 WGS for FCCU (new) 1 Selective Oxidation Catalyst system for SRU/TGU (new) 1 FGT by Sulfinol Conversion (modified)	2,000 + 2,500 + 100 **4,600**
B	1 WGS for FCCU (new) 2 WGSs for SRU/TGU (new)	2,000 + 7,906 **9,906**
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Existing Cansolv Unit (modified)	**6,000**+ 0 **6,000**
D	1 WGS for SRU/TGU (new) 1 FGT by Merox Treatment Upgrade (modified)	5,930 + 6,000 **11,930**
E	1 WGS for FCCU (new) 1 FGT by Sulfinol Conversion (modified)	1,575 + 100 **1,675**
F	1 WGS for FCCU (new) 1 FGT by Amine Additive (modified)	1,575 + 100 **1,675**
G	1 FGT by Merox Treatment Upgrade (modified)	**6,000**
H	1 WGS for calciner (new)	**1,200**
I	2 WGSs for glass melting furnaces (new)	**640**
J	1 WGS for sulfuric acid unit (new)	**500**
K	2 DGSs for cement kilns (new)	**4,000**
	TOTAL	**48,126**

Table 4-37
Option 2: Potential Plot Space Needed For Proposed Control Technologies

Facility ID	Option 2: Potential SOx Control per Equipment/Source Category	Plot Space Needed for Proposed Controls (square feet)
A	1 SOx Reducing Additive Hopper for FCCU (modified) 1 Selective Oxidation Catalyst system for SRU/TGU (new) 1 FGT by Sulfinol Conversion (modified)	0 + 2,500 + 100 **2,600**
B	1 SOx Reducing Additive Hopper for FCCU (modified) 2 WGSs for SRU/TGU (new)	0 + 7,906 **7,906**
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Existing Cansolv Unit (modified)	**6,000**+ 0 **6,000**
D	1 SOx Reducing Additive Hopper for FCCU (new) 1 WGS for SRU/TGU (new) 1 FGT by Merox Treatment Upgrade (modified)	0 + 5,930 + 6,000 **11,930**
E	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Sulfinol Conversion (modified)	0 + 100 **100**
F	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Amine Additive (modified)	0 + 100 **100**
G	1 FGT by Merox Treatment Upgrade (modified)	**6,000**
H	1 WGS for calciner (new)	**1,200**
I	2 WGSs for glass melting furnaces (new)	**640**
J	1 WGS for sulfuric acid unit (new)	**500**
K	2 DGSs for cement kilns (new)	**4,000**
	TOTAL	**40,976**

Construction Water Demand

To comply with the dust suppression requirements in SCAQMD Rule 403 – Fugitive Dust, during site preparation activities, some water is expected to be used. For example, one water truck per affected facility may be needed for dust suppression activities during the initial site preparation/earth moving portion of the proposed project. One water truck can hold approximately 6,000 gallons for dust control and it can be refilled over the course of the day if more than 6,000 gallons is needed. By applying one gallon of water per square foot of disturbed area, at a minimum of two times per day as required to minimize fugitive dust, the total amount of water expected to be used for dust suppression is approximately 8,712 gallons per facility per day. However, if four facilities conduct overlapping watering, then the maximum amount of water that could be used for site preparation is 34,848 gallons per day. On windy days, it may be necessary to conduct a third water application. Thus, the total peak amount of water that could be used for dust suppression is approximately 13,068 gallons per facility per day. Again, if four

facilities conduct overlapping watering, at a watering rate of three applications per day, then the peak amount of water that could be used for site preparation is 52,272 gallons per day.

Due to the need to quickly construct a proper foundation for the proposed control equipment, earth moving activities during site preparation are expected to be of a short duration lasting from two to three days to no longer than one month per facility. As such, the corresponding dust control activities are also not expected to last longer than one month per facility. Further, water used for dust suppression does not have to be of potable quality, but can be recycled water. Recycled water is currently available at three of the affected facilities and non-potable industrial-use groundwater is currently available at one additional facility. Additional recycled water availability is expected to expand to five other facilities by Summer 2013[82].

Since the earliest year when construction activities could begin would be in 2012, nine facilities are expected to have access to recycled or industrial-use groundwater for use during site preparation. There are three facilities (Facilities G, H and I) that do not currently have access to recycled or industrial-use groundwater and are not expected to have future access in 2012 or later. However, the amount of site preparation that would need to occur at these two facilities is expected to be about 7,840 square feet which would require approximately 15,680 gallons of water (at a watering rate of twice each day) to 23,520 gallons of water (at a watering rate of three times each day) for dust suppression activities during windy days.

Table 4-38 identifies the current water suppliers, the type of water currently supplied to each affected facility, and whether the facility currently buys recycled water. When surveyed, all of the responses from the affected facilities indicated that there is no limit to how much potable water they can purchase. Three facilities currently have pipeline access to and purchase recycled water and one facility has recycled water trucked in.

Table 4-39 identifies whether the affected facilities will have future access to recycled water pursuant to the LADWP's HRRWPP project. In addition to the three facilities that already have pipeline access to and purchase recycled water, the LADWP and WBMWD, as part of the HRRWPP project, are currently working with four facilities that would be affected by the proposed project to reach an agreement that would also have them start using recycled water. Staff at both the LADWP and WBMWD is working cooperatively to negotiate with these facilities to craft a Memorandum of Understanding that would encourage the installation of the necessary water conveyance infrastructure along with attractive pricing subsidies to access and maximize the use of recycled water while minimizing groundwater pumping and imported water use in oil refinery operations. Negotiations to supply recycled water to facilities affected by the proposed project are independent of, and do not rely on the proposed amendments to Regulation XX.

There are four facilities (G, H, I and K) identified in Table 4-39 that would not be able to have future or increased access to recycled water but only three facilities would be expected to

[82] Future access to recycled water for these five facilities is dependent upon the completion of the Harbor Refineries Recycled Water Pipeline Project (HRRWPP) by Summer 2013 (SCH No. 2008121093, certified on October 20, 2009). The HRRWPP will conserve potable water and instead produce and convey recycled water to multiple industrial and irrigation customers in the Los Angeles Harbor area (http://www.ladwp.com/ladwp/cms/ladwp011486.jsp). Proponents of the HRRWPP are working with each of the affected facilities to negotiate construction of a new water conveyance at their site in order to tie-into the recycled water pipeline.

continue to rely on potable water (G, H and I) during construction of the proposed project. Though the water used is not recycled, Facility K has access to non-potable industrial-use groundwater from their owner-operated groundwater wells and therefore, would not be expected to increase its existing use of potable water during construction of the proposed project.

Table 4-38
Current Water Supply Sources and Baseline Water Use at Affected Facilities

Facility ID	Purchases Potable Water From?	Potable Water Baseline (MMgal/day)	Pumps from Groundwater Wells?	Groundwater Pumping Baseline (MMgal/day)	Purchases Recycled Water From?	Recycled Water Use Baseline (MMgal/day)	Total Baseline Water Use[1] (MMgal/day)
A	City of El Segundo via WBMWD	2.60	No wells	0	City of El Segundo via WBMWD	8.15	10.75
B	CWS via WBMWD	5.80	Yes	3.90	CWS via WBMWD	2.80	12.50
C	LADWP	5.47	Yes	2.38	No Access	0	7.85
D	City of Torrance	3.19	Yes (non-potable)	1.13	City of Torrance via WBMWD	6.00	10.32
E	LADWP	1.30	Yes (non-potable)	4.46	No Access	0	5.76
F	LADWP	1.75	No wells	0	Air Products Company	0.75	2.50
G	CWS via WBMWD	0.30	Yes (non-potable)	2.59	No Access	0	2.88
H	Port of Long Beach via Long Beach Water Department	1.08	No wells	0	No Access	0	1.08
I	City of Vernon	0.13	No wells	0	No Access	0	0.13
J	CWS via WBMWD	0.58	Yes (non-potable)	0.15	No Access	0	0.73
K	Riverside Highland Water Co	1.39	Yes (non-potable)	1.90	No Access	0	3.29
	TOTAL	**23.59**	**TOTAL**	**16.51**	**TOTAL**	**17.70**	**57.79**

[1] Total Baseline Water Use = Potable Water Baseline + Groundwater Pumping Baseline + Recycled Water Use Baseline

Table 4-39
Future Facility-Specific Water Supply Sources

Facility ID	Will Continue to Purchase Potable Water From?	Will Continue to Pump from Groundwater Wells?	Will Have Access to Recycled Water per the HRRWPP Project?
A	City of El Segundo via WBMWD	No wells	Yes, increased access via WBMWD
B	CWS via WBMWD	Yes	Yes, increased access via WBMWD
C	LADWP	Yes	Yes, new access via WBMWD by Summer 2013
D	City of Torrance	Yes (non-potable)	Yes, increased access via WBMWD
E	LADWP	Yes (non-potable)	Yes, new access via WBMWD by Summer 2013
F	LADWP	No wells	Yes, new access via WBMWD by Summer 2013
G	CWS via MWD	Yes (non-potable)	No
H	Port of Long Beach via Long Beach Water Department	No wells	No
I	City of Vernon	No wells	No
J	CWS via WBMWD	Yes (non-potable)	Yes, new access via WBMWD by Summer 2013
K	Riverside Highland Water Co	Yes (non-potable)	No

Instead of installing new equipment, there are a few facility operators that may choose to modify or upgrade their existing SOx control equipment. In these cases, site preparation activities are not expected because the existing foundation and the existing equipment are expected to be reused in their current location and current plot space. Therefore, no water for dust suppression purposes is expected to be needed for any construction upgrades to existing SOx control equipment.

Once constructed, but prior to operation, additional water is expected to be used to hydrostatically (pressure) test all vessels and pipelines to ensure each structure's integrity and wastewater may be created during the testing. Pressure testing is typically a one-time event, unless a leak is found. Similar to dust suppression, water used for pressure testing does not have to be of potable quality, but can be recycled water.

Even though the potential increase in water use for both Option 1 and Option 2 of the proposed project is below the SCAQMD's five million gallons per day significance threshold for total water, it may be helpful to consider other criteria for evaluating what would be considered a substantial use of potable water, especially since California is in a State of Emergency for Drought. For example, CEQA Guidelines §15155 – City or County Consultation With Water Agencies, defines a "water demand" project in several ways. While the criteria for defining water demand are not significance thresholds per se, the criteria can provide some insight as to how city or county lead agencies evaluate water demand impacts. Most of the criteria in this part

of the CEQA Guidelines do not have a numerical criterion or direct methodology to correlate the criteria in terms of gallons per day for use as a significance threshold specific to potable water use. However, CEQA Guidelines §15155 (a)(1)(G) defines a water demand project as: "A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project." To estimate what this means in terms of quantifying how much potable water could be used by a 500 dwelling unit (DU) project, the California Department of Water resources relies on a conversion factor range of 0.3 to 0.5 acre-feet of potable water per year per DU as shown in the following calculation[83]:

$$(500\ \text{DUs}) \times \frac{(0.3 - 0.5\ \text{acre-feet/year})}{(1\ \text{DU})} \times \frac{(325{,}851\ \text{gallons})}{(1\ \text{acre-foot})} \times \frac{(1\ \text{year})}{(365\ \text{days})} = 133{,}911\ \text{gallons/day to } 223{,}186\ \text{gallons/day}$$

Thus, the amount of water that would be needed during construction for dust suppression and pressure testing activities: 1) would not be considered a substantial use of potable water since several facilities are currently using or will have future access to recycled water; and 2) is less than the overall water demand significance threshold of five million gallons per day. Further, watering activities for dust suppression and pressure-testing are temporary and occur on a short-term basis. For these reasons, less than significant water demand/water use impacts are expected during construction of the proposed project.

Construction Water Quality

Any wastewater generated from pressure testing is expected to flow to each affected facility's wastewater treatment or collection system and recycled or discharged after treatment with process wastewater. Thus, wastewater generation from pressure testing activities is not expected to affect groundwater quality. Further, the volume of wastewater that will be generated from pressure testing is expected to be minimal and within the capacity of each facility's wastewater treatment and collection systems.

Further, because the total amount of disturbed area for all of the facilities combined is estimated to be 48,126 square feet (1.1 acres) for Option 1 and 40,976 square feet (0.9 acre) for Option 2 with the peak amount of area to be disturbed at Facility D at 11,930 square feet, the proposed construction activities will disturb less than 0.25 acre under Option 1 and 0.29 acre under Option 2 at each of the remaining facilities. This means that a NPDES General Permit for Storm Water Discharges Associated with Construction Activity, also referred to as a Storm Water Construction Permit, would not be required for any of the affected facilities. Because the proposed project is expected to disturb substantially less than one acre per facility, on-site collection of storm water in each facility's storm water collection system is expected to be about the same as the amount currently collected. Therefore, no significant impacts are expected from storm water during construction.

Construction Conclusion

In summary, less than significant adverse water demand and wastewater impacts are expected during construction of the proposed project.

[83] Draft Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001 to assist water suppliers, cities, and counties in integrating water and land use planning, California Department of Water Resources, September 2002, p.3

Project-Specific Operation Impacts

Operation Background

Facilities affected by the proposed project are expected to install new or modify their existing air pollution control equipment in order to comply with the proposed project. Additional water demand and wastewater generation are expected to result from the operation of most of the proposed control technologies. Table 4-40 identifies the proposed control technologies that use water and generate wastewater during operations for Options 1 and 2 of the proposed project, respectively. The majority of the proposed SOx control technologies listed in these tables utilizes water and generates wastewater. It is important to note that the quality of water that may be used in the various SOx control technologies does not have to be potable as recycled or industrial-use groundwater can be utilized instead.

Table 4-40
Proposed Control Technologies and Their Corresponding
Potential Operational Water Use and Wastewater Generation

Main Equipment	Proposed Control Technology	Proposed Control Technology Uses Water?	Proposed Control Technology Generates Wastewater?
FCCU	WGS	Yes	Yes
FCCU	SOx Reducing Catalyst	No	No
SRU/TGU	WGS	Yes	Yes
SRU/TGU	Selective Oxidation Catalyst	No	No
Refinery Boilers/Heaters	FGT (Merox Treatment or Convert Amine Absorbers to Sulfinol)	Yes	Yes
Refinery Boilers/Heaters	FGT (Additive to Existing Amine System)	No	No
Coke Calciner	WGS	Yes	Yes
Glass Melting Furnaces	WGS	Yes	Yes
Sulfuric Acid Mfg.	WGS	Yes	Yes
Sulfuric Acid Mfg.	Upgrade Existing Cansolv Unit	Yes	No[1]
Cement Kilns	DGS	Yes	No[2]

[1] More water (as steam) is required to complete the upgrade. However, the steam is evaporated during the process so there is no wastewater stream generated.

[2] All of the injected water is evaporated during the process so there is no wastewater stream generated.

Tables 4-41 and 4-42 quantify the potential increases in operational water use and wastewater generation as a result of installing new or upgrading existing SOx controls to comply with Options 1 and 2 of the proposed project, respectively. If all of the proposed control technologies are installed or upgraded, the potential increase in water use is estimated to be approximately 0.88 MMgal/day under Option 1 and 0.64 MMgal/day under Option 2. Further, if all of the proposed control technologies are installed or upgraded, the potential increase in wastewater generated would be approximately 0.27 MMgal/day under Option 1 and 0.16 MMgal/day under

Option 2. Hydrology and water quality impacts from the proposed project are discussed in detail in the following sections.

Table 4-41
Option 1: Potential Increases in Operational Water Demand and Wastewater Generation

Main Equipment	Proposed Control Technology	No. of Facilities to Install or Upgrade Controls	No. of Units Expected to Be Installed or Upgraded	Potential Increase in Operational Water Demand (gal/day)	Potential Increase in Wastewater Generation (gal/day)
FCCU	WGS	4	4	241,096	112,329
SRU/TGU	WGS	2	3	354,247	70,959
Refinery Boilers/Heaters	FGT (Merox Treatment or Convert Amine Absorbers to Sulfinol)	5	5	52,055	46,575
Coke Calciner	WGS	1	1	40,896	16,992
Glass Melting Furnaces	WGS	1	2	58,464	12,877
Sulfuric Acid	WGS	1	1	19,589	10,800
Sulfuric Acid	Upgrade Existing Cansolv Unit	1	1	6,336	0[1]
Cement Kilns	DGS	1	2	110,685	0[2]
		Total	**19**	**883,368**	**270,532**

[1] More water (as steam) is required to complete the upgrade. However, the steam is evaporated during the process so there is no wastewater stream generated.

[2] All of the injected water is evaporated during the process so there is no wastewater stream generated.

Table 4-42
Option 2: Potential Increases in Operational Water Demand and Wastewater Generation

Main Equipment	Proposed Control Technology	No. of Facilities to Install or Upgrade Controls	No. of Units Expected to Be Installed or Upgraded	Potential Increase in Operational Water Demand (gal/day)	Potential Increase in Wastewater Generation (gal/day)
FCCU	SOx Reducing Catalyst	5	5	0	0
SRU/TGU	WGS	2	3	354,247	70,959
Refinery Boilers/Heaters	FGT (Merox Treatment or Convert Amine Absorbers to Sulfinol)	5	5	52,055	46,575
Coke Calciner	WGS	1	1	40,896	16,992
Glass Melting Furnaces	WGS	1	2	58,464[1]	12,877
Sulfuric Acid	WGS	1	1	19,589	10,800
Sulfuric Acid	Upgrade Existing Cansolv Unit	1	1	6,336	0[1]
Cement Kilns	DGS	1	2	110,685	0[2]
		Total	**19**	**642,272**	**158,203**

[1] More water (as steam) is required to complete the upgrade. However, the steam is evaporated during the process so there is no wastewater stream generated.

[2] All of the injected water is evaporated during the process so there is no wastewater stream generated.

Water Demand

As summarized in Tables 4-43 and 4-44, each affected facility provided its water demand baseline and these water usage rates were compared to each facility's estimated potential increase in water demand that may result from implementing Option 1 or Option 2 of the proposed project. For both Option 1 and Option 2, the peak percentage increase from baseline levels when compared to the proposed project was approximately 45 percent (Facility I) but most of the affected facilities have a potential increase in water demand from one to four percent above each facility's baseline. The overall increase in water demand for Option 1 is 1.53 percent above the total water use baseline for all of the affected facilities combined. Similarly, the overall increase in water demand for Option 2 is 1.11 percent above the total water use baseline for all of the affected facilities combined.

Table 4-43
Option 1: Potential Increases in Operational Water Demand per Facility

Facility ID	Option 1: Proposed Control Technology	Potential Increase in Water Use (MMgal/day)	Current Facility Water Use (MMgal/day)	Percentage Increase Above Baseline
A	1 WGS for FCCU (new) 1 Selective Oxidation Catalyst system for SRU/TGU (new) 1 FGT by Sulfinol Conversion (modified)	0.071 + 0 + 0.008 **0.079**	10.75	0.73%
B	1 WGS for FCCU (new) 2 WGSs for SRU/TGU (new)	0.077 + 0.140 **0.217**	12.5	1.74%
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	**0.003**+ 0.006 **0.009**	7.85	0.11%
D	1 WGS for SRU/TGU (new) 1 FGT by Merox Treatment Upgrade (modified)	0.214 + 0.014 **0.228**	10.32	2.21%
E	1 WGS for FCCU (new) 1 FGT by Sulfinol Conversion (modified)	0.049 + 0.014 **0.063**	5.76	1.09%
F	1 WGS for FCCU (new) 1 FGT by Amine Additive (modified)	0.044 + 0 **0.044**	2.5	1.76%
G	1 FGT by Merox Treatment Upgrade (modified)	**0.014**	2.88	0.49%
H	1 WGS for calciner (new)	**0.041**	1.08	3.79%
I	2 WGSs for glass melting furnaces (new)	**0.058**	0.13	44.62%
J	1 WGS for sulfuric acid unit (new)	**0.020**	0.73	2.74%
K	2 DGSs for cement kilns (new)	**0.111**	3.29	3.37%
	TOTAL	**0.883**	**57.79**	**1.53%**

Table 4-44
Option 2: Potential Increases in Operational Water Demand per Facility

Facility ID	Option 2: Proposed Control Technology	Potential Increase in Water Use (MMgal/day)	Current Facility Water Use (MMgal/day)	Percentage Increase Above Baseline
A	1 SOx Reducing Additive Hopper for FCCU (modified) 1 Selective Oxidation Catalyst system for SRU/TGU (new) 1 FGT by Sulfinol Conversion (modified)	0 + 0 + 0.008 **0.008**	10.75	0.07%
B	1 SOx Reducing Additive Hopper for FCCU (modified) 2 WGSs for SRU/TGU (new)	0 + 0.14 **0.14**	12.50	1.12%
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	**0.003**+ 0.006 **0.009**	7.85	0.11%
D	1 SOx Reducing Additive Hopper for FCCU (new) 1 WGS for SRU/TGU (new) 1 FGT by Merox Treatment Upgrade (modified)	0 + 0.214 + 0.014 **0.228**	10.32	2.21%
E	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Sulfinol Conversion (modified)	0 + 0.014 **0.014**	5.76	0.24%
F	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Amine Additive (modified)	0 + 0 **0**	2.50	0%
G	1 FGT by Merox Treatment Upgrade (modified)	**0.014**	2.88	0.49%
H	1 WGS for calciner (new)	**0.041**	1.08	3.79%
I	2 WGSs for glass melting furnaces (new)	**0.058**	0.13	44.62%
J	1 WGS for sulfuric acid unit (new)	**0.020**	0.73	2.74%
K	2 DGSs for cement kilns (new)	**0.111**	3.29	3.37%
	TOTAL	**0.642**	**57.79**	**1.11%**

To have a better understanding about the availability of water and the source (i.e., potable versus non-potable recycled or industrial-use groundwater), SCAQMD staff contacted each supplier of water used for industrial applications for each of the affected facilities[84], and all of the suppliers indicated that they would be able to accommodate the additional operational water demand if the proposed project goes forward. In addition, each water supplier specified whether the additional water to be supplied will be recycled water or potable water. In the case of recycled water, the water supplier indicated whether the recycled water is currently available or whether it would be available in the future pursuant to the aforementioned HRRWPP project.

As part of making the determination if water supplies will be sufficient for the proposed project, the availability of recycled or industrial-use groundwater is an important factor. Seven facilities are expected to have either increased access (e.g., Facilities A, B and D) or new future access (e.g., Facilities C, E, F and J) to recycled water upon completion of the HRRWPP[85]. The

[84] Facility K is the only facility that does not purchase water for its industrial operations; instead, the industrial-use water (non-potable) is supplied by the facility-owned wells.

[85] The future availability of recycled water applies to certain facilities that do not currently have access to obtain recycled water for their processes but that will have access after completion of the LADWP's HRRWPP project (certified on October 20, 2009) by Summer 2013 (http://www.ladwp.com/ladwp/cms/ladwp011486.jsp). In addition, future access to recycled water is contingent upon each facility within the HRRWPP project area constructing a new water conveyance at their site in order to tie-into the recycled water pipeline.

HRRWPP is a project shared by the LADWP and WBMWD to conserve potable water and instead produce and convey recycled water to multiple industrial and irrigation customers in the Los Angeles Harbor area. Construction of the HRRWPP began on October 26, 2009 and is estimated to be completed by Summer 2013. However, even if the pipeline and meter is installed, these facilities will need to make modifications to handle the potential increase in recycled water or install the water conveyance infrastructure piping to tie-in to the recycled water pipeline.

Tables 4-45 and 4-46 identify the amount and availability status of using non-potable[86] and potable water to supply the potential increased water use as a result of Option 1 and Option 2 of the proposed project, respectively. The amount of non-potable water that can currently be used under Option 1 of the proposed project is 681,781 gallons per day plus the future availability of non-potable water (to be available beginning Summer 2013) of 102,227 gallons per day for a total of 784,008 gallons per day. Of the proposed increase of total water at 883,368 gallons per day under Option 1, 89 percent may be supplied by recycled or non-potable groundwater. The remaining amount of increased potential water demand under Option 1 of the proposed project is estimated to be 11 percent or 99,360 gallons per day and is expected to be satisfied by potable water.

Similarly, the amount of non-potable water that can currently be used under Option 2 of the proposed project is 533,836 gallons per day plus the future availability of non-potable water (to be available beginning Summer 2013) is 9,076 gallons per day for a total of 542,912 gallons per day. Of the proposed increase of total water at 642,272 gallons per day under Option 2, 84 percent may be supplied by recycled or non-potable groundwater. The remaining amount of increased potential water demand under Option 2 of the proposed project is estimated to be 16 percent or 99,360 gallons per day and is expected to be satisfied by potable water.

[86] Non-potable water can be either recycled water or industrial-use groundwater.

Table 4-45
Option 1: Potential Increases in Non-Potable and Potable Water Use

Main Equipment	Proposed Control Technology	Potentially Available Non-Potable Water Use		Potentially Available Potable Water Use (gal/day)	Total Potential Increase in Water Use (gal/day)
		Current [1] (gal/day)	Future[2] (gal/day)		
FCCU	WGS	147,945	93,151	0	241,096
SRU/TGU	WGS	354,247	0	0	354,247
Refinery Boilers/Heaters	FGT (Merox Treatment or Convert Amine Absorbers to Sulfinol)	49,315	2,740	0	52,055
Coke Calciner	WGS	0	0	40,896	40,896
Glass Melting Furnaces	WGS	0	0	58,464	58,464
Sulfuric Acid Mfg.	WGS	19,589	0	0	19,589
Sulfuric Acid Mfg.	Upgrade Existing Cansolv Unit	0	6,336	0	6,336
Cement Kilns	DGS	110,685	0	0	110,685
	Total	**681,781**	**102,227**	**99,360**	**883,368**

[1] The current availability of non-potable water values assumes that the facilities which currently obtain recycled or industrial-use groundwater for their processes will continue to do so if there is a need to increase water use as part of the proposed project.

[2] The future availability of non-potable water values applies to certain facilities that do not currently have access to obtain recycled or industrial-use groundwater for their processes but that will have access after completion of the LADWP's HRRWPP project by Summer 2013.

Table 4-46
Option 2: Potential Increases in Non-Potable and Potable Water Use

Main Equipment	Proposed Control Technology	Potentially Available Non-Potable Water Use		Potentially Available Potable Water Use (gal/day)	Total Potential Increase in Water Use (gal/day)
		Current [1] (gal/day)	Future[2] (gal/day)		
FCCU	SOx Reducing Additive	0		0	0
SRU/TGU	WGS	354,247	0	0	354,247
Refinery Boilers/Heaters	FGT (Merox Treatment or Convert Amine Absorbers to Sulfinol)	49,315	2,740	0	52,055
Coke Calciner	WGS	0	0	40,896	40,896
Glass Melting Furnaces	WGS	0	0	58,464	58,464
Sulfuric Acid	WGS	19,589	0	0	19,589
Sulfuric Acid	Upgrade Existing Cansolv Unit	0	6,336	0	6,336
Cement Kilns	DGS	110,685	0	0	110,685
	Total	**533,836**	**9,076**	**99,360**	**642,272**

[1] The current availability of non-potable water values assumes that the facilities which currently obtain recycled or industrial-use groundwater for their processes will continue to do so if there is a need to increase water use as part of the proposed project.

[2] The future availability of non-potable water values applies to certain facilities that do not currently have access to obtain recycled or industrial-use groundwater for their processes but that will have access after completion of the LADWP's HRRWPP project by Summer 2013.

Table 4-47 summarizes the projected increases of potable water, recycled water (both current and projected future availability) and industrial-use groundwater that is estimated to implement both Option 1 and Option 2 of the proposed project at the affected facilities.

Table 4-47
Distribution of Projected Water Demand by Water Type

	Option 1		Option 2	
Type of Water	**Projected Increase in Water Use** (gal/day)	**Percent of Total Water Demand**	**Projected Increase in Water Use** (gal/day)	**Percent of Total Water Demand**
Potable	99,360	11%	99,360	16%
Recycled (non-potable)	659,624	75%	418,528	65%
Industrial-Use Groundwater (non-potable)	124,384	14%	124,384	19%
TOTAL	**883,368**	**100%**	**642,272**	**100%**

Option 1 of the proposed project has been shown to potentially increase total water demand by approximately 883,368 gallons per day and 11 percent or 99,360 gallons per day of the total water demand would need to be supplied by potable water if all projected recycled water becomes available. Similarly, Option 2 of the proposed project has been shown to potentially increase total water demand by approximately 642,272 gallons per day and 16 percent or 99,360 gallons per day of the total water demand would need to be supplied by potable water.

Thus, the amount of water that would qualify as a water demand project can be adjusted to separate the potable water from the current and future uses of recycled water and industrial-use groundwater needed for the proposed project. Thus, to establish whether the proposed project qualifies as a water demand project, the potential increase in water use can be interpreted to mean the potential increase of potable water only (in this case, 99,360 gallons per day for both Option 1 and Option 2). Since the projected increase of potable water would be less than the estimated range of water that would be needed for a 500 DU project (e.g., 133,911 to 223,186 gallons per day), neither Option 1 nor Option 2 of the proposed project would qualify as a water demand project.

However, the projections for new or increased future access to recycled water are 102,227 gallons per day under Option 1 and 9,076 gallons per day under Option 2 and the availability of future access to recycled water is not guaranteed. In the event that the future access to recycled water does not occur as planned by Summer 2013 in accordance with the HRRWPP, the potential increase in potable water needed for the proposed project would need to be adjusted to include the amount of future recycled water. As such, the amount of potable water demand could increase to 201,587 gallons per day under Option 1 and 108,436 gallons per day under Option 2. In the event that future access to recycled water does not occur as planned, the distribution between potable and recycled water demand shifts as summarized in Table 4-48.

Table 4-48
Adjusted Distribution of Projected Water Demand by Water Type if Future Supplies of Recycled Water Are Not Available

	Option 1		Option 2	
Type of Water	**Adjusted Projected Increase in Water Use** (gal/day)	**Percent of Total Water Demand**	**Adjusted Projected Increase in Water Use** (gal/day)	**Percent of Total Water Demand**
Potable	201,587	23%	108,436	17%
Recycled (non-potable)	557,397	63%	409,452	64%
Industrial-Use Groundwater (non-potable)	124,384	14%	124,384	19%
TOTAL	**883,368**	**100%**	**642,272**	**100%**

The adjusted estimate for increased potable water demand under Option 1 at 201,587 gallons per day is within the range between 133,911 gallons per day and 223,186 gallons per day based on the 500 DU water demand calculations. By applying the 500 DU water demand criteria to use as a significance threshold for potable water demand, Option 1 of the proposed project may qualify as a water demand project and thus, may result in significant adverse water demand impacts.

However, under Option 2, the adjusted estimate for increased potable water demand would be 102,227 gallons per day, which is below the minimum amount of potable water needed to qualify for as a water demand project per the 500 DU calculations (e.g., 133,911 gallons per day). Thus, for this reason, Option 2 of the proposed project is expected to contribute to less than significant adverse water demand impacts.

Lastly, to investigate whether the existing water supply has the capacity to meet the increased water demand of the proposed project, SCAQMD staff has been coordinating with various water suppliers (e.g., LADWP, MWD, WBMWD, Long Beach Water Department, City of Vernon etc.) to the affected facilities. Water suppliers for all of the facilities that either currently use recycled water or are expected to have future use of recycled water have indicated that there will be sufficient supply of recycled water for the proposed project. In addition, the water suppliers for Facilities G, H and I have indicated that they can supply the estimated additional potable water needed for operating WGSs. Lastly, Facility K operates its own groundwater wells to pump non-potable industrial-use groundwater for their day-to-day operations. Because Facility K's groundwater pumping permit does not limit the amount of water that can be pumped from the wells, any additional water needed to implement the proposed project is expected to be available.

Water Quality

As summarized in Tables 4-49 and 4-50, each affected facility provided their wastewater discharge limits and these limits were compared to each facility's estimated potential increase in wastewater that may result from implementing Option 1 and Option 2 of the proposed project, respectively. The peak percentage increase from baseline levels when compared to the proposed project was approximately 12 percent (Facility F) under Option 1 and nine percent (Facility H) under Option 2. An increase of 25 percent would trigger a permit revision and would be considered a significant adverse wastewater impact. Since all of the affected facilities have been shown under both options of the proposed project to have a potential wastewater increase less than 25 percent, no modifications to any existing wastewater discharge permits are anticipated as

a result of the proposed project. Thus, the operational impacts of the proposed project on each affected facility's wastewater discharge and the Industrial Wastewater Discharge Permit are expected to be less than significant.

Changes to each affected facility's storm water collection systems are expected to be less than significant since most of the changes will occur within existing units (i.e., installing control equipment on existing equipment or upgrading existing control equipment). Further, typically most of the areas likely to be affected by the proposed project are currently paved and are expected to remain paved. Any new units constructed will be curbed and the existing units will remain curbed to contain any runoff. Any runoff occurring will continue to be handled by each affected facility's wastewater system and sent to an on-site wastewater treatment system prior to discharge. The surface water runoff is expected to be handled with each facility's current wastewater collection or treatment system. Storm water runoff will be collected and discharged in accordance with each facility's discharge permit terms and conditions.

The proposed project is expected to involve construction activities located within the confines of existing facilities and does not include the construction of any new housing so it would not place new housing within a 100-year flood hazard area. It is likely that most affected facilities are not located within a 100-year flood hazard area. Any affected facilities that may be located in a 100-year flood area could impede or redirect 100-year flood flows, but this would be considered part of the existing setting and not an effect of the proposed project. The proposed project would not require locating new facilities within a flood zone, so it is not expected to expose people or property to any known water-related flood hazards.

Table 4-49
Option 1: Potential Increases in Wastewater Generation per Facility

Facility ID	Option 1: Proposed Control Technology	Potential Increase in Wastewater Generation (MMgal/day)	Wastewater Permit Discharge Limit[1] (MMgal/day)	Percentage Increase Above Discharge Limit	Greater than 25% Increase? (Exceeds CEQA Significance Threshold?)
A	1 WGS for FCCU (new) 1 Selective Oxidation Catalyst system for SRU/TGU (new) 1 FGT by Sulfinol Conversion (modified)	0.033 + 0 + 0.005 **0.038**	7.5	0.51%	NO
B	1 WGS for FCCU (new) 2 WGSs for SRU/TGU (new)	0.036 + 0.028 **0.064**	8.8	0.72%	NO
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	0.003+ 0 **0.003**	7.6	0.04%	NO
D	1 WGS for SRU/TGU (new) 1 FGT by Merox Treatment Upgrade (modified)	0.043 + 0.014 **0.057**	15	0.38%	NO
E	1 WGS for FCCU (new) 1 FGT by Sulfinol Conversion (modified)	0.022 + 0.011 **0.033**	1.1	2.99%	NO
F	1 WGS for FCCU (new) 1 FGT by Amine Additive (modified)	0.022 + 0 **0.022**	0.18	12.18%	NO
G	1 FGT by Merox Treatment Upgrade (modified)	**0.014**	2.88	0.49%	NO
H	1 WGS for calciner (new)	**0.017**	0.18	9.44%	NO
I	2 WGSs for glass melting furnaces (new)	**0.013**	0.36	3.58%	NO
J	1 WGS for sulfuric acid unit (new)	**0.011**	0.21	5.14%	NO
K	2 DGSs for cement kilns (new)	**0**	No Limit	0%	NO
		0.271	**43.81**	**0.62%**	

[1] Wastewater limits were obtained from each facility's wastewater permit(s). For any facility that has multiple discharge limits (i.e. dry weather, wet weather, etc.), the most conservative limit will be used for the purposes of this comparison.

Table 4-50
Option 2: Potential Increases in Wastewater Generation per Facility

Facility ID	Option 2: Proposed Control Technology	Potential Increase in Wastewater Generation (MMgal/day)	Wastewater Permit Discharge Limit[1] (MMgal/day)	Percentage Increase Above Discharge Limit	Greater than 25% Increase? (Exceeds CEQA Significance Threshold?)
A	1 SOx Reducing Additive Hopper for FCCU (modified) 1 Selective Oxidation Catalyst system for SRU/TGU (new) 1 FGT by Sulfinol Conversion (modified)	0 + 0 + 0.005 **0.005**	7.5	0.07%	NO
B	1 SOx Reducing Additive Hopper for FCCU (modified) 2 WGSs for SRU/TGU (new)	0 + 0.028 **0.028**	8.8	0.32%	NO
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	0.003+ 0 **0.003**	7.6	0.04%	NO
D	1 SOx Reducing Additive Hopper for FCCU (new) 1 WGS for SRU/TGU (new) 1 FGT by Merox Treatment Upgrade (modified)	0 + 0.043 + 0.014 **0.057**	15	0.38%	NO
E	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Sulfinol Conversion (modified)	0 + 0.011 **0.011**	1.1	1.00%	NO
F	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Amine Additive (modified)	0+ 0 **0**	0.18	0%	NO
G	1 FGT by Merox Treatment Upgrade (modified)	**0.014**	2.88	0.49%	NO
H	1 WGS for calciner (new)	**0.017**	0.18	9.44%	NO
I	2 WGSs for glass melting furnaces (new)	**0.013**	0.36	3.58%	NO
J	1 WGS for sulfuric acid unit (new)	**0.011**	0.21	5.14%	NO
K	2 DGSs for cement kilns (new)	**0**	No Limit	0%	NO
		0.158	**43.81**	**0.36%**	

[1] Wastewater limits were obtained from each facility's wastewater permit(s). For any facility that has multiple discharge limits (i.e. dry weather, wet weather, etc.), the most conservative limit will be used for the purposes of this comparison.

The proposed project does not require construction of new facilities in areas that could be affected by tsunamis. Of the facilities affected by the proposed project, some are located near the Ports of Long Beach and Los Angeles. However, the port areas are protected from tsunamis by the construction of breakwaters. Construction of breakwaters combined with the distance of each facility from the water is expected to minimize the potential impacts of a tsunami or seiche so that no significant impacts are expected. The proposed project does not require construction of facilities in areas that are susceptible to mudflows (e.g., hillside or slope areas). Existing affected facilities that are currently located on hillsides or slope areas may be susceptible to

mudflow, but this would be considered part of the existing setting. As a result, the proposed project is not expected to generate significant adverse mudflow impacts.

Lastly, the proposed project is not expected to significantly adversely affect the quantity or quality of groundwater in the area of each affected facility. No significant adverse impacts to groundwater quality are expected from the proposed project because: 1) wastewater will continue to be collected and treated in each of the affected facility's wastewater treatment systems or in compliance with the current wastewater discharge permits, as applicable; 2) no underground storage tanks are expected to be constructed as part of the proposed project; 3) containment berms will be required or may already exist around the new or modified units to minimize the potential for spills to contaminate soil and groundwater; and, 4) any new storage tanks that may be proposed will be required to comply with BACT and other safety requirements such as double bottom and monitoring requirements.

Water Demand and Water Quality Conclusion

The water demand impacts that may result from the proposed project have been shown to require approximately 883,368 gallons per day of total water under Option 1 of the proposed project and 642,272 gallons per day of total water under Option 2 of the proposed project. Under Option 1 of the proposed project, approximately 75 percent of the total water demand is expected to be satisfied with current and future supplies of recycled water, 14 percent is expected to be supplied by industrial-use groundwater, and the remaining 11 percent is expected to be supplied by potable water. However, if future access to recycled water does not occur, then approximately 63 percent of the total water demand is expected to be satisfied with current supplies of recycled water, 14 percent is expected to be supplied by industrial-use groundwater, and the remaining 23 percent is expected to be supplied by potable water under Option 1.

Similarly under Option 2 of the proposed project, approximately 65 percent of the total water demand is expected to be satisfied with current and future supplies of recycled water, 19 percent is expected to be supplied by industrial-use groundwater, and the remaining 16 percent is expected to be supplied by potable water. Again, if future access to recycled water does not occur, then approximately 63 percent of the total water demand is expected to be satisfied with current supplies of recycled water, 14 percent is expected to be supplied by industrial-use groundwater, and the remaining 17 percent is expected to be supplied by potable water under Option 2.

Based on the preceding analysis, neither Option 1 nor Option 2 of the proposed project is expected to exceed SCAQMD's significance threshold of five million gallons of total water per day. If future supplies of recycled water become available, neither Option 1 nor Option 2 of the proposed project is expected to require a substantial amount of potable water as calculated pursuant to the water demand project criteria. However, in the event that future supplies of recycled water do not become available, only the potable water demand under Option 1 may require a substantial amount of potable water as calculated pursuant to the water demand project criteria. Further, the water suppliers have indicated that there will be an adequate supply of water (current and future supplies of recycled water plus potable water) for the proposed project under both Option 1 and Option 2. Therefore, the water demand impacts are concluded to be significant under Option 1 and less than significant under Option 2.

Lastly, based on the aforementioned considerations, the potential groundwater, wastewater discharge and storm water discharge impacts that may result from both Option 1 and Option 2 of the proposed project are expected to be less than significant.

Project-Specific Mitigation: Significant adverse impacts associated with water demand under Option 1 are expected from the proposed project during operation. However, for any facility that installs a WGS as part of the proposed project under either Option 1 or Option 2, SCAQMD staff requires that the facility operators utilize both current supplies and future supplies of recycled water in accordance with the California Water Code, and if available, pursuant to the HRRWPP Project, for operation of a WGS.

Based on the preceding discussion, the following mitigation measures will apply to the proposed project:

HWQ-1 When SOx control equipment is installed and water is required for its operation, the facility operator is required to use recycled water, if available, to satisfy the water demand for the SOx control equipment.

HWQ-2 In the event that recycled water cannot be delivered to the affected facility, the facility operator is required to submit a written declaration with the application for a Permit to Construct for the SOx control equipment, to be signed by an official of the water purveyor indicating the reason(s) why recycled water cannot be supplied to the project.

Level of Significance After Mitigation: The analysis shows that proposed increase in total water use under both Option 1 and Option 2 cannot be fully supplied with recycled water (either currently or in the future) and non-potable groundwater and that some potable water may still be required for certain facilities. While the potentially adverse water impacts can be reduced to below significance if facility operators are required to use current and future supplies of recycled water, if available, there is no absolute guarantee at the time of this writing that future supplies of recycled water will be available to the affected facilities included in the HRRWPP Project. While the use of recycled water can help substantially reduce the water demand impacts, the overall water demand will not be completely mitigated. Therefore, the proposed project will remain significant after mitigation for water demand.

The analysis also concluded that the water quality impacts from implementing the proposed project are considered to be adverse, but not significant.

Cumulative Hydrology and Water Quality Impacts: Because the project-specific water demand impacts under Option 1 have been concluded to be significant due to the 500 DU potable water demand criteria and in consideration of California's on-going drought and that 100 percent of the potential increase in water use cannot be supplied by recycled water, it could be argued that the proposed project is cumulatively considerable pursuant to CEQA Guidelines §15064 (h)(1). Therefore, the proposed project is expected to generate significant adverse cumulative water demand impacts.

However, because the project-specific water quality impacts do not exceed any applicable significance thresholds, they are not considered to be cumulatively considerable pursuant to

CEQA Guidelines §15064 (h)(1) and therefore, do not generate significant adverse cumulative water quality impacts.

Cumulative Mitigation Measures: The potentially adverse water impacts can be reduced further than initial estimates if recycled water is employed for WGS installations. Even with the use of recycled water as part of the implementing the proposed project, the analysis shows that 100 percent of the proposed increase in total water demand cannot be fully offset by the use of recycled water. While the use of recycled water can help substantially reduce the water demand impacts, the overall total water demand will not be completely mitigated. Therefore, the proposed project will remain cumulatively significant after mitigation for water demand.

With regard to water quality impacts, because the proposed project is not expected to generate significant adverse cumulative water quality impacts, no cumulative water quality mitigation measures are required.

TRANSPORTATION/TRAFFIC

Significance Criteria

Impacts on transportation/traffic will be considered significant if any of the following criteria apply:

- Peak period levels on major arterials are disrupted to a point where the LOS is reduced to D, E or F for more than one month.
- An intersection's volume to capacity ratio increase by 0.02 (two percent) or more when the LOS is already D, E or F.
- A major roadway is closed to all through traffic, and no alternate route is available.
- There is an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system.
- The demand for parking facilities is substantially increased.
- Water borne, rail car or air traffic is substantially altered.
- Traffic hazards to motor vehicles, bicyclists or pedestrians are substantially increased.
- The need for more than 350 permanent employees during operation.
- An increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round trips per day during operation
- Increase customer traffic by more than 700 visits per day during operation.

Construction activities resulting from implementing the proposed project may generate a slight, albeit temporary, increase in traffic in the areas of each affected facility associated with construction workers, construction equipment, and the delivery of construction materials. However, the proposed project is not expected to cause a significant increase in traffic relative to the existing traffic load and capacity of the street systems surrounding the affected facilities. Also, the proposed project is not expected to exceed, either individually or cumulatively, the current LOS of the areas surrounding the affected facilities during construction as explained in the following paragraph.

As previously noted in the section that discusses "Air Quality," the maximum construction workforce during any six-month construction period is expected to be approximately 175 workers per facility. For a worst-case analysis, four facilities which may need a total of up to 700 workers were assumed to undergo overlapping construction activities. Even if it is assumed

that all 700 construction workers drive alone (which represents an average vehicle ridership equal to 1.0) not all of the workers would be driving to the same facility. It is unlikely that these vehicle trips would substantially affect the LOS at any intersection because the trips will be somewhat dispersed over a large area and the workers would not all arrive at the site at the exact same time. Therefore, the work force at each affected facility is not expected to significantly increase as a result of the proposed project. Further, the conclusion of no significant transportation impacts based on the workforce is consistent with the transportation analyses in the CEQA documents prepared for six refineries in accordance with the CARB Phase III Reformulated Gasoline requirements[87]. Specifically, the number of construction workers for each of the six projects ranged from approximately 200 to 700 daily construction worker trips and each of these projects was concluded to have no significant transportation impacts.

The operation-related traffic will be primarily for deliveries of NaOH, SOx reducing additives, soda ash, limestone, ESx catalyst, TG-10 blend, Sulfinol, Merox catalyst, and elemental sulfur and for hauling away of solid waste to be recycled or disposed of in a Class III landfill. Table 4-51 contains a summary of the delivery and haul away distances and frequencies for each substance that is associated with the proposed project. Of the substances listed for deliveries, all but five are available from local suppliers within the District. For the local suppliers, a round-trip delivery distance of 50 miles was assumed. This distance is expected to be conservative as most suppliers are located closer to the affected facilities. However, suppliers for SOx Reducing Additives, ESx Catalyst, Merox Catalyst, TG-10 and Sulfinol are all located out of state. Thus, deliveries of these materials are assumed to be trucked into the District from out of state and the delivery mileage assumptions reflect the round-trip distance from the state line, either at the Arizona/California border (e.g., 400 miles) or the Nevada/California border (e.g., 500 miles). For solid waste disposal, facility operators will have three options: 1) disposal of solid waste in a landfill located within the District or recycling of solid waste at a cement plant located within the District (e.g., 162 round-trip miles); 2) recycling of solid waste at a cement plant located outside of the District but within California (e.g., 264 round-trip miles); and, 3) recycling of solid waste at a cement plant located outside of the District and outside of California (e.g., 400 round-trip miles). For a worst-case analysis of solid waste disposal trips, the maximum mileage of 400 round-trip miles was assumed.

[87] 1. Final EIR for Chevron El Segundo CARB Phase 3 Clean Fuels Project, certified November 30, 2001. (http://www.aqmd.gov/ceqa/documents/2001/nonaqmd/chevron/final/chev_f.html)
2. Final Environmental Impact Report for: Proposed Ultramar Wilmington Refinery - CARB Phase 3 Project, certified December 19, 2001. (http://www.aqmd.gov/ceqa/documents/2001/nonaqmd/ultramar/final/ultEIR_f.html)
3. Final Environmental Impact Report for: Proposed Equilon Enterprises LLC CARB Phase 3 Reformulated Gasoline Project, certified October 15, 2001. (http://www.aqmd.gov/ceqa/documents/2001/nonaqmd/equilon/final/equEIR_f.html)
4. Final Environmental Impact Report for: Mobil CARB Phase 3 Reformulated Gasoline Project, certified October 12, 2001. (http://www.aqmd.gov/ceqa/documents/2001/nonaqmd/mobil/final/mobil_f.html)
5. Final Environmental Impact Report for: ARCO CARB Phase 3/MTBE Phase-out Project, certified May 15, 2001. (http://www.aqmd.gov/ceqa/documents/2001/nonaqmd/arco/finalEIR/arcoFEIR.html)
6. Final Environmental Impact Report for: Proposed Tosco Los Angeles Refinery - Phase 3 Reformulated Fuels Project, certified April 5, 2001. (http://www.aqmd.gov/ceqa/documents/2001/nonaqmd/tosco_rfp/final/toscoEIR_f.html)

Table 4-51
Delivery and Hauling Away Truck Types and Driving Distances

Substance	Travels as a:	Truck Type	Delivery Area	Peak Round-trip Mileage per Delivery	Delivery Status
ESx Catalyst	Fine powder	25-ton Heavy-duty Truck	Outside SCAQMD	400	Increase
Limestone	Aggregate	25-ton Heavy-duty Truck	Within SCAQMD	1	Increase
Merox Catalyst	Pre-mixed liquid	6,000 gallon tanker truck	Outside SCAQMD	500	Increase
NaOH (50% by weight)	Pre-mixed liquid	6,000 gallon tanker truck	Within SCAQMD	50	Increase
Soda ash	Fine powder	25-ton Heavy-duty Truck	Within SCAQMD	50	Increase
Solid Waste	Varies	25-ton Heavy-duty Truck	Within or Outside SCAQMD	1. 162 for in-District recycling or disposal; 2. 264 for out-of-District but in-state recycling; or, 3. 400 for out of state recycling (worst-case)	Increase
SOx Reducing Additives	Fine powder	25-ton Heavy-duty Truck	Outside SCAQMD	400	Increase
Sulfinol	Pre-mixed liquid	6,000 gallon tanker truck	Outside SCAQMD	500	Increase
Sulfur (Elemental)	Pre-mixed liquid	6,000 gallon tanker truck	Within SCAQMD	50	Increase
TG-10	Pre-mixed liquid	6,000 gallon tanker truck	Outside SCAQMD	400	Increase
MDEA	Pre-mixed liquid	6,000 gallon tanker truck	Within SCAQMD	50	No Change
DEA	Pre-mixed liquid	6,000 gallon tanker truck	Within SCAQMD	50	Decrease
MEA	Pre-mixed liquid	6,000 gallon tanker truck	Within SCAQMD	50	Decrease

A summary of the estimated truck trips of these substances per facility is provided in Tables 4-52 and 4-53 for Options 1 and 2 of the proposed project, respectively.

Table 4-52
Option 1: Potential Increases in Truck Trips per Facility

Facility ID	Option 1: Proposed Control Technology	Substances Delivered (D) or Hauled Away (H)	Peak Daily Truck Trips (round trips/day)	Peak Daily Round Trip Driving Distance (miles/day)	Annual Truck Trips (round trips/year)	Annual Round Trip Driving Distance (miles/day)
A	1 WGS for FCCU (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 400 **450**	8 + 12 **20**	400 + 4,800 **5,200**
A	1 Selective Oxidation Catalyst system for SRU/TGU (new)	1. Elemental Sulfur (H) 2. ESx Catalyst (D)	1 + 1 **2**	50 + 400 **450**	2 + 1 **3**	100 + 400 **500**
A	1 FGT by Sulfinol Conversion (modified)	1. Sulfinol (D) 2. DEA (D)	1 + -1 **0**	500 + -50 **450**	22 + - 22 **0**	11,000 + -1,100 **9,900**
		Subtotal: Facility A	**4**	**1,350**	**23**	**15,600**
B	1 WGS for FCCU (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 400 **450**	12 + 16 **28**	600 + 6,400 **7,000**
B	2 WGSs for SRU/TGU (new)	1. Soda Ash (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 400 **450**	8 + 20 **28**	400 + 8,000 **8,400**
		Subtotal: Facility B	**4**	**900**	**56**	**15,400**
C	1 FGT by Sulfinol Conversion (modified)	1. Sulfinol (D) 2. MEA (D) 3. Elemental Sulfur (H)	1 + -1 + 1 **1**	500 + - 50 + 50 **500**	47 + - 48 + 1 **0**	23,500 - 2,400+ 50 **21,150**
C	1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	None	**0**	**0**	**0**	**0**
		Subtotal: Facility C	**1**	**500**	**0**	**21,150**
D	1 WGS for SRU/TGU (new)	1. Soda Ash (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 400 **450**	5 + 13 **18**	250 + 5,200 **5,450**
D	1 FGT by Merox Treatment Upgrade (modified)	1. NaOH (D) 2. Merox catalyst (D) 3. Elemental Sulfur (H) 4. Solid Waste (H)	1 + 1+ 1 + 1 + **4**	50 + 500 + 50 + 400 **1,000**	5 + 1+ 1 + 5 + **12**	250 + 500 + 50 + 2,000 **2,800**
		Subtotal: Facility D	**6**	**1,450**	**30**	**8,250**

Table 4-52 (concluded)
Option 1: Potential Increases in Truck Trips per Facility

Facility ID	Option 1: Proposed Control Technology	Substances Delivered (D) or Hauled Away (H)	Peak Daily Truck Trips* (round trips/day)	Peak Daily Round Trip Driving Distance* (miles/day)	Annual Truck Trips* (round trips/year)	Annual Round Trip Driving Distance* (miles/day)
E	1 WGS for FCCU (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 400 **450**	5 + 7 **12**	250 + 2,800 **3,050**
E	1 FGT by Sulfinol Conversion (modified)	1. Sulfinol (D) 2. DEA (D) 3. Elemental Sulfur (H)	1 + - 1 + 1 **1**	500 + - 50 + 50 **500**	65 + -63 + 3 **5**	32,500 + -3,150 150 **29,500**
		Subtotal: Facility E	**3**	**950**	**17**	**32,550**
F	1 WGS for FCCU (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 400 **450**	20 + 28 **48**	1,000 + 11,200 **12,200**
F	1 FGT by Amine Additive (modified)	1. TG-10 (D) 2. Elemental Sulfur (H)	1 + 1 **2**	400 + 50 **450**	1 + 1 **2**	400 + 50 **450**
		Subtotal: Facility F	**4**	**900**	**50**	**12,650**
G	1 FGT by Merox Treatment Upgrade (modified)	1. NaOH (D) 2. Merox catalyst (D) 3. Elemental Sulfur (H) 4. Solid Waste (H)	1 + 1+ 1 + 1 + **4**	50 + 500 + 50 + 400 **1,000**	28 + 1+ 2 + 30 + **61**	1,400 + 500 + 100 + 12,000 **14,000**
		Subtotal: Facility G	**4**	**1,000**	**61**	**14,000**
H	1 WGS for calciner (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 400 **450**	32 + 7 **39**	1,600 + 2,800 **4,400**
		Subtotal: Facility H	**2**	**450**	**39**	**4,400**
I	2 WGSs for glass melting furnaces (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 133 **183**	8 + 1 **9**	400 + 133 **533**
		Subtotal: Facility I	**2**	**183**	**9**	**533**
J	1 WGS for sulfuric acid unit (new)	NaOH (D)	**1**	**50**	**13**	**650**
		Subtotal: Facility J	**1**	**50**	**13**	**650**
K	2 DGSs for cement kilns (new)	1. Limestone (D) 2. Solid Waste (H)	1 + 1 **2**	1 + 142 **143**	27 + 37 **64**	27 + 2,558 **2,585**
		Subtotal: Facility K	**2**	**143**	**64**	**2,585**
		TOTAL: OPTION 1	**33**	**7,876**	**363**	**127,768**

* A negative number means a reduction in trips and mileage driven.

Table 4-53
Option 2: Potential Increases in Truck Trips per Facility

Facility ID	Option 2: Proposed Control Technology	Substances Delivered (D) or Hauled Away (H)	Peak Daily Truck Trips* (round trips/day)	Peak Daily Round Trip Driving Distance* (miles/day)	Annual Truck Trips* (round trips/year)	Annual Round Trip Driving Distance* (miles/day)
A	1 SOx Reducing Additive Hopper for FCCU (modified)	SOx Reducing Additives (D)	**1**	**400**	**4**	**1,600**
A	1 Selective Oxidation Catalyst system for SRU/TGU (new)	1. Elemental Sulfur (H) 2. ESx Catalyst (D)	1 + 1 **2**	50 + 400 **450**	2 + 1 **3**	100 + 400 **500**
A	1 FGT by Sulfinol Conversion (modified)	1. Sulfinol (D) 2. DEA (D)	1 + -1 **0**	500 + -50 **450**	22 + - 22 **0**	11,000+ -1,100 **9,900**
		Subtotal: Facility A	**3**	**1,300**	**7**	**12,000**
B	1 SOx Reducing Additive Hopper for FCCU (modified)	SOx Reducing Additives (D)	**1**	**400**	**4**	**1,600**
B	2 WGSs for SRU/TGU (new)	1. Soda Ash (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 400 **450**	8 + 20 **28**	400 + 8,000 **8,400**
		Subtotal: Facility B	**3**	**850**	**32**	**10,000**
C	1 FGT by Sulfinol Conversion (modified)	1. Sulfinol (D) 2. MEA (D) 3. Elemental Sulfur (H)	1 + -1 + 1 **1**	500 + - 50 + 50 **500**	47 + - 48 + 1 **0**	23,500 - 2,400+ 50 **21,150**
C	1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	None	**0**	**0**	**0**	**0**
		Subtotal: Facility C	**1**	**500**	**0**	**21,150**
D	1 SOx Reducing Additive Hopper for FCCU (new)	SOx Reducing Additives (D)	**1**	**400**	**4**	**1,600**
D	1 WGS for SRU/TGU (new)	1. Soda Ash (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 400 **450**	5 + 13 **18**	250 + 5,200 **5,450**
D	1 FGT by Merox Treatment Upgrade (modified)	1. NaOH (D) 2. Merox catalyst (D) 3. Elemental Sulfur (H) 4. Solid Waste (H)	1 + 1+ 1 + 1 + **4**	50 + 500 + 50 + 400 **1,000**	5 + 1+ 1 + 5 + **12**	250 + 500 + 50 + 2,000 **2,800**
		Subtotal: Facility D	**7**	**1,850**	**34**	**9,850**

Table 4-53 (concluded)
Option 2: Potential Increases in Truck Trips per Facility

Facility ID	Option 2: Proposed Control Technology	Substances Delivered (D) or Hauled Away (H)	Peak Daily Truck Trips* (round trips/day)	Peak Daily Round Trip Driving Distance* (miles/day)	Annual Truck Trips* (round trips/year)	Annual Round Trip Driving Distance* (miles/day)
E	1 SOx Reducing Additive Hopper for FCCU (modified)	SOx Reducing Additives (D)	**1**	**400**	**4**	**1,600**
E	1 FGT by Sulfinol Conversion (modified)	1. Sulfinol (D) 2. DEA (D) 3. Elemental Sulfur (H)	1 + - 1 + 1 **1**	500 + - 50 + 50 **500**	65 + -63 + 3 **5**	32,500 + -3,150 150 **29,500**
		Subtotal: Facility E	**2**	**900**	**9**	**31,100**
F	1 SOx Reducing Additive Hopper for FCCU (modified)	SOx Reducing Additives (D)	**1**	**400**	**4**	**1,600**
F	1 FGT by Amine Additive (modified)	1. TG-10 (D) 2. Elemental Sulfur (H)	1 + 1 **2**	400 + 50 **450**	1 + 1 **2**	400 + 50 **450**
		Subtotal: Facility F	**3**	**850**	**6**	**2,050**
G	1 FGT by Merox Treatment Upgrade (modified)	1. NaOH (D) 2. Merox catalyst (D) 3. Elemental Sulfur (H) 4. Solid Waste (H)	1 + 1+ 1 + 1 + **4**	50 + 500 + 50 + 400 **1,000**	28 + 1+ 2 + 30 + **61**	1,400 + 500 + 100 + 12,000 **14,000**
		Subtotal: Facility G	**4**	**1,000**	**61**	**14,000**
H	1 WGS for calciner (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 400 **450**	32 + 7 **39**	1,600 + 2,800 **4,400**
		Subtotal: Facility H	**2**	**450**	**39**	**4,400**
I	2 WGSs for glass melting furnaces (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 133 **183**	8 + 1 **9**	400 + 133 **533**
		Subtotal: Facility I	**2**	**183**	**9**	**533**
J	1 WGS for sulfuric acid unit (new)	NaOH (D)	**1**	**50**	**13**	**650**
		Subtotal: Facility J	**1**	**50**	**13**	**650**
K	2 DGSs for cement kilns (new)	1. Limestone (D) 2. Solid Waste (H)	1 + 1 **2**	1 + 142 **143**	27 + 37 **64**	27 + 2,558 **2,585**
		Subtotal: Facility K	**2**	**143**	**64**	**2,585**
		TOTAL: OPTION 2	**30**	**8,076**	**275**	**108,318**

* A negative number means a reduction in trips and mileage driven.

The amount of peak daily truck trips associated with the proposed project is 33 for Option 1 and 30 for Option 2. Since neither option is expected to have an increase in heavy-duty transport

truck traffic to and/or from the facility by more than 350 truck round trips per day, less than significant transportation impacts are expected from implementation of the proposed project. Further, taking into consideration the "worst-case" delivery and hauling transportation schedule, delivery and hauling trips associated with the proposed project are not expected to exceed, either individually or cumulatively, the current LOS of the areas surrounding the affected facilities during operations. Thus, the projected increase of traffic due to construction and operational activities is expected to be minimal and thus, the traffic impacts are expected to be less than significant for the proposed project.

Though some of the facilities that will be affected by the proposed project are located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, actions that would be taken to comply with the proposed project, such as installing new air pollution control equipment, are not expected to significantly influence or alter air traffic patterns. Further, the size and type of air pollution control devices that would be installed would not be expected to affect navigable air space because they would not be substantially taller than other equipment at affected facilities. Thus, the proposed project would not result in a change in air traffic patterns, an increase in traffic levels or a change in location that results in substantial safety risks.

The siting of each existing affected facility is consistent with surrounding land uses and traffic/circulation in the surrounding areas of the affected facilities. Thus, the proposed project is not expected to substantially increase traffic hazards or create incompatible uses at or adjacent to the affected facilities. Aside from the temporary effects due to a slight increase in truck traffic when facilities undergo construction activities, the proposed project is not expected to alter the existing long-term circulation patterns. The proposed project is not expected to require a modification to circulation, thus, no long-term impacts on the traffic circulation system are expected to occur. The proposed project does not involve construction of any roadways, so there would be no increase in roadway design feature that could increase traffic hazards. Emergency access at each affected facility is not expected to be impacted by the proposed project. Further, each affected facility is expected to continue to maintain its existing emergency access gates.

Each affected facility will be expected to provide parking for the construction workers, as applicable, either on or within close proximity to each facility. No additional parking will be needed after completion of the construction phase because the work force at each facility is not expected to significantly increase as a result of the proposed project.

Lastly, construction and operation activities resulting from the proposed project are not expected to conflict with policies supporting alternative transportation since the proposed project does not involve or affect alternative transportation modes (e.g., bicycles or buses) because the construction and operation activities related to the proposed project will occur solely in existing industrial, commercial, and institutional areas. Based upon these considerations, significant transportation/traffic impacts are not expected from the implementation of the proposed project.

Project-Specific Mitigation: No significant adverse impacts associated with transportation/traffic impacts are expected from the proposed project during construction or operation, so no mitigation measures are required.

Level of Significance After Mitigation: The analysis concluded that the transportation/traffic impacts from implementing the proposed project are considered to be adverse, but not significant. Therefore, mitigation measures are not required.

Cumulative Transportation/Traffic Impacts: Because the project-specific transportation/traffic impacts do not exceed any applicable significance thresholds, they are not considered to be cumulatively considerable pursuant to CEQA Guidelines §15064 (h)(1) and therefore, do not generate significant adverse cumulative transportation/traffic impacts.

Cumulative Mitigation Measures: None required.

POTENTIAL ENVIRONMENTAL IMPACTS FOUND NOT TO BE SIGNIFICANT

While all the environmental topics required to be analyzed under CEQA were reviewed to determine if the proposed project would create significant impacts, the screening analysis concluded that the following environmental areas would not be significantly adversely affected by the proposed project: agriculture and forest resources, biological resources, cultural resources, geology/soils, land use and planning, mineral resources, noise, population and housing, public services, recreation, and solid/hazardous waste. One comment was received on the NOP/IS that disputed the conclusions of less than significant for the topics of Noise, Land Use, and Solid/Hazardous Waste. For the topics of Noise and Land Use, there was no supporting evidence to justify a conclusion of significance. Further, when compared to other CEQA documents prepared for projects with similar construction activities, the topics of Noise and Land Use were concluded to have less than significant effects. In addition, projected solid waste data obtained by the consultant from each affected facility indicated that the solid waste that may be generated by the proposed project is expected to be a commodity and is not expected to be disposed of in a landfill. Instead the solid waste will either be sent to a cement plant for recycling or re-used on site. In any case, even if the entire amount of solid waste generated was sent to a landfill, it would not exceed the capacity of the designated landfills. Refer to Appendix B for the solid waste data. Therefore, the solid/hazardous waste impacts that may result from implementing the proposed project are expected to be less than significant.

The following is a brief discussion of each topic found not to be significant in the NOP/IS.

Agriculture and Forest Resources

All construction and operational activities that would occur as a result of implementing the proposed project are expected to occur within the confines of the existing affected facilities. The proposed project would be consistent with the industrial or heavy manufacturing zoning requirements for the various facilities and there are no agricultural or forest resources or operations on or near the affected facilities. No agricultural resources including Williamson Act contracts are located within or would be impacted by construction activities at the affected facilities. Therefore, the proposed project would not result in any new construction of buildings or other structures that would convert farmland to non-agricultural use or conflict with zoning for agricultural use or a Williamson Act contract.

The proposed project would also not result in any new construction of buildings or other structures that would cause the loss of forest land or conversion of forest land to non-forest use. Because there are no forestry resources or operations on or near the affected facilities, the proposed project would not conflict with existing zoning for, or cause rezoning of, forest land (as

defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104 (g).

Lastly, since the proposed project would not substantially change the facility or process for which the SOx control equipment are utilized, there are no provisions in the proposed project that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments and no land use or planning requirements relative to agriculture and forest resources will be altered by the proposed project.

Therefore, for these aforementioned reasons, the proposed project is not expected to create significant adverse agriculture and forest resource impacts.

Biological Resources

The proposed project would only affect 14 units operating at 11 existing facilities located throughout the District. The physical changes involved that may occur focus on the installation of SOx control equipment such as WGSs, and DGSs as well as the use of selective oxidation catalyst or SOx reducing catalyst to reduce SOx emissions at the affected facilities. All of the affected units operating at existing facilities are located primarily in industrial areas, which have already been greatly disturbed. In general, these areas currently do not support riparian habitat, federally protected wetlands, or migratory corridors. Additionally, special status plants, animals, or natural communities are not expected to be found within close proximity to the affected facilities. Therefore, the proposed project would have no direct or indirect impacts that could adversely affect plant or animal species or the habitats on which they rely in the SCAQMD's jurisdiction. The current and expected future land use development to accommodate population growth is primarily due to economic considerations or local government planning decisions. A conclusion in the Final Program EIR for the 2007 AQMP was that population growth in the region would have greater adverse effects on plant species and wildlife dispersal or migration corridors in the basin than SCAQMD regulatory activities, (e.g., air quality control measures or regulations). The current and expected future land use development to accommodate population growth is primarily due to economic considerations or local government planning decisions.

Further, the proposed project is not envisioned to conflict with local policies or ordinances protecting biological resources or local, regional, or state conservation plans. Land use and other planning considerations are determined by local governments and no land use or planning requirements will be altered by the proposed project. Additionally, the proposed project will not conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or any other relevant habitat conservation plan, and would not create divisions in any existing communities because all activities associated with complying with the proposed project will occur at existing industrial facilities. Therefore, the proposed project is not expected to create significant adverse biological resource impacts.

Cultural Resources

There are existing laws in place that are designed to protect and mitigate potential impacts to cultural resources. Since construction-related activities associated with the implementation of the proposed project are expected to be confined within the existing footprint of the affected facilities, no impacts to historical resources are expected to occur as a result of implementing the proposed project.

Installing add-on controls and other associated equipment to comply with the proposed project may require disturbance of previously disturbed areas, i.e., existing industrial facilities. However, since construction-related activities are expected to be confined within the existing footprint of the affected facilities, the proposed project is not expected to require physical changes to the environment, which may disturb paleontological or archaeological resources. Furthermore, it is envisioned that these areas are already either devoid of significant cultural resources or whose cultural resources have been previously disturbed. Therefore, the proposed project has no potential to cause a substantial adverse change to a historical or archaeological resource, directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, or disturb any human remains, including those interred outside a formal cemeteries. The proposed project is, therefore, not anticipated to result in any activities or promote any programs that could have a significant adverse impact on cultural resources in the District. The proposed project is, therefore, not anticipated to result in any activities or promote any programs that could have a significant adverse impact on cultural resources in the District.

Geology and Soils

Since the proposed project would result in construction activities in industrial settings to install SOx control equipment at the affected facilities, little site preparation is anticipated that could adversely affect geophysical conditions in the jurisdiction of the SCAQMD. Southern California is an area of known seismic activity. Since the proposed project would result in construction activities in industrial settings to install SOx control equipment, little site preparation is anticipated that could adversely affect geophysical conditions in the jurisdiction of the SCAQMD. Accordingly, the installation of add-on controls at existing affected facilities to comply with the proposed project is expected to conform with the Uniform Building Code and all other applicable state and local building codes. As part of the issuance of building permits, local jurisdictions are responsible for assuring that the Uniform Building Code is adhered to and can conduct inspections to ensure compliance. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represents the foundation condition at the site. The Uniform Building Code requirements also consider liquefaction potential and establish stringent requirements for building foundations in areas potentially subject to liquefaction. Thus, the proposed project would not alter the exposure of people or property to geological hazards such as earthquakes, landslides, mudslides, ground failure, or other natural hazards. As a result, substantial exposure of people or structures to the risk of loss, injury, or death is not anticipated.

Since add-on controls will likely be installed at existing facilities, during construction of the proposed project, a slight possibility exists for temporary erosion resulting from excavating and grading activities, if required. These activities are expected to be minor since the existing facilities are generally flat and have previously been graded. Appendix B contains the air quality analysis estimating fugitive PM10 emissions from activities such as grading, trenching, stockpile loading, wind erosion, and truck filling and dumping in order to install SOx control equipment. Further, this analysis confirms that wind erosion is not expected to occur to any appreciable extent, because operators at dust generating sites would be required to comply with the Best Available Control Measure (BACM) requirements of SCAQMD Rule 403 – Fugitive Dust. In general, operators must control fugitive dust through a number of soil stabilizing measures such as watering the site, using chemical soil stabilizers, revegetating inactive sites, etc. As the proposed project may involve the installation of add-on SOx control equipment, some grading or excavation could be required to provide stable foundation footings. Potential air quality impacts

related to grading are addressed elsewhere in this Air Quality section of this ~~Draft~~ Final PEA. No unstable earth conditions or changes in geologic substructures are expected to result from the proposed project.

Since the proposed project will affect existing facilities, it is expected that the soil types present at the affected facilities will not be further susceptible to expansion or liquefaction. Furthermore, subsidence is not anticipated to be a problem since few excavation, grading, or filling activities are expected occur at affected facilities. Additionally, the affected areas are not envisioned to be prone to landslides or have unique geologic features since the affected facilities are existing facilities that are typically located in industrial areas.

In addition, since the proposed project will affect existing facilities located in industrial, heavy manufacturing zones, it is expected that people or property will not be exposed to expansive soils or soils incapable of supporting water disposal. Further, typically each affected facility has some degree of existing wastewater treatment systems that will continue to be used. Sewer systems and in the case of the cement manufacturing facility, septic tank systems and percolation ponds, are available to handle wastewater produced and treated by each affected facility. Each existing facility affected by the proposed project does not require installation of new septic tanks or alternative wastewater disposal systems. As a result, the proposed project will not require operators to build new septic systems or alternative wastewater disposal systems. Thus, the proposed project will not adversely affect soils associated with constructing a new septic system or alternative wastewater disposal system.

Based upon the aforementioned considerations, significant geology and soils impacts are not expected from the implementation of the proposed project.

Land Use and Planning

The proposed project does not require construction of new facilities, but any physical effects will occur at existing facilities and, thus, it will not result in physically dividing any established communities. There are no provisions in the proposed project that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments and no land use or planning requirements will be altered by the proposed project. Further, the proposed project would be consistent with the typical industrial, heavy manufacturing zoning of the affected facilities. All proposed modifications are expected to occur within the confines of the existing facilities. The proposed project would not affect in any way habitat conservation or natural community conservation plans, agricultural resources or operations, and would not create divisions in any existing communities. Further, no new development or alterations to existing land designations will occur as a result of the implementation of the proposed project. Therefore, present or planned land uses in the region will not be affected as a result of the proposed project. Based upon these considerations, significant land use planning impacts are not expected from the implementation of the proposed project.

Mineral Resources

There are no provisions of the proposed project that would result in the loss of availability of a known mineral resource of value to the region and the residents of the state such as aggregate, coal, clay, shale, et cetera, or of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Noise

Modifications or changes associated with the implementation of the proposed project will take place at existing facilities that are located in industrial, heavy manufacturing settings. The existing noise environment at each of the affected facilities is typically dominated by noise from existing equipment onsite, vehicular traffic around the facilities, and trucks entering and exiting each facility premises. Construction activities for the proposed project may generate some noise associated with the use of construction equipment and construction-related traffic in the event that grading for the installation of the SOx control equipment, for example, is necessary. However, noise from the proposed project, whether from construction or operation activities, is not expected to produce noise in excess of current operations measurable at the property line of each of the existing facilities. If SOx control equipment is installed, the operations phase of the proposed project may add new sources of noise to each affected facility. However, it is expected that each facility affected will comply with all existing noise control laws or ordinances. Further, Occupational Safety and Health Administration (OSHA) and California-OSHA (CalOSHA) have established noise standards to protect worker health. These potential noise increases are not expected to be noticeable at the property line and further, are expected within the allowable noise levels established by the local noise ordinances for industrial areas, and thus are expected to be less than significant.

Though some of the facilities affected by the proposed project are located at sites within an airport land use plan, or within two miles of a public airport, the addition of SOx control equipment would not expose people residing or working in the project area to an additional degree of excessive noise levels associated with airplanes. All noise producing equipment must comply with local noise ordinances and applicable OSHA or CalOSHA workplace noise reduction requirements. Based upon the aforementioned considerations, significant noise impacts are not expected from the implementation of the proposed project.

Population and Housing

The construction activities associated with the proposed project at each affected facility are not expected to involve the relocation of individuals, require new housing or commercial facilities, or change the distribution of the population. The reason for this conclusion is that operators of affected facilities who need to perform any construction activities to comply with the proposed project can draw from the existing labor pool in the local southern California area. For example, the analysis of air quality impacts for the proposed project assumed 50 construction workers would be necessary to install one WGS or DGS. The "worst-case" analysis further assumed that up to four units could be under construction during any six-month construction period. This translates to the need of 200 construction workers during any six-month construction period. Construction crews comprising of 200 individuals can easily be drawn from the local labor force.

Further, it is not expected that the installation of the SOx control equipment will require new employees during operation of the equipment. In the event that new employees are hired, it is expected that the number of new employees at any one facility would be small. Human population within the jurisdiction of the SCAQMD is anticipated to grow regardless of implementing the proposed project. As a result, the proposed project is not anticipated to generate any significant adverse effects, either direct or indirect, on population growth in the District or population distribution.

Because the proposed project includes modifications and/or changes at existing facilities located in industrial, heavy manufacturing settings, the proposed project is not expected to result in the

creation of any industry that would affect population growth, directly or indirectly induce the construction of single- or multiple-family units, or require the displacement of people or housing elsewhere in the District. Based upon these considerations, significant population and housing impacts are not expected from the implementation of the proposed project.

Public Services

Implementation of the proposed project is expected to cause facility operators to install SOx control devices, all the while continuing current operations at existing affected facilities. The proposed project may result in a greater demand for catalyst and scrubbing agents, which will need to be transported to the affected facilities that install SOx controls and stored onsite prior to use. In the event of an accidental release, fire departments are typically first responders for control and clean-up and police may be need to be available to maintain perimeter boundaries. The proposed project is not expected to have a significantly adverse affect on fire or police departments because of the low probability of accidents during transport as explained below.

The factors that enter into accident statistics include distance traveled and type of vehicle or transportation system. Factors affecting automobiles and truck transportation accidents include the type of roadway, presence of road hazards, vehicle type, maintenance and physical condition, driver training, and weather. A common reference frequently used in measuring risk of an accident is the number of accidents per million miles traveled. Complicating the assessment of risk is the fact that some accidents can cause significant damage without injury or fatality and some accidents result in little or no property damage or personal injury. Additionally, not every truck accident results in an explosion or a release of hazardous substances.

Every time hazardous materials are moved from the site of generation, there is the potential for accidental release. A study conducted by the USEPA indicates that the expected number of hazardous materials spills per mile shipped ranges from one in 100 million to one in one million, depending on the type of road and transport vehicle used. The USEPA analyzed accident and traffic volume data from New Jersey, California, and Texas, using the Resource Conservation and Recovery Act Risk/Cost Analysis Model and calculated the accident rates presented in Table 4-54. This information was summarized from the Los Angeles County Hazardous Waste Management Plan (Los Angeles County, 1988).

In the study completed by USEPA, cylinders, cans, glass, plastic, fiber boxes, tanks, metal drum/parts, and open metal containers were identified as usual container types. For each container type, the expected fractional release en route was calculated. The study concluded that the release rate for tank trucks is much lower than for any other container type (Los Angeles County, 1988).

Table 4-54
Truck Accident Rates For Cargo On Highways

Highway Type	Accidents Per 1,000,000 miles
Interstate	0.13
Federal and State Highways	0.45
Urban Roadways	0.73
Composite*	0.28

Source: USEPA, 1984.
* Average number for transport on interstates, highways, and urban roadways.

Based on the low probability of accidents occurring, as shown in Table 4-54, the proposed project is not expected to increase the need or demand for additional public services (e.g., fire departments, police departments, schools, parks, government, et cetera) above current levels.

As noted in the previous "Population and Housing" discussion, the proposed project is not expected to induce population growth in any way because the local labor pool (e.g., workforce) is expected to be sufficient to accommodate any construction activities that may be necessary at affected facilities and operation of new or modified equipment is not expected to require additional employees. Therefore, there will be no increase in local population and thus no impacts are expected to local schools or parks.

The proposed project is expected to result in the installation of SOx control equipment. Besides permitting the equipment or altering permit conditions by the SCAQMD, there is no need for other types of government services. The proposed project would not result in the need for new or physically altered government facilities in order to maintain acceptable service ratios, response times, or other performance objectives. There will be no increase in population and, therefore, no need for physically altered government facilities. Based upon these considerations, significant public services impacts are not expected from the implementation of the proposed project.

Recreation

As discussed previously under "Land Use," there are no provisions to the proposed project that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments; no land use or planning requirements are expected to be altered by the proposed project. Further, the proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities or include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment because the proposed project is not expected to induce population growth. Based upon these considerations, significant recreation impacts are not expected from the implementation of the proposed project.

Solid/Hazardous Waste

Construction activities associated with installing SOx control equipment such as WGSs, demolition and site preparation/grading/excavating could generate solid waste as result of implementing the proposed project. Demolition activities could generate demolition waste while site preparation, grading, and excavating could uncover contaminated soils since the facilities affected by the proposed project are located in existing industrial areas. Excavated soil, which may be contaminated, will need to be characterized, treated, and disposed of offsite in accordance with applicable regulations. Where appropriate, the soil will be recycled if it is considered or classified as non-hazardous waste or it can be disposed of at a landfill that accepts non-hazardous waste. Otherwise, the material will need to be disposed of at a hazardous waste facility. (Potential soil contamination is addressed in the Hazards/Hazardous Materials discussion in Section VIII. d.)

Solid or hazardous wastes generated from construction-related activities would consist primarily of materials from the demolition of existing air pollution control equipment and construction associated with new or modified air pollution control equipment. Construction-related waste would be disposed of at a Class II (industrial) or Class III (municipal) landfill. There are 48 Class II/Class III landfills within the SCAQMD's jurisdiction. Based on a search of the

California Integrated Waste Management Board's Solid Waste Information System (SWIS) on May 16, 2007, the landfills that accept construction waste in Los Angeles, Orange, Riverside and San Bernardino counties have a combined remaining disposal capacity of approximately 750,846,000 cubic yards (1,250,367,507 tons).

Solid waste is expected to be generated from operational activities associated with implementation of the proposed project. Of the potential SOx control technologies, the largest amount of solid waste is expected to be generated from the operation of WGSs. Table 4-55 summarizes the potential generation of solid waste per source category that may be generated by either Option 1 or Option 2 of the proposed project.

Tab1e 4-55
Summary of Potential Operational Increases in Solid Waste Generation by Source Category

Source Category	Option 1: Proposed Control Technology	Option 1: Potential Increase in Solid Waste to be Generated (tons/day)	Option 2: Proposed Control Technology	Option 2: Potential Increase in Solid Waste to be Generated (tons/day)
FCCU	WGS	4.19	SOx Reducing Additives	0
SRU/TGU	WGS	2.25	WGS	2.25
Refinery Boilers/Heaters	FGT	2.33	FGT	2.33
Coke Calciner	WGS	0.44	WGS	0.44
Glass Melting Furnaces	WGS	0.05	WGS	0.05
Sulfuric Acid Mfg.	WGS	0	WGS	0
Sulfuric Acid Mfg.	Upgrade Existing Cansolv Unit	0	Upgrade Existing Cansolv Unit	0
Cement Kilns	DGS	2.49	DGS	2.49
	Option 1 Total	**11.75**	**Option 2 Total**	**7.56**

Based on the composition of the solid waste that may be generated, most of the solid waste would be considered a commodity and is expected to be transported to a cement plant for recycling while some will be reused on site, depending on the facility. Tables 4-56 and 4-57 summarize the amount of waste that may be generated and how it may be handled for both Options 1 and 2 of the proposed project.

The generation of catalyst fines and any other solid waste is expected to be captured by the control equipment as wet solids. In most cases, these wet solids can be collected for recycling for use in manufacturing cement. For the purpose of this analysis, this practice would be expected to continue if the proposed project is implemented because all but one of the refineries operating FCCUs currently send their spent catalyst to a local cement plant for reuse in the cement manufacturing process. In addition, for reducing SOx from SRU/TGUs during operation, the use of selective oxidation catalyst may be used at Facility A. However, the precious metal content (platinum) and relatively high cost of the catalyst, recycling, instead of disposal, is expected to occur with this product.

For these reasons, the projected solid waste data obtained by the consultant from each affected facility indicated that the waste may be treated as a commodity and is not expected to be disposed of in a landfill. Instead the solid waste will either be sent to a cement plant for

recycling or re-used on site. In any case, even if the entire amount of solid waste generated was sent to a landfill, it would not exceed the capacity of the designated landfills. Refer to Appendix B for the solid waste data. Therefore, less than significant adverse impacts to non-hazardous waste disposal facilities are expected from operational activities associated with the proposed project.

Table 4-56
Option 1: Summary of Potential Operational Increases in Solid Waste Generation by Facility

Facility ID	Option 1: Proposed Control Technology	Potential Increase in Solid Waste to be Generated from Proposed Project (tons/day)	How will Solid Waste be handled?
A	1 WGS for FCCU (new) 1 Selective Oxidation Catalyst system for SRU/TGU (new) 1 FGT by Sulfinol Conversion (modified)	0.77	Recycled at Cement Plant
B	1 WGS for FCCU (new) 2 WGSs for SRU/TGU (new)	2.47	Recycled at Cement Plant
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	0	N/A
D	1 WGS for SRU/TGU (new) 1 FGT by Merox Treatment Upgrade (modified)	1.18	Recycled at Cement Plant
E	1 WGS for FCCU (new) 1 FGT by Sulfinol Conversion (modified)	0.44	Recycled at Cement Plant
F	1 WGS for FCCU (new) 1 FGT by Amine Additive (modified)	1.89	Recycled at Cement Plant
G	1 FGT by Merox Treatment Upgrade (modified)	2.03	Recycled at Cement Plant
H	1 WGS for calciner (new)	0.44	Recycled at Cement Plant
I	2 WGSs for glass melting furnaces (new)	0.05	Recycled at Cement Plant
J	1 WGS for sulfuric acid unit (new)	0	N/A
K	2 DGSs for cement kilns (new)	2.49	Will remain on-site for reuse
	TOTAL	**11.76**	

Table 4-57
Option 2: Summary of Potential Operational Increases in Solid Waste Generation by Facility

Facility ID	Option 2: Proposed Control Technology	Potential Increase in Solid Waste to be Generated from Proposed Project (tons/day)	How will Solid Waste be handled?
A	1 SOx Reducing Additive Hopper for FCCU (modified) 1 Selective Oxidation Catalyst system for SRU/TGU (new) 1 FGT by Sulfinol Conversion (modified)	0	Recycled at Cement Plant
B	1 SOx Reducing Additive Hopper for FCCU (modified) 2 WGSs for SRU/TGU (new)	1.37	Recycled at Cement Plant
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	0	N/A
D	1 SOx Reducing Additive Hopper for FCCU (new) 1 WGS for SRU/TGU (new) 1 FGT by Merox Treatment Upgrade (modified)	1.18	Recycled at Cement Plant
E	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Sulfinol Conversion (modified)	0	Recycled at Cement Plant
F	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Amine Additive (modified)	0	Recycled at Cement Plant
G	1 FGT by Merox Treatment Upgrade (modified)	2.03	Recycled at Cement Plant
H	1 WGS for calciner (new)	0.44	Recycled at Cement Plant
I	2 WGSs for glass melting furnaces (new)	0.05	Recycled at Cement Plant
J	1 WGS for sulfuric acid unit (new)	0	N/A
K	2 DGSs for cement kilns (new)	2.49	Will remain on-site for reuse
	TOTAL	**7.56**	

However, it is expected that some affected facilities may address the increase in waste through existing waste minimization plans. In addition, other affected facilities that have existing catalyst-based operations currently regenerate, reclaim or recycle the catalysts, in lieu of disposal. Moreover, due to the heavy metal content and its relatively high cost, catalyst recycling can be a lucrative choice.

Although it is expected that spent catalysts would be reclaimed and recycled, it is possible that spent catalysts could be disposed of. The composition of the catalyst will determine in which type of landfill a catalyst would be disposed. There are two main types of catalysts: one in

which the catalyst is coated onto a metal structure and a ceramic-based catalyst onto which the catalyst components are calcified.

A catalyst with a metal structure would not normally be considered a hazardous waste. Instead, it would be considered a metal waste, like copper pipes, and, therefore, would not be a regulated waste requiring disposal in a Class I landfill unless it is friable or brittle. Ceramic-based catalysts are not considered friable or brittle because they typically include a fiber binding material in the catalyst material. In both cases, spent catalyst would not require disposal in a Class I landfill. Furthermore, typical catalyst materials are not considered to be water soluble, which also means they would not require disposal in a Class I landfill.

Based on the aforementioned information, it is likely that spent catalysts would be considered a "designated waste," which is characterized as a non-hazardous waste consisting of, or containing pollutants that, under ambient environmental conditions, could be released at concentrations in excess of applicable water objectives, or which could cause degradation of the waters of the state (CCR, Title 23, Chapter 3, Subparagraph 2522(a)(1)). Depending on their actual waste designation, spent catalysts would likely be disposed of in a Class II landfill or a Class III landfill that is fitted with liners. According to the Final Program EIR for the 2007 AQMP (SCAQMD, 2007), total Class III landfill waste disposal capacity in the District is approximately 93,979 tons per day, many of which have liners and can handle Class II and Class III wastes.

Disposal of spent catalyst would typically involve crushing the material and encasing it in concrete prior to disposal. Since it is expected that most spent catalysts will be recycled and regenerated, it is anticipated that there will be sufficient landfill capacity in the District to accommodate disposal of any spent catalyst materials. Thus, the potential increase of solid waste generated by the air pollution control equipment may not necessarily be disposed of and, therefore, is not expected to exceed the capacity of designated landfills available to each affected facility. Further, implementing the proposed project is not expected to hinder in any way any affected facility's ability to comply with existing federal, state, and local regulations related to solid and hazardous wastes. Based upon these considerations, significant solid/hazardous waste impacts are not expected from the implementation of the proposed project.

SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

CEQA Guidelines §15126(c) requires an environmental analysis to consider "any significant irreversible environmental changes which would be involved if the proposed action should be implemented." This PEA identified the topic of air quality as the environmental area potentially adversely affected by the proposed project. The NOP/IS also identified aesthetics, energy, hydrology and water quality, hazards and hazardous materials, and transportation/traffic as significant, but after further analysis, these topics were determined to have less than significant impacts. Significant adverse impacts from GHGs generated from both construction and operation activities may be considered irreversible. Facility operators that install new SOx controls or modify existing units are likely to operate these systems for the lifetime of the equipment.

POTENTIAL GROWTH-INDUCING IMPACTS

CEQA Guidelines §15126(d) requires an environmental analysis to consider the "growth-inducing impact of the proposed action." Implementing the proposed project will not, by itself,

have any direct or indirect growth-inducing impacts on businesses in the SCAQMD's jurisdiction because it is not expected to foster economic or population growth or the construction of additional housing and primarily affects existing facilities.

CONSISTENCY

CEQA Guidelines §15125(d) requires an EIR to discuss any inconsistencies between a proposed project and any applicable general plans or regional plans. SCAG and the SCAQMD have developed, with input from representatives of local government, the industry community, public health agencies, the USEPA - Region IX and CARB, guidance on how to assess consistency within the existing general development planning process in the Basin. Pursuant to the development and adoption of its Regional Comprehensive Plan Guide (RCPG), SCAG has developed an Intergovernmental Review Procedures Handbook (June 1, 1995). The SCAQMD also adopted criteria for assessing consistency with regional plans and the AQMP in its CEQA Air Quality Handbook. The following sections address the consistency between the proposed project and relevant regional plans pursuant to the SCAG Handbook and SCAQMD Handbook.

Consistency with Regional Comprehensive Plan and Guide (RCPG) Policies

The RCPG provides the primary reference for SCAG's project review activity. The RCPG serves as a regional framework for decision making for the growth and change that is anticipated during the next 20 years and beyond. The Growth Management Chapter (GMC) of the RCPG contains population, housing, and jobs forecasts, which are adopted by SCAG's Regional Council and that reflect local plans and policies, shall be used by SCAG in all phases of implementation and review. It states that the overall goals for the region are to: 1) re-invigorate the region's economy; 2) avoid social and economic inequities and the geographical isolation of communities; and, 3) maintain the region's quality of life.

Consistency with Growth Management Chapter (GMC) to Improve the Regional Standard of Living

The Growth Management goals are to develop urban forms that enable individuals to spend less income on housing cost, that minimize public and private development costs, and that enable firms to be more competitive, strengthen the regional strategic goal to stimulate the regional economy. The proposed project in relation to the GMC would not interfere with the achievement of such goals, nor would it interfere with any powers exercised by local land use agencies. Further, the proposed project will not interfere with efforts to minimize red tape and expedite the permitting process to maintain economic vitality and competitiveness.

Consistency with Growth Management Chapter (GMC) to Provide Social, Political and Cultural Equity

The Growth Management goals to develop urban forms that avoid economic and social polarization promotes the regional strategic goals of minimizing social and geographic disparities and of reaching equity among all segments of society. Consistent with the Growth Management goals, local jurisdictions, employers and service agencies should provide adequate training and retraining of workers, and prepare the labor force to meet the challenges of the regional economy. Growth Management goals also includes encouraging employment development in job-poor localities through support of labor force retraining programs and other economic development measures. Local jurisdictions and other service providers are responsible to develop sustainable communities and provide, equally to all members of society, accessible and effective services such as: public education, housing, health care, social services,

recreational facilities, law enforcement, and fire protection. Implementing the proposed project has no effect on and, therefore, is not expected to interfere with the goals of providing social, political and cultural equity.

Consistency with Growth Management Chapter (GMC) to Improve the Regional Quality of Life

The Growth Management goals also include attaining mobility and clean air goals and developing urban forms that enhance quality of life, accommodate a diversity of life styles, preserve open space and natural resources, are aesthetically pleasing, preserve the character of communities, and enhance the regional strategic goal of maintaining the regional quality of life. The RCPG encourages planned development in locations least likely to cause environmental impacts, as well as supports the protection of vital resources such as wetlands, groundwater recharge areas, woodlands, production lands, and land containing unique and endangered plants and animals. While encouraging the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites, the plan discourages development in areas with steep slopes, high fire, flood and seismic hazards, unless complying with special design requirements. Finally, the plan encourages mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage, and develop emergency response and recovery plans. The proposed project implements an AQMP control measure, which results in improving air quality in the region. Therefore, in relation to the GMC, the proposed project is not expected to interfere, but rather help with attaining and maintaining the air quality portion of these goals.

Consistency with Regional Mobility Element (RMP) and Congestion Management Plan (CMP)

The proposed project is consistent with the RMP and CMP since less than significant adverse impacts to transportation/circulation will result from installing SOx control equipment at affected facilities. There will be an increase of one-way truck transport trips to deliver fresh catalyst and dispose of, or recycle spent catalyst, and to deliver NaOH and other substances as a result of the proposed project. The peak daily truck transport trips associated with these activities would be 33 under Option 1 and 30 under Option 2 of the proposed project. Because these trips would not likely all occur on the same day and because they would be dispersed over a wide area, the proposed project is not expected to significantly adversely affect circulation patterns or congestion management.

C H A P T E R 5

A L T E R N A T I V E S

INTRODUCTION

This ~~Draft~~ Final PEA provides a discussion of alternatives to the proposed project as required by CEQA. Alternatives include measures for attaining objectives of the proposed project and provide a means for evaluating the comparative merits of each alternative. A 'no project' alternative must also be evaluated. The range of alternatives must be sufficient to permit a reasoned choice, but need not include every conceivable project alternative. CEQA Guidelines §15126.6(c) specifically notes that the range of alternatives required in a CEQA document is governed by a 'rule of reason' and only necessitates that the CEQA document set forth those alternatives necessary to permit a reasoned choice. The key issue is whether the selection and discussion of alternatives fosters informed decision making and meaningful public participation. A CEQA document need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. SCAQMD Rule 110 (the rule which implements the SCAQMD's certified regulatory program) does not impose any greater requirements for a discussion of project alternatives in an environmental assessment than is required for an EIR under CEQA.

Three alternatives to the proposed project are summarized in Table 5-1: Alternative A (No Project), Alternative B (AQMP), and Alternative C (Intermediate SOx Reductions). Pursuant to the requirements in CEQA Guidelines §15126.6 (b) to mitigate or avoid the significant effects that a project may have on the environment, a comparison of the potential air quality impacts from each of the project alternatives for the individual rule components that comprise the proposed project is provided in Table 5-2. The alternatives comparison in Table 5-2 also addresses the topics of aesthetics, energy, hazards and hazardous materials, hydrology and water quality, and transportation/traffic. Aside from these topics, no other significant adverse impacts were identified for the proposed project or any of the project alternatives. The proposed project is considered to provide the best balance between emission reductions and the adverse environmental impacts due to construction and operation activities while meeting the objectives of the project. Therefore, the proposed project is preferred over the project alternatives.

Table 5-1
Summary of PAR 2002 & Project Alternatives

Rule Components									
Basic Equipment	**BARCT**	**Proposed Project**	**SOx Reduction Potential** (tons/day)	**Alternative A:** No Project	**SOx Reduction Potential** (tons/day)	**Alternative B:** AQMP	**SOx Reduction Potential** (tons/day)	**Alternative C:** Intermediate SOx Reductions	**SOx Reduction Potential** (tons/day)
FCCU	WGS or SOx Reducing Additive	5 ppm SOx (3.25 lbs SOx/1000 bbl)	2.88[88]	No SOx limit	0	Same as Alternative A: No Project	0	Same as Proposed Project	2.88[88]
SRU/TGU	WGS or Selective Oxidation Catalyst	5 ppm SOx (combusted tail gas) & 10 ppm H2S / 300 ppm non-H2S (non-combusted tail gas) (5.28 lbs SOx/hr)	0.73[89]	No SOx limit	0	Same as Alternative A: No Project	0	Same as Alternative A: No Project	0
Sulfuric Acid Mfg.	WGS or upgrade existing controls	10 ppm SOx (0.14 lbs SOx/ton acid)	1.03	No SOx limit	0	Same as Proposed Project	1.03	Same as Proposed Project	1.03
Coke Calciner	WGS	10 ppm SOx (0.07 lbs SOx/ton coke)	0.28	No SOx limit	0	Same as Proposed Project	0.28	Same as Proposed Project	0.28
Glass Melting Furnace	WGS	5 ppm SOx (0.03 lbs SOx/ton glass)	0.19	No SOx limit	0	Same as Proposed Project	0.19	Same as Proposed Project	0.19
Cement Kiln	Limestone Absorber	5 ppm SOx (0.04 lbs SOx/ton clinker)	0.25	No SOx limit	0	Same as Alternative A: No Project	0	Same as Proposed Project	0.25
Coal-fired Boiler	DGS or Limestone Absorber	5 ppm SOx	0[90]	No SOx limit	0	Same as Alternative A: No Project	0	Same as Alternative A: No Project	0
Refinery Boilers/ Heaters	FGT	40 ppm SOx (6.76 lbs SOx/mmscf)	0.85[91]	No SOx limit	0	Same as Alternative A: No Project	0	Same as Proposed Project	0.85[91]
Potential SOx Emission Reductions			**6.21**		**0**		**1.50**		**5.48**
Proposed RTC Shave			6.14		0		3.00		5.32
2005 Excess SOx RTCs			1.75		0		1.75		1.75
Minimum SOx Emission Reductions Needed[88]			**4.39**		**0**		**1.25**		**3.57**

Key: WGS = Wet Gas Scrubber; DGS = Dry Gas Scrubber; FGT = Fuel Gas Treatment

[88] The estimated amount of SOx potentially reduced excludes the data for Facility D because installing a WGS is not cost-effective for this facility. However, the estimated amount of SOx potentially reduced includes the data for Facility C because a WGS is already installed.

[89] The estimated amount of SOx potentially reduced excludes the data for Facility E and Facility G because installing a WGS or Emerachem unit is not cost-effective for these facilities.

[90] This equipment is currently not operating at Facility K.

[91] The proposed project neither establishes a new BARCT level for refinery boilers/heaters nor requires additional reductions from this source category. However, cost-effective emission reductions in the amount of 0.85 tons per day are potentially available from future retrofits in this source category and the environmental impacts from such controls are evaluated in this analysis but the potential emission reductions are excluded from the proposed RTC shave.

Table 5-2
Comparison of Adverse Environmental Impacts of the Alternatives

Category	Proposed Project – Option 1	Proposed Project – Option 2	Alternative A: No Project	Alternative B: AQMP	Alternative C: Intermediate SOx Reductions – Option 1	Alternative C: Intermediate SOx Reductions – Option 2
Aesthetics	Visible steam plumes and new, tall stacks from installing/operating 11 WGSs as follows: FCCU: 4 WGSs SRU/TGU: 3 WGSs Sulfuric Acid: 1 WGS Coke Calciner: 1 WGS Glass Melting: 2 WGSs	Visible steam plumes and new, tall stacks from installing/operating 7 WGSs as follows: SRU/TGU: 3 WGSs Sulfuric Acid: 1 WGS Coke Calciner: 1 WGS Glass Melting: 2 WGSs	No installation of WGS (i.e., no visible steam plumes and no new, tall stacks) expected.	Visible steam plumes and new, tall stacks from installing/operating 4 WGSs as follows: Sulfuric Acid: 1 WGS Coke Calciner: 1 WGS Glass Melting: 2 WGSs	Visible steam plumes and new, tall stacks from installing/operating 8 WGSs as follows: FCCU: 4 WGSs Sulfuric Acid: 1 WGS Coke Calciner: 1 WGS Glass Melting: 2 WGSs	Visible steam plumes and new, tall stacks from installing/operating 4 WGSs as follows: Sulfuric Acid: 1 WGS Coke Calciner: 1 WGS Glass Melting: 2 WGSs
Aesthetics Impacts Significant?	Less than significant, but more than the proposed project- Option 2.	Less than significant, but less than the proposed project - Option 1.	Not Significant	Less than significant, and less than the proposed project for both Options 1 and 2.	Less than significant, and less than the proposed project Option 1 and more than the proposed project Option 2.	Less than significant, and less than the proposed project for both Options 1 and 2.
Air Quality	• Decreases total operational SOx emissions by 6.21 tpd as follows: FCCU: 2.88 tpd SRU/TGU: 0.73 tpd Sulfuric Acid: 1.03 tpd Coke Calciner: 0.28 tpd Glass Melting: 0.19 tpd Cement Kiln: 0.25 tpd Coal-fired Boiler: 0 tpd Refinery Boilers/Heaters: 0.85 tpd	• Decreases total operational SOx emissions by 6.21 tpd as follows: FCCU: 2.88 tpd SRU/TGU: 0.73 tpd Sulfuric Acid: 1.03 tpd Coke Calciner: 0.28 tpd Glass Melting: 0.19 tpd Cement Kiln: 0.25 tpd Coal-fired Boiler: 0 tpd Refinery Boilers/Heaters: 0.85 tpd	No decreases in total operational SOx emissions.	• Decreases total operational SOx emissions by 1.50 tpd as follows: Sulfuric Acid: 1.03 tpd Coke Calciner: 0.28 tpd Glass Melting: 0.19 tpd	• Decreases total operational SOx emissions by 5.48 tpd as follows: FCCU: 2.88 tpd Sulfuric Acid: 1.03 tpd Coke Calciner: 0.28 tpd Glass Melting: 0.19 tpd Cement Kiln: 0.25 tpd Refinery Boilers/Heaters: 0.85 tpd	• Decreases total operational SOx emissions by 5.48 tpd as follows: FCCU: 2.88 tpd Sulfuric Acid: 1.03 tpd Coke Calciner: 0.28 tpd Glass Melting: 0.19 tpd Cement Kiln: 0.25 tpd Refinery Boilers/Heaters: 0.85 tpd

Table 5-2 (continued)
Comparison of Adverse Environmental Impacts of the Alternatives

Category	Proposed Project – Option 1	Proposed Project – Option 2	Alternative A: No Project	Alternative B: AQMP	Alternative C: Intermediate SOx Reductions – Option 1	Alternative C: Intermediate SOx Reductions – Option 2
Air Quality (concluded)	• Increases total GHGs by: - 39,020 MT/yr without mitigation; and. - 38,771 MT/yr with mitigation. • Increases operational use of NaOH (a TAC) by 13.24 tpd. • Increases peak daily operation emissions as follows: VOC: 1 lb/day CO: 5 lb/day NOx: 15 lb/day PM10: 1 lb/day PM2.5: 1 lb/day • Increases peak daily construction emissions as follows: VOC: 89 lb/day CO: 461 lb/day NOx: 464 lb/day SOx: 1 lb/day PM10: 159 lb/day PM2.5: 53 lb/day	• Increases total GHGs by: - 19,662 MT/yr without mitigation; and. - 19,580 MT/yr with mitigation. • Increases operational use of NaOH (a TAC) by 8.79 tpd. • Increases peak daily operation emissions as follows: VOC: 1 lb/day CO: 4 lb/day NOx: 13 lb/day PM10: 1 lb/day PM2.5: 1 lb/day • Increases peak daily construction emissions as follows: VOC: 89 lb/day CO: 461 lb/day NOx: 464 lb/day SOx: 1 lb/day PM10: 159 lb/day PM2.5: 53 lb/day	No increases in any emissions.	• Increases total GHGs by: - 6,567 MT/yr without mitigation; and. - 6,522 MT/yr with mitigation. • Increases operational use of NaOH (a TAC) by 5.45 tpd. • Increases peak daily operation emissions as follows: NOx: 1 lb/day • Increases peak daily construction emissions as follows: VOC: 89 lb/day CO: 461 lb/day NOx: 464 lb/day SOx: 1 lb/day PM10: 159 lb/day PM2.5: 53 lb/day	• Increases total GHGs by: - 34,159 MT/yr without mitigation; and. - 33,911 MT/yr with mitigation. • Increases operational use of NaOH (a TAC) by 13.24 tpd. • Increases peak daily operation emissions as follows: VOC: 1 lb/day CO: 4 lb/day NOx: 13 lb/day PM10: 1 lb/day PM10: 1 lb/day PM2.5: 1 lb/day • Increases peak daily construction emissions as follows: VOC: 89 lb/day CO: 461 lb/day NOx: 464 lb/day SOx: 1 lb/day PM10: 159 lb/day PM2.5: 53 lb/day	• Increases total GHGs by: - 14,805 MT/yr without mitigation; and. - 14,723 MT/yr with mitigation. • Increases operational use of NaOH (a TAC) by 8.79 tpd. • Increases peak daily operation emissions as follows: VOC: 1 lb/day CO: 4 lb/day NOx: 11 lb/day PM10: 1 lb/day • Increases peak daily construction emissions as follows: VOC: 89 lb/day CO: 461 lb/day NOx: 464 lb/day SOx: 1 lb/day PM10: 159 lb/day PM2.5: 53 lb/day

Table 5-2 (continued)
Comparison of Adverse Environmental Impacts of the Alternatives

Category	Proposed Project – Option 1	Proposed Project – Option 2	Alternative A: No Project	Alternative B: AQMP	Alternative C: Intermediate SOx Reductions – Option 1	Alternative C: Intermediate SOx Reductions – Option 2
Air Quality Impacts Significant?	• Less than significant, achieves equivalent SOx emission reductions during operation to the proposed project - Option 2. • Significant for GHGs, more than the proposed project - Option 2. • Less than significant for TACs use (NaOH) during operation, but more than the proposed project - Option 2. • Significant for NOx, VOC, and PM10 during construction and equivalent to the proposed project - Option 2. • Less than significant for VOC, CO, NOx, PM10 and PM2.5 during operation and more than the proposed project - Option 2.	• Less than significant, achieves equivalent SOx emission reductions during operation to the proposed project - Option 1. • Significant for GHGs, less than the proposed project - Option 1. • Less than significant for TACs use (NaOH) during operation, but less than the proposed project - Option 1. • Significant for NOx, VOC, and PM10 during construction and equivalent to the proposed project - Option 1. • Less than significant for VOC, CO, NOx, PM10 and PM2.5 during operation and less than the proposed project - Option 1.	Not significant for any pollutant during construction or operation but does not achieve required AQMP SOx emission reductions during operation.	• Less than significant, achieves the least amount of SOx emission reductions during operation than the proposed project for both Options 1 and 2. • Less than significant for GHGs, less than the proposed project for both Options 1 and 2. • Less than significant for TACs use (NaOH) during operation, and less than the proposed project for both Options 1 and 2. ~~but equivalent to the proposed project – Option 2.~~ • Significant for NOx, VOC, and PM10 during construction; equivalent to the proposed project for both Options 1 and 2. • Less than significant for VOC, CO, NOx, PM10 and PM2.5 during operation and less than the proposed project for both Options 1 and 2.	• Less than significant, achieves less SOx emission reductions during operation than the proposed project for both Options 1 and 2. • Significant for GHGs, but less than the proposed project ~~- for both~~ Option~~s~~ 1 and more than the proposed project – Option 2. • Less than significant for TACs use (NaOH) during operation, and equivalent to the proposed project - Option 1, and more than the proposed project - Option 2. • Significant for NOx, VOC, and PM10 during construction; equivalent to the proposed project for both Options 1 and 2. • Less than significant for VOC, CO, NOx, PM10 and PM2.5 during operation and less than the proposed project - Option 1 and equivalent to the proposed project – Option 2.	• Less than significant, achieves less SOx emission reductions during operation than the proposed project for both Options 1 and 2. • Significant for GHGs, but less than the proposed project for both Options 1 and 2. • Less than significant for TACs use (NaOH) during operation, and less than the proposed project - Option 1, but equivalent to the proposed project - Option 2. • Significant for NOx, VOC, and PM10 during construction; equivalent to the proposed project for both Options 1 and 2. • Less than significant for VOC, CO, NOx, PM10 and PM2.5 during operation and less than the proposed project for both Options 1 and 2.

Table 5-2 (continued)
Comparison of Adverse Environmental Impacts of the Alternatives

Category	Proposed Project – Option 1	Proposed Project – Option 2	Alternative A: No Project	Alternative B: AQMP	Alternative C: Intermediate SOx Reductions – Option 1	Alternative C: Intermediate SOx Reductions – Option 2
Energy	• During operation, - Overall reduction in the use of natural gas by 4.1 mmBTU/day; - Overall increase in the use of electricity by 204 MWh/day; and, - Overall increase in the use of diesel by 2,403 gal/day. • During construction, - Overall increase in the use of gasoline by 1,354 ~~1,384~~ gal/day; and, - Overall increase in the use of diesel by 1,360 gal/day.	• During operation, - Overall reduction in the use of natural gas by 4.1 mmBTU/day; - Overall increase in the use of electricity by 101 MWh/day; and, - Overall increase in the use of diesel by 2,037 gal/day; • During construction, - Overall increase in the use of gasoline by 1,354 ~~1,384~~ gal/day; and, - Overall increase in the use of diesel by 1,360 gal/day.	During both operation and construction, no increases in energy uses.	• During operation, - No change in the use of natural gas; - Overall increase in the use of electricity by 33 MWh/day; and, - Overall increase in the use of diesel by 105 gal/day. • During construction, - Overall increase in the use of gasoline by 1,354 ~~1,384~~ gal/day; and, - Overall increase in the use of diesel by 1,360 gal/day.	• During operation, - Overall reduction in the use of natural gas by 34.25 mmBTU/day; - Overall increase in the use of electricity by 182 MWh/day; and, - Overall increase in the use of diesel by ~~1,703~~2,133 gal/day. • During construction, - Overall increase in the use of gasoline by 1,354 ~~1,384~~ gal/day; and, - Overall increase in the use of diesel by 1,360 gal/day.	• During operation, - Overall reduction in the use of natural gas by 34.25 mmBTU/day; - Overall increase in the use of electricity by 79 MWh/day; and, - Overall increase in the use of diesel by ~~1,330~~1,767 gal/day. • During construction, - Overall increase in the use of gasoline by 1,354 ~~1,384~~ gal/day; and, - Overall increase in the use of diesel by 1,360 gal/day.

Table 5-2 (continued)
Comparison of Adverse Environmental Impacts of the Alternatives

Category	Proposed Project – Option 1	Proposed Project – Option 2	Alternative A: No Project	Alternative B: AQMP	Alternative C: Intermediate SOx Reductions – Option 1	Alternative C: Intermediate SOx Reductions – Option 2
Energy Impacts Significant?	Less than significant, more than the proposed project - Option 2 as follows: • The reduction in the use of natural gas is ~~not as much as~~equivalent to the proposed project - Option 2; • The increase in the use of electricity is more than the proposed project - Option 2; • The total increase in the use of diesel is more than the proposed project - Option 2; and, • The increase in the use of gasoline is equivalent to the proposed project for both Options 1 and 2.	Less than significant, less than the proposed project - Option 1 as follows: • The reduction in the use of natural gas is ~~more than~~ equivalent to the proposed project - Option 1; • The increase in the use of electricity is less than the proposed project - Option 1; • The total increase in the use of diesel is less than the proposed project - Option 1; and, • The increase in the use of gasoline is equivalent to the proposed project for both Options 1 and 2.	Not significant (no change)	Less than significant, less than the proposed project for both Options 1 and 2 as follows: • There is no change in the use of natural gas; • The increase in the use of electricity is less than the proposed project for both Options 1 and 2; • The total increase in the use of diesel is less than the proposed project for both Options 1 and 2; and, • The increase in the use of gasoline is equivalent to the proposed project for both Options 1 and 2.	Less than significant, less than the proposed project – Option 1 as follows: • The reduction in the use of natural gas is more than the proposed project for both Options 1 and 2; • The increase in the use of electricity is less than the proposed project - Option 1 and more than the proposed project - Option 2; • The total increase in the use of diesel is less than the proposed project for ~~both~~ Option~~s~~ 1 and more than the proposed project for Option 2; and, • The increase in the use of gasoline is equivalent to the proposed project for both Options 1 and 2.	Less than significant, less than the proposed project for both Options 1 and 2 as follows: • The reduction in the use of natural gas is more than the proposed project for both Options 1 and 2; • The increase in the use of electricity is less than the proposed project for both Options 1 and 2; • The total increase in the use of diesel is less than the proposed project for both Options 1 and 2; and, • The increase in the use of gasoline is equivalent to the proposed project for both Options 1 and 2.
Hazards & Hazardous Materials	Increased use of 13.24 tons/day of NaOH (a TAC) used during operation.	Increased use of 8.79 tons/day of NaOH (a TAC) used during operation.	No change to existing hazards and hazardous materials used.	Increased use of 5.45 tons/day of NaOH (a TAC) used during operation.	Increased use of 13.24 tons/day of NaOH (a TAC) used during operation.	Increased use of 8.79 tons/day of NaOH (a TAC) used during operation.

Table 5-2 (continued)
Comparison of Adverse Environmental Impacts of the Alternatives

Category	Proposed Project – Option 1	Proposed Project – Option 2	Alternative A: No Project	Alternative B: AQMP	Alternative C: Intermediate SOx Reductions – Option 1	Alternative C: Intermediate SOx Reductions – Option 2
Hazards & Hazardous Materials Impacts Significant?	Less than significant, more than the proposed project - Option 2.	Less than significant, less than the proposed project - Option 1.	Not significant	Less than significant, less than the proposed project for both Options 1 and 2.	Less than significant, equivalent to the proposed project - Option 1.	Less than significant, equivalent to the proposed project - Option 2.
Hydrology & Water Quality	• During operation, increase in total water demand by 883,368 gal/day (of which up to 201,587 gal/day may be supplied by potable water); and, increase in the generation of wastewater by 270,532 gal/day. • During peak daily construction activities, increase in water demand by 52,272 gal/day.	• During operation, increase in total water demand by 642,272 gal/day (of which up to 108,436 gal/day may be supplied by potable water); and, increase in the generation of wastewater by 158,203 gal/day. • During peak daily construction activities, increase in water demand by 52,272 gal/day.	No change to existing water demand or wastewater discharge.	• During operation, increase in total water demand by 125,285 gal/day (of which up to 105,696 gal/day may be supplied by potable water); and, increase in the generation of wastewater by 40,669 gal/day. • During peak daily construction activities, increase in water demand by ~~52,272~~7,020 gal/day.	• During operation, increase in total water demand by 529,121 gal/day (of which up to 201,587 gal/day may be supplied by potable water); and, increase in the generation of wastewater by 199,573 gal/day. • During peak daily construction activities, increase in water demand by 52,272 gal/day.	• During operation, increase in total water demand by 288,025 gal/day (of which up to 108,436 gal/day may be supplied by potable water); and, increase in the generation of wastewater by 87,244 gal/day. • During peak daily construction activities, increase in water demand by 52,272 gal/day.
Hydrology & Water Quality Impacts Significant?	• Significant for water demand (based on potable water), more than the proposed project - Option 2. • Less than significant for wastewater discharge, more than the proposed project - Option 2.	• Less than significant for water demand (based on potable water), less than the proposed project - Option 1. • Less than significant for wastewater discharge, less than the proposed project - Option 1.	Not significant for water demand or wastewater discharge.	• Less than significant for water demand (based on potable water), less than the proposed project for both Options 1 and 2. • Less than significant for wastewater discharge, less than the proposed project for both Options 1 and 2.	• Significant for water demand (based on potable water), and less than the proposed project for both Options 1 and 2. • Less than significant for wastewater discharge, and less than the proposed project - Option 1 and more than the proposed project - Option 2.	• Less than significant for water demand (based on potable water), and less than the proposed project for both Options 1 and 2. • Less than significant for wastewater discharge, and less than the proposed project for both Options 1 and 2.

Table 5-2 (concluded)
Comparison of Adverse Environmental Impacts of the Alternatives

Category	Proposed Project – Option 1	Proposed Project – Option 2	Alternative A: No Project	Alternative B: AQMP	Alternative C: Intermediate SOx Reductions – Option 1	Alternative C: Intermediate SOx Reductions – Option 2
Transportation & Traffic	Overall peak increase in transportation and traffic of 700 trips per day during construction and 33 trips per day during operation.	Overall peak increase in transportation and traffic of 700 trips per day during construction and 30 trips per day during operation.	No change to existing transportation and traffic.	Overall peak increase in transportation and traffic of 700 trips per day during construction and 5 trips per day during operation.	Overall peak increase in transportation and traffic of 700 trips per day during construction and 27 trips per day during operation.	Overall peak increase in transportation and traffic of 700 trips per day during construction and 20 trips per day during operation.
Transportation & Traffic Impacts Significant?	Less than significant, but equivalent to ~~more than~~ the proposed project – Option 2 for ~~both~~ construction and more than the proposed project – Option 2 for operation.	Less than significant, but equivalent to ~~less than~~ the proposed project – Option 1 for ~~both~~ construction and less than the proposed project – Option 1 for operation.	Not significant	Less than significant, but less than the proposed project for both Options 1 and 2.	Less than significant, but less than the proposed project for both Options 1 and 2.	Less than significant, but less than the proposed project for both Options 1 and 2.

ALTERNATIVES REJECTED AS INFEASIBLE

A CEQA document should identify any alternatives that were considered by the lead agency, but were rejected as infeasible during the scoping process and explain the reasons underlying the lead agency's determination [CEQA Guidelines §15126.6(c)]. No alternative was specifically rejected as being infeasible.

LOWEST TOXIC ALTERNATIVE

In accordance with SCAQMD's policy document Environmental Justice Program Enhancements for FY 2002-03, Enhancement II-1 recommends that all SCAQMD CEQA assessments include a feasible project alternative with the lowest air toxics emissions. In other words, for any major equipment or process type under the scope of the proposed project that creates a significant environmental impact, at least one alternative, where feasible, shall be considered from a "least harmful" perspective with regard to hazardous air emissions. With respect to the proposed project, a lowest air toxics alternative would be to use SOx control technology that uses the least amount of toxic materials. The main SOx reduction technology considered for the proposed project is based on employing WGSs, but other types of SOx controls, such as SOx reducing additives and DGSs, may also be employed. The analysis shows that of the proposed SOx controls, only WGSs may increase the use of toxic materials. Specifically, some WGSs, but not all, rely on the use of sodium hydroxide (NaOH) caustic solution as the scrubbing agent. NaOH is a toxic air contaminant (TAC) that is a non-cancerous but acutely hazardous substance and is used in WGSs for controlling SOx emissions from FCCUs, coke calciners, sulfuric acid manufacturing and glass melting.

As a point of contrast, WGSs employed for controlling SOx from SRU/TGUs use sodium carbonate (Na2CO3) which is commonly known as soda ash, a non-toxic, non-cancerous, and non-hazardous substance, as the scrubbing agent. Further, DGSs employed for controlling SOx from cement kilns utilize limestone, also a non-toxic, non-cancerous, and non-hazardous substance, as the scrubbing agent. If SOx reducing additives (catalyst) are employed in lieu of WGSs for FCCUs, the catalyst is also non-toxic, non-cancerous, and non-hazardous substance.

Lastly, FGT for refinery boilers and heaters will vary from process-to-process and facility-to-facility, but none would require WGS technology. FGT, does involve the use of various substances, depending on the process, such as NaOH caustic, amines, and specialty catalysts. As demonstrated in the hazards discussion in Chapter 4 of this PEA, only the NaOH caustic employed for FGT is hazardous. Table 5-3 contains a summary of the substances used per process per source category and indicates if the substance is toxic.

Table 5-3
Potential Increase in Substances Used in SOx Control Technologies

Equipment/Source Category	Control Technology	Substances	Is the substance a toxic air contaminant (TAC)?
FCCU	WGS	NaOH	**Yes**
FCCU	SOx Reducing Additive	Proprietary catalyst blend	No
SRU/TGU	WGS	Soda Ash	No
SRU/TGU	Selective Oxidation Catalyst	Proprietary catalyst blend	No
Sulfuric Acid Mfg.	WGS	NaOH	**Yes**
Coke Calciner	WGS	NaOH	**Yes**
Glass Melting Furnace	WGS	NaOH	**Yes**
Cement Kiln	DGS	Limestone	No
Coal-fired Boiler	DGS	Limestone	No
Refinery Boilers/ Heaters	FGT	NaOH, proprietary catalyst blend or amines	**Yes, for NaOH**

Based on Table 5-3, the use of NaOH defines which portions of the project and various alternatives are toxic. In addition, each facility that was projected to increase the use in the acutely hazardous substance NaOH under Alternatives B and C, the filling loss and the working loss of each NaOH tank was calculated, added together, and that sum was compared to the most stringent Rule 1401 Screening Emission Level for NaOH (0.004 pounds per hour at the nearest receptor distance of 25 meters). None of the total hourly loss projections exceeded the acute screening level for NaOH for any of the affected facilities for any of the alternatives. Because the screening level for NaOH was not exceeded for any of the affected facilities, no significant air quality operational impacts with respect to toxics are expected from any of the alternatives. NaOH is not classified as a carcinogen, so a cancer risk analysis for each of the alternatives was not performed.

To determine the lowest toxic alternative, Table 5-4 contains a comparison of the proposed project and each alternative relative to the amount of NaOH that may be used per source category.

Table 5-4
Summary of Potential NaOH Use per Source Category

Projected Increased Amount of NaOH To Be Used (tons/day)							
Equipment/ Source Category	**Control Technology that Uses NaOH**	**Proposed Project: Option 1**	**Proposed Project: Option 2**	**Alternative A: No Project**	**Alternative B: AQMP**	**Alternative C: Intermediate SOx Reductions – Option 1**	**Alternative C: Intermediate SOx Reductions – Option 2**
FCCU	WGS	4.45	0*	0	0*	4.45	0*
Sulfuric Acid	WGS	1.30	1.30	0	1.30	1.30	1.30
Coke Calciner	WGS	3.37	3.37	0	3.37	3.37	3.37
Glass Melting Furnace	WGS	0.79	0.79	0	0.79	0.79	0.79
Refinery Boilers & Heaters	FGT	3.34	3.34		0	3.34	3.34
	TOTAL	**13.24**	**8.79**	**0**	**5.45**	**13.24**	**8.79**

*The Proposed Project- Option 2, Alternative B and Alternative C – Option 2 are based on the assumption that SOx reducing additives will be used in lieu of WGS technology for FCCUs.

As shown in Table 5-4, Alternative A has least amount of toxics involved because no NaOH would be used. However, because Alternative A is the 'no project alternative,' it does not achieve the goals of the proposed project because it does not implement the AQMP control measure. Therefore, Alternative A cannot be considered the lowest toxic alternative. Of the alternatives that achieve the goals of the AQMP control measure, Alternative B uses the least amount of NaOH (5.45 tons per day) when compared to the Proposed Project (e.g., 13.24 tons per day under Option 1 and 8.79 tons per day under Option 2). Therefore, when compared to the Proposed Project and the other alternatives under consideration that also rely on the use of NaOH for compliance, Alternative B can be considered the lowest toxic alternative.

DESCRIPTION OF ALTERNATIVES

The following proposed alternatives were developed by modifying specific components of the proposed project. The rationale for selecting and modifying specific components of the proposed project to generate feasible alternatives for the analysis is based on CEQA's requirement to present "realistic" alternatives; that is, alternatives that can actually be implemented.

The initial analysis of the proposed project in the NOP/IS determined that, of the amendments proposed, only the components that pertain to the lowered SOx emission limits could entail physical modifications to the affected equipment that could have potential adverse significant impacts. As such, the following three alternatives were developed by identifying and modifying major components of the proposed project. Specifically, the primary components of the proposed alternatives that have been modified are the source categories that may be affected, and the manner in which compliance with the proposed SOx emission limits may be achieved. The alternatives, summarized in Table 5-1 and described in the following subsections, include the following: Alternative A (No Project), Alternative B (AQMP), and Alternative C (Intermediate SOx Reductions). Unless otherwise specifically noted, all other components of the project

alternatives are identical to the components of the proposed project. The following subsections provide a brief description of each alternative.

Alternative A - No Project

Alternative A or 'no project' means that the proposed project would not be adopted and the current universe of equipment will continue to be maintained at their current operations without being required to further reduce SOx emissions. However, by not adopting the SOx emission limits for each source category as proposed, the current version of Rule 2002 would not implement AQMP Control Measure CMB-02: Further SOx Reduction for RECLAIM (CM #2007CMB-02). In summary, Alternative A, the 'no project' alternative, does not achieve the goals of the proposed project because it does not implement the AQMP control measure. While no significant adverse secondary environmental impacts would result from the 'no project' alternative, it is not necessarily the environmentally superior alternative in accordance with CEQA Guidelines §15126.6(e)(2) because SOx emissions would continue to be emitted at current levels, thus, not improving air quality in the District.

Alternative B – AQMP

Alternative B is the AQMP alternative with the top three most cost-effective SOx emission reduction targets that focus on the following equipment/source categories: 1) sulfuric acid manufacturing; 2) coke calciner; and, 3) glass melting furnaces. Under Alternative B, less add-on control equipment (e.g., four WGSs) would be expected to be installed in order to achieve SOx emission reductions as compared to the proposed project (e.g., 11 WGSs plus two DGSs under Option 1 and seven WGSs plus two DGSs under Option 2). The reduced number of add-on controls to be installed under Alternative B when compared to the proposed project can be attributed to the exclusion of the following source categories: FCCU, SRU/TGU, cement kiln, and refinery boilers/heaters. Having equivalent SOx emission limits implemented on only the most cost-effective source categories means that the overall SOx emission reductions attributable to Alternative B will be much less than the proposed project for both Options 1 and 2. Significant adverse air quality impacts for criteria pollutants during construction would result from implementing Alternative B. Because of the potential for four WGSs to be constructed simultaneously under Alternative B, the peak daily construction emissions would be equivalent to the proposed project for both Options 1 and 2. However, because less add-on control equipment would be installed overall under Alternative B when compared to the proposed project, the operation GHG emissions would be less than significant and substantially less than the proposed project for both Options 1 and 2. In addition, less than significant adverse secondary impacts for aesthetics, energy, hazards and hazardous materials, hydrology and water quality, and transportation and traffic are expected to result from implementing Alternative B, but these impacts would also be less than the proposed project.

Alternative C – Intermediate SOx Reductions

Alternative C would impose the same SOx limits on fewer equipment/source categories when compared to both Options 1 and 2 of the proposed project. Specifically, five equipment/source categories comprise Alternative C: FCCUs, sulfuric acid manufacturing, coke calciner, glass melting furnaces, and cement kilns. Like the proposed project, there are two SOx control approaches that can be applied to FCCUs under Alternative C. For this reason, Alternative C has been bifurcated into two options: Option 1 assumes that WGSs will be the control approach for FCCUs; and, Option 2 assumes that SOx reducing additives will be the control approach for FCCUs. The remaining source categories and their respective control approaches applicable to Alternative C will be the same for both Option 1 and Option 2.

Under Alternative C, less add-on control equipment (e.g., eight WGSs plus two DGSs under Option 1 and four WGSs plus two DGSs under Option 2) would be expected to be installed under Alternative C in order to achieve the lowered SOx emission limits as compared to the Proposed Project compared to the proposed project (e.g., 11 WGSs plus two DGSs under Option 1 and seven WGSs plus two DGSs under Option 2). The reduced number of add-on control equipment to be installed under Option 2 can be attributed to the assumption that SOx reduction catalysts could be utilized in the FCCUs. Having equivalent SOx emission limits applied to fewer source categories means that the overall SOx emission reductions attributable to Alternative C will be less than the proposed project (e.g., 5.48 tons per day versus 6.21 tons per day). Significant adverse air quality impacts for criteria pollutants during construction and GHGs during operation would result from implementing Alternative C for both Options 1 and 2. Like the proposed project, the simultaneous construction of four WGSs is assumed to occur under both Options 1 and 2 for Alternative C. Thus, the peak daily construction emissions for both Options 1 and 2 of Alternative C would be equivalent to the both Options 1 and 2 of the proposed project. However, because less WGSs would be installed overall under Alternative C when compared to the proposed project, the operation GHG emissions would be less than both Options 1 and 2 of the proposed project. In addition, less than significant adverse secondary impacts for aesthetics, energy, hazards and hazardous materials, hydrology and water quality, and transportation and traffic are expected to result from implementing Alternative C, but these impacts would also be less than both Options 1 and 2 of the proposed project.

COMPARISON OF THE ALTERNATIVES

The Environmental Checklist (see Chapter 2 of the Initial Study in Appendix C) identified only aesthetics, air quality, energy, hazards and hazardous materials, hydrology and water quality, and transportation and traffic as the environmental areas that could be significantly adversely affected by the proposed project. Further evaluation of potential impacts in Chapter 4 of this Environmental Assessment determined that the proposed project for both Options 1 and 2 would not generate significant adverse project-specific impacts for aesthetics, energy, hazards and hazardous materials, , and transportation and traffic. Instead, only the project-specific air quality impacts and hydrology (water demand) impacts were concluded to be significant.

The following sections describe the potential adverse impacts that may be generated by each project alternative. Potential adverse impacts for the environmental topics are quantified where sufficient data are available. A comparison of the environmental impacts for each project alternative is provided in Table 5-2. No other environmental topics other than air quality were determined to be significantly adversely affected by implementing any project alternative.

AESTHETICS

Alternative A - No Project

The project-specific aesthetic impacts associated with the installation of multiple WGSs would be eliminated under Alternative A, the no project alternative, since no construction activities would occur and no new equipment would be installed at any of the affected facilities. Under Alternative A, the aesthetic impacts would remain unchanged from the existing setting and therefore, would be less than significant.

Alternative B – AQMP

Alternative B contains the same SOx emission reduction targets as the proposed project but only for the following equipment/source categories: sulfuric acid manufacturing, coke calciner, and glass melting furnace. As with the proposed project, Alternative B would result in the installation of multiple WGSs that would generate multiple visible steam plumes and would require new, tall stacks for each WGS creating adverse aesthetics impacts. However, because less source categories are included in Alternative B, less WGSs would be installed when compared to the proposed project (e.g., four WGSs versus 11 WGSs for Option 1 and seven WGSs for Option 2). The reduced number of WGSs to be installed under Alternative B when compared to the proposed project can be primarily attributed to the exclusion of the FCCU and SRU/TGU source categories and focusing on the top three most cost-effective SOx reduction targets. The aesthetics impacts associated with the proposed project for both Options 1 and 2 were considered to be less than significant because the new WGSs to be installed would occur within existing heavy industrial areas. While less WGSs would be installed under Alternative B, aesthetics impacts are expected to occur but they will be less than the proposed project. Thus, Alternative B is considered to have less than significant aesthetics impacts.

Alternative C – Intermediate SOx Reductions

Alternative C would impose the same SOx limits on fewer equipment/source categories when compared to the proposed project. Specifically, five equipment/source categories comprise Alternative C: FCCUs, sulfuric acid manufacturing, coke calciner, glass melting furnaces, and cement kilns. As with the proposed project, Alternative C would result in the installation of multiple WGSs that would generate visible steam plumes and would require new, tall stacks for each WGS creating adverse aesthetics impacts. However, less WGSs (e.g., four) would be installed under Alternative C (e.g., eight WGSs under Option 1 and four WGSs under Option 2) when compared to the proposed project (e.g., 11 WGSs under Option 1 and seven WGSs under Option 2). The reduced number of WGSs to be installed under Alternative C – Option 2 can be attributed to the assumption that SOx reduction catalysts could be utilized in the FCCUs thus eliminating the need for add-on control equipment for this source category. The aesthetics impacts associated with both Options 1 and 2 of the proposed project were considered to be less than significant because the new WGSs to be installed would occur within existing heavy industrial areas. While less WGSs would be installed under both Options 1 and 2 of Alternative C, aesthetics impacts are expected to occur but they will be less than the proposed project. Thus, Alternative C is considered to have less than significant aesthetics impacts.

AIR QUALITY

Alternative A - No Project

Unlike the proposed project, it is not anticipated that Alternative A would generate significant adverse impacts during construction or operational activities because the owners/operators of affected equipment/source categories would not be expected to modify their operations in a way that could generate construction and operation emissions. Instead, owners/operators of the affected equipment/source categories would continue existing operations in compliance with the current SOx RECLAIM program as well as complying with all applicable SCAQMD, CARB and USEPA requirements. By not adopting the proposed project, current operations mean that each facility can continue to operate their SOx emitting equipment in accordance with their annual SOx allocations and SOx RTCs. This means that there would be SOx reductions and health benefits from reducing overall SOx emissions will not be realized. Further, by not implementing

SOx emission reductions, AQMP Control Measure CMB-02: Further SOx Reduction for RECLAIM (CM #2007CMB-02, would not be implemented. In summary, Alternative A, the 'no project' alternative, does not achieve the goals of the proposed project because it does not implement the AQMP control measure or comply with state law to implement all feasible mitigation measures.

Alternative B – AQMP

Because Alternative B applies the same SOx emission reduction targets as the proposed project but to fewer equipment/source categories (e.g., sulfuric acid manufacturing, coke calciner, and glass melting furnace), less emission reductions (i.e., 1.5 tons per day for Alternative B versus 6.2 tons per day for the proposed project) would be realized for less affected equipment (i.e., the installation of four WGSs for Alternative B versus 11 WGSs plus two DGSs for Option 1 of the proposed project or seven WGSs plus two DGSs for Option 2 of the proposed project). Due to the limited focus of Alternative B, fewer WGSs will be installed. Further, because there will be fewer WGSs installed that also utilize NaOH, less operational emissions associated with NaOH deliveries and use will occur with Alternative B when compared to the proposed project. Similar to the proposed project, it is anticipated that the installation of WGSs in accordance with Alternative B would generate significant adverse construction and operational air quality impacts, but these impacts would be less than the proposed project because less add-on control equipment would be installed.

In summary, if Alternative B were implemented, less SOx reductions would be achieved and less health benefits from reducing SOx overall will be realized. Alternative B does not achieve as great of SOx emission reduction benefits as the proposed project. Table 5-1 summarizes the SOx emission reduction benefits per day for Alternative B (i.e., approximately 1.5 tons per day).

Table 5-5 presents the results of the SCAQMD staff's construction air quality analysis for the proposed project and lists the peak daily construction emissions from construction worker trips and use of equipment for the installation of one WGS and the overlapping construction of four WGSs, respectively. For construction, Alternative B is equivalent to the proposed project, because both assume the peak daily construction of four WGSs. For the installation of one WGS, the calculations show the total daily construction emissions exceed the SCAQMD's CEQA air quality significance threshold of 100 pounds of NOx per day. For the simultaneous construction of four WGSs, the calculations show the total daily construction emissions exceed the SCAQMD's CEQA air quality significance thresholds of 100 pounds of NOx per day, 75 pounds of VOC per day, and 150 pounds of PM10 per day. Appendix B contains the spreadsheets with the results and assumptions used by the SCAQMD staff for this analysis.

Table 5-5
Alternative B: Peak Daily "Worst-Case" Construction Emissions from the Installation of WGS Technology in 2012 or later

Peak Construction Activity	VOC (lbs/day)	CO (lbs/day)	NOx (lbs/day)	SOx (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)
Phase I: Demolition	6	32	40	0	2	2
Phase II: Construction	16	83	76	0	38	11
Total for 1 WGS Installation	**22**	**115**	**116**	**0**	**40**	**13**
SIGNIFICANCE THRESHOLD	75	550	100	150	150	55
SIGNIFICANT?	**NO**	**NO**	**YES**	**NO**	**NO**	**NO**
Phase I: Demolition	24	129	161	0	9	8
Phase II: Construction	65	332	303	1	150	45
Total for 4 WGS Installations	**89**	**461**	**464**	**1**	**159**	**53**
SIGNIFICANCE THRESHOLD	75	550	100	150	150	55
SIGNIFICANT?	**YES**	**NO**	**YES**	**NO**	**YES**	**NO**

With regard to greenhouse gas emissions, Tables 5-6 and 5-7 summarize the CO2 impacts from both construction activities and operation activities associated with the installation of four WGS for Alternative B on a source category and facility-by-facility basis, respectively. The CO2 impacts from construction were amortized over a 30-year period. The peak operational emissions are based on the operations of the SOx control equipment plus the anticipated increase in truck hauling and deliveries as a result of maintaining the SOx control equipment. Though the peak operational emissions are assumed to occur no sooner than 2012, all operational emissions are expected to occur by the end of year 2018 because the compliance date of the proposed project is January 1, 2019.

Table 5-6
Alternative B: Overall CO2eq Increases Due to Construction and Operation Activities per Source Category (metric tons/year)[1]

Equipment/ Source Category	Temporary Construction Activities (diesel and gasoline fuel use)[2] (MT/yr)	Operational Natural Gas Use (MT/yr)	Operational Electricity Use (MT/yr)	Operational Water Use/ Conveyance (MT/yr)	Operational Wastewater Generation (MT/yr)	Operational Truck Trips (diesel fuel use) (MT/yr)	Total CO2eq (MT/yr)
FCCUs	0	0	0	0	0	0	0
SRU/TGUs	0	0	0	0	0	0	0
Refinery Boilers/Heaters	0	0	0	0	0	0	0
Coke Calciner	78	0	3,225	55	23	8	3,389
Glass Melting Furnaces	155	0	1,037	79	17	1	1,289
Sulfuric Acid Manufacturing	78	0	1,759	35	15	1	1,887
Cement Kilns	0	0	0	0	0	0	0
TOTAL	**312**	**0**	**6,020**	**169**	**55**	**11**	**6,567**

[1] 1 metric ton = 2,205 pounds
[2] GHGs from temporary construction activities are amortized over 30 years.

Table 5-7
Alternative B: Overall CO2eq Increases Due to Construction and Operation Activities by Facility (metric tons/year)[1]

Facility ID	Temporary Construction Activities (diesel and gasoline fuel use)[2] (MT/yr)	Operational Natural Gas Use (MT/yr)	Operational Electricity Use (MT/yr)	Operational Water Use/ Conveyance (MT/yr)	Operational Wastewater Generation (MT/yr)	Operational Truck Trips (diesel fuel use) (MT/yr)	Total CO2eq (MT/yr)
A	0	0	0	0	0	0	0
B	0	0	0	0	0	0	0
C	0	0	0	9	0	0	9
D	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
F	0	0	0	0	0	0	0
G	0	0	0	0	0	0	0
H	78	0	3,225	55	23	8	3,389
I	155	0	1,037	79	17	1	1,289
J	78	0	1,759	26	15	1	1,879
K	0	0	0	0	0	0	0
TOTAL	**312**	**0**	**6,020**	**169**	**55**	**11**	**6,567**

[1] 1 metric ton = 2,205 pounds
[2] GHGs from temporary construction activities are amortized over 30 years.

Even though Alternative B is expected to generate construction-related CO2 emissions, and the operational phase of the proposed project is also expected to generate additional GHG emissions, none of the affected facilities individually exceed the GHG industrial significance threshold of 10,000 MT/day. Further, the collective GHG emissions from the three source categories under

Alternative B do not exceed the threshold. Therefore, Alternative B is expected to have less than significant GHG impacts.

Emission sources associated with the operational-related activities as a result of implementing Alternative B may emit TACs because caustic is used in the operation of certain WGS. With the potential for the installation of four WGS under Alternative B, that means a maximum of four caustic storage tanks may be installed. There are several types of caustic solutions that can be used in WGS operations, but sodium hydroxide (NaOH) is the most commonly used. NaOH is a toxic air contaminant that is a non-cancerous but acutely hazardous substance. For "worst-case" operations, 5.45 tons per day of NaOH (50 percent solution, by weight) is estimated to be needed to operate four WGSs under Alternative B. Even though the facilities that may be affected by Alternative B may currently use NaOH elsewhere in their facilities, for the purpose of conducting a "worst-case" construction analysis, one 10,000 gallon storage tank for caustic solution was assumed to be constructed for every WGS installed. Of the four facilities that would be affected by Alternative B, three were projected to have an increased demand in NaOH use for WGS operations. As summarized in Table 5-8, for each facility that was projected to increase the use of the acutely hazardous substance NaOH, the filling loss and the working loss of each NaOH tank was calculated, added together, and that sum was compared to the most stringent Rule 1401 Screening Emission Level for NaOH (0.004 pounds per hour at the nearest receptor distance of 25 meters). None of the total hourly loss projections exceeded the acute screening level for NaOH for any of the affected facilities. Because the screening level for NaOH was not exceeded for any of the affected facilities, no significant air quality operational impacts with respect to toxics are expected from the proposed project. NaOH is not classified as a carcinogen, so a cancer risk analysis was not performed.

Table 5-8
Alternative B: Summary of Filling and Working Losses for NaOH Storage Tanks

Facility ID	Projected Increase in NaOH Demand (tons/day)	A: Hourly NaOH (as PM10) Filling Loss (lb/hr)	B: Hourly NaOH (as PM10) Working Loss (lb/hr)	A + B = Total Hourly NaOH (as PM10) Losses (lb/hr)	NaOH Acute Screening Level at 25 meters (lb/hr)	Do Total Hourly Losses Exceed Acute Screening Level For NaOH? (Yes/No)
A	0	0	0	0	4.00E-03	NO
B	0	0	0	0	4.00E-03	NO
C	0	0	0	0	4.00E-03	NO
D	0	0	0	0	4.00E-03	NO
E	0	0	0	0	4.00E-03	NO
F	0	0	0	0	4.00E-03	NO
G	0	0	0	0	4.00E-03	NO
H	3.37	7.60E-04	2.28E-03	3.04E-03	4.00E-03	NO
I	0.79	1.78E-04	5.35E-04	7.14E-04	4.00E-03	NO
J	1.30	2.93E-04	8.78E-04	1.17E-03	4.00E-03	NO
K	0	0	0	0	4.00E-03	NO
Total	**5.45**					

Alternative C – Intermediate SOx Reductions

Alternative C proposes the same SOx emission reduction targets as the proposed project for the following equipment/source categories: FCCUs, sulfuric acid manufacturing, coke calciner,

glass melting furnace, and cement kilns. Like the proposed project, there are two SOx control approaches that can be applied to FCCUs under Alternative C. For this reason, Alternative C has been bifurcated into two options: Option 1 assumes that WGSs will be the control approach for FCCUs; and, Option 2 assumes that SOx reducing additives will be the control approach for FCCUs. The remaining source categories and their respective control approaches applicable to Alternative C will be the same for both Option 1 and Option 2.

Because less add-on control equipment would be expected to be installed under Alternative C (i.e., eight WGSs plus two DGSs under Option 1 and four WGSs plus two DGSs under Option 2) in order to achieve the proposed SOx emission limits as compared to the proposed project (i.e., 11 WGSs plus two DGSs for Option 1 and seven WGSs plus to DGSs under Option 2), Alternative C would result in less emission reductions (i.e., 5.48 tons per day for Alternative C versus 6.21 tons per day for the proposed project). The reduced number of add-on control equipment to be installed under Option 2 can be attributed to the assumption that SOx reduction catalysts could be utilized in the FCCUs in lieu of WGSs.

Further, there will be the same number of WGSs that utilize NaOH installed, so equivalent operational emissions associated with NaOH deliveries will occur under Alternative C when compared to the proposed project for both options. Similar to the proposed project, it is anticipated that the installation of add-on control equipment in accordance with Alternative C would generate significant adverse construction and operational air quality impacts, but these impacts would be less than the both Options 1 and 2 of the proposed project because less control equipment would be installed.

In summary, if Alternative C were implemented, less SOx reductions would be achieved and less health benefits from reducing SOx overall will be realized. Alternative C achieves less SOx emission reduction benefits as both Options 1 and 2 of the proposed project. Table 5-1 summarizes the SOx emission reduction benefits per day for Alternative C (e.g., approximately 5.48 tons per day).

Table 5-9 presents the results of the SCAQMD staff's construction air quality analysis for the proposed project and lists the peak daily construction emissions from construction worker trips and use of equipment for the installation of one WGS and the overlapping construction of four WGSs, respectively. For construction, Alternative C is equivalent to the proposed project, because both assume the peak daily construction of four WGSs, even though the total number of add-on controls to be installed under Alternative C is 10 ~~eight~~ for Option 1 (eight ~~six~~ WGSs plus two DGSs) and six for Option 2 (four WGSs plus two DGSs). For the installation of one WGS, the calculations show the total daily construction emissions exceed the SCAQMD's CEQA air quality significance threshold of 100 pounds of NOx per day. For the simultaneous construction of four WGSs, the calculations show the total daily construction emissions exceed the SCAQMD's CEQA air quality significance thresholds of 100 pounds of NOx per day, 75 pounds of VOC per day, and 150 pounds of PM10 per day. Appendix B contains the spreadsheets with the results and assumptions used by the SCAQMD staff for this analysis.

Table 5-9
Alternative C: Peak Daily "Worst-Case" Construction Emissions from the Installation of WGS Technology in 2012 or later

Peak Construction Activity	VOC (lbs/day)	CO (lbs/day)	NOx (lbs/day)	SOx (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)
Phase I: Demolition	6	32	40	0	2	2
Phase II: Construction	16	83	76	0	38	11
Total for 1 WGS Installation	**22**	**115**	**116**	**0**	**40**	**13**
SIGNIFICANCE THRESHOLD	75	550	100	150	150	55
SIGNIFICANT?	**NO**	**NO**	**YES**	**NO**	**NO**	**NO**
Phase I: Demolition	24	129	161	0	9	8
Phase II: Construction	65	332	303	1	150	45
Total for 4 WGS Installations	**89**	**461**	**464**	**1**	**159**	**53**
SIGNIFICANCE THRESHOLD	75	550	100	150	150	55
SIGNIFICANT?	**YES**	**NO**	**YES**	**NO**	**YES**	**NO**

With regard to greenhouse gas emissions, Tables 5-10 and 5-11 summarize the CO2eq impacts from both construction activities and operation activities associated with the installation of eight WGSs plus two DGSs under Option 1 of Alternative C on a source category and facility-by-facility basis, respectively. Similarly, Tables 5-12 and 5-13 summarize the CO2eq impacts from both construction activities and operation activities associated with the installation of four WGSs plus two DGSs under Option 2 of Alternative C on a source category and facility-by-facility basis, respectively. For both Options 1 and 2, the CO2eq impacts from construction were amortized over a 30-year period. The peak operational emissions are based on the operations of the SOx control equipment plus the anticipated increase in truck hauling and deliveries as a result of maintaining the SOx control equipment. Though the peak operational emissions are assumed to occur no sooner than 2012, all operational emissions are expected to occur by the end of year 2018 because the compliance date of the proposed project is January 1, 2019.

Table 5-10
Alternative C – Option 1: Overall CO2eq Increases Due to Construction and Operation Activities per Source Category (metric tons/year)[1]

Equipment/ Source Category	Temporary Construction Activities (diesel and gasoline fuel use)[2] (MT/yr)	Operational Natural Gas Use [3] (MT/yr)	Operational Electricity Use (MT/yr)	Operational Water Use/ Conveyance (MT/yr)	Operational Wastewater Generation (MT/yr)	Operational Truck Trips (diesel fuel use) (MT/yr)	Total CO2eq (MT/yr)
FCCUs	310	0	18,794	144	68	53	19,370
SRU/TGUs	0	0	0	0	0	0	0
Refinery Boilers/Heaters	155	-668	4,124	27	23	149	3,809
Coke Calciner	78	0	3,225	55	23	8	3,389
Glass Melting Furnaces	155	0	1,037	79	17	1	1,289
Sulfuric Acid Manufacturing	78	0	1,759	35	15	1	1,887
Cement Kilns	155	0	4,240	14	0	5	4,415
TOTAL	**932**	**-668**	**33,179**	**371**	**162**	**217**	**34,159**

[1] 1 metric ton = 2,205 pounds
[2] GHGs from temporary construction activities are amortized over 30 years.
[3] A negative number means a reduction in usage or demand.

Table 5-11
Alternative C – Option 1: Overall CO2eq Increases Due to Construction and Operation Activities by Facility (metric tons/year)[1]

Facility ID	Temporary Construction Activities (diesel and gasoline fuel use)[2] (MT/yr)	Operational Natural Gas Use [3] (MT/yr)	Operational Electricity Use (MT/yr)	Operational Water Use/ Conveyance (MT/yr)	Operational Wastewater Generation (MT/yr)	Operational Truck Trips (diesel fuel use) (MT/yr)	Total CO2eq (MT/yr)
A	39	-111	5,632	10	5	29	5,604
B	78	0	6,509	10	5	13	6,615
C	78	-55	238	12	4	40	317
D	39	24	259	2	2	5	330
E	78	-790	4,828	85	44	62	4,307
F	78	107	3,733	59	30	24	4,030
G	78	158	1,719	2	2	27	1,985
H	78	0	3,225	55	23	8	3,389
I	155	0	1,037	79	17	1	1,289
J	78	0	1,759	26	15	1	1,879
K	155	0	4,240	14	0	5	4,415
TOTAL	**932**	**-668**	**33,179**	**354**	**145**	**217**	**34,159**

[1] 1 metric ton = 2,205 pounds
[2] GHGs from temporary construction activities are amortized over 30 years.
[3] A negative number means a reduction in usage or demand.

Table 5-12
Alternative C – Option 2: Overall CO2eq Increases Due to Construction and Operation Activities per Source Category (metric tons/year)[1]

Equipment/ Source Category	Temporary Construction Activities (diesel and gasoline fuel use)[2] (MT/yr)	Operational Natural Gas Use [3] (MT/yr)	Operational Electricity Use (MT/yr)	Operational Water Use/ Conveyance (MT/yr)	Operational Wastewater Generation (MT/yr)	Operational Truck Trips (diesel fuel use) (MT/yr)	Total CO2eq (MT/yr)
FCCUs	0	0	0	0	0	15	15
SRU/TGUs	0	0	0	0	0	0	0
Refinery Boilers/Heaters	155	-668	4,124	27	23	149	3,809
Coke Calciner	78	0	3,225	55	23	8	3,389
Glass Melting Furnaces	155	0	1,037	79	17	1	1,289
Sulfuric Acid Manufacturing	78	0	1,759	35	15	1	1,887
Cement Kilns	155	0	4,240	14	0	5	4,415
TOTAL	**621**	**-668**	**14,385**	**210**	**77**	**180**	**14,805**

[1] 1 metric ton = 2,205 pounds
[2] GHGs from temporary construction activities are amortized over 30 years.
[3] A negative number means a reduction in usage or demand.

Table 5-13
Alternative C – Option 2: Overall CO2eq Increases Due to Construction and Operation Activities by Facility (metric tons/year)[1]

Facility ID	Temporary Construction Activities (diesel and gasoline fuel use)[2] (MT/yr)	Operational Natural Gas Use [3] (MT/yr)	Operational Electricity Use (MT/yr)	Operational Water Use/ Conveyance (MT/yr)	Operational Wastewater Generation (MT/yr)	Operational Truck Trips (diesel fuel use) (MT/yr)	Total CO2eq (MT/yr)
A	20	-111	691	1	1	22	624
B	0	0	0	0	0	3	3
C	78	-55	238	12	4	40	317
D	20	24	259	2	2	8	314
E	0	-790	1,207	18	15	59	509
F	0	107	10	0	0	4	121
G	78	158	1,719	2	2	27	1,985
H	78	0	3,225	55	23	8	3,389
I	155	0	1,037	79	17	1	1,289
J	78	0	1,759	26	15	1	1,879
K	155	0	4,240	14	0	5	4,415
TOTAL	**621**	**-668**	**14,385**	**210**	**77**	**180**	**14,805**

[1] 1 metric ton = 2,205 pounds
[2] GHGs from temporary construction activities are amortized over 30 years.
[3] A negative number means a reduction in usage or demand.

While none of the affected facilities individually exceed the GHG industrial significance threshold of 10,000 MT/day under Option 1 or Option 2, the collective GHG emissions under

Alternative C exceed the threshold for both options. Therefore, Alternative C is expected to have adverse significant GHG impacts. Because Alternative C is expected to generate construction-related CO2 emissions, and the operational phase of the proposed project is also expected to generate additional GHG emissions, cumulative GHG adverse impacts from Alternative C are considered significant.

Emission sources associated with the operational-related activities as a result of implementing the Alternative C may emit TACs because caustic is used in the operation of a WGS. With the potential for the installation of eight WGSs under Option 1 and four WGSs under Option 2 for Alternative C, that means a maximum of eight caustic storage tanks under Option 1 and four caustic storage tanks under Option 2 may be installed to supply the WGSs. There are several types of caustic solutions that can be used in WGS operations, but sodium hydroxide (NaOH) is the most commonly used. NaOH is a toxic air contaminant that is a non-cancerous but acutely hazardous substance. In addition, two more NaOH storage tanks would be needed under both Option 1 and Option 2 to support the operations of two FGT modifications for the refinery boiler/heater source category at two facilities.

Of the facilities affected by the Alternative C, seven facilities were projected to have an increased demand in NaOH use for WGS operations plus two for FGT for refinery boilers and heaters under Option 1 and three facilities were projected to have an increased demand in NaOH use for WGS operations plus two for FGT for refinery boilers and heaters under Option 2.

For "worst-case" operations under Alternative C, 13.24 tons per day of NaOH (50 percent solution, by weight) is estimated to be needed to operate eight WGSs plus two FGTs for refinery boilers and heaters under Option 1 and 8.79 tons per day of NaOH (50 percent solution, by weight) is estimated to be needed to operate four WGSs plus two FGTs for refinery boilers and heaters under Option 2. For the purpose of conducting a "worst-case" construction analysis, one 10,000 gallon storage tank for caustic solution was assumed to be constructed for every WGS installed and for every FGT modification that utilizes NaOH. As summarized in Tables 5-14 and 5-15, for each facility that was projected to increase the use in the acutely hazardous substance NaOH, the filling loss and the working loss of each NaOH tank was calculated, added together, and that sum was compared to the most stringent Rule 1401 Screening Emission Level for NaOH (0.004 pounds per hour at the nearest receptor distance of 25 meters). None of the total hourly loss projections exceeded the acute screening level for NaOH for any of the affected facilities under Option 1 or Option 2 for Alternative C. Because the screening level for NaOH was not exceeded for any of the affected facilities, no significant air quality operational impacts with respect to toxics are expected from Alternative C. NaOH is not classified as a carcinogen, so a cancer risk analysis was not performed for Alternative C.

Table 5-14
Alternative C – Option 1: Summary of Filling and Working Losses for NaOH Storage Tanks

Facility ID	Projected Increase in NaOH Demand (tons/day)	A: Hourly NaOH (as PM10) Filling Loss (lb/hr)	B: Hourly NaOH (as PM10) Working Loss (lb/hr)	A + B = Total Hourly NaOH (as PM10) Losses (lb/hr)	NaOH Acute Screening Level at 25 meters (lb/hr)	Do Total Hourly Losses Exceed Acute Screening Level For NaOH? (Yes/No)
A	0.81	1.82E-04	5.46E-04	7.28E-04	4.00E-03	NO
B	1.17	2.64E-04	7.93E-04	1.06E-03	4.00E-03	NO
C	0	0	0	0	4.00E-03	NO
D	0.44	9.90E-05	2.97E-04	3.96E-04	4.00E-03	NO
E	0.45	1.01E-04	3.04E-04	4.06E-04	4.00E-03	NO
F	2.02	4.57E-04	1.37E-03	1.83E-03	4.00E-03	NO
G	2.90	6.56E-04	1.97E-03	2.62E-03	4.00E-03	NO
H	3.37	7.60E-04	2.28E-03	3.04E-03	4.00E-03	NO
I	0.79	1.78E-04	5.35E-04	7.14E-04	4.00E-03	NO
J	1.30	2.93E-04	8.78E-04	1.17E-03	4.00E-03	NO
K	0	0	0	0	4.00E-03	NO
Total	13.24					

Table 5-15
Alternative C – Option 2: Summary of Filling and Working Losses for NaOH Storage Tanks

Facility ID	Projected Increase in NaOH Demand (tons/day)	A: Hourly NaOH (as PM10) Filling Loss (lb/hr)	B: Hourly NaOH (as PM10) Working Loss (lb/hr)	A + B = Total Hourly NaOH (as PM10) Losses (lb/hr)	NaOH Acute Screening Level at 25 meters (lb/hr)	Do Total Hourly Losses Exceed Acute Screening Level For NaOH? (Yes/No)
A	0	0	0	0	4.00E-03	NO
B	0	0	0	0	4.00E-03	NO
C	0	0	0	0	4.00E-03	NO
D	0.44	9.90E-05	2.97E-04	3.96E-04	4.00E-03	NO
E	0	0	0	0	4.00E-03	NO
F	0	0	0	0	4.00E-03	NO
G	2.90	6.56E-04	1.97E-03	2.62E-03	4.00E-03	NO
H	3.37	7.60E-04	2.28E-03	3.04E-03	4.00E-03	NO
I	0.79	1.78E-04	5.35E-04	7.14E-04	4.00E-03	NO
J	1.30	2.93E-04	8.78E-04	1.17E-03	4.00E-03	NO
K	0	0	0	0	4.00E-03	NO
Total	**8.79**					

ENERGY

Alternative A - No Project

The project-specific energy impacts associated with the installation of multiple SOx control devices (e.g., WGSs and DGSs) would be eliminated under Alternative A, the no project alternative, since no construction activities would occur and no new equipment would be installed at any of the affected facilities that would need additional electricity, natural gas, gasoline or diesel. Under Alternative A, the energy impacts would remain unchanged from the existing setting and therefore, would be less than significant.

Alternative B – AQMP

Because Alternative B applies the same SOx emission reduction targets as the proposed project but to less equipment/source categories (i.e., sulfuric acid manufacturing, coke calciner, and glass melting furnace), less add-on control equipment will be installed (i.e., four WGSs) such that less additional electricity, natural gas, gasoline or diesel would be needed for construction and operation activities. The following analysis will demonstrate that the projected increases in energy demand associated with Alternative B will be less than significant because the amount of additional electricity, natural gas, gasoline, and diesel needed to install and operate the new SOx controls was well below the applicable energy significance criteria. While fewer WGSs would be installed under Alternative B, adverse energy impacts are expected to occur but they will be less than the proposed project.

Energy information as it relates to construction and operational activities under Alternative B was derived as part of the air quality analysis in Chapter 4 and the calculations are shown in Appendix B of this ~~Draft~~ Final PEA. If the potential SOx controls are installed and operated on a per facility and per source category basis, respectively, Tables 5-16 and 5-17 summarize the estimated impacts on operational natural gas and electricity use for Alternative B on a facility and source category basis, respectively.

Table 5-16
Alternative B: Operational Energy Use By Facility

Facility ID	Potential SOx Control	Natural Gas (MMBTU/day)	Electricity (kWh/day)
A	Not applicable to Alternative B	**0**	**0**
B	Not applicable to Alternative B	**0**	**0**
C	1 Upgrade to Cansolv/sulfuric acid unit (modified)	**0**	**0**
D	Not applicable to Alternative B	**0**	**0**
E	Not applicable to Alternative B	**0**	**0**
F	Not applicable to Alternative B	**0**	**0**
G	Not applicable to Alternative B	**0**	**0**
H	1 WGS for calciner (new)	**0**	**17,711**
I	2 WGSs for glass melting furnaces (new)	**0**	**5,694**
J	1 WGS for sulfuric acid unit (new)	**0**	**9,659**
K	Not applicable to Alternative B	**0**	**0**
	TOTAL	**0**	**33,064**

* A negative number means a reduction in usage or demand.

Table 5-17
Alternative B: Operational Energy Use By Source Category

Equipment/ Source Category	Natural Gas (MMBTU/day)	Electricity (kWh/day)
FCCUs	0	0
SRU/TGUs	0	0
Refinery Boilers/Heaters	0	0
Coke Calciner	0	17,711
Glass Melting Furnaces	0	5,694
Sulfuric Acid Manufacturing	0	9,659
Cement Kilns	0	0
TOTAL	**0**	**33,064**

The overall electricity needed to implement Alternative B includes the amount of electricity that may be needed to produce additional NaOH needed to operate certain WGSs. To determine if the operational energy use is significant for Alternative B, the total for natural gas and electricity was compared to the threshold fuel supply as shown in Table 5-18. California utilities and non-utilities have the ability to receive approximately 9,330 MMcf/day of natural gas[92], [93], [94]. Since Alternative B does not exceed the SCAQMD's energy threshold of one percent of supply for both natural gas and electricity, Alternative B is expected to have less than significant energy impacts. Further, because the increase in electricity demand for Alternative B is below the SCAQMD's energy significance threshold of one percent above available supplies as shown in Table 5-18 below, any increased demand that may result from Alternative B can likely be met with the existing electrical capacity at each of the affected facilities. Lastly, based on this analysis, it is not anticipated that new or substantially altered power utility systems will need to be built to accommodate any additional electricity demands created by Alternative B.

[92] Natural Gas Infrastructure – Draft Staff Paper, California Energy Commission, CEC-200-2009-004-SD, May 2009. http://www.energy.ca.gov/2009publications/CEC-200-2009-004/CEC-200-2009-004-SD.PDF

[93] 2008 California Gas Report, Prepared by the California Gas and Electric Utilities. http://www.energy.ca.gov/2008publications/GAS-1000-2008-020/GAS-1000-2008-020.PDF

[94] An Overview of Natural Gas in California, California Energy Commission, CEC-180-2008-005, April 2008. http://www.energy.ca.gov/2008publications/CEC-180-2008-005/CEC-180-2008-005.PDF

Table 5-18
Alternative B: Total Projected Natural Gas and Electricity Impacts for Operation Activities

Operation Activity	Total Energy Usage per Activity	
	Natural Gas	Electricity
Alternative B	0 MMcf	33.1 MWh/day = 1.38 MW (instantaneous)
Threshold Fuel Supply	9,330 MMcf [a]	8,362 MW [b] (instantaneous)
% of Fuel Supply	0 %	0.016%
Significant (Yes/No) [c]	No	No

[a] Natural Gas Infrastructure Draft Staff Paper, California Energy Commission, May 2009 (CEC-200-2009-004-SD). http://www.energy.ca.gov/2009publications/CEC-200-2009-004/CEC-200-2009-004-SD.PDF

[b] California Energy Demand 2008-2018 Staff Revised Forecast, Staff Final Report, California Energy Commission, , November 2007 (CEC-200-2007-015-SF2). See Form 1.4 b, Peak Demand by LSE: summer Peak Demand Coincident with Planning Area Peak for the following agencies/areas: SCE (Anaheim, Azusa, Banning, Colton, Metropolitan Water District, Rancho Cucamonga, Riverside and Vernon), Cities of Burbank, Glendale and Pasadena, and LADWP. http://www.energy.ca.gov/2007publications/CEC-200-2007-015/CEC-200-2007-015-SF2.PDF

[c] SCAQMD's Energy Threshold for both Natural Gas and Electricity is 1% of Supply.

KEY: MMcf = million standard cubic feet
MW(Megawatt) = 1 MW = 1,000 kilowatts (KW)

In addition, Table 5-19 presents a summary of the total projected fuel usage (i.e., diesel and gasoline) for both construction and operational activities for Alternative B. The analysis shows an overall increase in diesel and gasoline use of approximately 1,465 gallons per day and 1,354 gallons per day, respectively. Since Alternative B does not exceed the SCAQMD's energy threshold of one percent of supply for both diesel and gasoline fuels as shown in Table 5-19 below, Alternative B is expected to have less than significant energy impacts due to fuel use. Further, once construction is completed, the fuel use projected during the temporary phases (e.g., Phase I: Demolition and Phase II: Construction) will end and only the fuel use for truck trips associated with chemical deliveries and solid waste removal activities during Phase III: Operations will continue. Thus, any potential adverse fuel impacts will likely be less than what has been analyzed during the peak for the proposed project.

Table 5-19
Alternative B: Total Projected Fuel Usage

Activity	Total Fuel Usage per Activity (gallons/day)	
	Diesel	Gasoline
Phase I - Demolition Overlapping with Phase II - Construction at Four Facilities (Construction Equipment and Workers Vehicles)	1,360	1,354
Phase III: Operation (Chemical Deliveries & Solid Waste Removal)	105	0
Total Usage for Alternative B	1,465	1,354
Threshold Fuel Supply[a]	1,086,000,000	6,469,000,000
% of Fuel Supply	0.0001%	0.00002%
Significant (Yes/No)[b]	No	No

[a] Year 2000 California Energy Commission (CEC) projections. Construction activities in future years would yield similar results.
[b] SCAQMD's energy threshold for both diesel and gasoline is 1% or more of supply.

Like the proposed project, Alternative B is not subject to any existing energy conservation plans. If any facility that is subject to Alternative B is also subject to energy conservation plans, it is not expected that Alternative B will affect in any way or interfere with that individual facility's ability to comply with its energy conservation plan or energy standards. Further, construction and operation activities under Alternative B will not utilize non-renewable resources in a wasteful or inefficient manner. Lastly, it is expected that the installation and operation of any equipment used to comply with Alternative B will also comply with all applicable existing energy standards. In summary, the energy impacts from Alternative B are concluded to be less than significant.

Alternative C – Intermediate SOx Reductions

Alternative C proposes the same SOx emission reduction targets as the proposed project for the following equipment/source categories: FCCUs, sulfuric acid manufacturing, coke calciner, glass melting furnace, and cement kilns. Like the proposed project, there are two SOx control approaches that can be applied to FCCUs under Alternative C. For this reason, Alternative C has been bifurcated into two options: Option 1 assumes that WGSs will be the control approach for FCCUs; and, Option 2 assumes that SOx reducing additives will be the control approach for FCCUs. The remaining source categories and their respective control approaches applicable to Alternative C will be the same for both Option 1 and Option 2.

Because less add-on control equipment would be expected to be installed under Alternative C (i.e., eight WGSs plus two DGSs under Option 1 and four WGSs plus two DGSs under Option 2) in order to achieve the proposed SOx emission limits as compared to the proposed project (i.e., 11 WGSs plus two DGSs for Option 1 and seven WGSs plus to DGSs under Option 2), the following analysis shows that both Options 1 and 2 under Alternative C would result in less demand for energy when compared to the proposed project. While less SOx add-on controls

would be installed under Alternative C for both Options 1 and 2, adverse energy impacts are expected to occur but they will be less than the proposed project.

Energy information as it relates to construction and operational activities was derived as part of the air quality analysis in Chapter 4 and the calculations are shown in Appendix B of this ~~Draft~~ Final PEA. If the potential SOx controls are installed and operated on a per facility and per source category basis for Option 1 under Alternative C, respectively, Tables 5-20 and 5-21 summarize the estimated impacts on operational natural gas and electricity use for Option 1. Similarly, Tables 5-22 and 5-23 summarize the estimated impacts on operational natural gas and electricity use for Alternative C - Option 2.

Table 5-20
Alternative C - Option 1: Operational Energy Use By Facility

Facility ID	Potential SOx Control	Natural Gas (MMBTU/day)	Electricity (kWh/day)
A	1 WGS for FCCU (new) 1 FGT by Sulfinol Conversion (modified)	0 + - 5.70 **- 5.70**	27,136 + 3,797 **30,933**
B	1 WGS for FCCU (new)	**0**	**35,749**
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Cansolv/sulfuric acid unit (modified)	-2.82+ 0 **-2.82**	1,306+ 0 **1,306**
D	1 FGT by Merox Treatment Upgrade (modified)	**1.21**	**1,423**
E	1 WGS for FCCU (new) 1 FGT by Sulfinol Conversion (modified)	0 + -40.49 **-40.49**	19,887 + 6,626 **26,514**
F	1 WGS for FCCU (new) 1 FGT by Amine Additive (modified)	0 + 5.48 **5.48**	20,445 + 55 **20,500**
G	1 FGT by Merox Treatment Upgrade (modified)	**8.08**	**9,443**
H	1 WGS for calciner (new)	**0**	**17,711**
I	2 WGSs for glass melting furnaces (new)	**0**	**5,694**
J	1 WGS for sulfuric acid unit (new)	**0**	**9,659**
K	2 DGSs for cement kilns (new)	**0**	**23,288**
	TOTAL	**-34.25***	**182,218**

* A negative number means a reduction in usage or demand.

Table 5-21
Alternative C - Option 1: Operational Energy Use By Source Category

Equipment/ Source Category	**Natural Gas** (MMBTU/day)	**Electricity** (kWh/day)
FCCUs	0	103,217
SRU/TGUs	0	0
Refinery Boilers/Heaters	-34.25*	22,649
Coke Calciner	0	17,711
Glass Melting Furnaces	0	5,694
Sulfuric Acid Manufacturing	0	9,659
Cement Kilns	0	23,288
TOTAL	**-34.25***	**182,218**

* A negative number means a reduction in usage or demand.

Table 5-22
Alternative C - Option 2: Operational Energy Use By Facility

Facility ID	**Potential SOx Control**	**Natural Gas** (MMBTU/day)	**Electricity** (kWh/day)
A	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Sulfinol Conversion (modified)	0 + - 5.70 **- 5.70**	0 + 3,797 **3,797**
B	1 SOx Reducing Additive Hopper for FCCU (modified)	**0**	**0**
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Cansolv/sulfuric acid unit (modified)	-2.82+ 0 **-2.82**	1,306+ 0 **1,306**
D	1 SOx Reducing Additive Hopper for FCCU (new) 1 FGT by Merox Treatment Upgrade (modified)	0 + 1.21 **1.21**	0 + 1,423 **1,423**
E	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Sulfinol Conversion (modified)	0 + -40.49 **-40.49**	0 + 6,626 **6,626**
F	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Amine Additive (modified)	0 + 5.48 **5.48**	0 + 55 **55**
G	1 FGT by Merox Treatment Upgrade (modified)	**8.08**	**9,443**
H	1 WGS for calciner (new)	**0**	**17,711**
I	2 WGSs for glass melting furnaces (new)	**0**	**5,694**
J	1 WGS for sulfuric acid unit (new)	**0**	**9,659**
K	2 DGSs for cement kilns (new)	**0**	**23,288**
	TOTAL	**-34.25***	**79,000**

* A negative number means a reduction in usage or demand.

Table 5-23
Alternative C - Option 2: Operational Energy Use By Source Category

Equipment/ Source Category	**Natural Gas** (MMBTU/day)	**Electricity** (kWh/day)
FCCUs	0	0
SRU/TGUs	0	0
Refinery Boilers/Heaters	-34.25*	22,649
Coke Calciner	0	17,711
Glass Melting Furnaces	0	5,694
Sulfuric Acid Manufacturing	0	9,659
Cement Kilns	0	23,288
TOTAL	**-34.25***	**79,000**

* A negative number means a reduction in usage or demand.

For Alternative C - Option 1, the analysis shows an overall decrease in natural gas demand of approximately 34.25 MMBTU per day (equivalent to 0.034 MMcf/day) and an overall increase in electricity demand of 182,218 kWh/day (equivalent to 182 MWh/day) for the affected source categories. For Alternative C - Option 2, the analysis shows the same overall decrease in natural gas demand as Alternative C – Option 1, approximately 34.25 MMBTU/day (equivalent to 0.034 MMcf/day) and an overall increase in electricity demand of 79,000 kWh/day (equivalent to 79 MWh/day) for the affected source categories.

In addition, as part of operation for some WGSs and FGTs, NaOH caustic soda solution is required. For Alternative C - Option 1, 13.24 tons per day of NaOH is estimated to be needed and for Alternative C - Option 2, 8.79 tons per day of NaOH may be needed. NaOH is produced locally by several chemical processing companies and as such, is locally available for transport. Further, it is likely that the existing local caustic manufacturers can handle the proposed increase in caustic for the entire project. To accommodate the estimated increase in caustic demand, the chemical processing companies may need to increase production, which, in turn, will use more electricity. It takes approximately 2,500 kWh to produce one metric ton of NaOH. Thus, the approximate amount of additional electricity that may be needed to produce additional caustic to meet the needs of Option 1 and Option 2 under Alternative C, are 30,023 kWh/day and 19,940 kWh/day, respectively, and are calculated as follows:

Alternative C - Option 1:

$$\frac{13.24 \text{ tons NaOH}}{\text{Day}} \times \frac{2{,}000 \text{ lbs}}{\text{Ton}} \times \frac{1 \text{ metric ton}}{2{,}205 \text{ lbs}} \times \frac{2{,}500 \text{ kWh}}{1 \text{ metric ton of NaOH produced}} = \textbf{30,023 kWh/day}$$

Alternative C - Option 2:

$$\frac{8.79 \text{ tons NaOH}}{\text{Day}} \times \frac{2{,}000 \text{ lbs}}{\text{Ton}} \times \frac{1 \text{ metric ton}}{2{,}205 \text{ lbs}} \times \frac{2{,}500 \text{ kWh}}{1 \text{ metric ton of NaOH produced}} = \textbf{19,932 kWh/day}$$

The overall electricity needed to implement both Options 1 and 2 under Alternative C as summarized in Tables 5-20, 5-21, 5-22 and 5-23 include the amount of electricity that may be needed to produce additional NaOH. To determine if the operational energy use is significant for Options 1 and 2 under Alternative C, the total for natural gas and electricity was compared to the threshold fuel supply as shown in Table 5-24. California utilities and non-utilities have the

ability to receive approximately 9,330 MMcf/day of natural gas[95], [96], [97]. Since both Options 1 and 2 under Alternative C do not exceed the SCAQMD's energy threshold of one percent of supply for both natural gas and electricity, Alternative C is expected to have less than significant energy impacts. Further, because the increase in electricity demand for both Options 1 and 2 under Alternative C is below the SCAQMD's energy significance threshold of one percent above available supplies, any increased demand that may result from either Option 1 or 2 under Alternative C can likely be met with the existing electrical capacity at each of the affected facilities. Lastly, based on this analysis, it is not anticipated that new or substantially altered power utility systems will need to be built to accommodate any additional electricity demands created by either Option 1 or 2 under Alternative C.

Table 5-24
Alternative C: Total Projected Natural Gas and Electricity Impacts for Operation Activities

Operation Activity	Total Energy Usage per Activity	
	Natural Gas[a]	Electricity
Alternative C -Option 1	-0.034 MMcf	182 MWh/day = 7.6 MW (instantaneous)
Threshold Fuel Supply	9,330 MMcf[b]	8,362 MW[c] (instantaneous)
% of Fuel Supply	-0.0004 %	0.09%
Significant (Yes/No)[d]	No	No
Alternative C - Option 2	-0.034 MMcf	79 MWh/day = 3.3 MW (instantaneous)
Threshold Fuel Supply	9,330 MMcf[b]	8,362 MW[c] (instantaneous)
% of Fuel Supply	-0.0004 %	0.04%
Significant (Yes/No)[d]	No	No

[a] A negative number is a reduction in the use of natural gas consumption.
[b] Natural Gas Infrastructure Draft Staff Paper, California Energy Commission, May 2009 (CEC-200-2009-004-SD). http://www.energy.ca.gov/2009publications/CEC-200-2009-004/CEC-200-2009-004-SD.PDF
[c] California Energy Demand 2008-2018 Staff Revised Forecast, Staff Final Report, California Energy Commission, , November 2007 (CEC-200-2007-015-SF2). See Form 1.4 b, Peak Demand by LSE: summer Peak Demand Coincident with Planning Area Peak for the following agencies/areas: SCE (Anaheim, Azusa, Banning, Colton, Metropolitan Water District, Rancho Cucamonga, Riverside and Vernon), Cities of Burbank, Glendale and Pasadena, and LADWP. http://www.energy.ca.gov/2007publications/CEC-200-2007-015/CEC-200-2007-015-SF2.PDF
[d] SCAQMD's Energy Threshold for both Natural Gas and Electricity is 1% of Supply.

KEY: MMcf = million standard cubic feet
MW(Megawatt) = 1 MW = 1,000 kilowatts (KW)

In addition, Table 5-25 presents a summary of the total projected fuel usage (i.e., diesel and gasoline) for both construction and operational activities for both Options 1 and 2 under

[95] Natural Gas Infrastructure – Draft Staff Paper, California Energy Commission, CEC-200-2009-004-SD, May 2009. http://www.energy.ca.gov/2009publications/CEC-200-2009-004/CEC-200-2009-004-SD.PDF
[96] 2008 California Gas Report, Prepared by the California Gas and Electric Utilities. http://www.energy.ca.gov/2008publications/GAS-1000-2008-020/GAS-1000-2008-020.PDF
[97] An Overview of Natural Gas in California, California Energy Commission, CEC-180-2008-005, April 2008. http://www.energy.ca.gov/2008publications/CEC-180-2008-005/CEC-180-2008-005.PDF

Alternative C. For Alternative C - Option 1, the analysis shows an overall increase in diesel and gasoline use of approximately 3,493 ~~2,410~~ gallons per day and 1,354 ~~1,384~~ gallons per day, respectively. Similarly for Alternative C - Option 2, the analysis shows an overall increase in diesel and gasoline use of approximately ~~2,180~~ 3,127 gallons per day and 1,354 ~~1,384~~ gallons per day, respectively.

Since neither Option 1 nor Option 2 under Alternative C exceeds the SCAQMD's energy threshold of one percent of supply for both diesel and gasoline fuels as shown in Table 5-25 below, both Options 1 and 2 under Alternative C are expected to have less than significant energy impacts due to fuel use. Further, once construction is completed, the fuel use projected during the temporary phases (e.g., Phase I: Demolition and Phase II: Construction) will end and only the fuel use for truck trips associated with chemical deliveries and solid waste removal activities during Phase III: Operations will continue. Thus, any potential adverse fuel impacts will likely be less than what has been analyzed during the peak under Alternative C.

Table 5-25
Alternative C: Total Projected Fuel Usage

Activity	Total Fuel Usage per Activity (gallons/day)	
	Diesel	**Gasoline**
Alternative C - Option 1: Phase I - Demolition Overlapping with Phase II - Construction at Four Facilities (Construction Equipment and Workers Vehicles)	1,360	1,354
Alternative C - Option 1: Phase III: Operation (Chemical Deliveries & Solid Waste Removal)	2,133~~1,703~~	0
Total Usage for Alternative C - Option 1:	3,493~~3,063~~	1,354
Threshold Fuel Supply[a]	1,086,000,000	6,469,000,000
% of Fuel Supply	0.0003%	0.00002%
Significant (Yes/No)[b]	No	No
Alternative C - Option 2: Phase I - Demolition Overlapping with Phase II - Construction at Four Facilities (Construction Equipment and Workers Vehicles)	1,360	1,354
Alternative C - Option 2: Phase III: Operation (Chemical Deliveries & Solid Waste Removal)	1,767~~1330~~	0
Total Usage for Alternative C - Option 2:	3,127~~2,690~~	1,354
Threshold Fuel Supply[a]	1,086,000,000	6,469,000,000
% of Fuel Supply	0.0003~~2~~%	0.00002%
Significant (Yes/No)[b]	No	No

[a] Year 2000 California Energy Commission (CEC) projections. Construction activities in future years would yield similar results.
[b] SCAQMD's energy threshold for both diesel and gasoline is 1% or more of supply.

Like the proposed project, neither Option 1 nor Option 2 under Alternative C is subject to any existing energy conservation plans. If any facility that is subject to Alternative C is also subject to energy conservation plans, it is not expected that Alternative C will affect in any way or interfere with that individual facility's ability to comply with its energy conservation plan or energy standards. Further, construction and operation activities under Alternative C will not utilize non-renewable resources in a wasteful or inefficient manner. Lastly, it is expected that the installation and operation of any equipment used to comply with Alternative C will also comply with all applicable existing energy standards. In summary, the energy impacts from both Option 1 and Option 2 under Alternative C are concluded to be less than significant.

HAZARDS AND HAZARDOUS MATERIALS

Alternative A - No Project

Alternative A is not expected to generate significant adverse hazards and hazardous materials impacts primarily because the owners/operators of the affected sources would not have to install new or modify existing control equipment (i.e., WGSs, DGSs, SOx-reducing additives, et cetera) whereby no additional SOx emissions would be reduced and no new hazards regarding the handling of hazardous materials would be needed, such as deliveries of NaOH. Further, Alternative A is not expected to alter the deliveries, use and amounts of NaOH at the affected facilities. Instead, owners/operators of affected facilities would continue existing operations that would comply with all applicable existing SCAQMD, CARB and USEPA requirements. By not adopting the proposed project, with respect to hazards and hazardous materials, current operations at each facility would be expected to continue to emit SOx at the levels allowed by the current version of Regulation XX without impacting the deliveries, quantities, and use (or disposal) of hazardous materials (NaOH).

Alternative B – AQMP

Because Alternative B applies the same SOx emission reduction targets as the proposed project but to less equipment/source categories (i.e., sulfuric acid manufacturing, coke calciner, and glass melting furnace), less add-on control equipment will be installed (i.e., four WGSs). Table 5-26 summarizes the substances that are currently used and that may be used in response to Alternative B.

Table 5-26
Alternative B: Substances To Be Used by SOx Control Technologies

Equipment/ Source Category	Current SOx Control Technology	Substances Currently Used for SOx Control	Proposed SOx Control Technology	Proposed Substances To Be Used/Increased for SOx Control
Sulfuric Acid	Catalytic Converter	Catalyst	1 WGS for 1 facility (new)	NaOH Caustic
Sulfuric Acid	Cansolv Unit	Cansolv amine	1 Upgrade to Existing Cansolv Unit for 1 facility (modified)	Water
Coke Calciner	DGS	CaOH absorbent	1 WGS for 1 facility (new)	NaOH Caustic
Glass Melting Furnace	DGSs	Trona	2 WGSs for 1 facility (new)	NaOH Caustic

Key: WGS = Wet Gas Scrubber; DGS = Dry Gas Scrubber

Table 5-27 summarizes the substances that may be involved in the various processes at the affected facilities under Alternative B. Some of the substances listed are considered hazardous while others are not. Of the substances listed, the only net increase in the use of a hazardous material will be for NaOH. For the remaining substances identified, there will be either a decrease in use or no change from the existing setting under Alternative B.

Table 5-27
Alternative B: Substances that May Be Affected By The Proposed Project

Substance	Potential Overall Increase, Decrease, or No Change from Existing Setting?	Contains TAC(s) per SCAQMD Rule 1401?	Hazardous per CalARP?	NFPA Rating: Health (Blue)	NFPA Rating: Flammability (Red)	NFPA Rating: Reactivity (Yellow)	NFPA Rating: Special (White)
NaOH Caustic (50% by weight)	Increase	Yes, Acute (non-cancer)	Yes	3	0	1	None
Sulfuric Acid	No Change	Yes, cancer/ chronic & acute	Yes	3	0	2	Water Reactive
Cansolv	No Change	Yes, cancer/ chronic & acute	Yes	N/A	N/A	N/A	N/A
COS	Decrease	No	Yes	2	0	1	None
H2S	Decrease	Yes, cancer/ chronic & acute	Yes	4	4	0	None
SO2	Decrease	No	Yes	3	0	0	None
SO3	Decrease	Yes, cancer/ chronic & acute (pending)	Yes	3	0	2	None

NFPA Hazard Code Key: 4 = Extreme; 3 = High; 2 = Moderate; 1 = Slight; 0 = Insignificant; N/A = NFPA hazard is not assigned.

Emission sources associated with the operational-related activities as a result of implementing Alternative B may emit TACs because NaOH caustic is used to operate WGSs for the affected source categories. With the potential for the installation of four WGS under Alternative B, that means a maximum of four NaOH storage tanks may be installed. As previously analyzed in the air quality discussion, NaOH is a toxic air contaminant that is a non-cancerous but acutely hazardous substance. For "worst-case" operations, 5.45 tons per day of NaOH (50 percent solution, by weight) is estimated to be needed to operate four WGSs under Alternative B. Even though the facilities that may be affected by Alternative B may currently use NaOH elsewhere in their facilities, for the purpose of conducting a "worst-case" construction analysis, one 10,000 gallon storage tank for caustic solution was assumed to be constructed for every WGS installed. Of the four facilities that would be affected by Alternative B, three were projected to have an increased demand in NaOH use for WGS operations. As summarized in Table 5-28, for each facility that was projected to increase the use in the acutely hazardous substance NaOH, the filling loss and the working loss of each NaOH tank was calculated, added together, and that sum was compared to the most stringent Rule 1401 Screening Emission Level for NaOH (0.004 pounds per hour at the nearest receptor distance of 25 meters). None of the total hourly loss projections exceeded the acute screening level for NaOH for any of the affected facilities. Because the screening level for NaOH was not exceeded for any of the affected facilities, no significant air quality operational impacts with respect to toxics are expected from the proposed project. NaOH is not classified as a carcinogen, so a cancer risk analysis was not performed.

Table 5-28
Alternative B: Summary of Filling and Working Losses for NaOH Storage Tanks

Facility ID	Projected Increase in NaOH Demand (tons/day)	A: Hourly NaOH (as PM10) Filling Loss (lb/hr)	B: Hourly NaOH (as PM10) Working Loss (lb/hr)	A + B = Total Hourly NaOH (as PM10) Losses (lb/hr)	NaOH Acute Screening Level at 25 meters (lb/hr)	Do Total Hourly Losses Exceed Acute Screening Level For NaOH? (Yes/No)
A	0.00	0	0	0	4.00E-03	NO
B	0.00	0	0	0	4.00E-03	NO
C	0.00	0	0	0	4.00E-03	NO
D	0.00	0	0	0	4.00E-03	NO
E	0.00	0	0	0	4.00E-03	NO
F	0.00	0	0	0	4.00E-03	NO
G	0	0	0	0	4.00E-03	NO
H	3.37	7.60E-04	2.28E-03	3.04E-03	4.00E-03	NO
I	0.79	1.78E-04	5.35E-04	7.14E-04	4.00E-03	NO
J	1.30	2.93E-04	8.78E-04	1.17E-03	4.00E-03	NO
K	0	0	0	0	4.00E-03	NO
Total	**5.45**					

To accommodate the increased demand in NaOH, there will be an increase in truck deliveries to supply NaOH to the facilities that need it. It is expected that the affected facilities will receive NaOH from a local supplier located in the greater Los Angeles area. Deliveries of NaOH (50 percent by weight) would be made by tanker truck via public roads. The maximum capacity of a NaOH tanker truck is approximately 6,000 gallons. The projected onsite storage capacity and consumption rates of NaOH as well as the projected annual deliveries are summarized in Table 5-29. Based on the annual deliveries estimates, each facility is not expected to exceed the peak daily of one delivery per day per facility. However, the "worst-case" assumption for a peak daily

delivery frequency from a supplier would be to deliver 6,000 gallons of NaOH to each of four facilities to fill four new NaOH tanks on the same day. Regulations for the transport of hazardous materials by public highway are described in 49 CFR §§ 173 and 177.

Table 5-29
Alternative B: Summary of NaOH Deliveries

Facility ID	Daily Increase in NaOH Demand (tons/day)	Annual Increase in NaOH Demand (tons/year)	Annual NaOH Deliveries [1] (truck trips/year)
A	0	0	0
B	0	0	0
C	0	0	0
D	0	0	0
E	0	0	0
F	0	0	0
G	0	0	0
H	3.37	1,228	32
I	0.79	289	8
J	1.30	473	13
K	0	0	0
Total	**5.45**	**1,990**	**53**

[1] Annual NaOH deliveries are calculated based on one delivery truck holding 6,000 gallons per truck load. For example, for Facility H: 1,228 tons/yr NaOH x 2,000 lbs/ ton = 328,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 192,326 gal/year x 1 truck/6,000 gallons = 32 trucks/year.

The onsite storage and handling of NaOH creates the possibility of an accidental spill and release of NaOH. However, because NaOH has such a low vapor pressure (6.33 mm Hg at 40 ^{o}C or 104 ^{o}F) when compared to water (55.3 mm Hg at 40 ^{o}C 104 ^{o}F) at the same temperature, any spill of NaOH would not be expected to evaporate faster than water. Thus any spill of NaOH would be expected to stay in liquid form and would not likely exceed the ERPG-2 vapor concentration of five milligrams per cubic meter for NaOH. Further, operators at each affected facility who construct a new NaOH storage tank will need to build a containment berm large enough to hold 110 percent of the tank capacity in the event of an accidental release due to tank rupture. Thus, any spill of NaOH would not be expected to migrate beyond the boundaries of the berm on-site. Thus, any spill of NaOH is not expected to present a potential offsite public and sensitive receptor exposure. Lastly, since NaOH is not a flammable compound, other types of heat-related hazard impacts such as fires, explosions, boiling liquid – expanding vapor explosion (BLEVE) are not expected to occur and, therefore, will not be evaluated as part of this hazards analysis.

In conclusion, the hazards and hazardous materials impacts due to the use, tank rupture and the accidental release of NaOH will be less than significant for Alternative B.

Alternative C – Intermediate SOx Reductions

Alternative C proposes the same SOx emission reduction targets as the proposed project for the following equipment/source categories: FCCUs, sulfuric acid manufacturing, coke calciner, glass melting furnace, and cement kilns. Like the proposed project, there are two SOx control approaches that can be applied to FCCUs under Alternative C. For this reason, Alternative C has been bifurcated into two options: Option 1 assumes that WGSs will be the control approach for FCCUs; and, Option 2 assumes that SOx reducing additives will be the control approach for

FCCUs. The remaining source categories and their respective control approaches applicable to Alternative C will be the same for both Option 1 and Option 2.

Because less add-on control equipment would be expected to be installed under Alternative C (i.e., eight WGSs plus two DGSs under Option 1 and four WGSs plus two DGSs under Option 2) in order to achieve the proposed SOx emission limits as compared to the proposed project (i.e., 11 WGSs plus two DGSs for Option 1 and seven WGSs plus to DGSs under Option 2), less hazardous materials would needed under Alternative C. Table 5-30 summarizes the substances that are currently used and that may be used in response to Alternative C.

Table 5-30
Alternative C: Substances To Be Used by SOx Control Technologies

Equipment/ Source Category	Current SOx Control Technology	Substances Currently Used for SOx Control	Proposed SOx Control Technology	Proposed Substances To Be Used/Increased for SOx Control
FCCU	SOx Reducing Additives	Specialty Catalyst	Option 1: WGSs Option 2: Increase amount of SOx Reducing Additives	Option 1: NaOH Caustic Option 2: Specialty Catalyst
Sulfuric Acid	Catalytic Converter	Catalyst	1 WGS for 1 facility (new)	NaOH Caustic
Sulfuric Acid	Cansolv Unit	Cansolv amine	1 Upgrade to Existing Cansolv Unit for 1 facility (modified)	Water
Coke Calciner	DGS	CaOH absorbent	1 WGS for 1 facility (new)	NaOH Caustic
Glass Melting Furnace	DGSs	Trona	2 WGSs for 1 facility (new)	NaOH Caustic
Cement Kiln	None	None	2 DGS (Limestone Absorber) for 1 facility (new)	Limestone
Refinery Boilers/ Heaters	Amine Absorbers	Amines (MEA & DEA)	3 FGTs by Sulfinol Conversion for 3 facilities (modified)	Sulfolane and DIPA
Refinery Boilers/ Heaters	Amine Absorbers	Amine (MEA) & Caustic (NaOH)	2 FGTs by Merox Treatment Upgrades for 2 facilities (modified)	1. Merox Catalyst 2. NaOH Caustic
Refinery Boilers/ Heaters	Amine Absorbers	Amine (MDEA)	1 FGT by Amine Additive for 1 facility (modified)	TG-10 amine

Key: WGS = Wet Gas Scrubber; DGS = Dry Gas Scrubber; FGT = Fuel Gas Treatment

Table 5-31 summarizes the substances that may be involved in the various processes at the affected facilities under Alternative C. Some of the substances listed are considered hazardous while others are not. Of the substances listed in Table 5-31, the only net increase in the use of a hazardous material will be for NaOH. For the remaining substances identified, there will be either a decrease in use or no change from the existing setting under Alternative C.

Table 5-31
Alternative C: Substances that May Be Affected By The Proposed Project

Substance	Potential Overall Increase, Decrease, or No Change from Existing Setting?	Contains TAC(s) per SCAQMD Rule 1401?	Hazardous per CalARP?	NFPA Rating: Health (Blue)	NFPA Rating: Flammability (Red)	NFPA Rating: Reactivity (Yellow)	NFPA Rating: Special (White)
DIPA	Increase	No	No	3	1	0	None
Limestone (calcium carbonate)	Increase	No	No	N/A	N/A	N/A	N/A
Merox Catalyst	Increase	No	No	N/A	N/A	N/A	N/A
NaOH Caustic (50% by weight)	Increase	Yes, Acute (non-cancer)	Yes	3	0	1	None
SOxGetter/ Super SOxGetter Catalyst	Increase	No	No	1	0	0	None
Sulfur (Elemental)	Increase	No	No	2	1	0	None
Sulfolane	Increase	No	No	1	1	0	None
Super DeSOx Catalyst	Increase	No	No	2	0	0	None
TG-10	Increase	No	No	1	1	0	None
Sulfuric Acid	No Change	Yes, cancer/ chronic & acute	Yes	3	0	2	Water Reactive
Cansolv	No Change	Yes, cancer/ chronic & acute	Yes	N/A	N/A	N/A	N/A
MDEA	No Change	No	No	N/A	N/A	N/A	N/A
COS	Decrease	No	Yes	2	0	1	None
DEA	Decrease	Yes, cancer/ chronic	No	1	1	0	None
Ethyl-Mercaptan	Decrease	No	Yes	1	4	1	None
H2S	Decrease	Yes, cancer/ chronic & acute	Yes	4	4	0	None
MEA	Decrease	No	No	3	2	0	None
Methyl Mercaptan	Decrease	No	Yes	3	4	0	None
SO2	Decrease	No	Yes	3	0	0	None
SO3	Decrease	Yes, cancer/ chronic & acute (pending)	Yes	3	0	2	None

NFPA Hazard Code Key: 4 = Extreme; 3 = High; 2 = Moderate; 1 = Slight; 0 = Insignificant; N/A = NFPA hazard is not assigned.

Emission sources associated with the operational-related activities as a result of implementing the Alternative C may emit TACs because NaOH caustic is used in the operation of the WGSs. With the potential for the installation of eight WGSs under Option 1 and four WGSs under Option 2 for Alternative C, that means a maximum of eight NaOH caustic storage tanks under Option 1 and four NaOH caustic storage tanks under Option 2 may be installed to supply the WGSs. NaOH is a toxic air contaminant that is a non-cancerous but acutely hazardous substance. In addition, two more NaOH storage tanks would be needed under both Option 1 and

Option 2 to support the operations of two FGT modifications for the refinery boiler/heater source category at two facilities.

Of the facilities affected by the Alternative C, seven facilities were projected to have an increased demand in NaOH use for WGS operations plus two for FGT for refinery boilers and heaters under Option 1 and three facilities were projected to have an increased demand in NaOH use for WGS operations plus two for FGT for refinery boilers and heaters under Option 2.

For "worst-case" operations under Alternative C, 13.24 tons per day of NaOH (50 percent solution, by weight) is estimated to be needed to operate eight WGSs plus two FGTs for refinery boilers and heaters under Option 1 and 8.79 tons per day of NaOH (50 percent solution, by weight) is estimated to be needed to operate four WGSs plus two FGTs for refinery boilers and heaters under Option 2. For the purpose of conducting a "worst-case" construction analysis, one 10,000 gallon storage tank for caustic solution was assumed to be constructed for every WGS installed and for every FGT modification that utilizes NaOH. As summarized in Tables 5-32 and 5-33, for each facility that was projected to increase the use in the acutely hazardous substance NaOH, the filling loss and the working loss of each NaOH tank was calculated, added together, and that sum was compared to the most stringent Rule 1401 Screening Emission Level for NaOH (0.004 pounds per hour at the nearest receptor distance of 25 meters). None of the total hourly loss projections exceeded the acute screening level for NaOH for any of the affected facilities under Option 1 or Option 2 for Alternative C. Because the screening level for NaOH was not exceeded for any of the affected facilities, no significant air quality operational impacts with respect to toxics are expected from Alternative C. NaOH is not classified as a carcinogen, so a cancer risk analysis was not performed for Alternative C.

Table 5-32
Alternative C – Option 1: Summary of Filling and Working Losses for NaOH Storage Tanks

Facility ID	Projected Increase in NaOH Demand (tons/day)	A: Hourly NaOH (as PM10) Filling Loss (lb/hr)	B: Hourly NaOH (as PM10) Working Loss (lb/hr)	A + B = Total Hourly NaOH (as PM10) Losses (lb/hr)	NaOH Acute Screening Level at 25 meters (lb/hr)	Do Total Hourly Losses Exceed Acute Screening Level For NaOH? (Yes/No)
A	0.81	1.82E-04	5.46E-04	7.28E-04	4.00E-03	NO
B	1.17	2.64E-04	7.93E-04	1.06E-03	4.00E-03	NO
C	0.00	0	0	0	4.00E-03	NO
D	0.44	9.90E-05	2.97E-04	3.96E-04	4.00E-03	NO
E	0.45	1.01E-04	3.04E-04	4.06E-04	4.00E-03	NO
F	2.02	4.57E-04	1.37E-03	1.83E-03	4.00E-03	NO
G	2.90	6.56E-04	1.97E-03	2.62E-03	4.00E-03	NO
H	3.37	7.60E-04	2.28E-03	3.04E-03	4.00E-03	NO
I	0.79	1.78E-04	5.35E-04	7.14E-04	4.00E-03	NO
J	1.30	2.93E-04	8.78E-04	1.17E-03	4.00E-03	NO
K	0	0	0	0	4.00E-03	NO
Total	13.24					

Table 5-33
Alternative C – Option 2: Summary of Filling and Working Losses for NaOH Storage Tanks

Facility ID	Projected Increase in NaOH Demand (tons/day)	A: Hourly NaOH (as PM10) Filling Loss (lb/hr)	B: Hourly NaOH (as PM10) Working Loss (lb/hr)	A + B = Total Hourly NaOH (as PM10) Losses (lb/hr)	NaOH Acute Screening Level at 25 meters (lb/hr)	Do Total Hourly Losses Exceed Acute Screening Level For NaOH? (Yes/No)
A	0	0	0	0	4.00E-03	NO
B	0	0	0	0	4.00E-03	NO
C	0	0	0	0	4.00E-03	NO
D	0.44	9.90E-05	2.97E-04	3.96E-04	4.00E-03	NO
E	0	0	0	0	4.00E-03	NO
F	0	0	0	0	4.00E-03	NO
G	2.90	6.56E-04	1.97E-03	2.62E-03	4.00E-03	NO
H	3.37	7.60E-04	2.28E-03	3.04E-03	4.00E-03	NO
I	0.79	1.78E-04	5.35E-04	7.14E-04	4.00E-03	NO
J	1.30	2.93E-04	8.78E-04	1.17E-03	4.00E-03	NO
K	0	0	0	0	4.00E-03	NO
Total	**8.79**					

To accommodate the increased demand in NaOH, there will be an increase in truck deliveries to supply NaOH to the facilities that need it. It is expected that the affected facilities will receive NaOH from a local supplier located in the greater Los Angeles area. Deliveries of NaOH (50 percent by weight) would be made by tanker truck via public roads. The maximum capacity of a NaOH tanker truck is approximately 6,000 gallons. The projected onsite storage capacity and consumption rates of NaOH as well as the projected annual deliveries are summarized in Tables 5-34 and 5-35 for Options 1 and 2 of Alternative C, respectively. Based on the annual deliveries estimates, each facility is not expected to exceed the peak daily of one delivery per day per facility. However, the "worst-case" assumption for a peak daily delivery frequency from a supplier would be to deliver 6,000 gallons of NaOH to each of four facilities to fill four new NaOH tanks on the same day. Regulations for the transport of hazardous materials by public highway are described in 49 CFR §§ 173 and 177.

Table 5-34
Alternative C - Option 1: Summary of NaOH Deliveries

Facility ID	Daily Increase in NaOH Demand (tons/day)	Annual Increase in NaOH Demand (tons/year)	Annual NaOH Deliveries [1] (truck trips/year)
A	0.81	294	8
B	1.17	427	12
C	0	0	0
D	0.44	160	5
E	0.45	164	5
F	2.02	738	20
G	2.90	1,060	28
H	3.37	1,228	32
I	0.79	289	8
J	1.30	473	13
K	0	0	0
Total	**13.24**	**4,833**	**131**

[1] Annual NaOH deliveries are calculated based on one delivery truck holding 6,000 gallons per truck load. For example, for Facility A: 294 tons/yr NaOH x 2,000 lbs/ ton = 328,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 46,045 gal/year x 1 truck/6,000 gallons = 8 trucks/year.

Table 5-35
Alternative C - Option 2: Summary of NaOH Deliveries

Facility ID	Daily Increase in NaOH Demand (tons/day)	Annual Increase in NaOH Demand (tons/year)	Annual NaOH Deliveries [1] (truck trips/year)
A	0	0	0
B	0	0	0
C	0	0	0
D	0.44	160	5
E	0	0	0
F	0	0	0
G	2.90	1,060	28
H	3.37	1,228	32
I	0.79	289	8
J	1.30	473	13
K	0	0	0
Total	**8.79**	**3,210**	**86**

[1] Annual NaOH deliveries are calculated based on one delivery truck holding 6,000 gallons per truck load. For example, for Facility A: 294 tons/yr NaOH x 2,000 lbs/ ton = 328,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 46,045 gal/year x 1 truck/6,000 gallons = 8 trucks/year.

The onsite storage and handling of NaOH creates the possibility of an accidental spill and release of NaOH. However, because NaOH has such a low vapor pressure (6.33 mm Hg at 40 ^{o}C or 104 ^{o}F) when compared to water (55.3 mm Hg at 40 ^{o}C 104 ^{o}F) at the same temperature, any spill of NaOH would not be expected to evaporate faster than water. Thus any spill of NaOH would be expected to stay in liquid form and would not likely exceed the ERPG-2 vapor concentration of five milligrams per cubic meter for NaOH. Further, operators at each affected facility who construct a new NaOH storage tank will need to build a containment berm large enough to hold 110 percent of the tank capacity in the event of an accidental release due to tank rupture. Thus, any spill of NaOH would not be expected to migrate beyond the boundaries of the berm on-site.

Thus, any spill of NaOH is not expected to present a potential offsite public and sensitive receptor exposure. Lastly, since NaOH is not a flammable compound, other types of heat-related hazard impacts such as fires, explosions, boiling liquid – expanding vapor explosion (BLEVE) are not expected to occur and, therefore, will not be evaluated as part of this hazards analysis.

In conclusion, the hazards and hazardous materials impacts due to the use, tank rupture and the accidental release of NaOH will be less than significant for Alternative C.

HYDROLOGY AND WATER QUALITY

Alternative A - No Project

The project-specific hydrology and water quality impacts associated with the installation of multiple SOx control devices (e.g., WGSs and DGSs) would be eliminated under Alternative A, the no project alternative, since no construction activities would occur and no new equipment would be installed at any of the affected facilities that would need additional water or would generate additional wastewater. Under Alternative A, the hydrology and water quality impacts would remain unchanged from the existing setting and therefore, would be less than significant.

Alternative B – AQMP

Because Alternative B applies the same SOx emission reduction targets as the proposed project but to less equipment/source categories (e.g., sulfuric acid manufacturing, coke calciner, and glass melting furnace), less add-on control equipment will be installed (i.e., four WGSs) such that less water demand and wastewater generation would occur. The following analysis will demonstrate that the projected increases in water demand and wastewater generation associated with Alternative B will be less than significant because the amount of additional water demand and wastewater generation associated with the installation and operation of the new SOx controls are below the applicable hydrology and water quality significance criteria. While less WGSs would be installed under Alternative B, adverse hydrology and water quality impacts are expected to occur but they will be less than the proposed project.

Water demand and wastewater generation information as it relates to construction and operational activities under Alternative B was derived as part of the hydrology and water quality analysis in Chapter 4 and the calculations are shown in Appendix B of this ~~Draft~~ Final PEA.

Construction Water Demand

Implementation of Alternative B is expected to result in construction activities associated with installing new or modifying existing SOx control equipment at the affected facilities, which are complex, well-established and mostly paved, industrial facilities. Depending on the proposed location within each facility's boundaries for the siting of any new control equipment that may be installed as a result of implementing Alternative B, construction activities such as digging, earthmoving, grading, slab pouring, or paving could occur if the proposed site for the new equipment is not suitable in its present form (e.g., graded with a foundation slab). Table 5-36 contains a summary of the estimates of plot space needed per facility under Alternative B.

Table 5-36
Alternative B: Potential Plot Space Needed For Proposed Control Technologies

Facility ID	Potential SOx Control	Plot Space Needed for Proposed Controls (square feet)
A	Not applicable to Alternative B	**0**
B	Not applicable to Alternative B	**0**
C	1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	**0**
D	Not applicable to Alternative B	**0**
E	Not applicable to Alternative B	**0**
F	Not applicable to Alternative B	**0**
G	Not applicable to Alternative B	**0**
H	1 WGS for calciner (new)	**1,200**
I	2 WGSs for glass melting furnaces (new)	**640**
J	1 WGS for sulfuric acid unit (new)	**500**
K	Not applicable to Alternative B	**0**
	TOTAL	**2,340**

Based on the consultant's surveys of the affected facilities, if all affected facilities conduct site preparation activities, the total amount of disturbed area for all of the facilities combined is estimated to be 2,340 square feet (0.05 acre) under Alternative B. However, even if all affected facilities intend to conduct site preparation, not much overlap of site preparation activities would be expected since there are several years between the proposed rule amendment date (2010) and the proposed compliance date (January 1, 2019) and because the plot spaces are small. Further, depending on the scale, site preparation typically can take anywhere from two weeks to one month. Therefore, it is unlikely that all affected facilities will do site preparation both in the same month of the same year. The largest parcel of land to be potentially disturbed at any one facility under Alternative B could occur at Facility H and is approximately 1,200 square feet which represents approximately 51 percent of the total area to be disturbed under Alternative B. Assuming that all three facilities conduct overlapping site preparation activities as a worst-case, then the potential peak area that could be disturbed at any one time would be 2,340 square feet under Alternative B.

In any case, the amount of area to be disturbed is small such that one backhoe should be sufficient for site preparation activities under Alternative B. Since one backhoe can trench approximately 0.1 acre per day or 4,356 square feet per day, earthmoving activities at Facility H would take approximately one day under Alternative B. Even if all three facilities conduct overlapping site preparation, earthmoving activities would take about the same amount of time since each plot space is relatively small (i.e., a ¼-acre plot or smaller) and there would be one backhoe in operation at each of the three facilities.

To comply with the dust suppression requirements in SCAQMD Rule 403 – Fugitive Dust, during site preparation activities, some water is expected to be used. For example, one water truck per affected facility may be needed for dust suppression activities during the initial site preparation/earth moving portion of the proposed project. One water truck can hold approximately 6,000 gallons for dust control and it can be refilled over the course of the day if more than 6,000 gallons is needed. By applying one gallon of water per square foot of disturbed

area, at a minimum of two times per day as required to minimize fugitive dust, the total amount of water expected to be used for dust suppression is approximately 4,680 gallons per day under Alternative B. On windy days, it may be necessary to conduct a third water application. Thus, the total peak amount of water that could be used for dust suppression is approximately 7,020 gallons per day under Alternative B. In any case, one water truck would be sufficient, but it would need to be refilled to accommodate the additional 1, 020 gallons of water needed for dust suppression on windy days.

Due to the need to quickly construct a proper foundation for the proposed control equipment, earth moving activities during site preparation is expected to be a short duration lasting from two to three days to no longer than one month per facility. As such, the corresponding dust control activities are also not expected to last longer than one month per facility. Further, water used for dust suppression does not have to be of potable quality, but can be recycled water.

For the three facilities that may undergo site preparation activities, recycled water is not currently available. However, recycled water availability is expected to expand to Facility J by Summer 2013[98]. Thus, if site preparation activities occur after Summer 2013 at Facility J, then recycled water may be available to supply the peak 1,500 gallons per day that may be needed for dust suppression at that location.

Instead of installing new equipment, one facility operator (Facility C) may choose to modify or upgrade their existing SOx control equipment. In these cases, site preparation activities are not expected because the existing foundation and the existing equipment are expected to be reused in its current location and current plot space. Therefore, no water for dust suppression purposes is expected to be needed for any construction upgrades to existing SOx control equipment at Facility C.

Once constructed, but prior to operation, additional water is expected to be used to hydrostatically (pressure) test all vessels and pipelines to ensure each structure's integrity and wastewater may be created during the testing. Pressure testing is typically a one-time event, unless a leak is found. Similar to dust suppression, water used for pressure testing does not have to be of potable quality, but can be recycled water.

Even though the potential increase in water use under Alternative B is below the SCAQMD's five million gallons per day significance threshold for total water, it may be helpful to consider other criteria for evaluating what would be considered a substantial use of potable water, especially since California is in a State of Emergency for Drought. For example, CEQA Guidelines §15155 – City or County Consultation With Water Agencies, defines a "water demand" project in several ways. While the criteria for defining water demand are not significance thresholds per se, the criteria can provide some insight as to how city or county lead agencies evaluate water demand impacts. Most of the criteria in this part of the CEQA Guidelines do not have a numerical criterion or direct methodology to correlate the criteria in

[98] Future access to recycled water for these five facilities is dependent upon the completion of the Harbor Refineries Recycled Water Pipeline Project (HRRWPP) by Summer 2013 (SCH No. 2008121093, certified on October 20, 2009). The HRRWPP will conserve potable water and instead produce and convey recycled water to multiple industrial and irrigation customers in the Los Angeles Harbor area (http://www.ladwp.com/ladwp/cms/ladwp011486.jsp). Proponents of the HRRWPP are working with each of the affected facilities to negotiate construction of a new water conveyance at their site in order to tie-into the recycled water pipeline.

terms of gallons per day for use as a significance threshold specific to potable water use. However, CEQA Guidelines §15155 (a)(1)(G) defines a water demand project as: "A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project." To estimate what this means in terms of quantifying how much potable water could be used by a 500 dwelling unit (DU) project, the California Department of Water resources relies on a conversion factor range of 0.3 to 0.5 acre-feet of potable water per year per DU as shown in the following calculation[99]:

$$(500\ \text{DUs}) \times \frac{(0.3 - 0.5\ \text{acre-feet/year})}{(1\ \text{DU})} \times \frac{(325{,}851\ \text{gallons})}{(1\ \text{acre-foot})} \times \frac{(1\ \text{year})}{(365\ \text{days})} = 133{,}911\ \text{gallons/day to } 223{,}186\ \text{gallons/day}$$

Thus, the amount of water that would be needed during construction for dust suppression and pressure testing activities: 1) would not be considered a substantial use of potable water since the amount of plot space that would undergo site preparation and dust suppression activities is so small and the peak amount of water needed for these activities is small; and 2) is substantially less than the overall water demand significance threshold of five million gallons per day. Further, watering activities for dust suppression and pressure-testing are temporary and occur on a short-term basis. For these reasons, less than significant water demand/water use impacts are expected during construction of the proposed project.

Construction Water Quality

Any wastewater generated from pressure testing is expected to flow to each affected facility's wastewater treatment or collection system and recycled or discharged after treatment with process wastewater. Thus, wastewater generation from pressure testing activities is not expected to affect groundwater quality. Further, the volume of wastewater that will be generated from pressure testing is expected to be minimal and within the capacity of each facility's wastewater treatment and collection systems.

With the total amount of disturbed area for all of the facilities combined is estimated to be 2,340 square feet (0.05 acre) under Alternative B with the peak amount of area to be disturbed at Facility H at 1,230 square feet, a NPDES General Permit for Storm Water Discharges Associated with Construction Activity, also referred to as a Storm Water Construction Permit, would not be required for any of the affected facilities. Because Alternative B is expected to disturb substantially less than one acre per facility, on-site collection of storm water in each facility's storm water collection system is expected to be about the same as the amount currently collected. Therefore, no significant impacts are expected from storm water during construction.

Construction Conclusion

In summary, less than significant adverse water demand and wastewater impacts are expected during construction of Alternative B.

Operational Water Demand

Table 5-37 quantifies the potential increases in operational water use and wastewater generation that may occur as a result of installing new or upgrading existing SOx controls under Alternative B. If all of the proposed control technologies are installed or upgraded, the potential increase in water use is estimated to be approximately 0.12 MMgal/day under Alternative B. Further, if all

[99] Draft Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001 to assist water suppliers, cities, and counties in integrating water and land use planning, California Department of Water Resources, September 2002, p.3

of the proposed control technologies are installed or upgraded, the potential increase in wastewater generated would be approximately 0.04 MMgal/day under Alternative B. Hydrology and water quality impacts from Alternative B are discussed in detail in the following sections.

Table 5-37
Alternative B: Potential Increases in Operational Water Demand and Wastewater Generation

Main Equipment	Proposed Control Technology That Utilizes Water	No. of Facilities to Install or Upgrade Controls	No. of Units Expected to Be Installed or Upgraded	Potential Increase in Operational Water Demand (gal/day)	Potential Increase in Wastewater Generation (gal/day)
FCCU	WGS	0	0	0	0
SRU/TGU	WGS	0	0	0	0
Refinery Boilers/Heaters	FGT	0	0	0	0
Coke Calciner	WGS	1	1	40,896	16,992
Glass Melting Furnaces	WGS	1	2	58,464	12,877
Sulfuric Acid	WGS	1	1	19,589	10,800
Sulfuric Acid	Upgrade Existing Cansolv Unit	1	1	6,336	0[1]
Cement Kilns	DGS	0	0	0	0
		Total	**5**	**125,285**	**40,669**

[1] More water (as steam) is required to complete the upgrade. However, the steam is evaporated during the process so there is no wastewater stream generated.

As summarized in Table 5-38, each affected facility provided their water demand baseline; these water usage rates were compared to each facility's estimated potential increase in water demand that may result from implementing Alternative B. The peak percentage increase from baseline levels when compared to Alternative B was approximately 45 percent (Facility I) but most of the affected facilities have a potential increase in water demand from one to four percent above each facility's baseline. The overall increase in water demand under Alternative B is approximately 1.28 percent above the total water use baseline for all of the affected facilities combined.

To have a better understanding about the availability of water and the source (i.e., potable versus non-potable recycled or industrial-use groundwater), SCAQMD staff contacted each supplier of water used for industrial applications for each of the affected facilities[100], and all of the suppliers indicated that they would be able to accommodate the additional operational water demand if the proposed project goes forward. In addition, each water supplier specified whether the additional water to be supplied will be recycled water or potable water. In the case of recycled water, the water supplier indicated whether the recycled water is currently available or whether it would be available in the future pursuant to the aforementioned HRRWPP project.

[100] Facility K is the only facility that does not purchase water for its industrial operations; instead, the industrial-use water (non-potable) is supplied by the facility-owned wells.

Table 5-38
Alternative B: Potential Increases in Operational Water Demand per Facility

Facility ID	Proposed Control Technology	Potential Increase in Water Use (MMgal/day)	Current Facility Water Use (MMgal/day)	Percentage Increase Above Baseline
A	Not applicable to Alternative B	0	10.75	0%
B	Not applicable to Alternative B	0	12.50	0%
C	1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	0.006	7.85	0.08%
D	Not applicable to Alternative B	0	10.32	0%
E	Not applicable to Alternative B	0	5.76	0%
F	Not applicable to Alternative B	0	2.50	0%
G	Not applicable to Alternative B	0	2.88	0%
H	1 WGS for calciner (new)	0.041	1.08	3.79%
I	2 WGSs for glass melting furnaces (new)	0.058	0.13	44.62%
J	1 WGS for sulfuric acid unit (new)	0.020	0.73	2.74%
K	Not applicable to Alternative B	0	3.29	0%
	TOTAL	**0.125**	**9.79***	**1.28%***

* This total is based on the current facility water use for only those facilities affected by Alternative B (e.g., Facilities C, H, I and J).

As part of making the determination if water supplies will be sufficient for Alternative B, the availability of recycled or industrial-use groundwater is an important factor. Seven facilities are expected to have either increased access (e.g., Facilities A, B and D) or new future access (e.g., Facilities C, E, F and J) to recycled water upon completion of the HRRWPP[101], but of these, only Facilities C and J would be affected by Alternative B . The HRRWPP is a project shared by the LADWP and WBMWD to conserve potable water and instead produce and convey recycled water to multiple industrial and irrigation customers in the Los Angeles Harbor area. Construction of the HRRWPP began on October 26, 2009 and is estimated to be completed by Summer 2013. However, even if the pipeline and meter is installed, these facilities will need to make modifications to handle the potential increase in recycled water or install the water conveyance infrastructure piping to tie-in to the recycled water pipeline.

Table 5-39 identifies the amount and availability status of using non-potable[102] and potable water to supply the potential increased water use under Alternative B. The amount of non-potable water that can currently be used under Alternative B plus the future availability of non-potable water (to be available beginning Summer 2013) is 25,925 gallons per day. Of the proposed increase of total water at 125,285 gallons per day under Alternative B, 21 percent may be supplied by recycled or non-potable water. The remaining amount of increased potential water demand under Alternative B is estimated to be 79 percent or 99,360 gallons per day and is expected to be satisfied by potable water.

[101] The future availability of recycled water applies to certain facilities that do not currently have access to obtain recycled water for their processes but that will have access after completion of the LADWP's HRRWPP project (certified on October 20, 2009) by Summer 2013 (http://www.ladwp.com/ladwp/cms/ladwp011486.jsp). In addition, future access to recycled water is contingent upon each facility within the HRRWPP project area constructing a new water conveyance at their site in order to tie-into the recycled water pipeline.

[102] Non-potable water can be either recycled water or industrial-use well water.

Table 5-39
Alternative B: Potential Increases in Non-Potable and Potable Water Use

Main Equipment	Proposed Control Technology That Utilizes Water	Potentially Available Non-Potable Water Use		Potentially Available Potable Water Use (gal/day)	Total Potential Increase in Water Use (gal/day)
		Current [1] (gal/day)	Future[2] (gal/day)		
FCCU	WGS	0	0	0	0
SRU/TGU	WGS	0	0	0	0
Refinery Boilers/Heaters	FGT	0	0	0	0
Coke Calciner	WGS	0	0	40,896	40,896
Glass Melting Furnaces	WGS	0	0	58,464	58,464
Sulfuric Acid	WGS	19,589	0	0	19,589
Sulfuric Acid	Upgrade Existing Cansolv Unit	0	6,336	0	6,336
Cement Kilns	DGS	0	0	0	0
	Total	**19,589**	**6,336**	**99,360**	**125,285**

[1] The current availability of non-potable water values assumes that the facilities which currently obtain recycled or industrial-use groundwater for their processes will continue to do so if there is a need to increase water use as part of the proposed project.

[2] The future availability of non-potable water values applies to certain facilities that do not currently have access to obtain recycled or industrial-use groundwater for their processes but that will have access after completion of the LADWP's HRRWPP project by Summer 2013.

Table 5-40 summarizes the projected increases of potable water, recycled water (both current and future availability) and industrial-use groundwater that is estimated to implement Alternative B at the affected facilities.

Table 5-40
Alternative B: Distribution of Projected Water Demand by Water Type

Type of Water	Projected Increase in Water Use (gal/day)	Percent of Total Water Demand
Potable	99,360	79%
Recycled (non-potable)	25,925	21%
Industrial-Use Groundwater (non-potable)	0	0%
TOTAL	**125,285**	**100%**

Alternative B has been shown to potentially increase total water demand by approximately 125,285 gallons per day and 79 percent of this total water demand would need to be supplied by potable water because the facilities that would be affected by Alternative B (Facilities C, H, I and J), only Facilities C and J have access to non-potable water. Also, the potential increases in total water demand rely on the future availability of recycled water for Facility C.

Thus, the amount of water that would qualify as a water demand project can be adjusted to separate the potable water from the current and future uses of recycled water and industrial-use groundwater needed for Alternative B. To establish whether Alternative B qualifies as a water demand project, the potential increase in water use can be interpreted to mean the potential increase of potable water only (in this case, 99,360 gallons per day). Since the projected increase of potable water and total water would be less than the estimated range of water that would be

needed for a 500 DU project (e.g., 133,911 to 223,186 gallons per day), Alternative B would not qualify as a water demand project.

However, the projections for new or increased future access to recycled water are 6,336 gallons per day under Alternative B and the availability of future access to recycled water is not guaranteed. In the event that the future access to recycled water does not occur as planned by Summer 2013 in accordance with the HRRWPP, the potential increase in potable water needed for Alternative B would need to be adjusted to include the amount of future recycled water. As such, the amount of potable water demand could increase to 105,696 gallons per day under Alternative B. In the event that future access to recycled water does not occur as planned, the distribution between potable and recycled water demand shifts as summarized in Table 5-41.

Table 5-41
Alternative B: Adjusted Distribution of Projected Water Demand by Water Type if Future Supplies of Recycled Water Are Not Available

Type of Water	Adjusted Projected Increase in Water Use (gal/day)	Percent of Total Water Demand
Potable	105,696	84%
Recycled (non-potable)	19,589	16%
Industrial-Use Groundwater (non-potable)	0	0%
TOTAL	**125,285**	**100%**

Under Alternative B, the adjusted estimate for increased potable water demand would be 105,696 gallons per day, which is below the minimum amount of potable water needed to qualify for as a water demand project per the 500 DU calculations (e.g., 133,911 gallons per day). Thus, for this reason, Alternative B would not qualify as a water demand project and as such, is expected to contribute to less than significant adverse water demand impacts.

Lastly, to investigate whether the existing water supply has the capacity to meet the increased water demand of Alternative B, SCAQMD staff has been coordinating with various water suppliers (e.g., LADWP, MWD, WBMWD, Long Beach Water Department, City of Vernon etc.) to the affected facilities. Water suppliers for all of the facilities that either currently use recycled water or are expected to have future use of recycled water have indicated that there will be sufficient supply of recycled water for Alternative B. In addition, the water suppliers for Facilities H and I have indicated that they can supply the estimated additional potable water needed for operating WGSs under Alternative B.

Water Quality

As summarized in Table 5-42, each affected facility provided their wastewater discharge limits and these limits were compared to each facility's estimated potential increase in wastewater that may result from implementing Alternative B. The peak percentage increase from baseline levels is approximately nine percent (Facility H) under Alternative B. An increase of 25 percent would trigger a permit revision and would be considered a significant adverse wastewater impact. Since all of the affected facilities have been shown under Alternative B to have a potential wastewater increase less than 25 percent, no modifications to any existing wastewater discharge permits are anticipated under Alternative B. Thus, the operational impacts of Alternative B on

each affected facility's wastewater discharge and the Industrial Wastewater Discharge Permit are expected to be less than significant.

Changes to each affected facility's storm water collection systems are expected to be less than significant since most of the changes will occur within existing units (i.e., installing control equipment on existing equipment or upgrading existing control equipment). Further, typically most of the areas likely to be affected by Alternative B are currently paved and are expected to remain paved. Any new units constructed will be curbed and the existing units will remain curbed to contain any runoff. Any runoff occurring will continue to be handled by each affected facility's wastewater system and sent to an on-site wastewater treatment system prior to discharge. The surface water runoff is expected to be handled with each facility's current wastewater collection or treatment system. Storm water runoff will be collected and discharged in accordance with each facility's discharge permit terms and conditions.

Alternative B is expected to involve construction activities located within the confines of existing facilities and does not include the construction of any new housing so it would not place new housing within a 100-year flood hazard area. It is likely that most affected facilities are not located within a 100-year flood hazard area. Any affected facilities that may be located in a 100-year flood area could impede or redirect 100-year flood flows, but this would be considered part of the existing setting and not an effect of Alternative B. Further, Alternative B would not require locating new facilities within a flood zone, so it is not expected to expose people or property to any known water-related flood hazards.

Table 5-42
Alternative B: Potential Increases in Wastewater Generation per Facility

Facility ID	Proposed Control Technology	Potential Increase in Wastewater Generation (MMgal/day)	Wastewater Permit Discharge Limit[1] (MMgal/day)	Percentage Increase Above Discharge Limit	Greater than 25% Increase? (Exceeds CEQA Significance Threshold?)
A	Not applicable to Alternative B	0	7.5	0%	NO
B	Not applicable to Alternative B	0	8.8	0%	NO
C	1 Upgrade to Existing Cansolv Unit (modified)	0	7.6	0%	NO
D	Not applicable to Alternative B	0	15	0%	NO
E	Not applicable to Alternative B	0	1.1	0%	NO
F	Not applicable to Alternative B	0	0.18	0%	NO
G	Not applicable to Alternative B	0	2.88	0%	NO
H	1 WGS for calciner (new)	0.017	0.18	9.44%	NO
I	2 WGSs for glass melting furnaces (new)	0.013	0.36	3.58%	NO
J	1 WGS for sulfuric acid unit (new)	0.011	0.21	5.14%	NO
K	2 DGSs for cement kilns (new)	0	No Limit	0%	NO
		0.041	**0.75**[2]	**5.47%**[2]	

[1] Wastewater limits were obtained from each facility's wastewater permit(s). For any facility that has multiple discharge limits (i.e. dry weather, wet weather, etc.), the most conservative limit will be used for the purpose of this comparison.

[2] This total is based on the current facility wastewater permit for only those facilities with wastewater impacts affected by Alternative B (e.g., Facilities H, I and J).

Alternative B does not require construction of new facilities in areas that could be affected by tsunamis. Of the facilities affected by Alternative B, some are located near the Ports of Long Beach and Los Angeles. However, the port areas are protected from tsunamis by the construction of breakwaters. Construction of breakwaters combined with the distance of each facility from the water is expected to minimize the potential impacts of a tsunami or seiche so that no significant impacts are expected. Alternative B does not require the construction of facilities in areas that are susceptible to mudflows (e.g., hillside or slope areas). Existing affected facilities that are currently located on hillsides or slope areas may be susceptible to mudflow, but this would be considered part of the existing setting. As a result, Alternative B is not expected to generate significant adverse mudflow impacts.

Lastly, Alternative B is not expected to significantly adversely affect the quantity or quality of groundwater in the area of each affected facility. No significant adverse impacts to groundwater quality are expected from Alternative B because: 1) wastewater will continue to be collected and treated in each of the affected facility's wastewater treatment systems or in compliance with the current wastewater discharge permits, as applicable; 2) no underground storage tanks are expected to be constructed as part of the proposed project; 3) containment berms will be required or may already exist around the new or modified units to minimize the potential for spills to contaminate soil and groundwater; and, 4) any new storage tanks that may be proposed will be required to comply with BACT and other safety requirements such as double bottom and monitoring requirements.

Water Demand and Water Quality Conclusion

The water demand impacts that may result from Alternative B have been shown to require approximately 125,285 gallons per day of total water with approximately 21 percent to be satisfied with current and future supplies of recycled water and the remaining 79 percent to be supplied by potable water. However, if future access to recycled water does not occur, then approximately 16 percent of the total water demand is expected to be satisfied with current supplies of recycled water and the remaining 84 percent is expected to be supplied by potable water under Alternative B.

Based on the preceding analysis, Alternative B is not expected to exceed SCAQMD's significance threshold of five million gallons of total water per day. Whether future supplies of recycled water become available or not, Alternative B is not expected to require a substantial amount of potable water as calculated pursuant to the water demand project criteria. Further, the water suppliers have indicated that there will be an adequate supply of water (current and future supplies of recycled water plus potable water) for Alternative B. Therefore, the water demand impacts for Alternative B are concluded to be less than significant.

Based on the aforementioned considerations, the potential groundwater, wastewater discharge and storm water discharge impacts that may result from Alternative B are expected to be less than significant. Less than significant adverse impacts associated with water demand and water quality are expected from Alternative B, so no mitigation measures are required. Because the water demand and water quality impacts from Alternative B do not exceed any applicable significance thresholds, they are not considered to be cumulatively considerable pursuant to CEQA Guidelines §15064 (h)(1) and therefore, do not generate significant adverse cumulative water demand and water quality impacts.

Alternative C – Intermediate SOx Reductions

Alternative C would impose the same SOx limits on fewer equipment/source categories when compared to both Options 1 and 2 of the proposed project. Specifically, five equipment/source categories comprise Alternative C: FCCUs, sulfuric acid manufacturing, coke calciner, glass melting furnaces, and cement kilns. Like the proposed project, there are two SOx control approaches that can be applied to FCCUs under Alternative C. For this reason, Alternative C has been bifurcated into two options: Option 1 assumes that WGSs will be the control approach for FCCUs; and, Option 2 assumes that SOx reducing additives will be the control approach for FCCUs. The remaining source categories and their respective control approaches applicable to Alternative C will be the same for both Option 1 and Option 2.

Under Alternative C, less add-on control equipment (i.e., eight WGSs plus two DGSs under Option 1 and four WGSs plus two DGSs under Option 2) would be expected to be installed under Alternative C and as such, less water demand and wastewater generation would occur when compared to the proposed project. Further, the reduced number of add-on control equipment to be installed under Alternative C - Option 2 can be attributed to the assumption that SOx reduction catalysts could be utilized in the FCCUs. Like the proposed project, both Options 1 and 2 of Alternative C would need additional water and would generate additional wastewater for installation and operation activities associated with the add-on control equipment.

The following analysis will demonstrate that the projected increases in water demand and wastewater generation associated with Alternative C will be less than significant because the amount of additional water demand and wastewater generation associated with the installation and operation of the new SOx controls are below the applicable hydrology and water quality significance criteria. While fewer WGSs would be installed under Alternative C for both Options 1 and 2, adverse hydrology and water quality impacts are expected to occur but they will be less than the proposed project.

Water demand and wastewater generation information as it relates to construction and operational activities under Alternative C was derived as part of the hydrology and water quality analysis in Chapter 4 and the calculations are shown in Appendix B of this ~~Draft~~ Final PEA.

Construction Water Demand

Implementation of Alternative C is expected to result in construction activities associated with installing new or modifying existing SOx control equipment at the affected facilities, which are complex, well-established and mostly paved, industrial facilities. Depending on the proposed location within each facility's boundaries for the siting of any new control equipment that may be installed as a result of implementing Alternative C, construction activities such as digging, earthmoving, grading, slab pouring, or paving could occur if the proposed site for the new equipment is not suitable in its present form (e.g., graded with a foundation slab). Tables 5-43 and 5-44 contain a summary of the estimates of plot space needed per facility for Option 1 and Option 2 of Alternative C.

Based on the consultant's surveys of the affected facilities, if all affected facilities conduct site preparation activities, the total amount of disturbed area for all of the facilities combined is estimated to be 31,790 square feet (0.7 acre) for Option 1 and 24,640 square feet (0.6 acre) for Option 2. However, even if all affected facilities intend to conduct site preparation, not much overlap of site preparation activities would be expected since there are several years between the proposed rule amendment date (2010) and the proposed compliance date (January 1, 2019) and

because the plot spaces are relatively small. Further, depending on the scale, site preparation typically can take anywhere from two weeks to one month. Therefore, it is unlikely that all affected facilities will do site preparation both in the same month of the same year. The largest parcel of land to be potentially disturbed is 6,000 square feet at three facilities (Facilities C, D and G) for both Options 1 and 2 of Alternative C and which represents approximately 19 percent of the total area to be disturbed for Option 1 and 24 percent of the total area to be disturbed for Option 2. Consistent with the assumption that, as a worst-case, up to four facilities conduct overlapping site preparation activities, then the potential peak area that could be disturbed at any one time would be 22,000 square feet for either Option 1 or 2.

Under either option, the amount of area to be disturbed is relatively small such that one backhoe should be sufficient for site preparation activities. Since one backhoe can trench approximately 0.1 acre per day or 4,356 square feet per day, earthmoving activities at either Facility C, D or G would take approximately two days for either Option 1 or Option 2 under Alternative C. Even if four facilities conduct overlapping site preparation, earthmoving activities would take about the same amount of time since each plot space is relatively small (i.e., a ¼-acre plot or smaller) and there would be one backhoe in operation at each of the four facilities.

Table 5-43
Alternative C - Option 1: Potential Plot Space Needed For Proposed Control Technologies

Facility ID	Option 1: Potential SOx Control per Equipment/Source Category	Plot Space Needed for Proposed Controls (square feet)
A	1 WGS for FCCU (new) 1 FGT by Sulfinol Conversion (modified)	2,000 + 100 **2,100**
B	1 WGS for FCCU (new)	**2,000**
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	6,000+ 0 **6,000**
D	1 FGT by Merox Treatment Upgrade (modified)	**6,000**
E	1 WGS for FCCU (new) 1 FGT by Sulfinol Conversion (modified)	1,575 + 100 **1,675**
F	1 WGS for FCCU (new) 1 FGT by Amine Additive (modified)	1,575 + 100 **1,675**
G	1 FGT by Merox Treatment Upgrade (modified)	**6,000**
H	1 WGS for calciner (new)	**1,200**
I	2 WGSs for glass melting furnaces (new)	**640**
J	1 WGS for sulfuric acid unit (new)	**500**
K	2 DGSs for cement kilns (new)	**4,000**
	TOTAL	**31,790**

Table 5-44
Alternative C - Option 2: Potential Plot Space Needed For Proposed Control Technologies

Facility ID	Option 2: Potential SOx Control per Equipment/Source Category	Plot Space Needed for Proposed Controls (square feet)
A	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Sulfinol Conversion (modified)	0 + 100 **100**
B	1 SOx Reducing Additive Hopper for FCCU (modified)	**0**
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	6,000+ 0 **6,000**
D	1 SOx Reducing Additive Hopper for FCCU (new) 1 FGT by Merox Treatment Upgrade (modified)	0 + 6,000 **6,000**
E	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Sulfinol Conversion (modified)	0 + 100 **100**
F	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Amine Additive (modified)	0 + 100 **100**
G	1 FGT by Merox Treatment Upgrade (modified)	**6,000**
H	1 WGS for calciner (new)	**1,200**
I	2 WGSs for glass melting furnaces (new)	**640**
J	1 WGS for sulfuric acid unit (new)	**500**
K	2 DGSs for cement kilns (new)	**4,000**
	TOTAL	**24,640**

Construction Water Demand

To comply with the dust suppression requirements in SCAQMD Rule 403 – Fugitive Dust, during site preparation activities, some water is expected to be used. For example, one water truck per affected facility may be needed for dust suppression activities during the initial site preparation/earth moving portion of the proposed project. One water truck can hold approximately 6,000 gallons for dust control and it can be refilled over the course of the day if more than 6,000 gallons is needed. By applying one gallon of water per square foot of disturbed area, at a minimum of two times per day as required to minimize fugitive dust, the total amount of water expected to be used for dust suppression is approximately 8,712 gallons per facility per day. ~~can range from 1,000 gallons per day up to 12,000 gallons per day, depending on the facility.~~ However, if four facilities with the largest plot spaces disturbed conduct overlapping watering, then the maximum amount of water that could be used for site preparation is 34,848 ~~44,000~~ gallons per day. On windy days, it may be necessary to conduct a third water application. Thus, the total peak amount of water that could be used for dust suppression can range from 1,500 gallons per day to 13,068 ~~18,000~~ gallons per day, depending on the facility. Again, if the four

facilities with the largest plot spaces disturbed conduct overlapping watering, at a watering rate of three applications per day, then the peak amount of water that could be used for site preparation is 52,272 ~~66,000~~ gallons per day.

Due to the need to quickly construct a proper foundation for the proposed control equipment, earth moving activities during site preparation are expected to be of a short duration lasting from two to three days to no longer than one month per facility. As such, the corresponding dust control activities are also not expected to last longer than one month per facility. Further, water used for dust suppression does not have to be of potable quality, but can be recycled water. Recycled water is currently available at three of the affected facilities and non-potable industrial-use groundwater is currently available at one additional facility. Additional recycled water availability is expected to expand to five other facilities by Summer 2013[103].

Since the earliest year when construction activities could begin would be in 2012, eight facilities are expected to have access to recycled or industrial-use groundwater for use during site preparation. There are three facilities (Facilities G, H and I) that do not currently have access to recycled or industrial-use groundwater and are not expected to have future access in 2012 or later. However, the amount of site preparation that would need to occur at these three facilities is expected to be about 7,840 square feet which would require approximately 15,680 gallons of water (at a watering rate of twice each day) to 23,520 gallons of water (at a watering rate of three times each day) for dust suppression activities during windy days.

Instead of installing new equipment, there are a few facility operators that may choose to modify or upgrade their existing SOx control equipment. In these cases, site preparation activities are not expected because the existing foundation and the existing equipment are expected to be reused in its current location and current plot space. Therefore, no water for dust suppression purposes is expected to be needed for any construction upgrades to existing SOx control equipment.

Once constructed, but prior to operation, additional water is expected to be used to hydrostatically (pressure) test all vessels and pipelines to ensure each structure's integrity and wastewater may be created during the testing. Pressure testing is typically a one-time event, unless a leak is found. Similar to dust suppression, water used for pressure testing does not have to be of potable quality, but can be recycled water.

Even though the potential increase in water use for both Option 1 and Option 2 of Alternative C is below the SCAQMD's five million gallons per day significance threshold for total water, it may be helpful to consider other criteria for evaluating what would be considered a substantial use of potable water, especially since California is in a State of Emergency for Drought. For example, CEQA Guidelines §15155 – City or County Consultation With Water Agencies, defines a "water demand" project in several ways. While the criteria for defining water demand

[103] Future access to recycled water for these five facilities is dependent upon the completion of the Harbor Refineries
Recycled Water Pipeline Project (HRRWPP) by Summer 2013 (SCH No. 2008121093, certified on October 20, 2009). The HRRWPP will conserve potable water and instead produce and convey recycled water to multiple industrial and irrigation customers in the Los Angeles Harbor area (http://www.ladwp.com/ladwp/cms/ladwp011486.jsp). Proponents of the HRRWPP are working with each of the affected facilities to negotiate construction of a new water conveyance at their site in order to tie-into the recycled water pipeline.

are not significance thresholds per se, the criteria can provide some insight as to how city or county lead agencies evaluate water demand impacts. Most of the criteria in this part of the CEQA Guidelines do not have a numerical criterion or direct methodology to correlate the criteria in terms of gallons per day for use as a significance threshold specific to potable water use. However, CEQA Guidelines §15155 (a)(1)(G) defines a water demand project as: "A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project." To estimate what this means in terms of quantifying how much potable water could be used by a 500 dwelling unit (DU) project, the California Department of Water resources relies on a conversion factor range of 0.3 to 0.5 acre-feet of potable water per year per DU as shown in the following calculation[104]:

$$(500\ \text{DUs}) \times \frac{(0.3 - 0.5\ \text{acre-feet/year})}{(1\ \text{DU})} \times \frac{(325{,}851\ \text{gallons})}{(1\ \text{acre-foot})} \times \frac{(1\ \text{year})}{(365\ \text{days})} = 133{,}911\ \text{gallons/day to } 223{,}186\ \text{gallons/day}$$

Thus, the amount of water that would be needed during construction for dust suppression and pressure testing activities: 1) would not be considered a substantial use of potable water since several facilities are currently using or will have future access to recycled water; and 2) is less than the overall water demand significance threshold of five million gallons per day. Further, watering activities for dust suppression and pressure-testing are temporary and occur on a short-term basis. For these reasons, less than significant water demand/water use impacts are expected during construction of the proposed project.

Construction Water Quality

Any wastewater generated from pressure testing is expected to flow to each affected facility's wastewater treatment or collection system and recycled or discharged after treatment with process wastewater. Thus, wastewater generation from pressure testing activities is not expected to affect groundwater quality. Further, the volume of wastewater that will be generated from pressure testing is expected to be minimal and within the capacity of each facility's wastewater treatment and collection systems.

Further, because the total amount of disturbed area for all of the facilities combined is estimated to be 31,790 square feet (0.7 acre) for Option 1 and 24,640 square feet (0.6 acre) for Option 2 with the peak amount of area to be disturbed at Facilities C, D and G at 6,000 square feet each, the proposed construction activities will disturb less than 0.13 acre under Option 1 and 0.16 acre under Option 2 at each of the remaining facilities. This means that a NPDES *General Permit for Storm Water Discharges Associated with Construction Activity*, also referred to as a Storm Water Construction Permit, would not be required for any of the affected facilities. Because Alternative C is expected to disturb substantially less than one acre total, on-site collection of storm water in each facility's storm water collection system is expected to be about the same as the amount currently collected. Therefore, no significant impacts are expected from storm water during construction.

Construction Conclusion

In summary, less than significant adverse water demand and wastewater impacts are expected during construction of both Options 1 and 2 of Alternative C.

[104] Draft Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001 to assist water suppliers, cities, and counties in integrating water and land use planning, California Department of Water Resources, September 2002, p.3

Operational Water Demand

Tables 5-45 and 5-46 quantify the potential increases in operational water use and wastewater generation as a result of installing new or upgrading existing SOx controls to comply with Options 1 and 2 of Alternative C, respectively. If all of the proposed control technologies are installed or upgraded, the potential increase in water use is estimated to be approximately 0.5 MMgal/day under Option 1 and 0.3 MMgal/day under Option 2. Further, if all of the proposed control technologies are installed or upgraded, the potential increase in wastewater generated would be approximately 0.2 MMgal/day under Option1 and 0.09 MMgal/day under Option 2. Hydrology and water quality impacts from Alternative C are discussed in detail in the following sections.

Table 5-45
Alternative C - Option 1: Potential Increases in Operational Water Demand and Wastewater Generation

Main Equipment	**Proposed Control Technology**	**No. of Facilities to Install or Upgrade Controls**	**No. of Units Expected to Be Installed or Upgraded**	**Potential Increase in Operational Water Demand** (gal/day)	**Potential Increase in Wastewater Generation** (gal/day)
FCCU	WGS	4	4	241,096	112,329
SRU/TGU	WGS	0	0	0	0
Refinery Boilers/Heaters	FGT (Merox Treatment or Convert Amine Absorbers to Sulfinol)	5	5	52,055	46,575
Coke Calciner	WGS	1	1	40,896	16,992
Glass Melting Furnaces	WGS	1	2	58,464	12,877
Sulfuric Acid	WGS	1	1	19,589	10,800
Sulfuric Acid	Upgrade Existing Cansolv Unit	1	1	6,336	0[1]
Cement Kilns	DGS	1	2	110,685	0[2]
		Total	**16**	**529,121**	**199,573**

[1] More water (as steam) is required to complete the upgrade. However, the steam is evaporated during the process so there is no wastewater stream generated.

[2] All of the injected water is evaporated during the process so there is no wastewater stream generated.

Table 5-46
Alternative C - Option 2: Potential Increases in Operational Water Demand and Wastewater Generation

Main Equipment	Proposed Control Technology	No. of Facilities to Install or Upgrade Controls	No. of Units Expected to Be Installed or Upgraded	Potential Increase in Operational Water Demand (gal/day)	Potential Increase in Wastewater Generation (gal/day)
FCCU	SOx Reducing Catalyst	5	5	0	0
SRU/TGU	WGS	0	0	0	0
Refinery Boilers/Heaters	FGT (Merox Treatment or Convert Amine Absorbers to Sulfinol)	5	5	52,055	46,575
Coke Calciner	WGS	1	1	40,896	16,992
Glass Melting Furnaces	WGS	1	2	58,464	12,877
Sulfuric Acid	WGS	1	1	19,589	10,800
Sulfuric Acid	Upgrade Existing Cansolv Unit	1	1	6,336	0[1]
Cement Kilns	DGS	1	2	110,685	0[2]
		Total	**17**	**288,025**	**87,244**

[1] More water (as steam) is required to complete the upgrade. However, the steam is evaporated during the process so there is no wastewater stream generated.

[2] All of the injected water is evaporated during the process so there is no wastewater stream generated.

Water Demand

As summarized in Tables 5-47 and 5-48, each affected facility provided their water demand baseline and these water usage rates were compared to each facility's estimated potential increase in water demand that may result from implementing Option 1 or Option 2 of Alternative C. For both Option 1 and Option 2 under Alternative C, the peak percentage increase from baseline levels was approximately 45 percent (Facility I) but most of the affected facilities have a potential increase in water demand from less than one to four percent above each facility's baseline. The overall increase in water demand for Option 1 is 0.92 percent above the total water use baseline for all of the affected facilities combined. Similarly, the overall increase in water demand for Option 2 is 0.50 percent above the total water use baseline for all of the affected facilities combined.

Table 5-47
Alternative C - Option 1: Potential Increases in Operational Water Demand per Facility

Facility ID	Proposed Control Technology	Potential Increase in Water Use (MMgal/day)	Current Facility Water Use (MMgal/day)	Percentage Increase Above Baseline
A	1 WGS for FCCU (new) 1 FGT by Sulfinol Conversion (modified)	0.071 + 0.008 **0.079**	10.75	0.73%
B	1 WGS for FCCU (new)	**0.077**	12.50	0.62%
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	0.003 + 0.006 **0.009**	7.85	0.11%
D	1 FGT by Merox Treatment Upgrade (modified)	**0.014**	10.32	0.14%
E	1 WGS for FCCU (new) 1 FGT by Sulfinol Conversion (modified)	0.049 + 0.014 **0.063**	5.76	1.09%
F	1 WGS for FCCU (new) 1 FGT by Amine Additive (modified)	0.044 + 0 **0.044**	2.50	1.76%
G	1 FGT by Merox Treatment Upgrade (modified)	**0.014**	2.88	0.49%
H	1 WGS for calciner (new)	**0.041**	1.08	3.79%
I	2 WGSs for glass melting furnaces (new)	**0.058**	0.13	44.62%
J	1 WGS for sulfuric acid unit (new)	**0.020**	0.73	2.74%
K	2 DGSs for cement kilns (new)	**0.111**	3.29	3.37%
	TOTAL	**0.529**	**57.79**	**0.92%**

Table 5-48
Alternative C - Option 2: Potential Increases in Operational Water Demand per Facility

Facility ID	Option 2: Proposed Control Technology	Potential Increase in Water Use (MMgal/day)	Current Facility Water Use (MMgal/day)	Percentage Increase Above Baseline
A	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Sulfinol Conversion (modified)	0 + 0.008 **0.008**	10.75	0.07%
B	1 SOx Reducing Additive Hopper for FCCU (modified)	**0**	12.50	0%
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	0.003+ 0.006 **0.009**	7.85	0.11%
D	1 SOx Reducing Additive Hopper for FCCU (new) 1 FGT by Merox Treatment Upgrade (modified)	0 + 0.014 **0.014**	10.32	0.14%
E	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Sulfinol Conversion (modified)	0 + 0.014 **0.014**	5.76	0.24%
F	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Amine Additive (modified)	0 + 0 **0**	2.50	0%
G	1 FGT by Merox Treatment Upgrade (modified)	**0.014**	2.88	0.49%
H	1 WGS for calciner (new)	**0.041**	1.08	3.79%
I	2 WGSs for glass melting furnaces (new)	**0.058**	0.13	44.62%
J	1 WGS for sulfuric acid unit (new)	**0.020**	0.73	2.74%
K	2 DGSs for cement kilns (new)	**0.111**	3.29	3.37%
	TOTAL	**0.288**	**57.79**	**0.50%**

To have a better understanding about the availability of water and the source (i.e., potable versus non-potable recycled or industrial-use groundwater), SCAQMD staff contacted each supplier of water used for industrial applications for each of the affected facilities[105], and all of the suppliers indicated that they would be able to accommodate the additional operational water demand if Alternative C goes forward. In addition, each water supplier specified whether the additional water to be supplied will be recycled water or potable water. In the case of recycled water, the water supplier indicated whether the recycled water is currently available or whether it would be available in the future pursuant to the aforementioned HRRWPP project.

As part of making the determination if water supplies will be sufficient for Alternative C, the availability of recycled or industrial-use groundwater is an important factor. Seven facilities are expected to have either increased access (e.g., Facilities A, B and D) or new future access (e.g., Facilities C, E, F and J) to recycled water upon completion of the HRRWPP[106]. The HRRWPP is a project shared by the LADWP and WBMWD to conserve potable water and instead produce and convey recycled water to multiple industrial and irrigation customers in the Los Angeles

[105] Facility K is the only facility that does not purchase water for its industrial operations; instead, the industrial-use water (non-potable) is supplied by the facility-owned wells.

[106] The future availability of recycled water applies to certain facilities that do not currently have access to obtain recycled water for their processes but that will have access after completion of the LADWP's HRRWPP project (certified on October 20, 2009) by Summer 2013 (http://www.ladwp.com/ladwp/cms/ladwp011486.jsp). In addition, future access to recycled water is contingent upon each facility within the HRRWPP project area constructing a new water conveyance at their site in order to tie-into the recycled water pipeline.

Harbor area. Construction of the HRRWPP began on October 26, 2009 and is estimated to be completed by Summer 2013. However, even if the pipeline and meter is installed, these facilities will need to make modifications to handle the potential increase in recycled water or install the water conveyance infrastructure piping to tie-in to the recycled water pipeline.

Tables 5-49 and 5-50 identify the amount and availability status of using non-potable[107] and potable water to supply the potential increased water use as a result of Option 1 and Option 2 of Alternative C, respectively. The amount of non-potable water that can currently be used under Option 1 of Alternative C plus the future availability of non-potable water by Summer 2013 is 429,761 gallons per day. Of the total proposed increase of 529,121 gallons per day under Alternative C - Option 1, 81 percent may be supplied by recycled or non-potable water. The remaining amount of increased potential water demand under Alternative C - Option 1 is estimated to be 19 percent or 99,360 gallons per day and is expected to be satisfied by potable water.

Similarly, the amount of non-potable water that can currently be used under Alternative C - Option 2 plus the future availability of non-potable water by Summer 2013 is 188,665 gallons per day. Of the total proposed increase of 288,025 gallons per day under Alternative C - Option 2, 65 percent may be supplied by recycled or non-potable water. The remaining amount of increased potential water demand under Alternative C - Option 2 is estimated to be 35 percent or 99,360 gallons per day and is expected to be satisfied by potable water.

Table 5-49
Alternative C - Option 1: Potential Increases in Non-Potable and Potable Water Use

Main Equipment	Proposed Control Technology	Potentially Available Non-Potable Water Use		Potentially Available Potable Water Use (gal/day)	Total Potential Increase in Water Use (gal/day)
		Current [1] (gal/day)	Future[2] (gal/day)		
FCCU	WGS	147,945	93,151	0	241,096
SRU/TGU	WGS	0	0	0	0
Refinery Boilers/Heaters	FGT (Merox Treatment or Convert Amine Absorbers to Sulfinol)	49,315	2,740	0	52,055
Coke Calciner	WGS	0	0	40,896	40,896
Glass Melting Furnaces	WGS	0	0	58,464	58,464
Sulfuric Acid Mfg.	WGS	19,589	0	0	19,589
Sulfuric Acid Mfg.	Upgrade Existing Cansolv Unit	0	6,336	0	6,336
Cement Kilns	DGS	110,685	0	0	110,685
	Total	**327,534**	**102,227**	**99,360**	**529,121**

[1] The current availability of non-potable water values assumes that the facilities which currently obtain recycled or industrial-use groundwater for their processes will continue to do so if there is a need to increase water use as part of the proposed project.

[2] The future availability of non-potable water values applies to certain facilities that do not currently have access to obtain recycled or industrial-use groundwater for their processes but that will have access after completion of the LADWP's HRRWPP project by Summer 2013.

[107] Non-potable water can be either recycled water or industrial-use well water.

Table 5-50
Alternative C - Option 2: Potential Increases in Non-Potable and Potable Water Use

Main Equipment	Proposed Control Technology	Potentially Available Non-Potable Water Use		Potentially Available Potable Water Use (gal/day)	Total Potential Increase in Water Use (gal/day)
		Current [1] (gal/day)	Future[2] (gal/day)		
FCCU	SOx Reducing Additive	0	0	0	0
SRU/TGU	WGS	0	0	0	0
Refinery Boilers/Heaters	FGT (Merox Treatment or Convert Amine Absorbers to Sulfinol)	49,315	2,740	0	52,055
Coke Calciner	WGS	0	0	40,896	40,896
Glass Melting Furnaces	WGS	0	0	58,464	58,464
Sulfuric Acid	WGS	19,589	0	0	19,589
Sulfuric Acid	Upgrade Existing Cansolv Unit	0	6,336	0	6,336
Cement Kilns	DGS	110,685	0	0	110,685
	Total	**179,589**	**9,076**	**99,360**	**288,025**

[1] The current availability of non-potable water values assumes that the facilities which currently obtain recycled or industrial-use groundwater for their processes will continue to do so if there is a need to increase water use as part of the proposed project.
[2] The future availability of non-potable water values applies to certain facilities that do not currently have access to obtain recycled or industrial-use groundwater for their processes but that will have access after completion of the LADWP's HRRWPP project by Summer 2013.

Table 5-51 summarizes the projected increases of potable water, recycled water (both current and future availability) and industrial-use groundwater that is estimated to implement both Option 1 and Option 2 of Alternative C at the affected facilities.

Table 5-51
Alternative C: Distribution of Projected Water Demand by Water Type

	Option 1		Option 2	
Type of Water	**Projected Increase in Water Use** (gal/day)	**Percent of Total Water Demand**	**Projected Increase in Water Use** (gal/day)	**Percent of Total Water Demand**
Potable	99,360	19%	99,360	35%
Recycled (non-potable)	305,377	58%	64,281	22%
Industrial-Use Groundwater (non-potable)	124,384	23%	124,384	43%
TOTAL	**529,121**	**100%**	**288,025**	**100%**

Option 1 of Alternative C has been shown to potentially increase total water demand by approximately 529,121 gallons per day and 19 percent or 99,360 gallons per day of the total water demand would need to be supplied by potable water. Similarly, Option 2 of Alternative C has been shown to potentially increase total water demand by approximately 288,025 gallons per day and 35 percent or 99,360 gallons per day of the total water demand would need to be supplied by potable water.

Thus, the amount of water that would qualify as a water demand project can be adjusted to separate the potable water from the current and future uses of recycled water and industrial-use groundwater needed for Alternative C. To establish whether Alternative C qualifies as a water demand project, the potential increase in water use can be interpreted to mean the potential increase of potable water only (in this case, 99,360 gallons per day for both Option 1 and Option 2). Since the projected increase of potable water would be less than the estimated range of water that would be needed for a 500 DU project (e.g., 133,911 to 223,186 gallons per day), neither Option 1 nor Option 2 of Alternative C would qualify as a water demand project.

However, the projections for new or increased future access to recycled water for Alternative C are 102,227 gallons per day under Option 1 and 9,076 gallons per day under Option 2 and the availability of future access to recycled water is not guaranteed. In the event that the future access to recycled water does not occur as planned by Summer 2013 in accordance with the HRRWPP, the potential increase in potable water needed for Alternative C would need to be adjusted to include the amount of future recycled water. As such, the amount of potable water demand for Alternative C could increase to 201,587 gallons per day under Option 1 and 108,436 gallons per day under Option 2. In the event that future access to recycled water does not occur as planned, the distribution between potable and recycled water demand shifts as summarized in Table 5-52.

Table 5-52
Alternative C: Adjusted Distribution of Projected Water Demand by Water Type if Future Supplies of Recycled Water Are Not Available

	Option 1		**Option 2**	
Type of Water	**Adjusted Projected Increase in Water Use** (gal/day)	**Percent of Total Water Demand**	**Adjusted Projected Increase in Water Use** (gal/day)	**Percent of Total Water Demand**
Potable	201,587	38%	108,436	38%
Recycled (non-potable)	203,150	38%	55,205	19%
Industrial-Use Groundwater (non-potable)	124,384	24%	124,384	43%
TOTAL	**529,121**	**100%**	**288,025**	**100%**

The adjusted estimate for increased potable water demand for Alternative C under Option 1 at 201,587 gallons per day is within the range between 133,911 gallons per day and 223,186 gallons per day based on the 500 DU water demand calculations. By applying the 500 DU water demand criteria to use as a significance threshold for potable water demand, Option 1 of the Alternative C may qualify as a water demand project and thus, may result in significant adverse water demand impacts.

However, for Alternative C - Option 2, the adjusted estimate for increased potable water demand would be 108,436 gallons per day, which is below the minimum amount of potable water needed to qualify for as a water demand project per the 500 DU calculations (e.g., 133,911 gallons per day). Thus, for this reason, Option 2 of Alternative C is expected to contribute to less than significant adverse water demand impacts.

Lastly, to investigate whether the existing water supply has the capacity to meet the increased water demand of the proposed project, SCAQMD staff has been coordinating with various water suppliers (e.g., LADWP, MWD, WBMWD, Long Beach Water Department, City of Vernon etc.) to the affected facilities. Water suppliers for all of the facilities that either currently use recycled water or are expected to have future use of recycled water have indicated that there will be sufficient supply of recycled water for the proposed project. In addition, the water suppliers for Facilities G, H and I have indicated that they can supply the estimated additional potable water needed for operating WGSs. Lastly, Facility K operates its own groundwater wells to pump non-potable industrial-use groundwater for their day-to-day operations. Because Facility K's groundwater pumping permit does not limit the amount of water that can be pumped from the wells, any additional water needed to implement the proposed project is expected to be available.

Water Quality

As summarized in Tables 5-53 and 5-54, each affected facility provided their wastewater discharge limits and these limits were compared to each facility's estimated potential increase in wastewater that may result from implementing Option 1 and Option 2 of Alternative C, respectively. The peak percentage increase from baseline levels for Alternative C was approximately 12 percent (Facility F) under Option 1 and nine percent (Facility H) under Option 2. An increase of 25 percent would trigger a permit revision and would be considered a significant adverse wastewater impact. Since all of the affected facilities have been shown under both options of Alternative C to have a potential wastewater increase less than 25 percent, no modifications to any existing wastewater discharge permits are anticipated as a result of implementing Alternative C. Thus, the operational impacts of Alternative C on each affected facility's wastewater discharge and the Industrial Wastewater Discharge Permit are expected to be less than significant.

Changes to each affected facility's storm water collection systems are expected to be less than significant since most of the changes will occur within existing units (i.e., installing control equipment on existing equipment or upgrading existing control equipment). Further, typically most of the areas likely to be affected by Alternative C are currently paved and are expected to remain paved. Any new units constructed will be curbed and the existing units will remain curbed to contain any runoff. Any runoff occurring will continue to be handled by each affected facility's wastewater system and sent to an on-site wastewater treatment system prior to discharge. The surface water runoff is expected to be handled with each facility's current wastewater collection or treatment system. Storm water runoff will be collected and discharged in accordance with each facility's discharge permit terms and conditions.

Alternative C is expected to involve construction activities located within the confines of existing facilities and does not include the construction of any new housing so it would not place new housing within a 100-year flood hazard area. It is likely that most affected facilities are not located within a 100-year flood hazard area. Any affected facilities that may be located in a 100-year flood area could impede or redirect 100-year flood flows, but this would be considered part of the existing setting and not an effect of Alternative C. Further, Alternative C would not require locating new facilities within a flood zone, so it is not expected to expose people or property to any known water-related flood hazards.

Table 5-53
Alternative C - Option 1: Potential Increases in Wastewater Generation per Facility

Facility ID	Proposed Control Technology	Potential Increase in Wastewater Generation (MMgal/day)	Wastewater Permit Discharge Limit[1] (MMgal/day)	Percentage Increase Above Discharge Limit	Greater than 25% Increase? (Exceeds CEQA Significance Threshold?)
A	1 WGS for FCCU (new) 1 FGT by Sulfinol Conversion (modified)	0.033 + 0.005 **0.038**	7.5	0.51%	NO
B	1 WGS for FCCU (new)	**0.036**	8.8	0.40%	NO
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	0.003+ 0 **0.003**	7.6	0.04%	NO
D	1 FGT by Merox Treatment Upgrade (modified)	**0.014**	15	0.09%	NO
E	1 WGS for FCCU (new) 1 FGT by Sulfinol Conversion (modified)	0.022 + 0.011 **0.033**	1.1	2.99%	NO
F	1 WGS for FCCU (new) 1 FGT by Amine Additive (modified)	0.022 + 0 **0.022**	0.18	12.18%	NO
G	1 FGT by Merox Treatment Upgrade (modified)	**0.014**	2.88	0.49%	NO
H	1 WGS for calciner (new)	**0.017**	0.18	9.44%	NO
I	2 WGSs for glass melting furnaces (new)	**0.013**	0.36	3.58%	NO
J	1 WGS for sulfuric acid unit (new)	**0.011**	0.21	5.14%	NO
K	2 DGSs for cement kilns (new)	**0**	No Limit	0%	NO
		0.200	**43.81**	**0.46%**	

[1] Wastewater limits were obtained from each facility's wastewater permit(s). For any facility that has multiple discharge limits (i.e. dry weather, wet weather, etc.), the most conservative limit will be used for the purposes of this comparison.

Table 5-54
Alternative C - Option 2: Potential Increases in Wastewater Generation per Facility

Facility ID	Proposed Control Technology	Potential Increase in Wastewater Generation (MMgal/day)	Wastewater Permit Discharge Limit[1] (MMgal/day)	Percentage Increase Above Discharge Limit	Greater than 25% Increase? (Exceeds CEQA Significance Threshold?)
A	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Sulfinol Conversion (modified)	0 + 0.005 **0.005**	7.5	0.07%	NO
B	1 SOx Reducing Additive Hopper for FCCU (modified)	**0**	8.8	0.32%	NO
C	1 FGT by Sulfinol Conversion (modified) 1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	0.003+ 0 **0.003**	7.6	0.04%	NO
D	1 SOx Reducing Additive Hopper for FCCU (new) 1 FGT by Merox Treatment Upgrade (modified)	0+ 0.014 **0.014**	15	0.09%	NO
E	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Sulfinol Conversion (modified)	0 + 0.011 **0.011**	1.1	1.00%	NO
F	1 SOx Reducing Additive Hopper for FCCU (modified) 1 FGT by Amine Additive (modified)	0+ 0 **0**	0.18	0%	NO
G	1 FGT by Merox Treatment Upgrade (modified)	**0.014**	2.88	0.49%	NO
H	1 WGS for calciner (new)	**0.017**	0.18	9.44%	NO
I	2 WGSs for glass melting furnaces (new)	**0.013**	0.36	3.58%	NO
J	1 WGS for sulfuric acid unit (new)	**0.011**	0.21	5.14%	NO
K	2 DGSs for cement kilns (new)	**0**	No Limit	0%	NO
		0.087	**43.81**	**0.20%**	

[1] Wastewater limits were obtained from each facility's wastewater permit(s). For any facility that has multiple discharge limits (i.e. dry weather, wet weather, etc.), the most conservative limit will be used for the purposes of this comparison.

Alternative C does not require construction of new facilities in areas that could be affected by tsunamis. Of the facilities affected by Alternative C, some are located near the Ports of Long Beach and Los Angeles. However, the port areas are protected from tsunamis by the construction of breakwaters. Construction of breakwaters combined with the distance of each facility from the water is expected to minimize the potential impacts of a tsunami or seiche so that no significant impacts are expected. Alternative C does not require construction of facilities in areas that are susceptible to mudflows (e.g., hillside or slope areas). Existing affected facilities that are currently located on hillsides or slope areas may be susceptible to mudflow, but this would be considered part of the existing setting. As a result, Alternative C is not expected to generate significant adverse mudflow impacts.

Lastly, Alternative C is not expected to significantly adversely affect the quantity or quality of groundwater in the area of each affected facility. No significant adverse impacts to groundwater quality are expected from Alternative C because: 1) wastewater will continue to be collected and treated in each of the affected facility's wastewater treatment systems or in compliance with the current wastewater discharge permits, as applicable; 2) no underground storage tanks are expected to be constructed as part of Alternative C; 3) containment berms will be required or may already exist around the new or modified units to minimize the potential for spills to contaminate soil and groundwater; and, 4) any new storage tanks that may be proposed will be required to comply with BACT and other safety requirements such as double bottom and monitoring requirements.

Water Demand and Water Quality Conclusion

The water demand impacts that may result from Alternative C have been shown to require approximately 529,121 gallons per day of total water under Option 1 and 288,025 gallons per day of total water under Option 2. Under Option 1 of Alternative C, approximately 58 percent of the total water demand is expected to be satisfied with current and future supplies of recycled water, 23 percent is expected to be supplied by industrial-use groundwater, and the remaining 19 percent is expected to be supplied by potable water. However, if future access to recycled water does not occur, then approximately 38 percent of the total water demand is expected to be satisfied with current supplies of recycled water, 24 percent is expected to be supplied by industrial-use groundwater, and the remaining 33 percent is expected to be supplied by potable water under Alternative C - Option 1.

Similarly under Alternative C - Option 2, approximately 22 percent of the total water demand is expected to be satisfied with current and future supplies of recycled water, 43 percent is expected to be supplied by industrial-use groundwater, and the remaining 35 percent is expected to be supplied by potable water. Again, if future access to recycled water does not occur, then approximately 19 percent of the total water demand is expected to be satisfied with current supplies of recycled water, 43 percent is expected to be supplied by industrial-use groundwater, and the remaining 38 percent is expected to be supplied by potable water under Alternative C - Option 2.

Based on the preceding analysis, neither Option 1 nor Option 2 of Alternative C is expected to exceed SCAQMD's significance threshold of five million gallons of total water per day. If future supplies of recycled water become available, neither Option 1 nor Option 2 of the proposed project is expected to require a substantial amount of potable water as calculated pursuant to the water demand project criteria. However, in the event that future supplies of recycled water do not become available, only the potable water demand under Option 1 may require a substantial amount of potable water as calculated pursuant to the water demand project criteria. Further, the water suppliers have indicated that there will be an adequate supply of water (current and future supplies of recycled water plus potable water) for Alternative C under both Option 1 and Option 2. Therefore, the water demand impacts are concluded to be significant for Alternative C - Option 1 and less than significant for Alternative C - Option 2.

Lastly, based on the aforementioned considerations, the potential groundwater, wastewater discharge and storm water discharge impacts that may result from both Option 1 and Option 2 of Alternative C are expected to be less than significant.

When compared to the proposed project, the water demand impacts from both Option 1 and Option 2 of Alternative C are similar, but less than what was analyzed for the proposed project. Thus, any mitigation measures applied to the proposed project will also be applied to Alternative C. Further since the proposed project was concluded to have cumulatively considerable water demand impacts, while less than the proposed project, Alternative C is also considered to have cumulatively considerable water demand impacts. Therefore, Alternative C is expected to generate significant adverse cumulative water demand impacts.

TRAFFIC AND TRANSPORTATION

Alternative A - No Project

The project-specific traffic and transportation impacts associated with the installation of multiple SOx control devices (e.g., WGSs and DGSs) or modifying existing controls would be eliminated under Alternative A, the no project alternative, since no construction activities would occur and no new equipment would be installed at any of the affected facilities that would need additional trips associated with construction workers, supply deliveries, and waste removal/hauling. Under Alternative A, the traffic and transportation impacts would remain unchanged from the existing setting and therefore, would be less than significant.

Alternative B – AQMP

Because Alternative B applies the same SOx emission reduction targets as the proposed project but to fewer equipment/source categories (i.e., sulfuric acid manufacturing, coke calciner, and glass melting furnace), less add-on control equipment will be installed (i.e., four WGSs) such that fewer trips would be associated with construction and operation activities. The following analysis will demonstrate that the projected increases in trips associated with Alternative B will be less than significant because the amount of peak daily trips needed to install and operate the new SOx controls was well below the applicable trips significance criteria. While fewer WGSs would be installed with fewer trips under Alternative B, adverse traffic and transportation impacts are expected to occur but they will be less than the proposed project.

Under Alternative B, construction activities resulting from implementing the proposed project may generate a slight, albeit temporary, increase in traffic in the areas of each affected facility associated with construction workers, construction equipment, and the delivery of construction materials. However, Alternative B is not expected to cause a significant increase in traffic relative to the existing traffic load and capacity of the street systems surrounding the affected facilities. Also, Alternative B is not expected to exceed, either individually or cumulatively, the current LOS of the areas surrounding the affected facilities during construction as explained in the following paragraph.

As previously noted in the section that discusses "Air Quality," the maximum construction workforce during any six-month construction period is expected to be approximately 175 workers per facility. For a worst-case analysis under Alternative B, all four facilities may need a total of up to 700 workers, if they were assumed to undergo overlapping construction activities. Even if it is assumed that all 700 construction workers drive alone (which represents an average vehicle ridership equal to 1.0) not all of the workers would be driving to the same facility. It is unlikely that these vehicle trips would substantially affect the LOS at any intersection because the trips will be somewhat dispersed over a large area and the workers would not all arrive at the same site at the exactly the same time. Therefore, the work force at each affected facility is not

expected to significantly increase as a result of Alternative B. Further, the conclusion of no significant transportation impacts based on the workforce is consistent with the transportation analyses in the Environmental Impact Reports prepared for six refineries in accordance with the CARB Phase III Reformulated Gasoline requirements. Specifically, the number of construction workers for each of the six projects ranged from approximately 200 to 700 daily construction worker trips and each of these projects was concluded to have no significant transportation impacts.

The operation-related traffic will be primarily for deliveries of NaOH and for hauling away of solid waste to be recycled or disposed of in a Class III landfill. Table 5-55 contains a summary of the delivery and haul away distances and frequencies for these materials. Since NaOH is available from local suppliers within the District, a round-trip delivery distance of 50 miles was assumed. This distance is expected to be conservative as most suppliers may be located closer to the affected facilities. For solid waste disposal, facility operators will have three options: 1) disposal of solid waste in a landfill located within the District or recycling of solid waste at a cement plant located within the District (i.e., 162 round-trip miles); 2) recycling of solid waste at a cement plant located outside of the District but within California (i.e., 264 round-trip miles); and, 3) recycling of solid waste at a cement plant located outside of the District and outside of California (i.e., 400 round-trip miles). For a worst-case analysis of solid waste disposal trips, the maximum mileage of 400 round-trip miles was assumed.

Table 5-55
Alternative B: Delivery and Hauling Away Truck Types and Driving Distances

Substance	Travels as a:	Truck Type	Delivery Area	Peak Round-trip Mileage per Delivery	Delivery Status
NaOH (50% by weight)	Pre-mixed liquid	6,000 gallon tanker truck	Within SCAQMD	50	Increase
Solid Waste	Varies	25-ton Heavy-duty Truck	Within or Outside SCAQMD	1. 162 for in-District recycling or disposal; 2. 264 for out-of-District but in-state recycling; or, 3. 400 for out of state recycling (worst-case)	Increase

A summary of the estimated truck trips of these substances per facility is provided in Table 5-56.

Table 5-56
Alternative B: Potential Increases in Truck Trips per Facility

Facility ID	Proposed Control Technology	Substances Delivered (D) or Hauled Away (H)	Peak Daily Truck Trips (round trips/day)	Peak Daily Round Trip Driving Distance (miles/day)	Annual Truck Trips (round trips/year)	Annual Round Trip Driving Distance (miles/day)
C	1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	None	**0**	**0**	**0**	**0**
		Subtotal: Facility C	**0**	**0**	**0**	**0**
H	1 WGS for calciner (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 400 **450**	32 + 7 **39**	1,600 + 2,800 **4,400**
		Subtotal: Facility H	**2**	**450**	**39**	**4,400**
I	2 WGSs for glass melting furnaces (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 133 **183**	8 + 1 **9**	400 + 133 **533**
		Subtotal: Facility I	**2**	**183**	**9**	**533**
J	1 WGS for sulfuric acid unit (new)	NaOH (D)	**1**	**50**	**13**	**650**
		Subtotal: Facility J	**1**	**50**	**13**	**650**
		ALTERNATIVE B TOTAL	**5**	**683**	**61**	**5,583**

The amount of peak daily truck trips associated with Alternative B is five. Since Alternative B is not expected to have an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round trips per day, less than significant transportation impacts are expected from implementation of Alternative B. Further, taking into consideration the "worst-case" delivery and hauling transportation schedule, delivery and hauling trips associated with Alternative B are not expected to exceed, either individually or cumulatively, the current LOS of the areas surrounding the affected facilities during operations. Thus, the projected increase of traffic due to construction and operational activities is expected to be minimal and thus, the traffic impacts are expected to be less than significant for Alternative B.

Though some of the facilities that will be affected by the proposed project are located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, actions that would be taken to comply with Alternative B, such as installing new air pollution control equipment, are not expected to significantly influence or alter air traffic patterns. Further, the size and type of air pollution control devices that would be installed would not be expected to affect navigable air space because they would not be substantially taller than other equipment at affected facilities. Thus, Alternative B would not result in a change in air traffic patterns, an increase in traffic levels or a change in location that results in substantial safety risks.

The siting of each existing affected facility is consistent with surrounding land uses and traffic/circulation in the surrounding areas of the affected facilities. Thus, Alternative B is not

expected to substantially increase traffic hazards or create incompatible uses at or adjacent to the affected facilities. Aside from the temporary effects due to a slight increase in truck traffic when facilities undergo construction activities, Alternative B is not expected to alter the existing long-term circulation patterns. Further, Alternative B is not expected to require a modification to circulation, thus, no long-term impacts on the traffic circulation system are expected to occur. Alternative B does not involve construction of any roadways, so there would be no increase in roadway design feature that could increase traffic hazards. Emergency access at each affected facility is not expected to be impacted by Alternative B. Further, each affected facility is expected to continue to maintain its existing emergency access gates.

Each affected facility will be expected to provide parking for the construction workers, as applicable, either on or within close proximity to each facility. No additional parking will be needed after completion of the construction phase because the work force at each facility is not expected to significantly increase as a result of Alternative B.

Lastly, construction and operation activities resulting from Alternative B are not expected to conflict with policies supporting alternative transportation since the proposed project does not involve or affect alternative transportation modes (e.g., bicycles or buses) because the construction and operation activities related to Alternative B will occur solely in existing industrial, commercial, and institutional areas. Based upon these considerations, significant transportation/traffic impacts are not expected from the implementation of Alternative B.

Alternative C – Intermediate SOx Reductions

Alternative C proposes the same SOx emission reduction targets as the proposed project for the following equipment/source categories: FCCUs, sulfuric acid manufacturing, coke calciner, glass melting furnace, and cement kilns. Like the proposed project, there are two SOx control approaches that can be applied to FCCUs under Alternative C. For this reason, Alternative C has been bifurcated into two options: Option 1 assumes that WGSs will be the control approach for FCCUs; and, Option 2 assumes that SOx reducing additives will be the control approach for FCCUs. The remaining source categories and their respective control approaches applicable to Alternative C will be the same for both Option 1 and Option 2. Less add-on control equipment would be expected to be installed (and less existing equipment modified) under Alternative C (i.e., eight WGSs plus two DGSs under Option 1 and four WGSs plus two DGSs under Option 2) in order to achieve the proposed SOx emission limits as compared to the proposed project (i.e., 11 WGSs plus two DGSs for Option 1 and seven WGSs plus to DGSs under Option 2).

The following analysis will demonstrate that the projected increases in trips associated with Alternative C will be less than significant because the amount of peak daily trips needed to install and operate the new SOx controls was well below the applicable trips significance criteria. While less equipment would be installed or modified with fewer trips under Alternative C, adverse traffic and transportation impacts are expected to occur but they will be less than the proposed project.

Construction activities resulting from implementing both options of Alternative C may generate a slight, albeit temporary, increase in traffic in the areas of each affected facility associated with construction workers, construction equipment, and the delivery of construction materials. However, neither option of Alternative C is expected to cause a significant increase in traffic relative to the existing traffic load and capacity of the street systems surrounding the affected facilities. Also, Alternative C is not expected to exceed, either individually or cumulatively, the

current LOS of the areas surrounding the affected facilities during construction as explained in the following paragraph.

As previously noted in the section that discusses "Air Quality," the maximum construction workforce during any six-month construction period is expected to be approximately 175 workers per facility. For a worst-case analysis, four facilities may need a total of up to 700 workers were assumed to undergo overlapping construction activities. Even if it is assumed that all 700 construction workers drive alone (which represents an average vehicle ridership equal to 1.0) not all of the workers would be driving to the same facility. It is unlikely that these vehicle trips would substantially affect the LOS at any intersection because the trips will be somewhat dispersed over a large area and the workers would not all arrive at the same site at exactly the same time. Therefore, the work force at each affected facility is not expected to significantly increase as a result of Alternative C. Further, the conclusion of no significant transportation impacts based on the workforce is consistent with the transportation analyses in the Environmental Impact Reports prepared for six refineries in accordance with the CARB Phase III Reformulated Gasoline requirements. Specifically, the number of construction workers for each of the six projects ranged from approximately 200 to 700 daily construction worker trips and each of these projects was concluded to have no significant transportation impacts.

The operation-related traffic will be primarily for deliveries of NaOH, SOx reducing additives, limestone, TG-10 blend, Sulfinol, Merox catalyst, and elemental sulfur and for hauling away of solid waste to be recycled or disposed of in a Class III landfill. Table 5-57 contains a summary of the delivery and haul away distances and frequencies for each substance that is associated with Alternative C. Of the substances listed for deliveries, all but four are available from local suppliers within the District. For the local suppliers, a round-trip delivery distance of 50 miles was assumed. This distance is expected to be conservative as most suppliers are located closer to the affected facilities. However, suppliers for SOx Reducing Additives, Merox Catalyst, TG-10 and Sulfinol are all located out of state. Thus, deliveries of these materials are trucked into the District from out of state and the delivery mileage assumptions reflect the round-trip distance from the state line, either at the Arizona/California border (e.g., 400 miles) or the Nevada/California border (e.g., 500 miles). For solid waste disposal, facility operators will have three options: 1) disposal of solid waste in a landfill located within the District or recycling of solid waste at a cement plant located within the District (e.g., 162 round-trip miles); 2) recycling of solid waste at a cement plant located outside of the District but within California (e.g., 264 round-trip miles); and, 3) recycling of solid waste at a cement plant located outside of the District and outside of California (e.g., 400 round-trip miles). For a worst-case analysis of solid waste disposal trips, the maximum mileage of 400 round-trip miles was assumed.

Table 5-57
Alternative C: Delivery and Hauling Away Truck Types and Driving Distances

Substance	Travels as a:	Truck Type	Delivery Area	Peak Round-trip Mileage per Delivery	Delivery Status
Limestone	Aggregate	25-ton Heavy-duty Truck	Within SCAQMD	1	Increase
Merox Catalyst	Pre-mixed liquid	6,000 gallon tanker truck	Outside SCAQMD	500	Increase
NaOH (50% by weight)	Pre-mixed liquid	6,000 gallon tanker truck	Within SCAQMD	50	Increase
Solid Waste	Varies	25-ton Heavy-duty Truck	Within or Outside SCAQMD	1. 162 for in-District recycling or disposal; 2. 264 for out-of-District but in-state recycling; or, 3. 400 for out of state recycling (worst-case)	Increase
SOx Reducing Additives	Fine powder	25-ton Heavy-duty Truck	Outside SCAQMD	400	Increase
Sulfinol	Pre-mixed liquid	6,000 gallon tanker truck	Outside SCAQMD	500	Increase
Sulfur (Elemental)	Pre-mixed liquid	6,000 gallon tanker truck	Within SCAQMD	50	Increase
TG-10	Pre-mixed liquid	6,000 gallon tanker truck	Outside SCAQMD	400	Increase
MDEA	Pre-mixed liquid	6,000 gallon tanker truck	Within SCAQMD	50	No Change
DEA	Pre-mixed liquid	6,000 gallon tanker truck	Within SCAQMD	50	Decrease
MEA	Pre-mixed liquid	6,000 gallon tanker truck	Within SCAQMD	50	Decrease

A summary of the estimated truck trips of these substances per facility is provided in Tables 5-58 and 5-59 for Options 1 and 2 of Alternative C, respectively. The amount of peak daily truck trips associated with Alternative C is 27 for Option 1 and 24 for Option 2. Since neither option is expected to have an increase in heavy-duty transport truck traffic to and/or from any given facility by more than 350 truck round trips per day as shown in Tables 5-58 and 5-59, less than significant transportation impacts are expected from implementation either option of Alternative C. Further, taking into consideration the "worst-case" delivery and hauling transportation schedule, delivery and hauling trips associated with Alternative C are not expected to exceed, either individually or cumulatively, the current LOS of the areas surrounding the affected facilities during operations. Thus, the projected increase of traffic due to construction and operational activities is expected to be minimal and thus, the traffic impacts are expected to be less than significant for the proposed project.

Table 5-58
Alternative C - Option 1: Potential Increases in Truck Trips per Facility

Facility ID	Option 1: Proposed Control Technology	Substances Delivered (D) or Hauled Away (H)	Peak Daily Truck Trips* (round trips/day)	Peak Daily Round Trip Driving Distance* (miles/day)	Annual Truck Trips* (round trips/year)	Annual Round Trip Driving Distance* (miles/day)
A	1 WGS for FCCU (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 400 **450**	8 + 12 **20**	400 + 4,800 **5,200**
A	1 FGT by Sulfinol Conversion (modified)	1. Sulfinol (D) 2. DEA (D)	1 + -1 **0**	500 + -50 **450**	22 + - 22 **0**	11,000 + -1,100 **9,900**
		Subtotal: Facility A	**2**	**900**	**20**	**15,100**
B	1 WGS for FCCU (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 400 **450**	12 + 16 **28**	600 + 6,400 **7,000**
		Subtotal: Facility B	**2**	**450**	**28**	**7,000**
C	1 FGT by Sulfinol Conversion (modified)	1. Sulfinol (D) 2. MEA (D) 3. Elemental Sulfur (H)	1 + -1 + 1 **1**	500 + - 50 + 50 **500**	47 + - 48 + 1 **0**	23,500 - 2,400 + 50 **21,150**
C	1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	None	**0**	**0**	**0**	**0**
		Subtotal: Facility C	**1**	**500**	**0**	**21,150**
D	1 FGT by Merox Treatment Upgrade (modified)	1. NaOH (D) 2. Merox catalyst (D) 3. Elemental Sulfur (H) 4. Solid Waste (H)	1 + 1+ 1 + 1 + **4**	50 + 500 + 50 + 400 **1,000**	5 + 1+ 1 + 5 + **12**	250 + 500 + 50 + 2,000 **2,800**
		Subtotal: Facility D	**4**	**1,000**	**12**	**2,800**
E	1 WGS for FCCU (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 400 **450**	5 + 7 **12**	250 + 2,800 **3,050**
E	1 FGT by Sulfinol Conversion (modified)	1. Sulfinol (D) 2. DEA (D) 3. Elemental Sulfur (H)	1 + - 1 + 1 **1**	500 + - 50 + 50 **500**	65 + -63 + 3 **5**	32,500 + -3,150 150 **29,500**
		Subtotal: Facility E	**3**	**950**	**17**	**32,550**
F	1 WGS for FCCU (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 400 **450**	20 + 28 **48**	1,000 + 11,200 **12,200**
F	1 FGT by Amine Additive (modified)	1. TG-10 (D) 2. Elemental Sulfur (H)	1 + 1 **2**	400 + 50 **450**	1 + 1 **2**	400 + 50 **450**
		Subtotal: Facility F	**4**	**900**	**50**	**12,650**

Table 5-58 (concluded)
Alternative C - Option 1: Potential Increases in Truck Trips per Facility

Facility ID	Option 1: Proposed Control Technology	Substances Delivered (D) or Hauled Away (H)	Peak Daily Truck Trips* (round trips/day)	Peak Daily Round Trip Driving Distance* (miles/day)	Annual Truck Trips* (round trips/year)	Annual Round Trip Driving Distance* (miles/day)
G	1 FGT by Merox Treatment Upgrade (modified)	1. NaOH (D) 2. Merox catalyst (D) 3. Elemental Sulfur (H) 4. Solid Waste (H)	1 + 1+ 1 + 1 + **4**	50 + 500 + 50 + 400 **1,000**	28 + 1+ 2 + 30 + **61**	1,400 + 500 + 100 + 12,000 **14,000**
		Subtotal: Facility G	**4**	**1,000**	**61**	**14,000**
H	1 WGS for calciner (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 400 **450**	32 + 7 **39**	1,600 + 2,800 **4,400**
		Subtotal: Facility H	**2**	**450**	**39**	**4,400**
I	2 WGSs for glass melting furnaces (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 133 **183**	8 + 1 **9**	400 + 133 **533**
		Subtotal: Facility I	**2**	**183**	**9**	**533**
J	1 WGS for sulfuric acid unit (new)	NaOH (D)	**1**	**50**	**13**	**650**
		Subtotal: Facility J	**1**	**50**	**13**	**650**
K	2 DGSs for cement kilns (new)	1. Limestone (D) 2. Solid Waste (H)	1 + 1 **2**	1 + 142 **143**	27 + 37 **64**	27 + 2,558 **2,585**
		Subtotal: Facility K	**2**	**143**	**64**	**2,585**
		ALTERNATIVE C - OPTION 1: TOTAL	**27**	**6,526**	**313**	**113,418**

* A negative number means a reduction in usage or demand.

Table 5-59
Alternative C - Option 2: Potential Increases in Truck Trips per Facility

Facility ID	Option 2: Proposed Control Technology	Substances Delivered (D) or Hauled Away (H)	Peak Daily Truck Trips* (round trips/day)	Peak Daily Round Trip Driving Distance* (miles/day)	Annual Truck Trips* (round trips/year)	Annual Round Trip Driving Distance* (miles/day)
A	1 SOx Reducing Additive Hopper for FCCU (modified)	SOx Reducing Additives (D)	**1**	**400**	**4**	**1,600**
A	1 FGT by Sulfinol Conversion (modified)	1. Sulfinol (D) 2. DEA (D)	1 +F -1 **0**	500 + -50 **450**	22 + - 22 **0**	11,000 + -1,100 **9,900**
		Subtotal: Facility A	**1**	**850**	**4**	**11,500**
B	1 SOx Reducing Additive Hopper for FCCU (modified)	SOx Reducing Additives (D)	**1**	**400**	**4**	**1,600**
		Subtotal: Facility B	**1**	**400**	**4**	**1,600**
C	1 FGT by Sulfinol Conversion (modified)	1. Sulfinol (D) 2. MEA (D) 3. Elemental Sulfur (H)	1 + -1 + 1 **1**	500 + - 50 + 50 **500**	47 + - 48 + 1 **0**	23,500 - 2,400 + 50 **21,150**
C	1 Upgrade to Existing Cansolv Unit/Sulfuric Acid (modified)	None	**0**	**0**	**0**	**0**
		Subtotal: Facility C	**1**	**500**	**0**	**21,150**
D	1 SOx Reducing Additive Hopper for FCCU (new)	SOx Reducing Additives (D)	**1**	**400**	**4**	**1,600**
D	1 FGT by Merox Treatment Upgrade (modified)	1. NaOH (D) 2. Merox catalyst (D) 3. Elemental Sulfur (H) 4. Solid Waste (H)	1 + 1+ 1 + 1 + **4**	50 + 500 + 50 + 400 **1,000**	5 + 1+ 1 + 5 + **12**	250 + 500 + 50 + 2,000 **2,800**
		Subtotal: Facility D	**5**	**1,400**	**16**	**4,400**
E	1 SOx Reducing Additive Hopper for FCCU (modified)	SOx Reducing Additives (D)	**1**	**400**	**4**	**1,600**
E	1 FGT by Sulfinol Conversion (modified)	1. Sulfinol (D) 2. DEA (D) 3. Elemental Sulfur (H)	1 + - 1 + 1 **1**	500 + - 50 + 50 **500**	65 + -63 + 3 **5**	32,500 + -3,150 150 **29,500**
		Subtotal: Facility E	**2**	**900**	**9**	**31,100**

Table 5-59 (concluded)
Alternative C - Option 2: Potential Increases in Truck Trips per Facility

Facility ID	Option 2: Proposed Control Technology	Substances Delivered (D) or Hauled Away (H)	Peak Daily Truck Trips* (round trips/day)	Peak Daily Round Trip Driving Distance* (miles/day)	Annual Truck Trips* (round trips/year)	Annual Round Trip Driving Distance* (miles/day)
F	1 SOx Reducing Additive Hopper for FCCU (modified)	SOx Reducing Additives (D)	**1**	**400**	**4**	**1,600**
F	1 FGT by Amine Additive (modified)	1. TG-10 (D) 2. Elemental Sulfur (H)	1 + 1 **2**	400 + 50 **450**	1 + 1 **2**	400 + 50 **450**
		Subtotal: Facility F	**3**	**850**	**6**	**2,050**
G	1 FGT by Merox Treatment Upgrade (modified)	1. NaOH (D) 2. Merox catalyst (D) 3. Elemental Sulfur (H) 4. Solid Waste (H)	1 + 1+ 1 + 1 + **4**	50 + 500 + 50 + 400 **1,000**	28 + 1+ 2 + 30 + **61**	1,400 + 500 + 100 + 12,000 **14,000**
		Subtotal: Facility G	**4**	**1,000**	**61**	**14,000**
H	1 WGS for calciner (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 400 **450**	32 + 7 **39**	1,600 + 2,800 **4,400**
		Subtotal: Facility H	**2**	**450**	**39**	**4,400**
I	2 WGSs for glass melting furnaces (new)	1. NaOH (D) 2. Solid Waste (H)	1 + 1 **2**	50 + 133 **183**	8 + 1 **9**	400 + 133 **533**
		Subtotal: Facility I	**2**	**183**	**9**	**533**
J	1 WGS for sulfuric acid unit (new)	NaOH (D)	**1**	**50**	**13**	**650**
		Subtotal: Facility J	**1**	**50**	**13**	**650**
K	2 DGSs for cement kilns (new)	1. Limestone (D) 2. Solid Waste (H)	1 + 1 **2**	1 + 142 **143**	27 + 37 **64**	27 + 2,558 **2,585**
		Subtotal: Facility K	**2**	**143**	**64**	**2,585**
		ALTERNATIVE C - OPTION 2: TOTAL	**24**	**6,726**	**225**	**93,968**

* A negative number means a reduction in usage or demand.

Though some of the facilities that will be affected by Alternative C are located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, actions that would be taken to comply with Alternative C, such as installing new air pollution control equipment, are not expected to significantly influence or alter air traffic patterns. Further, the size and type of air pollution control devices that would be installed would not be expected to affect navigable air space because they would not be substantially taller than other equipment at affected facilities. Thus, Alternative C would not result in a change in air traffic patterns, an increase in traffic levels or a change in location that results in substantial safety risks.

The siting of each existing affected facility is consistent with surrounding land uses and traffic/circulation in the surrounding areas of the affected facilities. Thus, Alternative C is not expected to substantially increase traffic hazards or create incompatible uses at or adjacent to the affected facilities. Aside from the temporary effects due to a slight increase in truck traffic when facilities undergo construction activities, Alternative C is not expected to alter the existing long-term circulation patterns. Alternative C is not expected to require a modification to circulation, thus, no long-term impacts on the traffic circulation system are expected to occur. Alternative C does not involve construction of any roadways, so there would be no increase in roadway design feature that could increase traffic hazards. Emergency access at each affected facility is not expected to be impacted by Alternative C. Further, each affected facility is expected to continue to maintain its existing emergency access gates.

Each affected facility will be expected to provide parking for the construction workers, as applicable, either on or within close proximity to each facility. No additional parking will be needed after completion of the construction phase because the work force at each facility is not expected to significantly increase as a result of Alternative C.

Lastly, construction and operation activities resulting from Alternative C are not expected to conflict with policies supporting alternative transportation since the proposed project does not involve or affect alternative transportation modes (e.g., bicycles or buses) because the construction and operation activities related to Alternative C will occur solely in existing industrial, commercial, and institutional areas. Based upon these considerations, significant transportation/traffic impacts are not expected from the implementation of Alternative C.

CONCLUSION

Table 5-60 summarizes all of the potential adverse environmental impacts from the proposed project and the alternatives.

Alternative A may not be a feasible alternative because it does not achieve any of the SOx emission reductions identified in the AQMP, which are necessary to demonstrate attainment with state and federal air quality standards. Even though Alternative A does not achieve the objectives of the proposed project and provides no benefit to air quality and public health, Alternative A would not be expected to generate any adverse environmental impacts. Thus, Alternative A is the environmentally superior alternative. However, if the "no project" alternative is determined to be the environmentally superior alternative, then the CEQA document shall identify an environmentally superior alternative among the other alternatives (CEQA Guidelines §15126.6 (e)(2)).

Alternative B, with a potential SOx emissions reduction of 1.50 tons per day, only partially achieves the SOx emission reductions identified in the AQMP, which are necessary to demonstrate attainment with state and federal air quality standards. When compared to the proposed project, Alternative B provides fewer benefits to air quality and public health. However, because Alternative B is limited to fewer source categories, fewer WGSs would be installed. Of the adverse environmental impacts that would be generated under Alternative B, the impacts would be less than the proposed project and less than significant, except for air quality construction emissions which are identical to the proposed project and are concluded to be significant. Lastly, Alternative B does not employ as much use of NaOH, a toxic. Thus,

Table 5-60
Detailed Summary of Adverse Environmental Impacts

Environmental Topic	Environmental Impact	Proposed Project - Option 1	Proposed Project - Option 2	Alternative A: No Project	Alternative B: AQMP	Alternative C - Option 1: Intermediate SOx Reductions	Alternative C – Option 2: Intermediate SOx Reductions
Aesthetics	Number of new steam plumes from WGSs	11 (NS)	7 (NS)	0 (NS)	4 (NS)	8 (NS)	4 (NS)
Aesthetics	Number of new, tall stacks for WGSs	11 (NS)	7 (NS)	0 (NS)	4 (NS)	8 (NS)	4 (NS)
Air Quality	Peak Daily Construction Emissions (lb/day)	VOC = 89 (S) CO = 461 (NS) NOx = 464 (S) SOx = 1 (NS) PM10 = 159 (S) PM2.5 = 53 (NS)	Same as Proposed Project: Option 1	0 (NS)	Same as Proposed Project - Option 1	Same as Proposed Project - Option 1	Same as Proposed Project - Option 1
Air Quality	Peak Daily Operational Emissions (lb/day)	Increase: VOC = 1 (NS) CO = 5 (NS) NOx = 15 (NS) PM10 = 1 (NS) PM2.5 = 1 (NS) Decrease: SOx = 6.21 tons/day (NS)	Increase: VOC = 1 (NS) CO = 4 (NS) NOx = 13 (NS) PM10 = 1 (NS) PM2.5 = 1 (NS) Decrease: SOx = 6.21 tons/day (NS)	0 (NS)	Increase: NOx = 1 (NS) Decrease: SOx = 1.50 tons/day (NS)	Increase: VOC = 1 (NS) CO = 4 (NS) NOx = 13 (NS) PM10 = 1 (NS) PM2.5 = 1 (NS) Decrease: SOx = 5.48 tons/day (NS)	Increase: VOC = 1 (NS) CO = 4 (NS) NOx = 11 (NS) PM10 = 1 (NS) Decrease: SOx = 5.48 tons/day (NS)
Air Quality	GHG Emissions (MT/yr) [1]	39,020 without mitigation (S); 38,771 with mitigation (S)	19,662 without mitigation (S); 19,580 with mitigation (S)	0 (NS)	6,567 without mitigation (NS); 6,522 with mitigation (NS)	34,159 without mitigation (S); 33,911 with mitigation (S)	14,805 without mitigation (S); 14,723 with mitigation (S)
Air Quality	NaOH Demand (tons/day)	13.24 (NS)	8.79 (NS)	0 (NS)	5.45 (NS)	13.24 (NS)	8.79 (NS)

S = Significant; NS = Not Significant

[1] 1 MT = 1 metric ton = 2,205 pounds

Table 5-60 (concluded)
Detailed Summary of Adverse Environmental Impacts

Environmental Topic	Environmental Impact	Proposed Project - Option 1	Proposed Project - Option 2	Alternative A: No Project	Alternative B: AQMP	Alternative C - Option 1: Intermediate SOx Reductions	Alternative C – Option 2: Intermediate SOx Reductions
Energy	Natural Gas Demand (mmBTU/day)	-4.1 (NS)[2]	-4.1 (NS)[2]	0 (NS)	0	-34.25 (NS)[2]	-34.25 (NS)[2]
Energy	Electricity Demand (MWh/day)	204 (NS)	101 (NS)	0 (NS)	33 (NS)	182 (NS)	79 (NS)
Energy	Gasoline Demand (gal/day)	1,354 (NS)	1,354 (NS)	0 (NS)	1,354 (NS)	1,354 (NS)	1,354 (NS)
Energy	Diesel Demand (gal/day)	3,763 (NS)	3,397 (NS)	0 (NS)	1,465 (NS)	3,493 ~~3,063~~ (NS)	3,127 ~~2,690~~ (NS)
Hydrology & Water Quality	Total Water Demand (gal/day)	883,368 (NS)	642,272 (NS)	0 (NS)	125,285 (NS)	529,121 (NS)	288,025 (NS)
Hydrology & Water Quality	Potable Water Demand (gal/day)	201,587 (S)	108,436 (NS)	0 (NS)	125,285 (NS)	201,587 (S)	108,436 (NS)
Hydrology & Water Quality	Wastewater Generation (gal/day)	270,532 (NS)	158,203 (NS)	0 (NS)	40,669 (NS)	199,573 (NS)	87,244 (NS)
Traffic & Transportation	Customer Visits per day due to Construction	700 (NS)	700 (NS)	0 (NS)	700 (NS)	700 (NS)	700 (NS)
Traffic & Transportation	Heavy-duty truck traffic due to Construction	76 (NS)	76 (NS)	0 (NS)	76 (NS)	76 (NS)	76 (NS)
Traffic & Transportation	Customer Visits per day due to Operation	0 (NS)	0 (NS)	0 (NS)	0 (NS)	0 (NS)	0 (NS)
Traffic & Transportation	Heavy-duty truck traffic due to Operation	33 (NS)	30 (NS)	0 (NS)	5 (NS)	27 (NS)	24 (NS)

S = Significant; NS = Not Significant
[2] A negative number means a reduction in usage or demand.

aside from the "no project" alternative, Alternative B is concluded to be the least toxic alternative. For these aforementioned reasons, Alternative B is concluded to be the environmentally superior alternative.

Alternative C, with a potential SOx emissions reduction of 5.48 tons per day, achieves slightly less potential SOx emission reductions than the proposed project. When compared to the proposed project, the GHG emissions projected for both options of Alternative C are significant, but less than the proposed project. Because Alternative C employs the same amount of NaOH for Option 1 and Option 2, respectively as the proposed project, it has equivalent toxic impacts when compared to the proposed project. Further, even though Alternative C would require less WGSs to be installed and would require less total water overall, both Option 1 and Option 2 of Alternative C are estimated to have equivalent demands of potable water when compared to Option 1 and Option 2 of the proposed project. Thus, Alternative C has equivalent potable water demand impacts as the proposed project. With regard to water quality, both Option 1 and Option 2 of Alternative C would generate less wastewater than Option 1 and Option 2 of the proposed project, respectively. Overall, Alternative C has less environmental impacts than the proposed project but it does not achieve the additional SOx reductions and health benefits expected from the proposed project.

All things considered, since the Basin is in non-attainment for PM2.5, for which SOx is a major precursor and since the 17 million residents of the South Coast Air Basin are experiencing the worst PM2.5 exposure in the nation, the proposed project achieves the largest amount of overall SOx reductions by relying on currently available SOx control technologies. It should be noted that SCAQMD staff has calculated that one ton of SOx reductions is equal to 15 tons of NOx reductions in progressing towards attainment of the PM2.5 standard. Although the proposed project also has the largest amount of adverse environmental impacts overall when compared to the alternatives, it achieves the maximum level of SOx reductions and corresponding health benefits. Each of the alternatives was crafted to show the various possibilities or permutations of how operators of SOx RECLAIM facilities could achieve actual SOx reductions, but ultimately, there is no way to predict what each facility operator will do. Thus, considering the PM2.5 exposure levels of the residents in the South Coast Air Basin and the need for expeditious improvement in PM2.5 air quality, the proposed project is preferred over Alternatives A, B, and C because it provides the most flexibility in the methods for reducing SOx emissions while maximizing the amount of potential SOx reductions and health benefits if the methods are implemented.

APPENDIX A (of the PEA)

PROPOSED AMENDED REGULATION XX:

Proposed Amended Rule 2002

In order to save space and avoid repetition, please refer to the latest version of proposed amended Rule 2002 located elsewhere in the Governing Board Package. The version of Proposed Amended Rule 2002 that was circulated with the Draft PEA and released on August 18, 2010 for a 45-day public review and comment period ending October 1, 2010 was dated August 17, 2010.

Original hard copies of the Draft PEA, which include the draft version of the proposed amended rule listed above, can be obtained through the SCAQMD Public Information Center at the Diamond Bar headquarters or by calling (909) 396-2039.

APPENDIX B

CONSTRUCTION AND OPERATIONS CALCULATIONS

LIST OF WORKSHEETS

Worksheet B-1
Phase I: Demolition

Activity	No. of WGSs
Phase I: Demolition	1 Preparation to Install WGS

Activity	Days/ wk	Wks/ month	Days/ month	Months	Total Days	Crew Size
Demolition	5	4.33	21.67	1	21.67	50
Construction	5	4.33	21.67	17	368.33	175
			Total	18	390	

Phase I: Demolition		Rating	Number	Operation Schedule	2012 Off-Road Emission Factors							
Off-Road Equipment Type	Fuel	(hp)	Needed	(hr/day)	VOC (lb/hr)	CO (lb/hr)	NOx (lb/hr)	SOx (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)
crane	diesel	comp	1	8	0.1425	0.4946	1.2753	0.0014	0.0553	0.0509	129	0.0129
front end loader	diesel	comp.	1	8	0.0862	0.3824	0.5816	0.0008	0.0435	0.0401	66.8	0.0078
forklift	diesel	comp.	1	8	0.0585	0.2257	0.4330	0.0006	0.0231	0.0212	54.4	0.0053
concrete saw	diesel	comp.	1	8	0.1090	0.4148	0.5910	0.0007	0.0491	0.0452	58.5	0.0098
jack hammer	diesel	comp.	1	8	0.0925	0.3847	0.8599	0.0013	0.0366	0.0337	123	0.0083

Phase I: Demolition		Number	Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	Needed	miles/day	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Construction Worker Vehicle)	gasoline	50	30	20	0.0008	0.0077	0.0008	0.0000	0.0001	0.0001	1.1015	0.0001
Offsite (Flatbed Truck - Heavy-Heavy Duty)	diesel	3	50	4.89	0.0025	0.0102	0.0309	0.0000	0.0015	0.0013	4.2159	0.0001
Offsite (Delivery Truck - Medium Duty)	diesel	5	50	6	0.0022	0.0155	0.0173	0.0000	0.0006	0.0005	2.7663	0.0001
Onsite (Pickup Truck)	gasoline	1	10	20	0.0008	0.0077	0.0008	0.0000	0.0001	0.0001	1.1015	0.0001
Onsite (Watering Truck - Medium Duty)	diesel	1	10	6	0.0022	0.0155	0.0173	0.0000	0.0006	0.0005	2.7663	0.0001

Incremental Increase in Onsite Combustion Emissions from Construction Equipment	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/day)	CH4 (lb/day)
crane	1.14	3.96	10.20	0.01	0.44	0.41	1029.16	0.10
front end loader	0.69	3.06	4.65	0.01	0.35	0.32	534.42	0.06
forklift	0.47	1.81	3.46	0.00	0.18	0.17	435.17	0.04
concrete saw	0.87	3.32	4.73	0.01	0.39	0.36	467.71	0.08
jack hammer	0.74	3.08	6.88	0.01	0.29	0.27	981.57	0.07
SUBTOTAL	3.91	16.22	29.93	0.04	1.66	1.53	3448.02	0.35

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lbs/day)

Worksheet B-1
Phase I: Demolition

Incremental Increase in Offsite Combustion Emissions from Construction Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/day)	CH4 (lb/day)
Offsite (Construction Worker Vehicle)	1.19	11.48	1.16	0.02	0.13	0.09	1652.29	0.11
Offsite (Flatbed Truck - Heavy-Heavy Duty)	0.38	1.53	4.64	0.01	0.22	0.19	632.39	0.02
Offsite (Delivery Truck - Heavy Duty)	0.56	3.86	4.33	0.01	0.16	0.14	691.57	0.03
Onsite (Pickup Truck)	0.01	0.08	0.01	0.00	0.00	0.00	11.02	0.00
Onsite (Watering Truck - Medium Duty)	0.02	0.15	0.17	0.00	0.01	0.01	27.66	0.00
SUBTOTAL	2.16	17.11	10.31	0.03	0.53	0.42	3014.92	0.15

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day x Round-Trip length (mile) = Offsite Construction Emissions (lb/day)

Total Incremental Combustion Emissions from Construction Activities	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/day)	CH4 (lb/day)	CO2e (lb/day)	CO2e (MT*)
Phase I: Demolition TOTAL	6	32	40	0.07	2	2	6463	1	6474	64
Significant Threshold	75	550	100	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Incremental Increase in Fuel Usage From Construction Equipment and Workers' Vehicles	Total Demolition Hours	Equipment Type	Diesel Fuel Usage (gal/hr)	Diesel Fuel Usage (gal/day)	Gasoline Fuel Usage (gal/day)
Operation of Portable Equipment	173	crane	1.085	8.68	N/A
Operation of Portable Equipment	173	front end loader	3.048	24.38	N/A
Operation of Portable Equipment	173	Forklift	2.476	19.81	N/A
Operation of Portable Equipment	173	Concrete Saw	2.68	21.44	N/A
Operation of Portable Equipment	173	jack hammer	2.68	21.44	N/A
Workers' Vehicles - Commuting	N/A	Light-Duty Vehicles	N/A	N/A	75.00
Workers' Vehicles - Offsite Delivery/Haul	N/A	Flatbed Truck	N/A	30.67	N/A
Workers' Vehicles - Offsite Delivery/Haul	N/A	Delivery Truck	N/A	41.67	N/A
Workers' Vehicles - Onsite Hauling	N/A	Pickup Truck	N/A	N/A	0.50
Workers' Vehicles - Onsite Hauling	N/A	Watering Truck	N/A	1.67	N/A
		TOTAL	170	76	

Sources:
1. Off-Road Mobile Emission Factors, Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html/offroadEF07_25.xls
2. PM2.5 Significance Thresholds and Calculation Methodology, Appendix A - Updated CEIDARS Table with PM2.5 Fractions
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html/finalAppA.doc
3. On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEF07_26.xls
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

Worksheet B-2
Phase II: Construction

Activity	No. of WGSs	
Phase II: Construction	1	Install WGS

Activity	Days/wk	Wks/month	Days/month	Months	Total Days	Crew Size
Demolition	5	4.33	21.67	1	21.67	50
Construction	5	4.33	21.67	17	368.33	175
			Total	18	390	

Phase II: Construction		Rating	Number	Operation Schedule	2012 Off-Road Emission Factors							
Off-Road Equipment Type	Fuel	(hp)	Needed	(hr/day)	VOC (lb/hr)	CO (lb/hr)	NOx (lb/hr)	SOx (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)
backhoe	diesel	comp.	1	8	0.0862	0.3824	0.5816	0.0008	0.0435	0.0401	66.8	0.0078
crane	diesel	comp.	2	8	0.1425	0.4946	1.2753	0.0014	0.0553	0.0509	129	0.0129
aerial lift	diesel	comp.	3	8	0.0576	0.1976	0.3249	0.0004	0.0219	0.0202	34.7	0.0052
forklift	diesel	comp.	1	8	0.0585	0.2257	0.4330	0.0006	0.0231	0.0212	54.4	0.0053
generator	diesel	comp.	1	8	0.0832	0.3121	0.5779	0.0007	0.0351	0.0343	61.0	0.0075
welder	diesel	comp.	10	8	0.0703	0.2150	0.2702	0.0003	0.0243	0.0234	25.6	0.0063
cement mixer	diesel	comp.	1	2	0.0093	0.0425	0.0564	0.0001	0.0029	0.0027	7.2	0.0008

Phase II: Construction		Number	Round-trip Distance	Mileage Rate (miles/	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	Needed	(miles/day)	gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Construction Worker Vehicle)	gasoline	175	30	20	0.0008	0.0077	0.0008	0.0000	0.0001	0.0001	1.1015	0.0001
Offsite (Flatbed Truck - Heavy-Heavy Duty)	diesel	3	50	4.89	0.0025	0.0102	0.0309	0.0000	0.0015	0.0013	4.2159	0.0001
Offsite (Delivery Truck - Medium Duty)	diesel	5	50	6	0.0022	0.0155	0.0173	0.0000	0.0006	0.0005	2.7663	0.0001
Onsite (Pickup Truck)	gasoline	1	10	20	0.0008	0.0077	0.0008	0.0000	0.0001	0.0001	1.1015	0.0001

Incremental Increase in Onsite Combustion Emissions from Construction Equipment	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/day)	CH4 (lb/day)
backhoe	0.69	3.06	4.65	0.01	0.35	0.32	534.42	0.06
crane	2.28	7.91	20.41	0.02	0.88	0.81	2058.32	0.21
aerial lift	1.38	4.74	7.80	0.01	0.53	0.48	833.32	0.12
forklift	0.47	1.81	3.46	0.00	0.18	0.17	435.17	0.04
generator	0.67	2.50	4.62	0.01	0.28	0.27	487.94	0.06
welder	5.62	17.20	21.61	0.03	1.94	1.87	2048.21	0.51
cement mixer	0.02	0.08	0.11	0.00	0.01	0.01	14.50	0.00
SUBTOTAL	11.13	37.31	62.67	0.07	4.17	3.94	6411.88	1.00

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lbs/day)

Incremental Increase in Offsite Combustion Emissions from Construction Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/day)	CH4 (lb/day)
Offsite (Construction Worker Vehicle)	4.18	40.19	4.07	0.06	0.47	0.30	5783.01	0.38
Offsite (Flatbed Truck - Heavy-Heavy Duty)	0.38	1.53	4.64	0.01	0.22	0.19	632.39	0.02
Offsite (Delivery Truck - Medium Duty)	0.56	3.86	4.33	0.01	0.16	0.14	691.57	0.03
Onsite (Pickup Truck)	0.01	0.08	0.01	0.00	0.00	0.00	11.02	0.00
SUBTOTAL	5.13	45.66	13.05	0.07	0.86	0.63	7117.98	0.42

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day x Round-Trip length (mile) = Offsite Construction Emissions (lb/day)

Worksheet B-2
Phase II: Construction

FUGITIVE PM10 EMISSIONS SUMMARY				
Activity	Unmitigated PM10 (lbs/day)	Mitigated PM10 [1] (lbs/day)	Unmitigated PM2.5 (lbs/day)	Mitigated PM2.5 [1] (lbs/day)
1. Grading	46.70	23.35	9.71	4.86
2. Trenching/Stockpile Loading	1.75	0.87	0.36	0.18
3. Storage Piles - Wind Erosion	1.05	0.52	0.22	0.11
4. Truck Filling/Dumping	15.56	7.78	3.24	1.62
SUBTOTAL:	65.06	32.53	13.53	6.77

[1] Water two times per day per SCAQMD Rule 403 (50% control efficiency)

Total Incremental Combustion Emissions from Construction Activities	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/day)	CH4 (lb/day)	CO2e (lb/day)	CO2e (MT)*
Phase II: Construction TOTAL	16	83	76	0.14	38	11	13530	1	13560	2265
Significant Threshold	75	550	100	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Incremental Increase in Fuel Usage From Construction Equipment and Workers' Vehicles	Total Construction Hours	Equipment Type	Diesel Fuel Usage (gal/hr)	Total Diesel Fuel Usage (gal/day)	Total Gasoline Fuel Usage (gal/day)
Operation of Portable Equipment	2947	backhoe	3.048	24.38	N/A
Operation of Portable Equipment	2947	crane	1.085	8.68	N/A
Operation of Portable Equipment	2947	aerial lift	1.587	12.70	N/A
Operation of Portable Equipment	2947	forklift	2.476	19.81	N/A
Operation of Portable Equipment	2947	generator	2.781	22.25	N/A
Operation of Portable Equipment	2947	welder	1.18	9.44	N/A
Operation of Portable Equipment	737	cement mixer	0.331	0.66	N/A
Workers' Vehicles - Commuting	N/A	Light-Duty Vehicles	N/A	N/A	262.50
Workers' Vehicles - Offsite Delivery/Haul	N/A	Flatbed Truck	N/A	30.67	N/A
Workers' Vehicles - Offsite Delivery/Haul	N/A	Delivery Truck	N/A	41.67	N/A
Workers' Vehicles - Onsite Hauling	N/A	Pickup Truck	N/A	N/A	0.50
			TOTAL	170	263

Sources:
1. Off-Road Mobile Emission Factors, Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html/offroadEF07_25.xls
2. PM2.5 Significance Thresholds and Calculation Methodology, Appendix A - Updated CEIDARS Table with PM2.5 Fractions
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html/finalAppA.doc
3. On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEF07_26.xls
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

Worksheet B-3
Phase II: Fugitive Dust

Fugitive PM10 Emissions Associated with foundation work for WGS Installation

1. GRADING ACTIVITIES (Backhoe)		
G = Fugitive PM10 Emission Rate (lbs/day) = 0.75 x T x 1.0 x $(S)^{1.5}$ x $(M)^{-1.4}$		*Source: AP-42, 10/98, Table 11.9-1 (PM10 Equation for Overburden Bulldozing)*
S = Silt Content	7.5 %	*Source: AP-42, 10/98, Table 11.9-3 (Correction Factors for Overburden Bulldozing)*
M = Moisture Content	2 %	*Source: AP-42, 10/98, Table 11.9-3 (Correction Factors for Overburden Bulldozing)*
T = max hours of operation/day	8 hr/day	
G = Fugitive PM10 =	**46.70 lbs/day**	

2. TRENCHING/STOCKPILE LOADING (Backhoe)		
LPM10 = Emission Factor per particle size (lbs/ton) = kPM10 x (0.0032) x $(U/5)^{1.3}$ x $(M/2)^{-1.4}$		*Source: AP-42, 01/95, p. 13.2.4-3 (Equation 1 for English Units)*
U = Mean Wind Speed	12 mile/hr	*Source: AP-42, 10/98, Table 11.9-5 (See Mine I)*
M = Material Moisture Content	2 %	*Source: AP-42, 10/98, Table 11.9-3 (Overburden Bulldozing)*
kPM10 = Particle Size Multiplier for PM10	0.35 dimensionless	*Source: AP-42, 01/95, p. 13.2.4-3*
G = Maximum Daily Weight of Material Moved	500 tons/day	Note: One backhoe can trench approximately 0.1 acre per day or 4,356 square feet per day, with a cut of 3 feet in depth, 13,068 cubic feet = 484 cubic yards and 1 cubic yard = 1 ton soil.
Tday, t = Truck Operating time, maximum	10 hr/day	
LPM10 = Emission Factor per particle size =	0.0035 lbs PM10/ton soil moved	
PPM10 = Emission Rate based on particle size = (LPMx G) =	**1.75 lbs PM10/day**	

3. STOCKPILE WIND EROSION		
Q = Wind Erosion Emission Rate based on particle size (lbs/day) = kPM10* 0.72 x U x Tc * (A x B /43,560 sq. ft/acre)		*Source: AP-42, 10/98, Table 11.9-1 (Emission Factor Equation for Active Storage Pile)*
A = Length of Stockpile	21 ft	
B = Width of Stockpile	21 ft	
U = Mean Wind Speed	12 mile/hr	*Source: AP-42, 10/98, Table 11.9-5 (General Characteristics of Surface Coal Mines - Mine I)*
kPM10 = Particle Size Multiplier for PM10	0.5 dimensionless	*Source: AP-42, 01/95, p. 13.2.5-3 (PM10 Aerodynamic Particle Size Multiplier (k) for Equation 2)*
Tc = Time Piles Remain Uncovered	24 hr/day	Note: This calculation assumes that the piles remain uncovered for 24 hours/day.
QPM10 =	**1.05 lbs PM10/day**	

4. TRUCK FILLING/DUMPING		
TF = Fugitive PM10 Emissions From Truck Filling = G (ton/day) x TF, PM10 (lb/ton)		
TD = Fugitive PM10 Emissions From Truck Dumping = G (ton/day) x TD, PM10 (lb/ton)		
TFPM10 = Emission Factor for Truck Filling =	0.0221 lb/ton of material moved	
TDPM10 = Emission Factor for Truck Dumping =	0.0091 lb/ton of material moved	
G = Maximum Daily Weight of Material Trucked Away	500 ton/day	
TF =	**11.03 lbs PM10/day**	
TD =	**4.64 lbs PM10/day**	

FUGITIVE PM10 EMISSIONS SUMMARY		
Activity	**Unmitigated PM10 (lbs/day)**	**Mitigated PM10 [1] (lbs/day)**
1. Grading	46.70	23.35
2. Trenching/Stockpile Loading	1.75	0.87
3. Storage Piles - Wind Erosion	1.05	0.52
4. Truck Filling/Dumping	15.56	7.78
TOTAL	**65.06**	**32.53**

[1] Water two times per day per SCAQMD Rule 403 (50% control efficiency)

Worksheet B-4
Overlapping Phase I and Phase II

One Facility Undergoing Demolition Overlapping with One Facility Under Construction										
Total Incremental Combustion Emissions from Construction Activities	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/day)	CH4 (lb/day)	CO2e (lb/day)	CO2e (MT*)
Phase I: Demolition TOTAL	6	32	40	0	2	2	6,463	1	6,474	64
Phase II: Construction TOTAL	16	83	76	0	38	11	13,530	1	13,560	2,265
Overlapping Phase I + Phase II TOTAL	22	115	115	0	40	13	19,993	2	20,033	2,329
Significant Threshold	75	550	100	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	YES	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Incremental Increase in Fuel Usage From Construction Equipment and Workers' Vehicles	Total Diesel Fuel Usage (gal/day)	Total Gasoline Fuel Usage (gal/day)
Phase I: Demolition TOTAL	170	76
Phase II: Construction TOTAL	170	263
Overlapping Phase I + Phase II TOTAL	340	339

Four Facilities Undergoing Demolition Overlapping with Four Facilities Under Construction										
Total Incremental Combustion Emissions from Construction Activities	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/day)	CH4 (lb/day)	CO2e (lb/day)	CO2e (MT*)
Phase I: Demolition TOTAL	24	129	161	0	9	8	25,852	2	25,894	254
Phase II: Construction TOTAL	65	332	303	1	150	45	54,119	6	54,239	9,060
Overlapping Phase I + Phase II TOTAL	89	461	464	1	159	53	79,971	8	80,133	9,315
Significant Threshold	75	550	100	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	YES	NO	YES	NO	YES	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Incremental Increase in Fuel Usage From Construction Equipment and Workers' Vehicles	Total Diesel Fuel Usage (gal/day)	Total Gasoline Fuel Usage (gal/day)
Phase I: Demolition TOTAL	679	302
Phase II: Construction TOTAL	681	1,052
Overlapping Phase I + Phase II TOTAL	1,360	1,354

PROPOSED PROJECT - OPTION 1: GRAND TOTALS

Fuel Gas Treatment - 8 refineries		
Usage Rates		
-34	MMbtu/day	Natural Gas
22,849	kWh/day	Electricity
52,055	gal/day	Water
46,575	gal/day	Wastewater
13	Mmbtu/day	Cooling Water
17,233	scf/day	Compressed Air
2.33	tons/day	Solid Waste Disposal
807	pounds/day	Sulfur sales*
16	pounds/day	Merox Catalyst
3	tons/day	NaOH (50%)
11	gallons/day	TG-10 amine additive
2173	gallons/day	sulfinol
-1373.95	gallons/day	MEA
-789.04	gallons/day	DEA
18,300	sf	plot space needed
3900	round trip miles/day	truck miles driven
12	trucks/day	no. of trucks
77800	round trip miles/year	truck miles driven
80	trucks/year	no. of trucks

SRU/TGTU - part 1 - 2 refineries - 3 WGSs		
Usage Rates		
0	MMbtu/day	Natural Gas
18,748	kWh/day	Electricity
354,247	gal/day	Water
70,959	gal/day	Wastewater
1,748	Mmbtu/day	Cooling Water
548	scf/day	Compressed Air
2.25	tons/day	Solid Waste Disposal
1	tons/day	Soda Ash
13,836	sf	plot space needed
900	round trip miles/day	truck miles driven
4	trucks/day	no. of trucks
13,850	round trip miles/year	truck miles driven
46	trucks/year	no. of trucks

SRU/TGTU - part 2 - 1 refinery - gas treating		
Usage Rates		
30	MMbtu/day	Natural Gas
2,973	kWh/day	Electricity
0	gal/day	Water
0	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
2,110	scf/day	Compressed Air
0.00	tons/day	Solid Waste Disposal
1	pounds/day	ESX Catalyst
145	pounds/day	Sulfur sales
2,500	sf	plot space needed
450	round trip miles/day	truck miles driven
2	trucks/day	no. of trucks
500	round trip miles/year	truck miles driven
3	trucks/year	no. of trucks

Worksheet B-5
Proposed Project - Option 1: Grand Totals

FCCU 4 refineries - 4 WGSs Usage Rates		
0	MMbtu/day	Natural Gas
103,217	kWh/day	Electricity
241,096	gal/day	Water
112,329	gal/day	Wastewater
3	Mmbtu/day	Cooling Water
3,808	scf/day	Compressed Air
4.19	tons/day	Solid Waste Disposal
4.45	tons/day	NaOH (50%)
7,150	sf	plot space needed
1,800	round trip miles/day	truck miles driven
8	trucks/day	no. of trucks
27,450	round trip miles/year	truck miles driven
108	trucks/year	no. of trucks

Coke Calciner 1 facility - 1 WGS Usage Rates		
0	MMbtu/day	Natural Gas
17,711	kWh/day	Electricity
40,896	gal/day	Water
16,992	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0.44	tons/day	Solid Waste Disposal
3.37	tons/day	NaOH (50%)
1,200	sf	plot space needed
450	round trip miles/day	truck miles driven
2	trucks/day	no. of trucks
4,400	round trip miles/year	truck miles driven
39	trucks/year	no. of trucks

Sulfuric Acid Plant - part 1 1 facility - 1 WGS Usage Rates		
0	MMbtu/day	Natural Gas
9,659	kWh/day	Electricity
19,589	gal/day	Water
10,800	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0.00	tons/day	Solid Waste Disposal
1	tons/day	NaOH (50%)
500	sf	plot space needed
50	round trip miles/day	truck miles driven
1	trucks/day	no. of trucks
650	round trip miles/year	truck miles driven
13	trucks/year	no. of trucks

Worksheet B-5
Proposed Project - Option 1: Grand Totals

Sulfuric Acid Plant - part 2 1 facility - existing system upgrade Usage Rates		
0	MMbtu/day	Natural Gas
0	kWh/day	Electricity
6,336	gal/day	Water* (as steam)
0	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0.00	tons/day	Solid Waste Disposal
0	gal/day	Amine
0	sf	plot space needed
0	round trip miles/day	truck miles driven
0	trucks/day	no. of trucks
0	round trip miles/year	truck miles driven
0	trucks/year	no. of trucks

Cement Kilns 1 facility - 2 limestone absorbers Usage Rates		
0	MMbtu/day	Natural Gas
23,288	kWh/day	Electricity
110,685	gal/day	Water
0	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
1,096	scf/day	Compressed Air
2.49	tons/day	Solid Waste Disposal
2	tons/day	Limestone - $CaCO_3$
4,000	sf	plot space needed
143	round trip miles/day	truck miles driven
2	trucks/day	no. of trucks
2,585	round trip miles/year	truck miles driven
64	trucks/year	no. of trucks

Cement Boiler 1 facility - 1 limestone absorber or 1 DGS Usage Rates - EXCLUDE		
0	MMbtu/day	Natural Gas
2,822	kWh/day	Electricity
27,397	gal/day	Water
35,616	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
274	scf/day	Compressed Air
1.51	tons/day	Solid Waste Disposal
1	tons/day	Limestone - $CaCO_3$
1,225	sf	plot space needed
0	round trip miles/day	truck miles driven
0	trucks/day	no. of trucks
0	round trip miles/year	truck miles driven
0	trucks/year	no. of trucks

excluded - equipment is not in operation

Worksheet B-5
Proposed Project - Option 1: Grand Totals

1 facility - 2 WGSs	Glass Plant	
Usage Rates		
0	MMbtu/day	Natural Gas
5,694	kWh/day	Electricity
58,464	gal/day	Water
12,877	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
110	scf/day	Compressed Air
0.05	tons/day	Solid Waste Disposal
1	tons/day	NaOH (50%)
640	sf	plot space needed
183	round trip miles/day	truck miles driven
2	trucks/day	no. of trucks
533	round trip miles/year	truck miles driven
9	trucks/year	no. of trucks

Worksheet B-5
Proposed Project - Option 1: Grand Totals

GRAND TOTALS (For Operation) Usage Rates					Notes	Net Effect of Project		Percentage Change	Significant?
-4.11	MMbtu/day	-4029.01	scf/day	Natural Gas	Significance Threshold: 1% of supply (9330 MMcf of Natural Gas /day)	-0.0040	MMscf/day	-0.00004%	NO
203,938	kWh/day	203.94	MWh/day	Electricity	Significance Threshold: 1% of supply (8362 MW - instantaneous electricity)	8.50	MW (instantaneous)	0.10%	NO
883,367	gal/day	0.88	MMgal/day	Water	Significance Threshold: 5,000,000 gal/day water	883,367	gal/day	17.67%	NO
270,532	gal/day	0.27	MMgal/day	Wastewater	Significance Threshold: 25% increase above permitted wastewater limits	270,532	gal/day	<25%*	NO
		1,764	MMbtu/day	Cooling Water	This data already included in energy calculations.				
		24,904	scf/day	Compressed Air	This data already included in energy calculations.				
		11.75	tons/day	Solid Waste Disposal	Solid Waste Disposal, Air Quality off-site transportation emissions, & Energy (fuel usage)				
		952.15	pounds/day	Sulfur sales*	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		16.44	pounds/day	Merox Catalyst	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		10.98	gal/day	TG-10 amine additive	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		0.88	tons/day	Soda Ash (Na2CO3)	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		1.10	pounds/day	ESX Catalyst	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		13.24	tons/day	NaOH (50% by weight)	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		2.98	tons/day	Limestone - $CaCO_3$	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		2173	gallons/day	sulfinol	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		-1373.95	gallons/day	MEA	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		-789.04	gallons/day	DEA	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		48,126	sf	Plot Space Needed	Air Quality: grading/site preparation construction emissions				
		7,876	round trip miles/day	Daily truck miles driven	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		33	trucks/day	Daily no. of trucks	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		127,768	round trip miles/year	Annual truck miles driven	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		362	trucks/year	Annual no. of trucks	Air Quality: off-site transportation emissions & Energy (fuel usage)				

Note 1: Instantaneous Electricity Equation: 197,611 kW-hr/day x 1 work day/24 hr x 1 MW/1000 kW = 8.2 MW

Note 2: This calculation takes into account the electricity needed to make 9.9 tons per day of NaOH to satisfy demand (22,444 kWh/day).

*See Hydrology/Water Quality Analysis

*See Hydrology/Water Quality Analysis

Key:
Cooling water already accounted for in both water demand and energy demand.
NaOH is 50% by weight, usually delivered by tanker truck in an aqueous solution due to high concentration

1 scf = 1020 BTU for natural gas

1 MW = 1000 KW
1 tcf (trillion cubic feet) = 1000 bcf (billion cubic feet) = 1,000,000 MMcf (million cubic feet)

1 metric ton = 2205 lbs

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	127,768	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	1.24	5.02	15.20	0.020	0.73	0.64	538,657	14.89	538,970	244
SUBTOTAL	1	5	15	0	1	1	538,657	15	538,970	244
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	127,768	4.89	624,784	2,403
*Assumes 260 days/year			TOTAL	624,784	2,403

Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012

http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

PROPOSED PROJECT - OPTION 1: GHG GRAND TOTALS

Phase III: Operations - GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - reduction	-0.0040	MMscf/day	Natural Gas GHGs	-80.03	-0.0004	-0.0015	-80
electricity - increased use*	203.94	MWh/day	Electricity GHGs	37134.30	0.0000	0.0000	37,134
water - increased use[1]	**0.88**	**MMgal/day**	**Water Conveyance GHGs**	**398.46**	**0.0023**	**0.0042**	**399**
Facility A	0.08	MMgal/day	Water Conveyance GHGs	10.10	0.0001	0.0001	10
Facility B	0.22	MMgal/day	Water Conveyance GHGs	27.55	0.0002	0.0003	28
Facility C	0.01	MMgal/day	Water Conveyance GHGs	12.21	0.0001	0.0001	12
Facility D	0.23	MMgal/day	Water Conveyance GHGs	28.98	0.0002	0.0003	29
Facility E	0.06	MMgal/day	Water Conveyance GHGs	84.78	0.0005	0.0009	85
Facility F	0.04	MMgal/day	Water Conveyance GHGs	58.98	0.0003	0.0006	59
Facility G	0.01	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	2
Facility H	0.04	MMgal/day	Water Conveyance GHGs	55.02	0.0003	0.0006	55
Facility I	0.06	MMgal/day	Water Conveyance GHGs	78.66	0.0005	0.0008	79
Facility J	0.02	MMgal/day	Water Conveyance GHGs	26.36	0.0002	0.0003	26
Facility K	0.11	MMgal/day	Water Conveyance GHGs	14.07	0.0001	0.0001	14
wastewater - increased generation	**0.27**	**MMgal/day**	**Wastewater Processing GHGs**	**154.04**	**0.0009**	**0.0016**	**154**
Facility A	0.04	MMgal/day	Wastewater Processing GHGs	4.88	0.0000	0.0001	5
Facility B	0.06	MMgal/day	Wastewater Processing GHGs	8.08	0.0000	0.0001	8
Facility C	0.00	MMgal/day	Wastewater Processing GHGs	3.69	0.0000	0.0000	4
Facility D	0.06	MMgal/day	Wastewater Processing GHGs	7.21	0.0000	0.0001	7
Facility E	0.03	MMgal/day	Wastewater Processing GHGs	44.23	0.0003	0.0005	44
Facility F	0.02	MMgal/day	Wastewater Processing GHGs	29.49	0.0002	0.0003	30
Facility G	0.01	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	2
Facility H	0.02	MMgal/day	Wastewater Processing GHGs	22.86	0.0001	0.0002	23
Facility I	0.01	MMgal/day	Wastewater Processing GHGs	17.32	0.0001	0.0002	17
Facility J	0.01	MMgal/day	Wastewater Processing GHGs	14.53	0.0001	0.0002	15
Facility K	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
temporary construction activities[3]	34931	MT/project	Construction GHGs in CO2e				1,168
operational truck trips	244.43	MT/project	Operation GHGs in CO2e				244
						TOTAL CO2e	**39,020**
						Significance Threshold	**10,000**
						Exceed Significance?	**YES**

Worksheet B-6

Proposed Project - Option 1: GHG Grand Totals

Phase III: Operations - GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - reduction	-0.0040	MMscf/day	Natural Gas GHGs	-80.03	-0.0004	-0.0015	-80
electricity - increased use*	203.94	MWh/day	Electricity GHGs	37134.30	0.0000	0.0000	37,134
water - increased use[2]	**0.88**	**MMgal/day**	**Water Conveyance GHGs**	**233.35**	**0.0013**	**0.0024**	**234**
Facility A	0.079	MMgal/day	Water Conveyance GHGs	10.10	0.0001	0.0001	10
Facility B	0.217	MMgal/day	Water Conveyance GHGs	27.55	0.0002	0.0003	28
Facility C	0.009	MMgal/day	Water Conveyance GHGs	1.15	0.0000	0.0000	1
Facility D	0.228	MMgal/day	Water Conveyance GHGs	28.98	0.0002	0.0003	29
Facility E	0.063	MMgal/day	Water Conveyance GHGs	8.01	0.0000	0.0001	8
Facility F	0.044	MMgal/day	Water Conveyance GHGs	5.57	0.0000	0.0001	6
Facility G	0.014	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	2
Facility H	0.041	MMgal/day	Water Conveyance GHGs	55.02	0.0003	0.0006	55
Facility I	0.058	MMgal/day	Water Conveyance GHGs	78.66	0.0005	0.0008	79
Facility J	0.020	MMgal/day	Water Conveyance GHGs	2.49	0.0000	0.0000	2
Facility K	0.111	MMgal/day	Water Conveyance GHGs	14.07	0.0001	0.0001	14
wastewater - increased generation[2]	**0.27**	**MMgal/day**	**Wastewater Processing GHGs**	**70.78**	**0.0004**	**0.0007**	**71**
Facility A	0.04	MMgal/day	Wastewater Processing GHGs	4.88	0.0000	0.0001	5
Facility B	0.06	MMgal/day	Wastewater Processing GHGs	8.08	0.0000	0.0001	8
Facility C	0.00	MMgal/day	Wastewater Processing GHGs	0.35	0.0000	0.0000	0
Facility D	0.06	MMgal/day	Wastewater Processing GHGs	7.21	0.0000	0.0001	7
Facility E	0.03	MMgal/day	Wastewater Processing GHGs	4.18	0.0000	0.0000	4
Facility F	0.02	MMgal/day	Wastewater Processing GHGs	2.79	0.0000	0.0000	3
Facility G	0.01	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	2
Facility H	0.02	MMgal/day	Wastewater Processing GHGs	22.86	0.0001	0.0002	23
Facility I	0.01	MMgal/day	Wastewater Processing GHGs	17.32	0.0001	0.0002	17
Facility J	0.01	MMgal/day	Wastewater Processing GHGs	1.37	0.0000	0.0000	1
Facility K	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
temporary construction activities[3]	34931	MT/project	Construction GHGs in CO2e				1,168
operational truck trips	244.43	MT/project	Operation GHGs in CO2e				244
						TOTAL CO2e	**38,771**
						Significance Threshold	**10,000**
						Exceed Significance?	**YES**

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water[1]
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation[2]
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[3] GHGs from temporary construction activities are amortized over 30 years.

PROPOSED PROJECT - OPTION 2: GRAND TOTALS

Fuel Gas Treatment 6 refineries Usage Rates		
-34	MMbtu/day	Natural Gas
22,649	kWh/day	Electricity
52,055	gal/day	Water
46,575	gal/day	Wastewater
13	Mmbtu/day	Cooling Water
17,233	scf/day	Compressed Air
2	tons/day	Solid Waste Disposal
807	pounds/day	Sulfur sales*
16	pounds/day	Merox Catalyst
3	tons/day	NaOH
11	gallons/day	TG-10 amine additive
2173	gallons/day	sulfinol
-1374	gallons/day	MEA
-789	gallons/day	DEA
18,300	sf	plot space needed
3900	round trip miles/day	truck miles driven
12	trucks/day	no. of trucks
77800	round trip miles/year	truck miles driven
80	trucks/year	no. of trucks

SRU/TGTU - part 1 2 refineries - 3 WGSs Usage Rates		
0	MMbtu/day	Natural Gas
18,748	kWh/day	Electricity
354,247	gal/day	Water
70,959	gal/day	Wastewater
1,748	Mmbtu/day	Cooling Water
548	scf/day	Compressed Air
2	tons/day	Solid Waste Disposal
1	tons/day	Soda Ash
13,836	sf	plot space needed
900	round trip miles/day	truck miles driven
4	trucks/day	no. of trucks
13,850	round trip miles/year	truck miles driven
46	trucks/year	no. of trucks

SRU/TGTU - part 2 1 refinery - gas treating Usage Rates		
30	MMbtu/day	Natural Gas
2,973	kWh/day	Electricity
0	gal/day	Water
0	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
2,110	scf/day	Compressed Air
0	tons/day	Solid Waste Disposal
1	pounds/day	ESX Catalyst
145	pounds/day	Sulfur sales
2,500	sf	plot space needed
450	round trip miles/day	truck miles driven
2	trucks/day	no. of trucks
500	round trip miles/year	truck miles driven
3	trucks/year	no. of trucks

Worksheet B-7
Proposed Project - Option 2: Grand Totals

FCCUs 6 Refineries Using SOx Reducing Additives to meet 5 ppm SOx limit		
Usage Rates		
0	Mmbtu/day	Natural Gas
0	kWh/day	Electricity
0	gal/day	Water
0	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0	tons/day	Solid Waste Disposal
2500	pounds/day	SOx Reducing Catalyst
0	sf	Plot Space Needed
2000	round trip miles/day	1 Truck Delivering SOx Reducing Catalyst
5	trucks/day	No. of Trucks Delivering SOx Reducing Catalyst
0	round trip miles/day	1 Truck Hauling Away Solid Waste
0	trucks/day	No. of Trucks Hauling Away Solid Waste
8000	round trip miles/year	Annual Truck Miles
20	trucks/year	Annual Trucks

Coke Calciner 1 facility - 1 WGS		
Usage Rates		
0	MMbtu/day	Natural Gas
17,711	kWh/day	Electricity
40,896	gal/day	Water
16,992	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0.44	tons/day	Solid Waste Disposal
3	tons/day	NaOH (50%)
1,200	sf	plot space needed
450	round trip miles/day	truck miles driven
2	trucks/day	no. of trucks
4,400	round trip miles/year	truck miles driven
39	trucks/year	no. of trucks

Sulfuric Acid Plant - part 1 1 facility - 1 WGS		
Usage Rates		
0	MMbtu/day	Natural Gas
9,659	kWh/day	Electricity
19,589	gal/day	Water
10,800	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0	tons/day	Solid Waste Disposal
1	tons/day	NaOH (50%)
500	sf	plot space needed
50	round trip miles/day	truck miles driven
1	trucks/day	no. of trucks
650	round trip miles/year	truck miles driven
13	trucks/year	no. of trucks

*any increase in SOx Reducing Catalyst is a direct reduction in FCCU regenerator catalyst

Notes:

Facility A already uses SOx reducing additives, but not sure how much

Facility B already uses 800 lb/day of SOx reducing additives

Facility C no longer needs to use SOx reducing additives
Facility D does not currently use SOx reducing additives
Facility E has been testing with SOx reducing additives
Facility F already uses SOx reducing additives, but not sure how much

Brands of SOx reducing additives:
Intercat Super SOx-Getter
Grace Davison Super DeSOx

Most refineries are already using Grace Davison's base catalyst and sox reducing catalyst

Worksheet B-7
Proposed Project - Option 2: Grand Totals

Sulfuric Acid Plant - part 2		
1 facility - existing system upgrade		
Usage Rates		
0	MMbtu/day	Natural Gas
0	kWh/day	Electricity
6,336	gal/day	Water* (as steam)
0	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0	tons/day	Solid Waste Disposal
0	gal/day	Amine
0	sf	plot space needed
0	round trip miles/day	truck miles driven
0	trucks/day	no. of trucks
0	round trip miles/year	truck miles driven
0	trucks/year	no. of trucks

Cement Kilns		
1 facility - 2 limestone absorbers		
Usage Rates		
0	MMbtu/day	Natural Gas
23,288	kWh/day	Electricity
110,685	gal/day	Water
0	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
1,096	scf/day	Compressed Air
2	tons/day	Solid Waste Disposal
2	tons/day	Limestone - $CaCO_3$
4,000	sf	plot space needed
143	round trip miles/day	truck miles driven
2	trucks/day	no. of trucks
2,585	round trip miles/year	truck miles driven
64	trucks/year	no. of trucks

Cement Boiler		
1 facility - 1 limestone absorber or J-DGS		
Usage Rates		EXCLUDE
0	MMbtu/day	Natural Gas
2,822	kWh/day	Electricity
27,397	gal/day	Water
35,616	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
274	scf/day	Compressed Air
2	tons/day	Solid Waste Disposal
1	tons/day	Limestone - $CaCO_3$
1,225	sf	plot space needed
0	round trip miles/day	truck miles driven
0	trucks/day	no. of trucks
0	round trip miles/year	truck miles driven
0	trucks/year	no. of trucks

excluded - equipment is not in operation

Glass Plant		
1 facility - 2 WGSs		
Usage Rates		
0	MMbtu/day	Natural Gas
5,694	kWh/day	Electricity
58,464	gal/day	Water
12,877	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
110	scf/day	Compressed Air
0	tons/day	Solid Waste Disposal
1	tons/day	NaOH (50%)
640	sf	plot space needed
183	round trip miles/day	truck miles driven
2	trucks/day	no. of trucks
533	round trip miles/year	truck miles driven
9	trucks/year	no. of trucks

Worksheet B-7
Proposed Project - Option 2: Grand Totals

GRAND TOTALS (For Operation)									
Usage Rates					Notes	Net Effect of Project		Percentage Change	Significant?
-4.11	MMbtu/day	-4029.01	scf/day	Natural Gas	Significance Threshold: 1% of supply (9330 MMcf of Natural Gas /day)	-0.0040	MMscf/day	-0.00004%	NO
100,721	kWh/day	100.72	MWh/day	Electricity	Significance Threshold: 1% of supply (8362 MW - instantaneous electricity)	4.20	MW (instantaneous)	0.05%	NO
642,271	gal/day	0.64	MMgal/day	Water	Significance Threshold: 5,000,000 gal/day water	642,271	gal/day	12.85%	NO
158,203	gal/day	0.16	MMgal/day	Wastewater	Significance Threshold: 25% increase above permitted wastewater limits	158,203	gal/day	<25%*	NO
		1,761	MMbtu/day	Cooling Water	This data already included in energy calculations.				
		21,096	scf/day	Compressed Air	This data already included in energy calculations.				
		7.56	tons/day	Solid Waste Disposal	Solid Waste Disposal, Air Quality off-site transportation emissions, & Energy (fuel usage)				
		952.15	pounds/day	Sulfur sales*	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		16.44	pounds/day	Merox Catalyst	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		2500.00	pounds/day	SOx Reducing Catalyst	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		10.96	gal/day	TG-10 amine additive	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		0.86	tons/day	Soda Ash (Na_2CO_3)	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		1.10	pounds/day	ESX Catalyst	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		8.79	tons/day	NaOH (50% by weight)	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		2.98	tons/day	Limestone - $CaCO_3$	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		2173	gal/day	sulfinol	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		-1373.95	gal/day	MEA	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		-789.041	gal/day	DEA	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		40,976	sf	Plot Space Needed	Air Quality: grading/site-preparation construction emissions				
		16,076	round trip miles/day	Daily truck miles driven	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		30	trucks/day	Daily no. of trucks	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		108,318	round trip miles/year	Annual truck miles driven	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		274	trucks/year	Annual no. of trucks	Air Quality: off-site transportation emissions & Energy (fuel usage)				

Note 1: Instantaneous Electricity Equation: 100,721 kW-hr/day x 1 work day/24 hr x 1 MW/1000 kW = 4.2 MW

Note 2. This calculation takes into account the electricity needed to make 8.79 tons per day of NaOH to satisfy demand (19,940 kWh/day).

*See Hydrology/Water Quality Analysis

*See Hydrology/Water Quality Analysis

Key:
Cooling water already accounted for in both water demand and energy demand.
NaOH is 50% by weight; usually delivered by tanker truck in an aqueous solution due to high concentration
1 scf = 1020 BTU for natural gas
1 MW = 1000 KW
1 tcf (trillion cubic feet) = 1000 bcf (billion cubic feet) = 1,000,000 MMcf (million cubic feet)
1 metric ton = 2205 lbs

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	108,318	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT/year)
Offsite (Heavy-Heavy Duty Truck)	1.05	4.26	12.88	0.017	0.62	0.54	456,658	12.62	456,923	207
SUBTOTAL	1	4	13	0	1	1	456,658	13	456,923	207
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	108,318	4.89	529,674	2,037
			TOTAL	529,674	2,037

*Assumes 260 days/year

Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012

http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

PROPOSED PROJECT - OPTION 2: GHG GRAND TOTALS

Worksheet B-8
Proposed Project - Option 2: GHG Grand Totals

Phase III: Operations - GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - reduction	-0.0040	MMscf/day	Natural Gas GHGs	-80.03	-0.0004	-0.0015	-80
electricity - increased use	100.7209	MWh/day	Electricity GHGs	18339.88	0.0000	0.0000	18,340
water - increased use[1]	**0.6423**	**MMgal/day**	**Water Conveyance GHGs**	**254.32**	**0.0015**	**0.0027**	**255**
Facility A	0.0082	MMgal/day	Water Conveyance GHGs	1.04	0.0000	0.0000	1
Facility B	0.1400	MMgal/day	Water Conveyance GHGs	17.80	0.0001	0.0002	18
Facility C	0.01	MMgal/day	Water Conveyance GHGs	12.21	0.0001	0.0001	12
Facility D	0.2279	MMgal/day	Water Conveyance GHGs	28.98	0.0002	0.0003	29
Facility E	0.0137	MMgal/day	Water Conveyance GHGs	18.43	0.0001	0.0002	18
Facility F	0.0000	MMgal/day	Water Conveyance GHGs	0.00	0.0000	0.0000	0
Facility G	0.01	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	2
Facility H	0.04	MMgal/day	Water Conveyance GHGs	55.02	0.0003	0.0006	55
Facility I	0.06	MMgal/day	Water Conveyance GHGs	78.66	0.0005	0.0008	79
Facility J	0.02	MMgal/day	Water Conveyance GHGs	26.36	0.0002	0.0003	26
Facility K	0.11	MMgal/day	Water Conveyance GHGs	14.07	0.0001	0.0001	14
wastewater - increased generation[1]	**0.1582**	**MMgal/day**	**Wastewater Processing GHGs**	**86.35**	**0.00**	**0.00**	**87**
Facility A	0.0055	MMgal/day	Wastewater Processing GHGs	0.70	0.0000	0.0000	1
Facility B	0.0279	MMgal/day	Wastewater Processing GHGs	3.55	0.0000	0.0000	4
Facility C	0.00	MMgal/day	Wastewater Processing GHGs	3.69	0.0000	0.0000	4
Facility D	0.0567	MMgal/day	Wastewater Processing GHGs	7.21	0.0000	0.0001	7
Facility E	0.0110	MMgal/day	Wastewater Processing GHGs	14.74	0.0001	0.0002	15
Facility F	0.0000	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
Facility G	0.01	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	2
Facility H	0.02	MMgal/day	Wastewater Processing GHGs	22.86	0.0001	0.0002	23
Facility I	0.01	MMgal/day	Wastewater Processing GHGs	17.32	0.0001	0.0002	17
Facility J	0.01	MMgal/day	Wastewater Processing GHGs	14.53	0.0001	0.0002	15
Facility K	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
temporary construction activities[3]	25616	MT/project	Construction GHGs in CO2e				854
operational truck trips	207.2212	MT/project	Operation GHGs in CO2e				207
						TOTAL CO2e	**19,662**
						Significance Threshold	**10,000**
						Exceed Significance?	**YES**

Phase III: Operations - GHG Emissions - Mitigated by Using Recycled Water **Worksheet B-8**

Proposed Project - Option 2: GHG Grand Totals

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - reduction	-0.0040	MMscf/day	Natural Gas GHGs	-80.03	-0.0004	-0.0015	-80
electricity - increased use	100.72	MWh/day	Electricity GHGs	18339.88	0.0000	0.0000	18,340
water - increased use[2]	**0.64**	**MMgal/day**	**Water Conveyance GHGs**	**202.70**	**0.0012**	**0.0021**	**203**
Facility A	0.01	MMgal/day	Water Conveyance GHGs	1.04	0.0000	0.0000	1
Facility B	0.14	MMgal/day	Water Conveyance GHGs	17.80	0.0001	0.0002	18
Facility C	0.009	MMgal/day	Water Conveyance GHGs	1.15	0.0000	0.0000	1
Facility D	0.23	MMgal/day	Water Conveyance GHGs	28.98	0.0002	0.0003	29
Facility E	0.01	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	2
Facility F	0.0000	MMgal/day	Water Conveyance GHGs	0.00	0.0000	0.0000	0
Facility G	0.014	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	2
Facility H	0.041	MMgal/day	Water Conveyance GHGs	55.02	0.0003	0.0006	55
Facility I	0.058	MMgal/day	Water Conveyance GHGs	78.66	0.0005	0.0008	79
Facility J	0.020	MMgal/day	Water Conveyance GHGs	2.49	0.0000	CH4 (MT/yr)	2
Facility K	0.111	MMgal/day	Water Conveyance GHGs	14.07	0.0001	0.0001	14
wastewater - increased generation[2]	**0.16**	**MMgal/day**	**Wastewater Processing GHGs**	**56.50**	**0.0003**	**0.0006**	**57**
Facility A	0.01	MMgal/day	Wastewater Processing GHGs	0.70	0.0000	0.0000	1
Facility B	0.03	MMgal/day	Wastewater Processing GHGs	3.55	0.0000	0.0000	4
Facility C	0.003	MMgal/day	Wastewater Processing GHGs	0.35	0.0000	0.0000	0
Facility D	0.06	MMgal/day	Wastewater Processing GHGs	7.21	0.0000	0.0001	7
Facility E	0.01	MMgal/day	Wastewater Processing GHGs	1.39	0.0000	0.0000	1
Facility F	0.0000	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
Facility G	0.01	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	2
Facility H	0.02	MMgal/day	Wastewater Processing GHGs	22.86	0.0001	0.0002	23
Facility I	0.01	MMgal/day	Wastewater Processing GHGs	17.32	0.0001	0.0002	17
Facility J	0.01	MMgal/day	Wastewater Processing GHGs	1.37	0.0000	0.0000	1
Facility K	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
temporary construction activities[3]	25616	MT/project	Construction GHGs in CO2e				854
operational truck trips	207.22	MT/project	Operation GHGs in CO2e				207
						TOTAL CO2e	**19,580**
						Significance Threshold	**10,000**
						Exceed Significance?	**YES**

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water[1]
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation[2]
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[3] GHGs from temporary construction activities are amortized over 30 years.

ALTERNATIVE B: GRAND TOTALS

Coke Calciner 1 facility - 1 WGS		
Usage Rates		Facility H
0	MMbtu/day	Natural Gas
17,711	kWh/day	Electricity
40,896	gal/day	Water
16,992	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0.44	tons/day	Solid Waste Disposal
3	tons/day	NaOH (50%)
1,200	sf	plot space needed
450	round trip miles/day	truck miles driven
2	trucks/day	no. of trucks
4,400	round trip miles/year	truck miles driven
39	trucks/year	no. of trucks

Recycled Water not available at Facility H

Sulfuric Acid Plant - part 1 1 facility - 1 WGS		
Usage Rates		Facility J
0	MMbtu/day	Natural Gas
9,659	kWh/day	Electricity
19,589	gal/day	Water
10,800	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0	tons/day	Solid Waste Disposal
1	tons/day	NaOH (50%)
500	sf	plot space needed
50	round trip miles/day	truck miles driven
1	trucks/day	no. of trucks
650	round trip miles/year	truck miles driven
13	trucks/year	no. of trucks

Future Access to Recycled Water may be available at Facility J

Sulfuric Acid Plant - part 2 1 facility - existing system upgrade		
Usage Rates		Facility C
0	MMbtu/day	Natural Gas
0	kWh/day	Electricity
6,336	gal/day	Water* (as steam)
0	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0	tons/day	Solid Waste Disposal
0	gal/day	Amine
0	sf	plot space needed
0	round trip miles/day	truck miles driven
0	trucks/day	no. of trucks
0	round trip miles/year	truck miles driven
0	trucks/year	no. of trucks

Future Access to Recycled Water may be available at Facility C

Glass Plant 1 facility - 2 WGSs		
Usage Rates		Facility I
0	MMbtu/day	Natural Gas
5,694	kWh/day	Electricity
58,464	gal/day	Water
12,877	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
110	scf/day	Compressed Air
0	tons/day	Solid Waste Disposal
1	tons/day	NaOH (50%)
640	sf	plot space needed
183	round trip miles/day	truck miles driven
2	trucks/day	no. of trucks
533	round trip miles/year	truck miles driven
9	trucks/year	no. of trucks

Recycled Water not available at Facility I

GRAND TOTALS (For Operation)									
Usage Rates					Notes	Net Effect of Project		Percentage Change	Significant?
0	MMbtu/day	0	scf/day	Natural Gas	Significance Threshold: 1% of supply (9330 MMcf of Natural Gas /day)	0	MMscf/day	0.00000%	NO
33064	kWh/day	33.06	MWh/day	Electricity	Significance Threshold: 1% of supply (8362 MW - instantaneous electricity)	1.38	MW (instantaneous)	0.02%	NO
125285	gal/day	0.13	MMgal/day	Water	Significance Threshold: 5,000,000 gal/day water	125,285	gal/day	2.51%	NO
40669	gal/day	0.04	MMgal/day	Wastewater	Significance Threshold: 25% increase above permitted wastewater limits	40,669	gal/day	<25%*	NO
		0	MMbtu/day	Cooling Water	This data already included in energy calculations.				
		110	scf/day	Compressed Air	This data already included in energy calculations.				
		0.49	tons/day	Solid Waste Disposal	Solid Waste Disposal, Air Quality off-site transportation emissions, & Energy (fuel usage)				
		5.45	tons/day	NaOH (50% by weight)	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		2,340	sf	Plot Space Needed	Air Quality: grading/site-preparation construction emissions				
		683	round trip miles/day	Daily truck miles driven	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		5	trucks/day	Daily no. of trucks	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		5,583	round trip miles/year	Annual truck miles driven	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		61	trucks/year	Annual no. of trucks	Air Quality: off-site transportation emissions & Energy (fuel usage)				
99360	gal/day	0.10	MMgal/day	No access to recycled water					
25925	gal/day	0.03	MMgal/day	future access to recycled water					
29869	gal/day	0.03	MMgal/day	Wastewater (with no access to recycled water)					
10800	gal/day	0.01	MMgal/day	Wastewater (with future access to recycled water)					

Note 1: Instantaneous Electricity Equation: 33,064 kW-hr/day x 1 work day/24 hr x 1 MW/1000 kW = 1.4 MW

Note 2: This calculation takes into account the electricity needed to make 5.45 tons per day of NaOH to satisfy demand (12,361 kWh/day)

*See Hydrology/Water Quality Analysis

*See Hydrology/Water Quality Analysis

Key:
Cooling water already accounted for in both water demand and energy demand.
NaOH is 50% by weight usually delivered by tanker truck in an aqueous solution due to high concentration.
1 scf = 1020 BTU for natural gas
1 MW = 1000 kW
1 tcf (trillion cubic feet) = 1000 bcf (billion cubic feet) = 1,000,000 MMcf (million cubic feet)
1 metric ton = 2205 lbs

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	5,583	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.05	0.22	0.68	0.001	0.03	0.03	23,536	0.65	23,550	11
SUBTOTAL	0	0	1	0	0	0	23,536	1	23,550	11
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	5,583	4.89	27,300	105
			TOTAL	27,300	c. 105

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

ALTERNATIVE B: GHG GRAND TOTALS

Phase III: Operations - GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - reduction	0.0000	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.0000	0
electricity - increased use	33.06	MWh/day	Electricity GHGs	6020.48	0.0000	0.0000	6,020
water - increased use[1]	0.13	MMgal/day	Water Conveyance GHGs	168.56	0.0010	0.0018	169
wastewater - increased generation[1]	0.04	MMgal/day	Wastewater Processing GHGs	54.72	0.0003	0.0006	55
temporary construction activities[3]	9315	MT/project	Construction GHGs in CO2e				312
operational truck trips	10.68	MT/project	Operation GHGs in CO2e				11
						TOTAL CO2e	6,567
						Significance Threshold	10,000
						Exceed Significance?	NO

Phase III: Operations - GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - reduction	0.0000	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.0000	0
electricity - increased use	33.06	MWh/day	Electricity GHGs	6020.48	0.0000	0.0000	6,020
water - increased use[2]	**0.13**	**MMgal/day**	**Water Conveyance GHGs**	**136.98**	**0.0007**	**0.0014**	**137**
Facility C	0.01	MMgal/day	Water Conveyance GHGs	0.81	0.0000	0.0000	1
Facility H	0.04	MMgal/day	Water Conveyance GHGs	55.02	0.0003	0.0006	55
Facility I	0.06	MMgal/day	Water Conveyance GHGs	78.66	0.0003	0.0008	79
Facility J	0.02	MMgal/day	Water Conveyance GHGs	2.49	0.0000	0.0000	2
wastewater - increased generatic	**0.04**	**MMgal/day**	**Wastewater Processing GHG**	**41.56**	**0.0003**	**0.0004**	**42**
Facility C	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
Facility H	0.02	MMgal/day	Wastewater Processing GHGs	22.86	0.0001	0.0002	23
Facility I	0.01	MMgal/day	Wastewater Processing GHGs	17.32	0.0001	0.0002	17
Facility J	0.01	MMgal/day	Wastewater Processing GHGs	1.37	0.0000	0.0000	1
temporary construction activities[3]	9315	MT/project	Construction GHGs in CO2e				312
operational truck trips	10.68	MT/project	Operation GHGs in CO2e				11
						TOTAL CO2e	6,522
						Significance Threshold	10,000
						Exceed Significance?	NO

Note: The mitigation calculations assume that the total water demand for Facilities C & J can potentially supplied by future recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water[1]
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation[2]
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

ALTERNATIVE C - OPTION 1: GRAND TOTALS

Fuel Gas Treatment 6 refineries Usage Rates		
-34	MMbtu/day	Natural Gas
22,649	kWh/day	Electricity
52,055	gal/day	Water
46,575	gal/day	Wastewater
13	Mmbtu/day	Cooling Water
17,233	scf/day	Compressed Air
2	tons/day	Solid Waste Disposal
807	pounds/day	Sulfur sales*
16	pounds/day	Merox Catalyst
3	tons/day	NaOH
11	gallons/day	TG-10 amine additive
2173	gallons/day	sulfinol
-1373.94521	gallons/day	MEA
-789.041096	gallons/day	DEA
18,300	sf	plot space needed
3900	round trip miles/day	truck miles driven
12	trucks/day	no. of trucks
77800	round trip miles/year	truck miles driven
80	trucks/year	no. of trucks

FCCU 4 refineries - 4 WGSs Usage Rates		
0	MMbtu/day	Natural Gas
103,217	kWh/day	Electricity
241,096	gal/day	Water
112,329	gal/day	Wastewater
3	Mmbtu/day	Cooling Water
3,808	scf/day	Compressed Air
4	tons/day	Solid Waste Disposal
4	tons/day	NaOH (50%)
7,150	sf	plot space needed
1,800	round trip miles/day	truck miles driven
8	trucks/day	no. of trucks
27,450	round trip miles/year	truck miles driven
108	trucks/year	no. of trucks

Coke Calciner 1 facility - 1 WGS Usage Rates		
0	MMbtu/day	Natural Gas
17,711	kWh/day	Electricity
40,896	gal/day	Water
16,992	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0.44	tons/day	Solid Waste Disposal
3	tons/day	NaOH (50%)
1,200	sf	plot space needed
450	round trip miles/day	truck miles driven
2	trucks/day	no. of trucks
4,400	round trip miles/year	truck miles driven
39	trucks/year	no. of trucks

Sulfuric Acid Plant - part 1 1 facility - 1 WGS Usage Rates		
0	MMbtu/day	Natural Gas
9,659	kWh/day	Electricity
19,589	gal/day	Water
10,800	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0	tons/day	Solid Waste Disposal
1	tons/day	NaOH (50%)
500	sf	plot space needed
50	round trip miles/day	truck miles driven
1	trucks/day	no. of trucks
650	round trip miles/year	truck miles driven
13	trucks/year	no. of trucks

Worksheet B-11
Alternative C - Option 1: Grand Totals

Sulfuric Acid Plant - part 2 1 facility - existing system upgrade Usage Rates		
0	MMbtu/day	Natural Gas
0	kWh/day	Electricity
6,336	gal/day	Water* (as steam)
0	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0	tons/day	Solid Waste Disposal
0	gal/day	Amine
0	sf	plot space needed
0	round trip miles/day	truck miles driven
0	trucks/day	no. of trucks
0	round trip miles/year	truck miles driven
0	trucks/year	no. of trucks

Cement Kiln 1 facility - 2 limestone absorbers Usage Rates		
0	MMbtu/day	Natural Gas
23,288	kWh/day	Electricity
110,685	gal/day	Water
0	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
1,096	scf/day	Compressed Air
2	tons/day	Solid Waste Disposal
2	tons/day	Limestone - $CaCO_3$
4,000	sf	plot space needed
143	round trip miles/day	truck miles driven
2	trucks/day	no. of trucks
2,585	round trip miles/year	truck miles driven
64	trucks/year	no. of trucks

Glass Plant 1 facility - 2 WGSs Usage Rates		
0	MMbtu/day	Natural Gas
5,694	kWh/day	Electricity
58,464	gal/day	Water
12,877	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
110	scf/day	Compressed Air
0	tons/day	Solid Waste Disposal
1	tons/day	NaOH (50%)
640	sf	plot space needed
183	round trip miles/day	truck miles driven
2	trucks/day	no. of trucks
533	round trip miles/year	truck miles driven
9	trucks/year	no. of trucks

Worksheet B-11
Alternative C - Option 1: Grand Totals

GRAND TOTALS (For Operation)									
Usage Rates					Notes	Net Effect of Project		Percentage Change	Significant?
-34.25	MMbtu/day	-33575.07	scf/day	Natural Gas	Significance Threshold: 1% of supply (9330 MMcf of Natural Gas /day)	-0.0336	MMscf/day	-0.00036%	NO
182,218	kWh/day	182.22	MWh/day	Electricity	Significance Threshold: 1% of supply (8362 MW - instantaneous electricity)	7.59	MW (instantaneous)	0.09%	NO
529,121	gal/day	0.53	MMgal/day	Water	Significance Threshold: 5,000,000 gal/day water	529,121	gal/day	10.58%	NO
199,573	gal/day	0.20	MMgal/day	Wastewater	Significance Threshold: 25% increase above permitted wastewater limits	199,573	gal/day	<25%*	NO
		16	MMbtu/day	Cooling Water	This data already included in energy calculations				
		22,247	scf/day	Compressed Air	This data already included in energy calculations				
		9.50	tons/day	Solid Waste Disposal	Solid Waste Disposal, Air Quality off-site transportation emissions, & Energy (fuel usage)				
		806.95	pounds/day	Sulfur sales*	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		16.44	pounds/day	Merox Catalyst	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		10.96	gal/day	TG-10 amine additive	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		13.24	tons/day	NaOH (50% by weight)	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		1.84	tons/day	Limestone - $CaCO_3$	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		2173	gal/day	sulfinol	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		-1373.95	gal/day	MEA	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		-789.041	gal/day	DEA	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		31,790	sf	Plot Space Needed	Air Quality: grading/site-preparation construction emissions				
		6,526	round trip miles/day	Daily truck miles driven	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		27	trucks/day	Daily no. of trucks	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		113,418	round trip miles/year	Annual truck miles driven	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		313	trucks/year	Annual no. of trucks	Air Quality: off-site transportation emissions & Energy (fuel usage)				

Note 1: Instantaneous Electricity Equation:
182,218 kW-hr/day x 1 work day/24 hr x 1 MW/1000 kW = 7.6 MW

*See Hydrology/Water Quality Analysis

*See Hydrology/Water Quality Analysis

Note 2: This calculation takes into account the electricity needed to make 13.24 tons per day of NaOH to satisfy demand (30,023 kWh/day).

Key:
Cooling water already accounted for in both water demand and energy demand.
NaOH is 50% by weight, usually delivered by tanker truck in an aqueous solution due to high concentration.
1 scf = 1020 BTU for natural gas
1 MW = 1000 KW
1 tcf (trillion cubic feet) = 1000 bcf (billion cubic feet) = 1,000,000 MMcf (million cubic feet)
1 metric ton = 2205 lbs

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	113,418	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	1.10	4.46	13.49	0.018	0.65	0.56	478,159	13.21	478,436	217
SUBTOTAL	1	4	13	0	1	1	478,159	13	478,436	217
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	113,418	4.89	554,613	2,133
			TOTAL	554,613	2,133

*Assumes 260 days/year

Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012

http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

ALTERNATIVE C - OPTION 1: GHG GRAND TOTALS

Phase III: Operations - GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - reduction	-0.0336	MMscf/day	Natural Gas GHGs	-666.93	-0.0036	-0.0128	-668
electricity - increased use*	182.22	MWh/day	Electricity GHGs	33179.29	0.0000	0.0000	33,179
water - increased use[1]	**0.53**	**MMgal/day**	**Water Conveyance GHGs**	**353.42**	**0.0020**	**0.0037**	**354**
Facility A	0.079	MMgal/day	Water Conveyance GHGs	10.10	0.0001	0.0001	10.12
Facility B	0.077	MMgal/day	Water Conveyance GHGs	9.75	0.0001	0.0001	9.77
Facility C	0.009	MMgal/day	Water Conveyance GHGs	12.21	0.0001	0.0001	12.24
Facility D	0.014	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	1.75
Facility E	0.063	MMgal/day	Water Conveyance GHGs	84.78	0.0005	0.0009	84.95
Facility F	0.044	MMgal/day	Water Conveyance GHGs	58.98	0.0003	0.0006	59.10
Facility G	0.014	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	1.75
Facility H	0.041	MMgal/day	Water Conveyance GHGs	55.02	0.0003	0.0006	55.13
Facility I	0.058	MMgal/day	Water Conveyance GHGs	78.66	0.0005	0.0008	78.82
Facility J	0.020	MMgal/day	Water Conveyance GHGs	26.36	0.0002	0.0003	26.41
Facility K	0.111	MMgal/day	Water Conveyance GHGs	14.07	0.0001	0.0001	14.10
wastewater - increased generatic	**0.20**	**MMgal/day**	**Wastewater Processing GHG**	**145.01**	**0.0008**	**0.0015**	**145**
Facility A	0.038	MMgal/day	Wastewater Processing GHGs	4.88	0.0000	0.0001	4.89
Facility B	0.036	MMgal/day	Wastewater Processing GHGs	4.53	0.0000	0.0000	4.54
Facility C	0.003	MMgal/day	Wastewater Processing GHGs	3.69	0.0000	0.0000	3.69
Facility D	0.014	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	1.75
Facility E	0.033	MMgal/day	Wastewater Processing GHGs	44.23	0.0003	0.0005	44.32
Facility F	0.022	MMgal/day	Wastewater Processing GHGs	29.49	0.0002	0.0003	29.55
Facility G	0.014	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	1.75
Facility H	0.017	MMgal/day	Wastewater Processing GHGs	22.86	0.0001	0.0002	22.91
Facility I	0.013	MMgal/day	Wastewater Processing GHGs	17.32	0.0001	0.0002	17.36
Facility J	0.011	MMgal/day	Wastewater Processing GHGs	14.53	0.0001	0.0002	14.56
Facility K	0.000	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0.00
temporary construction activities[3]	27944	MT/project	Construction GHGs in CO2e				932
operational truck trips	216.98	MT/project	Operation GHGs in CO2e				217
						TOTAL CO2e	**34,159**
						Significance Threshold	**10,000**
						Exceed Significance?	**YES**

Worksheet B-12
Alternative C - Option 1: GHG Grand Totals

Phase III: Operations - GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - reduction	-0.0336	MMscf/day	Natural Gas GHGs	-666.93	-0.0036	-0.0128	-668
electricity - increased use*	182.22	MWh/day	Electricity GHGs	33179.29	0.0000	0.0000	33,179
water - increased use[2]	**0.53**	**MMgal/day**	**Water Conveyance GHGs**	**188.32**	**0.0011**	**0.0020**	**189**
Facility A	0.079	MMgal/day	Water Conveyance GHGs	10.10	0.0001	0.0001	10.12
Facility B	0.077	MMgal/day	Water Conveyance GHGs	9.75	0.0001	0.0001	9.77
Facility C	0.009	MMgal/day	Water Conveyance GHGs	1.15	0.0000	0.0000	1.16
Facility D	0.014	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	1.75
Facility E	0.063	MMgal/day	Water Conveyance GHGs	8.01	0.0000	0.0001	8.03
Facility F	0.044	MMgal/day	Water Conveyance GHGs	5.57	0.0000	0.0001	5.58
Facility G	0.014	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	1.75
Facility H	0.041	MMgal/day	Water Conveyance GHGs	55.02	0.0003	0.0006	55.13
Facility I	0.058	MMgal/day	Water Conveyance GHGs	78.66	0.0005	0.0008	78.82
Facility J	0.020	MMgal/day	Water Conveyance GHGs	2.49	0.0000	0.0000	2.50
Facility K	0.111	MMgal/day	Water Conveyance GHGs	14.07	0.0001	0.0001	14.10
wastewater - increased generatic	**0.20**	**MMgal/day**	**Wastewater Processing GHG**	**61.76**	**0.0004**	**0.0006**	**62**
Facility A	0.038	MMgal/day	Wastewater Processing GHGs	4.88	0.0000	0.0001	4.89
Facility B	0.036	MMgal/day	Wastewater Processing GHGs	4.53	0.0000	0.0000	4.54
Facility C	0.003	MMgal/day	Wastewater Processing GHGs	0.35	0.0000	0.0000	0.35
Facility D	0.014	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	1.75
Facility E	0.033	MMgal/day	Wastewater Processing GHGs	4.18	0.0000	0.0000	4.19
Facility F	0.022	MMgal/day	Wastewater Processing GHGs	2.79	0.0000	0.0000	2.79
Facility G	0.014	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	1.75
Facility H	0.017	MMgal/day	Wastewater Processing GHGs	22.86	0.0001	0.0002	22.91
Facility I	0.013	MMgal/day	Wastewater Processing GHGs	17.32	0.0001	0.0002	17.36
Facility J	0.011	MMgal/day	Wastewater Processing GHGs	1.37	0.0000	0.0000	1.38
Facility K	0.000	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0.00
temporary construction activities[3]	27944	MT/project	Construction GHGs in CO2e				932
operational truck trips	216.98	MT/project	Operation GHGs in CO2e				217
						TOTAL CO2e	**33,911**
						Significance Threshold	**10,000**
						Exceed Significance?	**YES**

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water[1]
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation[2]
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[3] GHGs from temporary construction activities are amortized over 30 years.

ALTERNATIVE C - OPTION 2: GRAND TOTALS

FCCUs 5 Refineries Using SOx Reducing Additives to meet 5 ppm SOx limit Usage Rates		
0	Mmbtu/day	Natural Gas
0	kWh/day	Electricity
0	gal/day	Water
0	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0	tons/day	Solid Waste Disposal
2500	pounds/day	SOx Reducing Catalyst
0	sf	Plot Space Needed
2000	round trip miles/day	1 Truck Delivering SOx Reducing Catalyst
5	trucks/day	No. of Trucks Delivering SOx Reducing Catalyst
0	round trip miles/day	1 Truck Hauling Away Solid Waste[2]
0	trucks/day	No. of Trucks Hauling Away Solid Waste[2]
8000	round trip miles/year	Annual Truck Miles
20	trucks/year	Annual Trucks

Coke Calciner 1 facility - 1 WGS Usage Rates		
0	MMbtu/day	Natural Gas
17,711	kWh/day	Electricity
40,896	gal/day	Water
16,992	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0.44	tons/day	Solid Waste Disposal
3	tons/day	NaOH (50%)
1,200	sf	plot space needed
450	round trip miles/day	truck miles driven
2	trucks/day	no. of trucks
4,400	round trip miles/year	truck miles driven
39	trucks/year	no. of trucks

Sulfuric Acid Plant - part 1 1 facility - 1 WGS Usage Rates		
0	MMbtu/day	Natural Gas
9,659	kWh/day	Electricity
19,589	gal/day	Water
10,800	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0	tons/day	Solid Waste Disposal
1	tons/day	NaOH (50%)
500	sf	plot space needed
50	round trip miles/day	truck miles driven
1	trucks/day	no. of trucks
650	round trip miles/year	truck miles driven
13	trucks/year	no. of trucks

Sulfuric Acid Plant - part 2 1 facility - existing system upgrade Usage Rates		
0	MMbtu/day	Natural Gas
0	kWh/day	Electricity
6,336	gal/day	Water* (as steam)
0	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0	tons/day	Solid Waste Disposal
0	gal/day	Amine
0	sf	plot space needed
0	round trip miles/day	truck miles driven
0	trucks/day	no. of trucks
0	round trip miles/year	truck miles driven
0	trucks/year	no. of trucks

*any increase in SOx Reducing Catalyst is a direct reduction in FCCU regenerator catalyst

Notes:

Facility A already uses SOx reducing additives, but not sure how much

Facility B already uses 800 lb/day of SOx reducing additives

Facility C no longer needs to use SOx reducing additives

Facility D does not currently use SOx reducing additives
Facility E has been testing with SOx reducing additives
Facility F already uses SOx reducing additives, but not sure how much

Brands of SOx reducing additives:

Intercat Super SOx-Getter

Grace Davison Super DeSOx

Most refineries are using Grace Davison's base catalyst and sox reducing catalyst.

[1]Assumes catalyst deliveries are made by a 25 ton capacity truck. It will take an extra 19 trucks to deliver one year's worth of catalyst, but the peak would be one truck per day.
456.25 tons/yr catalyst x 1 truck/25 tons = 18.25 trucks/year to deliver extra catalyst

[2]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 78 trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.
1938.15 tons/yr solid waste x 1 truck/25 tons = 78 trucks/year to haul extra solid waste away for recycling

Worksheet B-13
Alternative C - Option 2: Grand Totals

Glass Plant 1 facility - 2 WGSs Usage Rates		
0	MMbtu/day	Natural Gas
5,694	kWh/day	Electricity
58,464	gal/day	Water
12,877	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
110	scf/day	Compressed Air
0	tons/day	Solid Waste Disposal
1	tons/day	NaOH (50%)
640	sf	plot space needed
183	round trip miles/day	truck miles driven
2	trucks/day	no. of trucks
533	round trip miles/year	truck miles driven
9	trucks/year	no. of trucks

Cement Kilns 1 facility - 2 limestone absorbers Usage Rates		
0	MMbtu/day	Natural Gas
23288	kWh/day	Electricity
110685	gal/day	Water
0	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
1096	scf/day	Compressed Air
2	tons/day	Solid Waste Disposal
2	tons/day	Limestone - $CaCO_3$
4000	sf	plot space needed
143	round trip miles/day	truck miles driven
2	trucks/day	no. of trucks
2585	round trip miles/year	truck miles driven
64	trucks/year	no. of trucks

Fuel Gas Treatment 6 refineries Usage Rates		
-34	MMbtu/day	Natural Gas
22,649	kWh/day	Electricity
52,055	gal/day	Water
46,575	gal/day	Wastewater
13	Mmbtu/day	Cooling Water
17,233	scf/day	Compressed Air
2	tons/day	Solid Waste Disposal
807	pounds/day	Sulfur sales*
16	pounds/day	Merox Catalyst
3	tons/day	NaOH (50%)
11	gallons/day	TG-10 amine additive
2173	gallons/day	sulfinol
-1374	gallons/day	MEA
-789	gallons/day	DEA
18,300	sf	plot space needed
3,900	round trip miles/day	truck miles driven
12	trucks/day	no. of trucks
77,800	round trip miles/year	truck miles driven
80	trucks/year	no. of trucks

Worksheet B-13
Alternative C - Option 2: Grand Totals

GRAND TOTALS (For Operation)									
Usage Rates					Notes	Net Effect of Project		Percentage Change	Significant?
-34.25	MMbtu/day	-33575.07	scf/day	Natural Gas	Significance Threshold: 1% of supply (9330 MMcf of Natural Gas /day)	-0.0336	MMscf/day	-0.00036%	NO
79,000	kWh/day	79.00	MWh/day	Electricity	Significance Threshold: 1% of supply (8362 MW - instantaneous electricity)	3.29	MW (instantaneous)	0.04%	NO
288,025	gal/day	0.29	MMgal/day	Water	Significance Threshold: 5,000,000 gal/day water	288,025	gal/day	5.76%	NO
87,244	gal/day	0.09	MMgal/day	Wastewater	Significance Threshold: 25% increase above permitted wastewater limits	87,244	gal/day	<25%*	NO
		13	MMbtu/day	Cooling Water	This data already included in energy calculations.				
		18,438	scf/day	Compressed Air	This data already included in energy calculations.				
		5.31	tons/day	Solid Waste Disposal	Solid Waste Disposal, Air Quality off-site transportation emissions, & Energy (fuel usage)				
		807	pounds/day	Sulfur sales*	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		16	pounds/day	Merox Catalyst	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		2,500	pounds/day	SOx Reducing Catalyst	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		8.79	tons/day	NaOH (50% by weight)	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		2	tons/day	Limestone - $CaCO_3$	Air Quality: on-site transportation emissions & Energy (fuel usage)				
		11	tons/day	TG-10 amine additive	Air Quality: on-site transportation emissions & Energy (fuel usage)				
		2173	gal/day	sulfinol	Air Quality: on-site transportation emissions & Energy (fuel usage)				
		-1374	gal/day	MEA	Air Quality: on-site transportation emissions & Energy (fuel usage)				
		-789	gal/day	DEA	Air Quality: on-site transportation emissions & Energy (fuel usage)				
		24,640	sf	Plot Space Needed	Air Quality: grading/site-preparation construction emissions				
		6,726	round trip miles/day	Daily truck miles driven	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		24	trucks/day	Daily no. of trucks	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		93,968	round trip miles/year	Annual truck miles driven	Air Quality: off-site transportation emissions & Energy (fuel usage)				
		225	trucks/year	Annual no. of trucks	Air Quality: off-site transportation emissions & Energy (fuel usage)				

Note 1: Instantaneous Electricity Equation: 79,000 kW-hr/day x 1 work day/24 hr x 1 MW/1000 kW = 3.3 MW

Note 2: This calculation takes into account the electricity needed to make 8.79 tons per day of NaOH to satisfy demand (19,940 kWh/day).

*See Hydrology/Water Quality Analysis

*See Hydrology/Water Quality Analysis

Key:
Cooling water already accounted for in both water demand and energy demand.
NaOH is 50% by weight, usually delivered by tanker truck in an aqueous solution due to high concentration.

1 scf = 1020 BTU for natural gas.

1 MW = 1000 KW
1 tcf (trillion cubic feet) = 1000 bcf (billion cubic feet) = 1,000,000 MMcf (million cubic feet)

1 metric ton = 2205 lbs

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	93,968	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.91	3.69	11.18	0.015	0.54	0.47	396,159	10.95	396,389	180
SUBTOTAL	1	4	11	0	1	0	396,159	11	396,389	180
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	93,968	4.89	459,502	1,767
*Assumes 260 days/year			TOTAL	459,502	1,767

Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012

http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

ALTERNATIVE C - OPTION 2: GHG GRAND TOTALS

Phase III: Operations - GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - reduction	-0.0336	MMscf/day	Natural Gas GHGs	-666.93	-0.0036	-0.0128	-668
electricity - increased use	79.00	MWh/day	Electricity GHGs	14384.87	0.0000	0.0000	14,385
water - increased use[1]	**0.29**	**MMgal/day**	**Water Conveyance GHGs**	**209.28**	**0.0012**	**0.0022**	**210**
Facility A	0.01	MMgal/day	Water Conveyance GHGs	1.04	0.0000	0.0000	1
Facility B	0.00	MMgal/day	Water Conveyance GHGs	0.00	0.0000	0.0000	0
Facility C	0.01	MMgal/day	Water Conveyance GHGs	12.21	0.0001	0.0001	12
Facility D	0.01	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	2
Facility E	0.01	MMgal/day	Water Conveyance GHGs	18.43	0.0001	0.0002	18
Facility F	0.00	MMgal/day	Water Conveyance GHGs	0.00	0.0000	0.0000	0
Facility G	0.01	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	2
Facility H	0.04	MMgal/day	Water Conveyance GHGs	55.02	0.0003	0.0006	55
Facility I	0.06	MMgal/day	Water Conveyance GHGs	78.66	0.0005	0.0008	79
Facility J	0.02	MMgal/day	Water Conveyance GHGs	26.36	0.0002	0.0003	26
Facility K	0.11	MMgal/day	Water Conveyance GHGs	14.07	0.0001	0.0001	14
wastewater - increased generatic	**0.09**	**MMgal/day**	**Wastewater Processing GHG**	**77.33**	**0.0004**	**0.0008**	**77**
Facility A	0.01	MMgal/day	Wastewater Processing GHGs	0.70	0.0000	0.0000	1
Facility B	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
Facility C	0.00	MMgal/day	Wastewater Processing GHGs	3.69	0.0000	0.0000	4
Facility D	0.01	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	2
Facility E	0.01	MMgal/day	Wastewater Processing GHGs	14.74	0.0001	0.0002	15
Facility F	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
Facility G	0.01	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	2
Facility H	0.02	MMgal/day	Wastewater Processing GHGs	22.86	0.0001	0.0002	23
Facility I	0.01	MMgal/day	Wastewater Processing GHGs	17.32	0.0001	0.0002	17
Facility J	0.01	MMgal/day	Wastewater Processing GHGs	14.53	0.0001	0.0002	15
Facility K	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
temporary construction activities[3]	18630	MT/project	Construction GHGs in CO2e				621
operational truck trips	179.77	MT/project	Operation GHGs in CO2e				180
						TOTAL CO2e	**14,805**
						Significance Threshold	**10,000**
						Exceed Significance?	**YES**

Worksheet B-14
Alternative C - Option 2: GHG Grand Totals

Phase III: Operations - GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - reduction	-0.0336	MMscf/day	Natural Gas GHGs	-666.93	-0.0036	-0.0128	-668
electricity - increased use	79.00	MWh/day	Electricity GHGs	14384.87	0.0000	0.0000	14,385
water - increased use[2]	**0.29**	**MMgal/day**	**Water Conveyance GHGs**	**157.67**	**0.0009**	**0.0017**	**158**
Facility A	0.01	MMgal/day	Wastewater Processing GHGs	1.04	0.0000	0.0000	1
Facility B	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
Facility C	0.01	MMgal/day	Wastewater Processing GHGs	1.15	0.0000	0.0000	1
Facility D	0.01	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	2
Facility E	0.01	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	2
Facility F	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
Facility G	0.01	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	2
Facility H	0.04	MMgal/day	Wastewater Processing GHGs	55.02	0.0003	0.0006	55
Facility I	0.06	MMgal/day	Wastewater Processing GHGs	78.66	0.0005	0.0008	79
Facility J	0.02	MMgal/day	Wastewater Processing GHGs	2.49	0.0000	0.0000	2
Facility K	0.11	MMgal/day	Wastewater Processing GHGs	14.07	0.0001	0.0001	14
wastewater - increased generatic	**0.09**	**MMgal/day**	**Wastewater Processing GHG**	**47.4810**	**0.0003**	**0.0005**	**48**
Facility A	0.01	MMgal/day	Wastewater Processing GHGs	0.70	0.0000	0.0000	1
Facility B	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
Facility C	0.00	MMgal/day	Wastewater Processing GHGs	0.35	0.0000	0.0000	0
Facility D	0.01	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	2
Facility E	0.01	MMgal/day	Wastewater Processing GHGs	1.39	0.0000	0.0000	1
Facility F	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
Facility G	0.01	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	2
Facility H	0.02	MMgal/day	Wastewater Processing GHGs	22.86	0.0001	0.0002	23
Facility I	0.01	MMgal/day	Wastewater Processing GHGs	17.32	0.0001	0.0002	17
Facility J	0.01	MMgal/day	Wastewater Processing GHGs	1.37	0.0000	0.0000	1
Facility K	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
temporary construction activities[3]	18630	MT/project	Construction GHGs in CO2e				621
operational truck trips	179.77	MT/project	Operation GHGs in CO2e				180
						TOTAL CO2e	**14,723**
						Significance Threshold	**10,000**
						Exceed Significance?	**YES**

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water[1]
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation[2]
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[3] GHGs from temporary construction activities are amortized over 30 years.

Facility K - Cement Plant
BoldEco Limestone
Absorber

TWO UNITS Required

Utility/Infrastructure	Annual Usage/unit		Daily Usage/unit	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	4,250,000	kWh	11643.84	kWh
Water	20.2	MMgal	55342.47	gal
Wastewater	0	MMgal	0.00	gal
Cooling Water	0	MMbtu	0.00	MMbtu
Compressed Air	200	1000 scf	547.95	scf
Solid Waste Disposal	454	tons	1.24	tons
Limestone - $CaCO_3$	336	tons	0.92	tons
Plot Space Needed	2000	sf	2000	sf
1 Truck Hauling Away Solid Waste[1]	2558.00	round trip miles	142.12	round trip miles
1 Truck Delivering Limestone[2]	27	round trip miles	1.00	round trip miles
No. of Trucks Hauling Away Solid Waste	37	trucks	1	truck
No. of Trucks Delivering Limestone	27	trucks	1	truck

GRAND TOTAL FOR TWO UNITS

Daily Usage			Daily Usage		
0	MMbtu	Natural Gas	0	scf	
23287.67	Kwh	Electricity	23.29	MWh	
110684.94	gal	Water	0.11	Mmgal	*All of the injected water is evaporated, so there is no wastewater per ETS email on 09/15/09
0	gal	Wastewater	0	Mmgal	
0	MMbtu	Cooling Water			
1095.9	scf	Compressed Air			
2.49	tons	Solid Waste Disposal			
1.84	tons	Limestone - $CaCO_3$			
4000	sf	Plot Space Needed			
143.12	Daily round trip miles	Total Daily Truck Miles			
2.00	Daily trucks	Total No. of Trucks			
2585.00	Annual round trip miles	Annual Truck Miles			
64	Annual trucks	Annual Trucks			

[1]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take 37 extra trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.
454 tons/yr solid waste x 2 units X 1 truck/25 tons = 36.32 trucks/year to haul extra solid waste away for recycling
This facility sends its solid waste to a Class III landfill for disposal which is 71.06 miles (one-way) away.

[2]Assumes Hauling Limestone from quarry to unit in a 25 ton capacity truck. It will take 27 extra truck trips to haul one year's worth of limestone, but the peak would be one truck per day.
336 tons/yr limestone x 2 units x 1 truck/25 tons = 26.88 trucks/year to haul limestone from the quarry to the equipment
The distance between the quarry and the facility is less than one mile (one-way) away because the cement plant is located on its own quarry.

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation On-Road Equipment Type	Fuel	Annual Round-trip Distance (miles/year)	Mileage Rate (miles/ gallon)	2012 Mobile Source Emission Factors VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	2,585	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.03	0.10	0.31	0.000	0.01	0.01	10,898	0.30	10,904	5
SUBTOTAL	0	0	0	0	0	0	10,898	0	10,904	5
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	2,585	4.89	12,641	49
			TOTAL	12,641	49

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.0000	MMscf/day	Natural Gas	0.00	0.0000	0.0000	0
electricity - increased use	23.29	MWh/day	Electricity GHGs	4240.36	0.0000	0.0000	4,240
water - increased use[1]	0.11	MMgal/day	Water Conveyance GHGs	14.07	0.0001	0.0001	14
wastewater - increased generation[2]	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
temporary construction activities[3]	4657	MT/year	Construction GHGs in CO2e				155
operational truck trips	4.95	MT/year	Operation GHGs in CO2e				5
						TOTAL CO2e	4,415

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.00	MMscf/day	Natural Gas	0.00	0.00	0.00	0
electricity - increased use	23.29	MWh/day	Electricity GHGs	4240.36	0.00	0.00	4,240
water - increased use[1]	0.11	MMgal/day	Water Conveyance GHGs	14.07	0.00	0.00	14
wastewater - increased generation[2]	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.00	0.00	0
temporary construction activities[3]	4657.40	MT/year	Construction GHGs in CO2e				155
operational truck trips	4.95	MT/year	Operation GHGs in CO2e				5
						TOTAL CO2e	4,415

Note: This facility does not have current access or future access to recycled water but does have access to industrial use water from their own wells. In the absense of GHG emission factors for groundwater pumping, the GHG emission factors for recycled water conveyance will be applied to the GHG calculation for unmitigated emissions.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

Facility I - Glass Plant
Tri-Mer Non-regenerative wet gas scrubber

TWO UNITS Required

Utility/Infrastructure	Annual Usage/unit		Daily Usage/unit		Daily Usage		GRAND TOTAL FOR TWO UNITS	Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu	0	MMbtu	**Natural Gas**	0	scf
Electricity	939,800	kWh	2574.79	kWh	5694.26	Kwh	**Electricity**	5.69	MWh
Water	10.7	MMgal	29232.00	gal	58,464	gal	**Water**	0.06	Mmgal
Wastewater	2.35	MMgal	6438.36	gal	12876.72	gal	**Wastewater**	0.01	Mmgal
Cooling Water	0	MMbtu	0.00	MMbtu	0	MMbtu	**Cooling Water**		
Compressed Air	20	1000 scf	54.79	scf	109.58	scf	**Compressed Air**		
Solid Waste Disposal	10	tons	0.03	tons	0.054	tons	**Solid Waste Disposal**		
NaOH (50%)	144	tons	0.40	tons	0.79	tons	**NaOH (50%)**		
Plot Space Needed	320	sf	320	sf	640	sf	**Plot Space Needed**		
1 Truck Hauling Away Solid Waste[1]	132.78	round trip miles	132.78	round trip miles	132.78	Daily round trip miles	**1 Truck Hauling Away Solid Waste**[1]		
1 Truck Delivering NaOH[2]	200	round trip miles	50.00	round trip miles	50.00	Daily round trip miles	**1 Truck Delivering NaOH**[2]		
No. of Trucks Hauling Away Solid Waste	1	trucks	1	truck	1.00	daily trucks	**No. of Trucks Hauling Away Solid Waste**		
No. of Trucks Delivering NaOl	4	trucks	1	truck	1	daily trucks	**No. of Trucks Delivering NaOH**		
					182.78	Daily round trip miles	**Total Daily Truck Miles**		
					2.00	Daily trucks	**Total No. of Trucks**		
					532.78	Annual round trip miles	**Annual Truck Miles**		
					9	Annual trucks	**Annual Trucks**		

Note: This calculation takes into account the electricity needed to make 0.79 ton per day of NaOH to satisfy demand (1,791 kWh/day).

[1]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take 1 extra truck to haul away one year's worth of solid waste, but the peak would be one truck per day.
10 tons/yr solid waste x 2 units x 1 truck/25 tons = 0.8 trucks/year to haul extra solid waste away for recycling
This facility sends its solid waste to a Class III landfill for disposal which is 66.4 miles (one-way) away.

[2]Assumes that one 10,000 gallon capacity storage tank will be installed for NaOH storage. It will take 8 trucks to deliver one year's worth of NaOH 50% solution, but the peak would be one truck per day.
144 tons/yr NaOH x 2 units x 2,000 lbs/ ton = 576,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 45,106 gal/year x 1 truck/6,000 gallons = 7.5 trucks/year

This facility is not tied into Central Basin Municipal Water District's recycled water pipeline. Access to the pipeline is approx. 800 feet away from the facility.

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	533	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Worksheet B-16
Facility I: Glass Plant

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.01	0.02	0.06	0.000	0.00	0.00	2,245	0.06	2,247	1
SUBTOTAL	0	0	0	0	0	0	2,246	0	2,247	1
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	533	4.89	2,605	10
			TOTAL	2,605	10

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.0000	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.0000	0
electricity - increased use	5.69	MWh/day	Electricity GHGs	1036.85	0.0000	0.0000	1,037
water - increased use[2]	0.06	MMgal/day	Water Conveyance GHGs	78.66	0.0005	0.0008	79
wastewater - increased generation[1]	0.01	MMgal/day	Wastewater Processing GHGs	17.32	0.0001	0.0002	17
temporary construction activities[3]	4657	MT/year	Construction GHGs in CO2e				155
operational truck trips	1.02	MT/year	Operation GHGs in CO2e				1
						TOTAL CO2e	1,289

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.00	MMscf/day	Natural Gas GHGs	0.00	0.00	0.00	0
electricity - increased use	5.69	MWh/day	Electricity GHGs	1036.85	0.00	0.00	1,037
water - increased use[2]	0.06	MMgal/day	Water Conveyance GHGs	78.66	0.0005	0.0008	79
wastewater - increased generation[1]	0.01	MMgal/day	Wastewater Processing GHGs	17.32	0.0001	0.0002	17
temporary construction activities[3]	4657.40	MT/year	Construction GHGs in CO2e				155
operational truck trips	1.02	MT/year	Operation GHGs in CO2e				1
						TOTAL CO2e	1,289

Note: This facility does not have current access or future access to recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N2O/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[3] GHGs from temporary construction activities are amortized over 30 years.

Facility C - Sulfuric Acid Plant
Cansolv

Facility C
(existing system going from 20 ppm to 10 ppm)

Utility/Infrastructure	Annual Usage		Daily Usage		Usage/Ratings		
Natural Gas	0	MMbtu	0.00	MMbtu		MMbtu	
Electricity	0	kWh	0.00	kWh		kW	
Water*	2.31	MMgal	6336	gal	0.006336	mmgal/day	(1,100 lb/hr steam = 2.2 gal/min water plus 2.2 gal/min extra cooling tower water = 4.4 gal/min)
Wastewater	0	MMgal	0.00	gal	0.00	mmgal/day	
Cooling Water	0	MMbtu	0.00	MMbtu			
Compressed Air	0	1000 scf	0.00	scf			
Solid Waste Disposal	0	tons	0.00	tons			
Amine	0	gal	0.00	gal		gal/hr	
Plot Space Needed	0	sf					

***as steam**

Facility J - Sulfuric Acid Plant
Belco wet gas scrubber

Utility/Infrastructure	Annual Usage		Daily Usage		Daily Usage		
Natural Gas	0	MMbtu	0.00	MMbtu	0	scf	
Electricity	2,452,800	kWh	9658.78	kWh	9.66	MWh	Note: This calculation takes into account the electricity needed to make 1.30 tons per day of NaOH to satisfy demand (2,939 kWh/day).
Water	7.15	MMgal	19589.04	gal	0.02	Mmgal	
Wastewater	3.94	MMgal	10800.00	gal	0.01	Mmgal	
Cooling Water	0	MMbtu	0.00	MMbtu			
Compressed Air	0	1000 scf	0.00	scf			
Solid Waste Disposal	0	tons	0.00	tons			
NaOH (50%)	473	tons	1.30	tons			
Plot Space Needed	500	sf					
		round trip		round trip			
1 Truck Delivering NaOH[1]	650	miles	50.00	miles			
No. of Trucks Delivering NaOH	13	trucks	1	truck			

[1]Assumes that one 10,000 gallon capacity storage tank will be installed for NaOH storage. It will take 13 trucks to deliver one year's worth of NaOH 50% solution, but the peak would be one truck per day.
473 tons/yr NaOH x 2,000 lbs/ ton = 946,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 74,080 gal/year x 1 truck/6,000 gallons = 12.35 trucks/year

Phase III: Operations - On-Road Vehicles and Fuel Use

On-Road Equipment Type	Fuel	Annual Round-trip Distance (miles/year)	Mileage Rate (miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	650	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.01	0.03	0.08	0.000	0.00	0.00	2,740	0.08	2,742	1
SUBTOTAL	0	0	0	0	0	0	2,740	1	2,742	1
Significance Threshold	55	550	25	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

[redacted]	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	650	4.89	3,179	12
			[redacted]		

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

[redacted]	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.0000	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.0000	0
electricity - increased use	9.66	MWh/day	Electricity GHGs	1758.73	0.0000	0.0000	1,759
water - increased use[2]	0.03	MMgal/day	Water Conveyance GHGs	34.88	0.0002	0.0004	35
wastewater - increased generation[1]	0.01	MMgal/day	Wastewater Processing GHGs	14.53	0.0001	0.0002	15
temporary construction activities[3]	2329	MT/year	Construction GHGs in CO2e	[redacted]			78
operational truck trips	1.24	MT/year	Operation GHGs in CO2e				1
						[redacted]	

GHG Emissions - Mitigated by Using Recycled Water

[redacted]	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.00	MMscf/day	Natural Gas GHGs	0.00	0.00	0.00	0
electricity - increased use	9.66	MWh/day	Electricity GHGs	1758.73	0.00	0.00	1,759
water - increased use[2]	0.03	MMgal/day	Water Conveyance GHGs	3.30	0.0000	0.0000	3
wastewater - increased generation[1]	0.01	MMgal/day	Wastewater Processing GHGs	1.37	0.0000	0.0000	1
temporary construction activities[3]	2328.70	MT/year	Construction GHGs in CO2e	[redacted]			78
operational truck trips	1.24	MT/year	Operation GHGs in CO2e				1
						[redacted]	

Note: The mitigation calculations assume that 100% of the total water demand for Sulfuric Acid Manufacturing at Facilities C & J can potentially be supplied by future access to recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N2O/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[3]GHGs from temporary construction activities are amortized over 30 years.

Facility H - Coke Calciner
Belco wet gas scrubber

Utility/Infrastructure	Annual Usage		Daily Usage		Daily Usage		
Natural Gas	0	MMbtu	0.00	MMbtu	0.00	scf	
Electricity	3,679,200	kWh	17710.86	kWh	17.71	MWh	Note: This calculation takes into account the electricity needed to make 3.37 tons per day of NaOH to satisfy demand (7,631 kWh/day).
Water	14.93	MMgal	40896.00	gal	0.04	Mmgal	
Wastewater	6.2	MMgal	16992.00	gal	0.02	Mmgal	
Cooling Water	0	MMbtu	0.00	MMbtu			
Compressed Air	0	1000 scf	0.00	scf			
Solid Waste Disposal	160	tons	0.44	tons			
NaOH (50%)	1,228	tons	3.37	tons	22	gal/hr	280.434 lb/hr
Plot Space Needed	1200	sf			density = 12.747 lb/gal for NaOH at 50%		
1 Truck Hauling Away Solid Waste[1]	2800	round trip miles	400.00	round trip miles			
1 Truck Delivering NaOH[2]	1,600	round trip miles	50.00	round trip miles			
No. of Trucks Hauling Away Solid Waste	7	trucks	1	truck			
No. of Trucks Delivering NaOH	32	trucks	1	truck			
Total Truck Miles	4400.00	round trip miles	450.00	round trip miles			
Total No. of Trucks	39.00	trucks	2.00	trucks			

[1]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 7 trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.
160 tons/yr solid waste x 1 truck/25 tons = 6.4 trucks/year to haul extra solid waste away for recycling
This facility sends its solid waste to a cement plant for recycling which is 67.7 miles (one-way) away. However, the cement plant has shut-down its kilns on 11/20/2009 so the solid waste may be sent a different cement l

[2]Assumes that one 10,000 gallon capacity storage tank will be installed for NaOH storage. It will take 32 trucks to deliver one year's worth of NaOH 50% solution, but the peak would be one truck per day.
1,228 tons/yr NaOH x 2,000 lbs/ ton = 854,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 192,326 gal/year x 1 truck/6,000 gallons = 32 trucks/year

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors*							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	4,400	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.04	0.17	0.52	0.001	0.03	0.02	18,550	0.51	18,561	8
SUBTOTAL	0	0	1	0	0	0	16,550	1	18,561	8
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	4,400	4.89	21,516	83
			TOTAL	21,516	83

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

[redacted]	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.0000	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.0000	0
electricity - increased use	17.71	MWh/day	Electricity GHGs	3224.90	0.0000	0.0000	3,225
water - increased use[1]	0.04	MMgal/day	Water Conveyance GHGs	55.02	0.0003	0.0006	55
wastewater - increased generation[2]	0.02	MMgal/day	Wastewater Processing GHGs	22.86	0.0001	0.0002	23
temporary construction activities[3]	2329	MT/year	Construction GHGs in CO2e	[redacted]			78
operational truck trips	8.42	MT/year	Operation GHGs in CO2e				8
						TOTAL CO2e	3,389

GHG Emissions - Mitigated by Using Recycled Water

[redacted]	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.00	MMscf/day	Natural Gas GHGs	0.00	0.00	0.00	0
electricity - increased use	17.71	MWh/day	Electricity GHGs	3224.90	0.00	0.00	3,225
water - increased use[1]	0.04	MMgal/day	Water Conveyance GHGs	55.02	0.00	0.00	55
wastewater - increased generation[2]	0.02	MMgal/day	Wastewater Processing GHGs	22.86	0.00	0.00	23
temporary construction activities[3]	2328.70	MT/year	Construction GHGs in CO2e	[redacted]			78
operational truck trips	8.42	MT/year	Operation GHGs in CO2e				8
						TOTAL CO2e	3,389

Note: This facility does not have current access or future access to recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

Module 2: Fuel Gas Systems/Treatment

M22: Add TG-10 to MDEA

Facility F

Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	2,000	MMbtu	5 48	MMbtu
Electricity	20,000	kWh	54 79	kWh
Water	0	MMgal	0 00	MMgal
Wastewater	0	MMgal	0 00	MMgal
Cooling Water	2,000	MMbtu	5 48	MMbtu
Compressed Air	0	1000 scf	0 00	scf
Solid Waste Disposal	0	tons	0 00	tons
Sulfur sales*	10 35	long tons	63 52	pounds
TG-10 amine additive	4,000	gallons	10 96	gallons
Plot Space Needed	100	sf		
		round trip		round trip
1 Truck Delivering TG-10	400	miles	400 00	miles
1 Truck Hauling Sulfur		round trip		round trip
Away	50	miles	50 00	miles
No. of Trucks Delivering TG-10	1	truck	1	truck
No. of Trucks Hauling Away Sulfur	1	truck	1	truck

Facility F will have future access to recycled water.

M21A: Parallel Merox treatment for excess coker gas

Facility D

Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	440	MMbtu	1 21	MMbtu
Electricity	156,400	kWh	1422 50	kWh
Water	5	MMgal	0 01	MMgal
Wastewater	5	MMgal	0 01	MMgal
Cooling Water	176	MMbtu	0 48	MMbtu
Compressed Air	780	1000 scf	2136 99	scf
Solid Waste Disposal	110	tons	0 30	tons
Sulfur sales*	11	long tons	67 51	pounds
Merox Catalyst	3,000	pounds	8 22	pounds
NaOH (50%)	160	tons	0 44	tons
Plot Space Needed	6000	sf		
1 Truck Hauling Away Solid Waste	2000	round trip miles	400 00	round trip miles
1 Truck Delivering Merox Catalyst	500	round trip miles	500 00	round trip miles
1 Truck Delivering NaOH	250	round trip miles	50 00	round trip miles
1 Truck Hauling Sulfur Away	50	round trip miles	50 00	round trip miles
No. of Trucks Hauling Away Solid Waste	5	trucks	1	truck
No. of Trucks Delivering Merox	1	trucks	1	truck
No. of Trucks Delivering NaOH	5	trucks	1	truck
No. of Trucks Hauling Away Sulfur	1	trucks	1	truck

Facility D has current and increased future access to recycled water.

M20A: Convert all amine absorbers to Sulfinol

Facility C

Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	-1,030	MMbtu	-2 82	MMbtu
Electricity	476,580	kWh	1305 70	kWh
Water	1	MMgal	0 003	MMgal
Wastewater	1	MMgal	0 003	MMgal
Cooling Water	140	MMbtu	0 38	MMbtu
Compressed Air	100	1000 scf	273 97	scf
Solid Waste Disposal	0	tons	0 00	tons
Sulfur sales*	6 58	long tons	40 38	pounds
Plot Space Needed	6000	sf		
No. of Trucks Delivering Sulfinol	47	trucks	1 00	trucks
1 Truck Delivering Sulfinol		round trip		round trip
	23500	miles	500	miles
1 Truck Hauling Sulfur Away		round trip		round trip
	50	miles	50 00	miles
No. of Trucks Hauling Away Sulfur	1	trucks	1	truck
sulfinol	277400	gallons	760 00	gallons
1 Existing Truck Delivering MEA		round trip		round trip
	-2400 00	miles	-50 00	miles
No. of Existing Trucks Delivering MEA	-48 00	trucks	-1.00	truck
MEA usage	-288000 00	gallons	-789 04	gallons

Facility C will have future access to recycled water.

Excluded - not cost effective
M20: Sulfinol conversion for FCC/coker

Facility B

Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	-47,740	MMbtu	-130 79	MMbtu
Electricity	1,992,190	kWh	5458 05	kWh
Water	4	MMgal	10958 90	gal
Wastewater	3	MMgal	6219 18	gal
Cooling Water	590	MMbtu	1 62	MMbtu
Compressed Air	100	1000 scf	273 97	scf
Solid Waste Disposal	0	tons	0 00	tons
Sulfur sales*	6 47	long tons	39 71	pounds
Plot Space Needed	100	sf		

M21B: Merox treatment of delayed coker off-gas	Facility G				
Utility/Infrastructure	Annual Usage		Daily Usage		
Natural Gas	2,950	MMbtu	8 08	MMbtu	
Electricity	1,042,900	kWh	9442 54	kWh	
Water	5	MMgal	0 01	MMgal	
Wastewater	5	MMgal	0 01	MMgal	
Cooling Water	1,180	MMbtu	3 23	MMbtu	
Compressed Air	5,210	1000 scf	14273 97	scf	
Solid Waste Disposal	740	tons	2 03	tons	
Sulfur sales*	47	long tons	258 44	pounds	
Merox Catalyst	3,000	pounds	8 22	pounds	
NaOH (50%)	1,060	tons	2 90	tons	
Plot Space Needed	6000	sf			
1 Truck Hauling Away Solid Waste	12000	round trip miles	400 00	round trip miles	
1 Truck Delivering Merox Catalyst	500	round trip miles	500 00	round trip miles	
1 Truck Delivering NaOH	1400	round trip miles	50 00	round trip miles	
1 Truck Hauling Sulfur Away	100	round trip miles	50 00	round trip miles	
No. of Trucks Hauling Away Solid Waste	30	trucks	1 00	truck	
No. of Trucks Delivering Merox	1	trucks	1 00	truck	
No. of Trucks Delivering NaOH	28	trucks	1 00	truck	
No. of Trucks Hauling Away Sulfur	2	trucks	1 00	truck	

Facility G will not have future access to recycled water, but has current access to non-potable groundwater

M20B: Sulfinol conversion for two H2S absorbers	Facility A				
Utility/Infrastructure	Annual Usage		Daily Usage		
Natural Gas	-2,080	MMbtu	-5 70	MMbtu	
Electricity	1,385,870	kWh	3796 90	kWh	
Water	3	MMgal	0 01	MMgal	
Wastewater	2	MMgal	0 01	MMgal	
Cooling Water	400	MMbtu	1.10	MMbtu	
Compressed Air	100	1000 scf	273 97	scf	
Solid Waste Disposal	0	tons	0 00	tons	
Plot Space Needed	100	sf			
1 Truck Delivering Sulfinol	11000 00	round trip miles	500 00	round trip miles	
No. of Trucks Delivering Sulfinol	22 00	trucks	1 00	truck	
Sulfinol	130670 00	gallons	358 00	gallons	
1 Existing Truck Delivering DEA	-1100 00	round trip miles	-50 00	round trip miles	
No. of Existing Trucks Delivering DEA	-22 00	trucks	-1 00	truck	
DEA usage .	-127000 00	gallons	-347 95	gallons	

Facility A has current and increased future access to recycled water.

M20: Convert amine absorbers to Sulfinol	Facility E				
Utility/Infrastructure	Annual Usage		Daily Usage		
Natural Gas	-14,780	MMbtu	-40 49	MMbtu	
Electricity	2,418,610	kWh	6626 33	kWh	
Water	5	MMgal	0 01	MMgal	
Wastewater	4	MMgal	0 01	MMgal	
Cooling Water	700	MMbtu	1.92	MMbtu	
Compressed Air	100	1000 scf	273 97	scf	
Solid Waste Disposal	0	tons	0 00	tons	
Sulfur sales*	56 56	long tons	347.11	pounds	
Plot Space Needed	100	sf			
1 Truck Hauling Sulfur Away	150	round trip miles	50 00	round trip miles	
No. of Trucks Hauling Away Sulfur	3	trucks	1	truck	
No. of Trucks Delivering Sulfinol	65 00	trucks	1 00	truck	
sulfinol	385075 00	gallons	1055 00	gallons	
1 Truck Delivering Sulfinol	32500 00	round trip miles	500 00	round trip miles	
1 Existing Truck Delivering DEA	-3150 00	round trip miles	-50 00	round trip miles	
No. of Existing Trucks Delivering DEA	-63 00	trucks	-1 00	truck	
DEA usage	-374490 00	gallons	-1026 00	gallons	

Facility E will have future access to recycled water

GRAND TOTAL		GRAND TOTAL			Daily Usage		
Annual Usage		Daily Usage					
-12,500	MMbtu	-34	MMbtu	Natural Gas	-33575 07	scf	Note This calculation takes into account the electricity needed to make 3 34 tons per day of NaOH to satisfy demand at Facilities D & G (7,579 kWh/day)
5,500,360	kWh	22,649	kWh	Electricity	22 65	MWh	
19	MMgal	0 05	MMgal	Water	52,055	gal	
17	MMgal	0 05	MMgal	Wastewater	46,575	gal	
4,596	MMbtu	13	MMbtu	Cooling Water			
6,290	1000 scf	17,233	scf	Compressed Air			
850	tons	2	tons	Solid Waste Disposal			
231	long tons	807	pounds	Sulfur sales*			
6,000	pounds	16	pounds	Merox Catalyst			
1,220	tons	3 34	tons	NaOH (50%)			
4,000	gallons	10 96	gallons	TG-10 amine additive			
793145	gallons	2173	gallons	sulfinol			
-501490 00	gallons	-1373 95	gallons	DEA			
-288000 00	gallons	-789 04	gallons	MEA			
18300	sf	18300	sf	Plot Space Needed			
	round trip		round trip				
400	miles	400 00	miles	1 Truck Delivering TG-10			
	round trip		round trip				
400	miles	250 00	miles	1 Truck Hauling Sulfur Away			
	round trip		round trip	1 Truck Hauling Away Solid			
14000	miles	800 00	miles	Waste			
	round trip		round trip	1 Truck Delivering Merox			
1000	miles	1000 00	miles	Catalyst			
	round trip		round trip				
1650	miles	100 00	miles	1 Truck Delivering NaOH			
	round trip		round trip				
67,000	miles	1500 00	miles	1 Truck Delivering Sulfinol			
	round trip		round trip				
-2400 00	miles	-50 00	miles	1 Truck Delivering MEA			
	round trip		round trip				
-4250 00	miles	-100 00	miles	1 Truck Delivering DEA			
				No of Trucks Delivering TG-			
1	trucks	1	trucks	10			
				No of Trucks Hauling Sulfur			
8	trucks	5	trucks	Away			
				No of Trucks Hauling Away			
35	trucks	2	trucks	Solid Waste			
				No of Trucks Delivering			
2	trucks	2	trucks	Merox Catalyst			
				No of Trucks Delivering			
33	trucks	2	trucks	NaOH			
				No of Trucks Delivering			
134 00	trucks	3 00	trucks	Sulfinol			
				No of Trucks Delivering			
-48 00	trucks	-1 00	trucks	MEA			
				No of Trucks Delivering			
-85 00	trucks	-2 00	trucks	DEA			
	round trip		round trip				
77800 00	miles	3900 00	miles	Truck Miles			
80 00	trucks	12 00	trucks	Trucks			

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	77,800	4 89	0 0025	0 0102	0 0309	0 00004	0 0015	0 0013	4 2159	0 0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0 76	3 06	9 25	0 012	0 45	0 39	327,998	9 06	328,188	149
SUBTOTAL	1	3	9	0	0	0	327,998	9	328,188	149
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	77,800	4 89	380,442	1,463
*Assumes 260 days/year			TOTAL	380,442	1,463

Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	-0 0336	MMscf/day	Natural Gas GHGs	-666 93	-0 0036	-0 0128	-668
electricity - increased use	22 65	MWh/day	Electricity GHGs	4124 03	0 0000	0 0000	4,124
water - increased use[1]	0 05	MMgal/day	Water Conveyance GHGs	26 64	0 0002	0 0003	27
wastewater - increased generation[1]	0 05	MMgal/day	Wastewater Processing GHGs	22 61	0 0001	0 0002	23
temporary construction activities[3]	4657	MT/year	Construction GHGs in CO2e	[redacted]			155
operational truck trips	148 84	MT/year	Operation GHGs in CO2e	[redacted]			149
						TOTAL CO2e	3,809

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	-0 03	MMscf/day	Natural Gas GHGs	-666 93	-0 0036	-0 0128	-668
electricity - increased use	22 65	MWh/day	Electricity GHGs	4124 03	0 0000	0 0000	4,124
water - increased use[2]	0 05	MMgal/day	Water Conveyance GHGs	6 62	0 0000	0 0001	7
wastewater - increased generation[2]	0 05	MMgal/day	Wastewater Processing GHGs	5 92	0 0000	0 0001	6
temporary construction activities[3]	4657.40	MT/year	Construction GHGs in CO2e	[redacted]			155
operational truck trips	148 84	MT/year	Operation GHGs in CO2e	[redacted]			149
						TOTAL CO2e	3,772

Note: The mitigation calculations assume that 100% of the total water demand for FGT can potentially be supplied by recycled water for Facilities A, C, D, E & F.
Facilities A & D already have access to recycled water and Facility G already has access to non-potable groundwater.
Facilities C, E & F may have new future access to recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0 64 lb N2O/MMscf fuel burned
2 3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water[1]
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation[2]
640 lb CO2/MWh for electricity use due to water conveyance
0 0067 lb CH4/MWh for electricity use due to water conveyance
0 0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3]GHGs from temporary construction activities are amortized over 30 years

Module 3A: SRU/TGTU Systems M17: Tail Gas NWGS Tri-Mer Cloud Chamber	Facility B (2 units)		Facility B (2 units)		Facility D		Facility D		SUBTOTAL		SUBTOTAL		Module 3A: SRU/TGTU Systems M17: Tail Gas NWGS Tri-Mer Cloud
Utility/Infrastructure	Annual Usage		Daily Usage		Annual Usage		Daily Usage		Annual Usage		Daily Usage		
Natural Gas	0	MMbtu	0.00	MMbtu	0	MMbtu	0.00	MMbtu	0	MMbtu	0.00	MMbtu	Natural Gas
Electricity	4,395,600	kWh	12042.74	kWh	2,447,400	kWh	6705.21	kWh	6,843,000	kWh	18747.95	kWh	Electricity
Water*	51.1	MMgal	140000.00	gal	78.2	MMgal	214246.58	gal	129.3	MMgal	354246.58	gal	Water
Wastewater*	10.2	MMgal	27945.21	gal	15.7	MMgal	43013.70	gal	25.9	MMgal	70958.90	gal	Wastewater
Cooling Water	409,880	MMbtu	1122.96	MMbtu	228,200	MMbtu	625.21	MMbtu	638,080	MMbtu	1748.16	MMbtu	Cooling Water
Compressed Air	100	1000 scf	273.97	scf	100	1000 scf	273.97	scf	200	1000 scf	547.95	scf	Compressed Air
Solid Waste Disposal	500	tons	1.37	tons	320	tons	0.88	tons	820	tons	2.25	tons	Solid Waste Disposal
Soda Ash	190	tons	0.52	tons	123	tons	0.34	tons	313	tons	0.86	tons	Soda Ash
Plot Space Needed	7906	sf			5930	sf			13836	sf	13836	sf	Plot Space Needed
1 Truck Hauling Away		round trip		round trip		round trip		round trip		round trip		round trip	1 Truck Hauling Away
Solid Waste	8000	miles	400.00	miles	5200	miles	400.00	miles	13200	miles	800	miles	Solid Waste
1 Truck Delivering Soda Ash	400	round trip miles	50.00	round trip miles	250	round trip miles	50.00	round trip miles	650	round trip miles	100	round trip miles	1 Truck Delivering Soda Ash
No. of Trucks Hauling Away Solid Waste	20	trucks	1	truck	13	trucks	1	truck	33	trucks	2	truck	No. of Trucks Hauling Away Solid Waste
No. of Trucks Delivering Soda Ash	8	trucks	1	truck	5	trucks	1	truck	13	trucks	2	truck	No. of Trucks Delivering Soda Ash
										round trip		round trip	
									13850	miles	900	miles	Truck Miles
									46	trucks	4	trucks	Trucks

*Updated water/wastewater data from Tri-Mer

Facility B will have increased access to recycled water.

Facility D will have future access to recycled water.

Module 2: SRU/TGTU Systems M13: EmeraChem ESx Gas Treating	Facility A		Facility A		SUBTOTAL		SUBTOTAL		Module 2: SRU/TGTU Systems M13: EmeraChem ESx Gas Treating
Utility/Infrastructure	Annual Usage		Daily Usage		Annual Usage		Daily Usage		
Natural Gas	11,000	MMbtu	30.14	MMbtu	11,000	MMbtu	30.14	MMbtu	Natural Gas
Electricity	1,085,000	kWh	2972.60	kWh	1,085,000	kWh	2972.60	kWh	Electricity
Water	0	MMgal	0.00	gal	0	MMgal	0.00	gal	Water
Wastewater	0	MMgal	0.00	gal	0	MMgal	0.00	gal	Wastewater
Cooling Water	40	MMbtu	0.11	MMbtu	40	MMbtu	0.11	MMbtu	Cooling Water
Compressed Air	770	1000 scf	2109.59	scf	770	1000 scf	2109.59	scf	Compressed Air
Solid Waste Disposal	0	tons	0.00	tons	0	tons	0.00	tons	Solid Waste Disposal
Esx Catalyst	400	pounds	1.10	pounds	400	pounds	1.10	pounds	Esx Catalyst
Sulfur sales*	23.68	long tons	145.20	pounds	24	long tons	145.20	pounds	Sulfur sales*
Plot Space Needed	2500	sf			2500	sf	2500	sf	Plot Space Needed
1 Truck Hauling Sulfur Away	100.00	round trip miles	50.00	round trip miles	100	round trip miles	50	round trip miles	1 Truck Hauling Sulfur Away
1 Truck Delivering ESX Catalyst	400.00	round trip miles	400.00	round trip miles	400	round trip miles	400	round trip miles	1 Truck Delivering Esx Catalyst
No. of Trucks Hauling Away Sulfur	2.00	trucks	1.00	trucks	1	trucks	1	trucks	No. of Trucks Delivering EsX Catalyst
No. of Trucks Delivering ESX Catalyst	1.00	trucks	1.00	trucks	2	trucks round trip	1	trucks round trip	No. of Trucks Hauling Away Sulfur
					500	miles	450	miles	Truck Miles
					3	trucks	2	trucks	Trucks

Facility A will have increased access to recycled water.

Excluded - not cost effective

Module 2: SRU/TGU Systems
M13: EmeraChem ESx Gas Treating

Facility E

Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	50,400	MMbtu	138.08	MMbtu
Electricity	703,600	kWh	1927.67	kWh
Water	0	MMgal	0.00	gal
Wastewater	0	MMgal	0.00	gal
Cooling Water	20	MMbtu	0.05	MMbtu
Compressed Air	720	1000 scf	1972.60	scf
Solid Waste Disposal	0	tons	0.00	tons
ESX Catalyst	400	pounds	1.10	pounds
Sulfur sales*	6.11	long tons	37.50	pounds
Plot Space Needed	2500	sf		

Excluded - not cost effective
Module 3A: SRU/TGTU Systems
M17: Tail Gas NWGS Tri-Mer Cloud Chamber

Facility G

Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	1,809,000	kWh	4956.16	kWh
Water	253	MMgal	693150.68	gal
Wastewater	61	MMgal	167123.29	gal
Cooling Water	168,700	MMbtu	462.19	MMbtu
Compressed Air	100	1000 scf	273.97	scf
Solid Waste Disposal	120	tons	0.33	tons
Soda Ash	45	tons	0.12	tons
Plot Space Needed	3953	sf		

Excluded - Facility F already meets the 5 ppm SOx level
Module 2: SRU/TGTU Systems
M13: EmeraChem ESx Gas Treating

Facility F

Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	96,700	MMbtu	264.93	MMbtu
Electricity	1,182,000	kWh	3238.36	kWh
Water	0	MMgal	0.00	gal
Wastewater	0	MMgal	0.00	gal
Cooling Water	40	MMbtu	0.11	MMbtu
Compressed Air	600	1000 scf	1643.84	scf
Solid Waste Disposal	0	tons	0.00	tons
ESX Catalyst	400	pounds	1.10	pounds
Sulfur sales*	20.88	long tons	128.14	pounds
Plot Space Needed	2500	sf		

GRAND TOTAL

Annual Usage		Daily Usage		
11000	MMbtu	30.14	MMbtu	Natural Gas
7928000	kWh	21720.55	kWh	Electricity
129.3	MMgal	354246.58	gal	Water
25.9	MMgal	70958.90	gal	Wastewater
638120	MMbtu	1748.27	MMbtu	Cooling Water
970	1000 scf	2657.53	scf	Compressed Air
820	tons	2.25	tons	Solid Waste Disposal
313	tons	0.86	tons	Soda Ash
400	pounds	1.10	pounds	ESX Catalyst
25	long tons	145.20	pounds	Sulfur sales*
18336	sf	18336.00	sf	Plot Space Needed
	round trip		round trip	
14,350	miles	1,350	miles	Truck Miles
49	trucks	6	trucks	Trucks

GRAND TOTAL

Daily Usage	
29546.07	scf
21.72	MWh
0.35	Mmgal
0.07	Mmgal

Phase III: Operations - On-Road Vehicles and Fuel Use

On-Road Equipment Type	Fuel	Annual Round-trip Distance (miles/year)	Mileage Rate (miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	14,350	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.14	0.56	1.71	0.002	0.08	0.07	60,498	1.67	60,533	27
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From: Location (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	14,350	4.89	70,172	270
			TOTAL	70,172	270

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.0295	MMscf/day	Natural Gas GHGs	586.90	0.0031	0.0112	588
electricity - increased use	21.72	MWh/day	Electricity GHGs	3955.01	0.0000	0.0000	3,955
water - increased use[1]	0.35	MMgal/day	Water Conveyance GHGs	45.04	0.0003	0.0005	45
wastewater - increased generation[1]	0.07	MMgal/day	Wastewater Processing GHGs	9.02	0.0001	0.0001	9
temporary construction activities[3]	6986	MT/year	Construction GHGs in CO2e				233
operational truck trips	27.45	MT/year	Operation GHGs in CO2e				27
						TOTAL CO2e	4,858

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.0295	MMscf/day	Natural Gas GHGs	586.90	0.0031	0.0112	588
electricity - increased use	21.7205	MWh/day	Electricity GHGs	3955.01	0.0000	0.0000	3,955
water - increased use[2]	0.3542	MMgal/day	Water Conveyance GHGs	45.04	0.0003	0.0005	45
wastewater - increased generation[2]	0.0710	MMgal/day	Wastewater Processing GHGs	9.02	0.0001	0.0001	9
temporary construction activities[3]	6988.1024	MT/year	Construction GHGs in CO2e				233
operational truck trips	27.4528	MT/year	Operation GHGs in CO2e				27
						TOTAL CO2e	4,858

Note: The mitigation calculations assume that 100% of the total water demand for the SRU/TGUs can potentially be supplied by recycled water. Facilities A, B & D already have access to recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N2O/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water [1]
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation [2]
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1] California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2] California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

Worksheet B-21
FCCU Source Category - Option 1

Module 3A: FCCU
M1: Belco wet gas scrubber

Utility/Infrastructure	Facility B Annual Usage		Facility B Daily Usage		Facility F Annual Usage		Facility F Daily Usage		Facility A Annual Usage		Facility A Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu	0	MMbtu	0.00	MMbtu	0	MMbtu	0.00	MMbtu
Electricity	12,080,000	kWh	33095.89	kWh	5,789,000	kWh	15860.27	kWh	9,238,000	kWh	25309.59	kWh
Water	28	MMgal	76712.33	gal	16	MMgal	43835.62	gal	26	MMgal	71232.88	gal
Wastewater	13	MMgal	35616.44	gal	8	MMgal	21917.81	gal	12	MMgal	32876.71	gal
Cooling Water	410	MMbtu	1.12	MMbtu	200	MMbtu	0.55	MMbtu	320	MMbtu	0.88	MMbtu
Compressed Air	440	1000 scf	1205.48	scf	260	1000 scf	712.33	scf	410	1000 scf	1123.29	scf
Solid Waste Disposal	400	tons	1.10	tons	690	tons	1.89	tons	280	tons	0.77	tons
NaOH (50%)	427	tons	1.17	tons	738	tons	2.02	tons	294	tons	0.81	tons
Plot Space Needed	2000	sf			1575	sf			2000	sf		
1 Truck Hauling Away Solid Waste	6400	round trip miles	400.00	round trip miles	11200	round trip miles	400.00	round trip miles	4800	round trip miles	400.00	round trip miles
1 Truck Delivering NaOH	600	round trip miles	50.00	round trip miles	1000	round trip miles	50.00	round trip miles	400	round trip miles	50.00	round trip miles
No. of Trucks Hauling Away Solid Waste	16	trucks	1	truck	28	trucks	1	truck	12	trucks	1	truck
No. of Trucks Delivering NaOH	12	trucks	1	truck	20	trucks	1	truck	8	trucks	1	truck

Facility B will have increased access to recycled water.

Facility F will have future access to recycled water.

Facility A will have increased access to recycled wate

Facility D

Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	16,084,000	kWh	44065.75	kWh
Water	40	MMgal	109589.04	gal
Wastewater	18	MMgal	49315.07	gal
Cooling Water	550	MMbtu	1.51	MMbtu
Compressed Air	630	1000 scf	1726.03	scf
Solid Waste Disposal	190	tons	0.52	tons
NaOH (50%)	193	tons	0.53	tons
Plot Space Needed	2000	sf		

Excluded - not Cost Effective

Facility E Annual Usage		Facility E Daily Usage	GRAND TOTALS Annual Usage	GRAND TOTALS Daily Usage	Module 3A: FCCU M1: Belco wet gas scrubber	Daily Usage
0	MMbtu	0.00 MMbtu	0 MMbtu	0.00 MMbtu	**Natural Gas**	0.00 scf
6,887,000	kWh	18868.49 kWh	33,994,000 kWh	103217.18 kWh	**Electricity**	103.22 MWh
18	MMgal	49315.07 gal	88 MMgal	241095.89 gal	**Water**	0.24 Mmgal
8	MMgal	21917.81 gal	41 MMgal	112328.77 gal	**Wastewater**	0.11 Mmgal
240	MMbtu	0.66 MMbtu	1170 MMbtu	3.21 MMbtu	**Cooling Water**	
280	1000 scf	767.12 scf	1390 1000 scf	3808.22 scf	**Compressed Air**	
160	tons	0.44 tons	1530 tons	4.19 tons	**Solid Waste Disposal**	
164	tons	0.45 tons	1623 tons	4.45 tons	**NaOH (50%)**	
1575	sf		7150 sf	7150.00 sf	**Plot Space Needed**	
	round trip	round trip	round trip	round trip	**1 Truck Hauling Away**	
2800	miles	400.00 miles	25200 miles	1600 miles	**Solid Waste[1]**	
	round trip	round trip	round trip	round trip	**1 Truck Delivering**	
250	miles	50.00 miles	2250 miles	200 miles	**NaOH[2]**	
7	trucks	1 truck	63 trucks	4 trucks	**No. of Trucks Hauling Away Solid Waste**	
5	trucks	1 truck	45 trucks	4 trucks	**No. of Trucks Delivering NaOH**	
			round trip	round trip		
			27450.00 miles	1800.00 miles	**Total Truck Miles**	
			108.00 trucks	8.00 trucks	**Total No. of Trucks**	

Facility E will have future access to recycled water.

Note: This calculation takes into account the electricity needed to make 4.45 tons per day of NaOH to satisfy demand (10,083 kWh/day).

Phase III: Operations - On-Road Vehicles and Fuel Use

On-Road Equipment Type	Fuel	Annual Round-trip Distance (miles/year)	Mileage Rate (miles/gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	27,450	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)*	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.27	1.08	3.26	0.004	0.16	0.14	115,727	3.20	115,794	53
[redacted] SUBTOTAL	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

[redacted]	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	27,450	4.89	134,231	516
			TOTAL	134,231	516

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

[redacted]	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.0000	MMscf/day	Natural Gas	0.00	0.0000	0.0000	0
electricity - increased use	103.22	MWh/day	Electricity	18794.42	0.0000	0.0000	18,794
water - increased use	0.24	MMgal/day	Water Conveyance GHGs	144.14	0.0008	0.0015	144
wastewater - increased generation	0.11	MMgal/day	Wastewater Processing GHGs	67.69	0.0004	0.0007	68
temporary construction activities	9315	MT/year	GHGs in CO2e	[redacted]	[redacted]	[redacted]	310
operational truck trips	52.51	MT/year	GHGs in CO2e	[redacted]	[redacted]	[redacted]	53
						TOTAL CO2e	19,370

GHG Emissions - Mitigated by Using Recycled Water

[redacted]	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.00	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.00	0
electricity - increased use	103.22	MWh/day	Electricity GHGs	18794.42	0.0000	0.00	18,794
water - increased use	0.24	MMgal/day	Water Conveyance GHGs	30.65	0.0002	0.0003	31
wastewater - increased generation	0.11	MMgal/day	Wastewater Processing GHGs	14.28	0.0001	0.0001	14
temporary construction activities	9314.80	MT/year	Construction GHGs in CO2e	[redacted]	[redacted]	[redacted]	310
operational truck trips	52.51	MT/year	Operation GHGs in CO2e	[redacted]	[redacted]	[redacted]	53
						TOTAL CO2e	[redacted]

Note: The mitigation calculations assume that 100% of the total water demand for FCCUs can potentially be supplied by recycled water

Facilities A & B already have access to recycled water while Facilities E & F may have future access to recycled water

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N2O/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
840 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3]GHGs from temporary construction activities are amortized over 30 years

Fuel Gas Treatment

Module 2: Fuel Gas Systems M20B: Sulfinol conversion for two H2S absorbers	Facility A		
Utility/Infrastructure	Annual Usage		Daily Usage
Natural Gas	-2,080	MMbtu	-5.70 MMbtu
Electricity	1,385,870	kWh	3796.90 kWh
Water	3	MMgal	8219.18 gal
Wastewater	2	MMgal	5479.45 gal
Cooling Water	400	MMbtu	1.10 MMbtu
Compressed Air	100	1000 scf	273.97 scf
Solid Waste Disposal	0	tons	0.00 tons
Plot Space Needed	100	sf	
		round trip	round trip
1 Truck Delivering Sulfinol	11,000	miles	500.00 miles
No. of Trucks Delivering Sulfinol	22	trucks	1 truck
Sulfinol	130670	gallons	358.00 gallons
		round trip	round trip
1 Existing Truck Delivering DEA	-1,100	miles	-50.00 miles
No. of Existing Trucks Delivering DEA	-22	trucks	-1.00 truck
DEA usage	-127000	gallons	-348 gallons

Module 3A: FCCU M1: Belco wet gas scrubber	Facility A		
Utility/Infrastructure	Annual Usage		Daily Usage
Natural Gas	0	MMbtu	0.00 MMbtu
Electricity	9,238,000	kWh	25309.59 kWh
Water	26	MMgal	71232.88 gal
Wastewater	12	MMgal	32876.71 gal
Cooling Water	320	MMbtu	0.88 MMbtu
Compressed Air	410	1000 scf	1123.29 scf
Solid Waste Disposal	280	tons	0.77 tons
NaOH (50%)	294	tons	0.81 tons
Plot Space Needed	2000	sf	
		round trip	round trip
1 Truck Hauling Away Solid Waste[2]	4800	miles	400.00 miles
		round trip	round trip
1 Truck Delivering NaOH[3]	400	miles	50.00 miles
No. of Trucks Hauling Away Solid Waste	12	trucks	1 truck
No. of Trucks Delivering NaOH	8	trucks	1 truck

Module 2: SRU/TGTU Systems M13: EmeraChem ESx Gas Treating	Facility A		
Utility/Infrastructure	Annual Usage		Daily Usage
Natural Gas	11,000	MMbtu	30.14 MMbtu
Electricity	1,085,000	kWh	2972.60 kWh
Water	0	MMgal	0.00 gal
Wastewater	0	MMgal	0.00 gal
Cooling Water	40	MMbtu	0.11 MMbtu
Compressed Air	770	1000 scf	2109.59 scf
Solid Waste Disposal	0	tons	0.00 tons
Esx Catalyst	400	pounds	1.10 pounds
Sulfur sales[4]	23.66	long tons	145.20 pounds
Plot Space Needed	2500	sf	
		round trip	round trip
1 Truck Hauling Sulfur Away[4]	100	miles	50.00 miles
		round trip	round trip
1 Truck Delivering ESX Catalyst[5]	400	miles	400.00 miles
No. of Trucks Hauling Sulfur Away	2	trucks	1 truck
No. of Trucks Delivering ESX Catalyst	1	trucks	1 truck

Facility A already accesses recycled water and will have increased future access to recycled water.

[1]Assumes that the existing DEA amine storage tank can be used for Sulfinol storage.

[2]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 12 trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.

280 tons/yr solid waste x 1 truck/25 tons = 11.2 trucks/year to haul extra solid waste away for recycling

[3]Assumes that one 10,000 gallon capacity storage tank will be installed for NaOH storage. It will take 8 trucks to deliver one year's worth of NaOH 50% solution, but the peak would be one truck per day.

294 tons/yr NaOH x 2,000 lbs/ ton = 328,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 46,045 gal/year x 1 truck/6,000 gallons = 7.67 trucks/year

[4]Assumes Hauling Sulfur away in a 25 ton capacity truck. It will take an extra 2 trucks to haul away one year's worth of sulfur, but the peak would be one truck per day.
23.66 long tons/yr Sulfur x 2,240 lbs/long ton = 52,998 lbs/yr x 1 ton/2000 lbs = 26.5 tons/yr x 1 truck/25 tons = 1.06 trucks/year to haul extra sulfur away to a buyer

[5] It will take one truck to deliver one year's worth of ESX Catalyst, but the peak would be one truck per day.

Facility A estimated that a wet gas scrubber would generate 40 million gals per year wastewater = 109,589 gals per day.
Facility A has two distinct wastewater systems. System One is the un-segregated system, which handles water from cooling towers, boiler blowdowns, and stormwater.

This wastewater receives primary treatment, the maximum capacity for this system is 5000 gpm; the facility is currently running at about 3000 gpm.

System Two is the segregated system, which handles process water. This wastewater receives primary and secondary (biological) treatment. The maximum capacity for this system is 2000 gpm; the facility is currently running at about 1800 gpm.
Facility A has some wastewater storage capacity to handle surges due to storms and upsets.

Grand Totals

Daily Usage		Daily Usage	
24.44 MMbtu	Natural Gas	23959.17271 scf	
33905.58 kWh	Electricity	33.90557991 MWh	Note: This calculation takes into account the electricity needed to make 0.81 tons per day of NaOH to satisfy demand (1,826 kWh/day).
79452.05 gal	Water	0.079452055 Mmgal	
38356.16 gal	Wastewater	0.038356164 Mmgal	
2.08 MMbtu	Cooling Water		
3506.85 scf	Compressed Air		
0.77 tons	Solid Waste Disposal		
1.10 pounds	Esx Catalyst		
145.20 pounds	Sulfur sales*		
0.81 tons	NaOH (50%)		
358.00 gallons	sulfinol		
-347.95 gallons	DEA (reduction)		
4600 sf	Plot Space Needed		
Daily round trip 500.00 miles	1 Truck Delivering Sulfinol		
Daily round trip 400.00 miles	1 Truck Hauling Away Solid Waste		
Daily round trip 50.00 miles	1 Truck Delivering NaOH		
Daily round trip 50.00 miles	1 Truck Hauling Sulfur Away		
Daily round trip 400.00 miles	1 Truck Delivering Esx Catalyst		
Daily round trip -50.00 miles	1 Truck Delivering DEA (reduction)		
1 daily trucks	No. of Trucks Delivering Sulfinol		
1.00 daily trucks	No. of Trucks Hauling Away Solid Waste		
1.00 daily trucks	No. of Trucks Delivering NaOH		
1.00 daily trucks	No. of Trucks Hauling Sulfur Away		
1.00 daily trucks	No. of Trucks Delivering ESX catalyst		
-1.00 daily trucks	No. of Trucks Delivering DEA (reduction)		
Daily round trip 1350.00 miles	Total Daily Truck Miles		
4.00 Daily trucks	Total No. of Trucks		
Annual round trip 15,600 miles	Annual Truck Miles		
23 Annual trucks	Annual Trucks		

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	15,600	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.15	0.61	1.86	0.002	0.09	0.08	65,768	1.82	65,806	30
SUBTOTAL	0	1	2	0	0	0	65,768	2	66,806	30
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	15,600	4.89	76,284	293
			TOTAL	76,284	293

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions	CO2 (MT/y	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - increased use	0.0240	MMscf/day	Natural Gas GHGs	475.92	0.0025	0.0091	477
electricity - increased use	33.91	MWh/day	Electricity GHGs	6173.74	0.0000	0.0000	6,174
water - increased use[2]	0.08	MMgal/day	Water Conveyance GHGs	10.10	0.0001	0.0001	10
wastewater - increased generation[2]	0.04	MMgal/day	Wastewater Processing GHGs	4.88	0.0000	0.0001	5
temporary construction activities[3]	2329	MT/year	Construction GHGs in CO2e				78
operational truck trips	29.84	MT/year	Operation GHGs in CO2e				30
						TOTAL CO2e	6,773

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.02	MMscf/day	Natural Gas GHGs	475.92	0.0025	0.01	477
electricity - increased use	33.91	MWh/day	Electricity GHGs	6173.74	0.0000	0.00	6,174
water - increased use[2]	0.08	MMgal/day	Water Conveyance GHGs	10.10	0.0001	0.0001	10
wastewater - increased generation[2]	0.04	MMgal/day	Wastewater Processing GHGs	4.88	0.0000	0.0001	5
temporary construction activities[3]	2328.70	MT/year	Construction GHGs in CO2e				78
operational truck trips	29.84	MT/year	Operation GHGs in CO2e				30
						TOTAL CO2e	6,773

Note: The mitigation calculations assume that 100% of the total water demand for this facility can potentially be supplied by recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[3] GHGs from temporary construction activities are amortized over 30 years.

Fuel Gas Treatment
Module 2: Fuel Gas Systems
M20: Sulfinol conversion for FCC/coker amine absorbers

Utility/Infrastructure	Facility B Annual Usage		Facility B Daily Usage	
Natural Gas	-47,740	MMbtu	-130.79	MMbtu
Electricity	1,992,190	kWh	5458.05	kWh
Water	4	MMgal	10958.90	gal
Wastewater	3	MMgal	8219.18	gal
Cooling Water	590	MMbtu	1.62	MMbtu
Compressed Air	100	1000 scf	273.97	scf
Solid Waste Disposal	0	tons	0.00	tons
Sulfur sales*	6.47	long tons	39.71	pounds
Plot Space needed	100	sf		

Excluded - not cost effective

Module 3A: FCCU
M1: Belco wet gas scrubber

Utility/Infrastructure	Facility B Annual Usage		Facility B Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	12,080,000	kWh	33095.89	kWh
Water	28	MMgal	76712.33	gal
Wastewater	13	MMgal	35616.44	gal
Cooling Water	410	MMbtu	1.12	MMbtu
Compressed Air	440	1000 scf	1205.48	scf
Solid Waste Disposal	400	tons	1.10	tons
NaOH (50%)	427	tons	1.17	tons
Plot Space needed	2000	sf		
1 Truck Hauling Away Solid Waste[1]	6400	round trip miles	400.00	round trip miles
1 Truck Delivering NaOH[2]	600	round trip miles	50.00	round trip miles
No. of Trucks Hauling Away Solid Waste	16	trucks	1	truck
No. of Trucks Delivering NaOH	12	trucks	1	truck

Facility B will have increased access to recycled water.

Module 3A: SRU/TGTU Systems
M17: Tail Gas NWGS Tri-Mer Cloud Chamber

Utility/Infrastructure	Facility B Annual Usage for 2 units		Facility B Daily Usage for 2 units	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	4,395,600	kWh	12042.74	kWh
Water	51.1	MMgal	140000.00	gal
Wastewater	10.2	MMgal	27945.21	gal
Cooling Water	409,880	MMbtu	1122.96	MMbtu
Compressed Air	100	1000 scf	273.97	scf
Solid Waste Disposal	500	tons	1.37	tons
Soda Ash	190	tons	0.52	tons
Plot Space needed	7906	sf		
1 Truck Hauling Away Solid Waste[3]	8000	round trip miles	400.00	round trip miles
1 Truck Delivering Soda Ash[4]	400	round trip miles	50.00	round trip miles
No. of Trucks Hauling Away Solid Waste	20	trucks	1	truck
No. of Trucks Delivering Soda Ash	8	trucks	1	truck

[1]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 16 trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.
400 tons/yr solid waste x 1 truck/25 tons = 16 trucks/year to haul extra solid waste away for recycling
This facility either sends its solid waste to a Class III landfill for disposal which is 80.64 miles (one-way) away or to a cement plant for recycling which is 67.48 miles (one-way) away.
However, the cement plant has shut-down its kilns on 11/20/2009 so the solid waste may be sent a different cement kiln further away or out of state (a maximum of 200 miles, one-way to the California/Arizona border).

[2]Assumes that one 10,000 gallon capacity storage tank will be installed for NaOH storage. It will take 12 trucks to deliver one year's worth of NaOH 50% solution, but the peak would be one truck per day.
427 tons/yr NaOH x 2,000 lbs/ ton = 854,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 66,875 gal/year x 1 truck/6,000 gallons = 11.1 trucks/year

[3]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 20 trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.
500 tons/yr solid waste x 1 truck/25 tons = 20 trucks/year to haul extra solid waste away for recycling
This facility either sends its solid waste to a Class III landfill for disposal which is 80.64 miles (one-way) away or to a cement plant for recycling which is 67.48 miles (one-way) away.
However, the cement plant has shut-down its kilns on 11/20/2009 so the solid waste may be sent a different cement kiln further away or out of state (a maximum of 200 miles, one-way to the California/Arizona border).

[4]Assumes delivery of soda ash arrives in a 25 ton capacity truck. It will take an extra 8 trucks to deliver one year's worth of soda ash.
190 tons/yr soda ash x 1 truck/25 tons = 7.6 trucks/year to deliver soda ash

For Facility B, AEC recommends Measure M1 [from Module 3A] for the FCCU, Measure M17 [from Module 3A] for the SRU/TGTU, and Measure M20 [from Module 2] for fuel gas treatment.
Can buy recycled water from California Water Service Company.

Facility B already accesses recycled water and will have increased future access to recycled water.

GRAND TOTALS (during Operation)

Daily Usage	Daily Usage		
0.00 MMbtu	0.00 scf	Natural Gas	
47791.38 Kwh	47.79 MWh	Electricity	Note: This calculation takes into account the electricity needed to make 1.17 tons per day of NaOH to satisfy demand (2,653 kWh/day).
216712.33 gal		Water	
63561.64 gal		Wastewater	
1124.08 MMbtu		Cooling Water	
1479.45 scf		Compressed Air	
2.47 tons		Solid Waste Disposal	
1.17 tons		NaOH (50% by weight)	
0.52 tons		Soda Ash (Na2CO3)	
9906.00 sf		Plot Space needed	
Daily round			
800.00 trip miles		1 Truck Hauling Away Solid Waste	
Daily round			
50.00 trip miles		1 Truck Delivering NaOH	
Daily round			
50.00 trip miles		1 Truck Delivering Soda Ash	
2.00 daily trucks		No. of Trucks Hauling Away Solid Waste	
1 daily trucks		No. of Trucks Delivering NaOH	
1 daily trucks		No. of Trucks Delivering Soda Ash	
Daily round			
900.00 trip miles		Total Daily Truck Miles	
4.00 Daily trucks		Total No. of Trucks	
Annual round			
15,400 trip miles		Annual Truck Miles	
56 Annual trucks		Annual Trucks	

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	15,400	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.15	0.61	1.83	0.002	0.09	0.08	64,925	1.79	64,963	29
SUBTOTAL	0	1	2	0	0	0	64,925	2	64,963	29
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	15,400	4.89	75,306	290
			TOTAL	75,306	290

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.agmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - increased use	0.0000	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.0000	0
electricity - increased use	47.79	MWh/day	Electricity GHGs	8702.15	0.0000	0.0000	8,702
water - increased use[2]	0.22	MMgal/day	Water Conveyance GHGs	27.55	0.0002	0.0003	28
wastewater - increased generation[2]	0.06	MMgal/day	Wastewater Processing GHGs	8.08	0.0000	0.0001	8
temporary construction activities[3]	6986	MT/year	Construction GHGs in CO2e				233
operational truck trips	29.46	MT/year	Operation GHGs in CO2e				29
						TOTAL CO2e	9,000

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.00	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.00	0
electricity - increased use	47.79	MWh/day	Electricity GHGs	8702.15	0.0000	0.00	8,702
water - increased use[2]	0.22	MMgal/day	Water Conveyance GHGs	27.55	0.0002	0.0003	28
wastewater - increased generation[2]	0.06	MMgal/day	Wastewater Processing GHGs	8.08	0.0000	0.0001	8
temporary construction activities[3]	6986.10	MT/year	Construction GHGs in CO2e				233
operational truck trips	29.46	MT/year	Operation GHGs in CO2e				29
						TOTAL CO2e	9,000

Note: The mitigation calculations assume that 100% of the total water demand for this facility can potentially be supplied by recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[3] GHGs from temporary construction activities are amortized over 30 years.

Facility C
Sulfuric Acid Plant
Cansolv **(existing system going from 20 ppm to 10 ppm)**

Utility/Infrastructure	Annual Usage		Daily Usage		Usage/Ratings		
Natural Gas	0	MMbtu	0.00	MMbtu		MMbtu	
Electricity	0	kWh	0.00	kWh		kW	
Water*	2.31	MMgal	6336	gal	0.006336	mmgal/day	(1,100 lb/hr steam = 2.2 gal/min water plus 2.2 gal/min extra cooling tower water = 4.4
Wastewater	0	MMgal	0.00	gal	0.00	mmgal/day	
Cooling Water	0	MMbtu	0.00	MMbtu			
Compressed Air	0	1000 scf	0.00	scf			
Solid Waste Disposal	0	tons	0.00	tons			
Amine	0	gal	0.00	gal			
Plot Space Needed	0	sf					

***as steam**

Facility C
Fuel Gas Treatment
Module 2: Fuel Gas Systems **M20A: Convert all amine absorbers to Sulfinol**

Utility/Infrastructure	Annual Usage		Facility C Daily Usage		Daily Usage	
Natural Gas	-1,030	MMbtu	-2.82	MMbtu	-2766.5861	scf
Electricity	476,580	kWh	1305.70	kWh	1.30569863	MWh
Water	1	MMgal	2739.73	gal	0.00273973	Mmgal
Wastewater	1	MMgal	2739.73	gal	0.00273973	Mmgal
Cooling Water	140	MMbtu	0.38	MMbtu		
Compressed Air	100	1000 scf	273.97	scf		
Solid Waste Disposal	0	tons	0.00	tons		
Sulfur sales*	6.58	long tons	40.38	pounds		
plot space needed	6000	sf				
1 Truck Delivering Sulfinol[1]	23,500	round trip miles	500.00	round trip miles		
1 Truck Hauling Sulfur Away[2]	50	round trip miles	50.00	round trip miles		
No. of Trucks Delivering Sulfinol	47	trucks	1	truck		
No. of Trucks Hauling Away Sulfur	1	trucks	1	truck		
sulfinol	277400	gallons	760.00	gallons		
1 Existing Truck Delivering MEA	-2400.00	round trip miles	-50.00	round trip miles		
No. of Existing Trucks Delivering MEA	-48.00	trucks	-1.00	truck		
MEA usage	-288000.00	gallons	-789	gallons		

Module 3A: FCCU
M1: Wet gas scrubber with wet

Utility/Infrastructure	Annual Usage		Facility C Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	0	kWh	0.00	kWh
Water	0	MMgal	0.00	gal
Wastewater	0	MMgal	0.00	gal
Cooling Water	0	MMbtu	0.00	MMbtu
Compressed Air	0	1000 scf	0.00	scf
Solid Waste Disposal	0	tons	0.00	tons
NaOH (50%)	0	tons	0.00	tons
plot space needed	2000	sf		

Excluded - This equipment has already been installed

[1]Assumes that the existing MEA amine storage tank can be used for Sulfinol storage.
[2]Assumes Hauling Sulfur away in a 25 ton capacity truck. It will take 1 extra truck to haul away one year's worth of sulfur; the peak would be one truck per day.
6.58 long tons/yr Sulfur x 2,240 lbs/long ton = 14,739 lbs/

Facility C will have future access to recycled water.
Phase III: Operations - On-Road Vehicles and Fuel Use

Facility C

Phase III: Operation On-Road Equipment Type	Fuel	Annual Round-trip Distance (miles/year)	Mileage Rate (miles/ gallon)	2012 Mobile Source Emission Factors VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	21,150	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Facility C

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.21	0.83	2.52	0.003	0.12	0.11	89,166	2.46	89,218	40.46
SUBTOTAL	0	1	3	0	0	0	89,166	2	89,218	40.46
Significance Threshold	65	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Facility C

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	21,150	4.89	103,424	398
			TOTAL	**103,424**	**398**

*Assumes 260 days/year

Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012

http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

Facility C: GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - decreased use	-0.0028	MMscf/day	Natural Gas GHGs	-54.96	-0.0003	-0.0011	-55
electricity - increased use	1.31	MWh/day	Electricity GHGs	237.75	0.0000	0.0000	238
water - increased use[2]	0.0091	MMgal/day	Water Conveyance GHGs	12.21	0.0001	0.0001	12
wastewater - increased generation[1]	0.0027	MMgal/day	Wastewater Processing GHGs	3.69	0.0000	0.0000	4
temporary construction activities[3]	2329	MT/year	Construction GHGs in CO2e				78
operational truck trips	40.46	MT/year	Operation GHGs in CO2e				40
						TOTAL CO2e	**317**

Facility C: GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.00	MMscf/day	Natural Gas GHGs	-54.96	-0.0003	0.00	-55
electricity - increased use	1.31	MWh/day	Electricity GHGs	237.75	0.0000	0.00	238
water - increased use[2]	0.0091	MMgal/day	Water Conveyance GHGs	1.15	0.0000	0.0000	1
wastewater - increased generation[1]	0.0027	MMgal/day	Wastewater Processing GHGs	0.35	0.0000	0.0000	0
temporary construction activities[3]	2328.70	MT/year	Construction GHGs in CO2e				78
operational truck trips	40.46	MT/year	Operation GHGs in CO2e				40
						TOTAL CO2e	**302**

Note: The mitigation calculations assume that 100% of the total water demand for this facility can potentially be supplied by recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N2O/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[3]GHGs from temporary construction activities are amortized over 30 years.

Fuel Gas Treatment
Module 2: Fuel Gas Systems
M21A: Parallel Merox treatment for excess

Utility/Infrastructure	Facility D Annual Usage		Facility D Daily Usage	
Natural Gas	440	MMbtu	1.21	MMbtu
Electricity	156,400	kWh	428.49	kWh
Water	5	MMgal	13698.63	gal
Wastewater	5	MMgal	13698.63	gal
Cooling Water	176	MMbtu	0.48	MMbtu
Compressed Air	780	1000 scf	2136.99	scf
Solid Waste Disposal	110	tons	0.30	tons
Merox Catalyst	3,000	pounds	8.22	pounds
NaOH (50%)	160	tons	0.44	tons
Sulfur sales*	11	long tons	67.51	pounds
Plot Space Needed	6000	sf		
1 Truck Hauling Away Solid Waste[1]	2000	round trip miles	400.00	round trip miles
1 Truck Delivering Merox Catalyst[2]	500	round trip miles	500.00	round trip miles
1 Truck Delivering NaOH[3]	250	round trip miles	50.00	round trip miles
1 Truck Hauling Sulfur Away[4]	50	round trip miles	50.00	round trip miles
No. of Trucks Hauling Away Solid Waste	5	trucks	1	truck
No. of Trucks Delivering Merox	1	trucks	1	truck
No. of Trucks Delivering NaOH	5	trucks	1	truck
No. of Trucks Hauling Sulfur Away	1	trucks	1	truck

Facility D will have increased access to recycled water.

Module 3A: FCCU
M1: Belco wet gas scrubber

Utility/Infrastructure	Facility D Annual Usage		Facility D Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	16,084,000	kWh	44065.75	kWh
Water	40	MMgal	109589.04	gal
Wastewater	18	MMgal	49315.07	gal
Cooling Water	550	MMbtu	1.51	MMbtu
Compressed Air	630	1000 scf	1726.03	scf
Solid Waste Disposal	190	tons	0.52	tons
NaOH (50%)	193	tons	0.53	tons
Plot Space Needed	2000	sf		

Excluded - not cost effective

Module 3A: SRU/TGTU Systems
M17: Tail Gas NWGS Tri-Mer Cloud

Utility/Infrastructure	Facility D Annual Usage		Facility D Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	2,447,400	kWh	6705.21	kWh
Water	78.2	MMgal	214246.58	gal
Wastewater	15.7	MMgal	43013.70	gal
Cooling Water	228,200	MMbtu	625.21	MMbtu
Compressed Air	100	1000 scf	273.97	scf
Solid Waste Disposal	320	tons	0.88	tons
Soda Ash	123	tons	0.34	tons
Plot Space Needed	5930	sf		
1 Truck Hauling Away Solid Waste[5]	5200	round trip miles	400.00	round trip miles
1 Truck Delivering Soda Ash[6]	250	round trip miles	50.00	round trip miles
No. of Trucks Hauling Away Solid Waste	13	trucks	1	truck
No. of Trucks Delivering Soda Ash	5	trucks	1	truck

[1]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 5 trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.
110 tons/yr solid waste x 1 truck/25 tons = 4.46 trucks/year to haul extra solid waste away for recycling

[2]It will take one truck to deliver one year's worth of Merox catalyst; the peak would be one truck per day.
Merox is delivered by truck from Chicago. The distance from the California/Nevada border to this facility is approximately 250 miles, one-way.

[3]Assumes that one 10,000 gallon capacity storage tank will be installed for NaOH storage. It will take 5 trucks to deliver one year's worth of NaOH 50% solution, but the peak would be one truck per day.
160 tons/yr NaOH x 2,000 lbs/ ton = 320,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 25,059 gal/year x 1 truck/6,000 gallons = 4.2 trucks/year

[4]Assumes Hauling Sulfur away in a 25 ton capacity truck. It will take 1 extra truck to haul away one year's worth of sulfur; the peak would be one truck per day.
11 long tons/yr Sulfur x 2,240 lbs/long ton = 24,640 lbs/yr x 1 ton/2000 lbs = 12.32 tons/yr x 1 truck/25 tons = 0.49 trucks/year to haul extra sulfur away to a buyer

[5]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 13 trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.
320 tons/yr solid waste x 1 truck/25 tons = 12.8 trucks/year to haul extra solid waste away for recycling
This facility sends its solid waste to a cement plant for recycling which is 68.42 miles (one-way) away.
However, the cement plant has shut-down its kilns on 11/20/2009 so the solid waste may be sent a different cement kiln further away or out of state (a maximum of 200 miles, one-way to the California/Arizona border).

[6]Assumes delivery of soda ash arrives in a 25 ton capacity truck. It will take an extra 5 trucks to deliver one year's worth of soda ash.
123 tons/yr soda ash x 1 truck/25 tons = 4.92 trucks/year to deliver soda ash

For Facility D, AEC recommends Measure M1 [from Module 3A] for the FCCU, Measure M17 [from Module 3A] for the SRU/TGTU, and Measure M21A [from Module 2] for the fuel gas treatment system.
Facility D can buy recycled water from California Water Service Company.

GRAND TOTALS (during Operation)

Daily Usage	Daily Usage	
1.21 MMbtu	1181.84 scf	Natural Gas
8127.70 Kwh	8.13 MWh	Electricity
227945.21 gal	0.227945205 Mmgal	Water
56712.33 gal	0.056712329 Mmgal	Wastewater
625.69 MMbtu		Cooling Water
2410.96 scf		Compressed Air
1.18 tons		Solid Waste Disposal
8.22 pounds		Merox Catalyst
0.44 tons		NaOH (50% by weight)
67.51 pounds		Sulfur sales*
0.34 tons		soda ash
11930.00 sf		Plot Space needed
	400.00 Daily round trip miles	1 Truck Hauling Away Solid Waste
	500.00 Daily round trip miles	1 Truck Delivering Merox Catalyst
	50.00 Daily round trip miles	1 Truck Delivering NaOH
	50.00 Daily round trip miles	1 Truck Hauling Sulfur Away
	400.00 Daily round trip miles	1 Truck Hauling Away Solid Waste
	50.00 Daily round trip miles	1 Truck Delivering Soda Ash
	1 daily trucks	No. of Trucks Hauling Away Solid Waste
	1 daily trucks	No. of Trucks Delivering Merox
	1.00 daily trucks	No. of Trucks Delivering NaOH
	1.00 daily trucks	No. of Trucks Hauling Sulfur Away
	1 daily trucks	No. of Trucks Hauling Away Solid Waste
	1 daily trucks	No. of Trucks Delivering Soda Ash
	1450.00 Daily round trip miles	Total Daily Truck Miles
	6 Daily trucks	Total No. of Trucks
	Annual round trip 8250.00 miles	Annual Truck Miles
	30 Annual trucks	Annual Trucks

Note: This calculation takes into account the electricity needed to make 0.44 tons per day of NaOH to satisfy demand (994 kWh/day).

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	8,250	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.08	0.32	0.98	0.001	0.05	0.04	34,781	0.96	34,801	16
SUBTOTAL:	0	0	1	0	0	0	34,781	1	34,801	16
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	8,250	4.89	40,343	155
*Assumes 260 days/year			TOTAL:	40,343	155

Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - increased use	0.0012	MMscf/day	Natural Gas GHGs	23.48	0.0001	0.0004	24
electricity - increased use	8.13	MWh/day	Electricity GHGs	1479.94	0.0000	0.0000	1,480
water - increased use[2]	0.23	MMgal/day	Water Conveyance GHGs	28.98	0.0002	0.0003	29
wastewater - increased generation[2]	0.06	MMgal/day	Wastewater Processing GHGs	7.21	0.0000	0.0001	7
temporary construction activities[3]	2329	MT/year	Construction GHGs in CO2e				78
operational truck trips	15.78	MT/year	Operation GHGs in CO2e				16
						TOTAL CO2e:	1,633

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.00	MMscf/day	Natural Gas GHGs	23.48	0.0001	0.00	24
electricity - increased use	8.13	MWh/day	Electricity GHGs	1479.94	0.0000	0.00	1,480
water - increased use[2]	0.23	MMgal/day	Water Conveyance GHGs	28.98	0.0002	0.0003	29
wastewater - increased generation[2]	0.06	MMgal/day	Wastewater Processing GHGs	7.21	0.0000	0.0001	7
temporary construction activities[3]	2328.70	MT/year	Construction GHGs in CO2e				78
operational truck trips	15.78	MT/year	Operation GHGs in CO2e				16
						TOTAL CO2e:	1,633

Facility D already accesses recycled water and will have increased future access to recycled water.

GHG Emission Factors:

1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

Fuel Gas Treatment
Module 2: Fuel Gas Systems
M20: Convert amine absorbers to Sulfinol

Facility E				
Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	-14,780	MMbtu	-40.49	MMbtu
Electricity	2,418,610	kWh	6626.33	kWh
Water	5	MMgal	13698.63	gal
Wastewater	4	MMgal	10958.90	gal
Cooling Water	700	MMbtu	1.92	MMbtu
Compressed Air	100	1000 scf	273.97	scf
Solid Waste Disposal	0	tons	0.00	tons
Sulfur sales*	56.56	long tons	347.11	pounds
Plot Space Needed	100	sf		
1 Truck Hauling Sulfur Away[2]	150	round trip miles	50.00	round trip miles
No. of Trucks Hauling Sulfur Away	3	trucks	1	truck
sulfinol	385075	gallons	1055.00	gallons
1 Truck Delivering Sulfinol[1]	32500	round trip miles	500.00	round trip miles
No. of Trucks Delivering Sulfinol	65	trucks	1.00	truck
1 Existing Truck Delivering DEA	-3150.00	round trip miles	-50.00	round trip miles
No. of Existing Trucks Delivering DEA	-53.00	trucks	-1.00	truck
DEA usage	-374490.00	gallons	-1026	gallons

Facility E will have future access to recycled water.

Module 3A: FCCU
M1: Belco wet gas scrubber

Facility E				
Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	6,887,000	kWh	18868.49	kWh
Water	18	MMgal	49315.07	gal
Wastewater	8	MMgal	21917.81	gal
Cooling Water	240	MMbtu	0.66	MMbtu
Compressed Air	280	1000 scf	767.12	scf
Solid Waste Disposal	160	tons	0.44	tons
NaOH (50%)	164	tons	0.45	tons
Plot Space Needed	1575	sf		
1 Truck Hauling Away Solid Waste[3]	2800	round trip miles	400.00	round trip miles
1 Truck Delivering NaOH[4]	250	round trip miles	50.00	round trip miles
No. of Trucks Hauling Away Solid Waste	7	trucks	1	truck
No. of Trucks Delivering NaOH	5	trucks	1	truck

Module 2: SRU/TGTU Systems
M13: EmeraChem ESx Gas Treating

Facility E				
Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	50,400	MMbtu	138.08	MMbtu
Electricity	703,600	kWh	1927.67	kWh
Water	0	MMgal	0.00	gal
Wastewater	0	MMgal	0.00	gal
Cooling Water	20	MMbtu	0.05	MMbtu
Compressed Air	720	1000 scf	1972.60	scf
Solid Waste Disposal	0	tons	0.00	tons
ESX Catalyst	400	pounds	1.10	pounds
Sulfur sales*	6.11	long tons	37.50	pounds
Plot Space Needed	2500	sf		

Excluded - not cost effective

[1]Assumes that the existing DEA amine storage tank can be used for Sulfinol storage.

[2]Assumes Hauling Sulfur away in a 25 ton capacity truck. It will take an extra 3 trucks to haul away one year's worth of sulfur, but the peak would be one truck per day.

56.56 long tons/yr Sulfur x 2,240 lbs/long ton = 126,695 lbs/yr = 63.35 tons/yr x 1 truck/25 tons = 2.53 trucks/year to haul extra sulfur away to a buyer

[3]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 7 trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.

160 tons/yr solid waste x 1 truck/25 tons = 6.4 trucks/year to haul extra solid waste away for recycling

This facility sends its solid waste to a cement plant for recycling which is 66.47 miles (one-way) away.
However, the cement plant has shut-down its kilns on 11/20/2009 so the solid waste may be sent a different cement kiln further away or out of state (a maximum of 200 miles, one-way to the California/Arizona border).

[4]Assumes that one 10,000 gallon capacity storage tank will be installed for NaOH storage. It will take 5 trucks to deliver one year's worth of NaOH 50% solution, but the peak would be one truck per day.
164 tons/yr NaOH x 2,000 lbs/ ton = 328,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 25,685 gal/year x 1 truck/6,000 gallons = 4.28 trucks/year

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III- Operation		Annual Round-trip	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type*	Fuel	Distance (miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	32,550	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.32	1.28	3.87	0.005	0.19	0.16	137,228	3.79	137,307	62
SUBTOTAL	0	1	4	0	0	0	137,228	4	137,307	62
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

GRAND TOTALS (during Operation)

Daily Usage			Daily Usage	
-40.49	MMbtu	Natural Gas	-39699.167	scf
26513.68	kWh	Electricity	26.5136769	MWh
63013.70	gal	Water	0.0630137	Mmgal
32876.71	gal	Wastewater	0.03287671	Mmgal
2.58	MMbtu	Cooling Water		
1041.10	scf	Compressed Air		
0.44	tons	Solid Waste Disposal		
0.45	tons	NaOH (50%)		
347.11	pounds	Sulfur sales*		
1055.00	gallons	sulfinol		
-1026	gallons	DEA		
1675.00	sf	Plot Space Needed		
Daily round trip 50.00	miles	1 Truck Hauling Sulfur Away		
Daily round trip 400.00	miles	1 Truck Hauling Away Solid Waste		
Daily round trip 50.00	miles	1 Truck Delivering NaOH		
Daily round trip 500.00	miles	1 Truck Delivering Sulfinol		
Daily round trip -50.00	miles	1 Truck Delivering DEA		
1	daily trucks	No. of Trucks Hauling Sulfur Away		
1	daily trucks	No. of Trucks Hauling Away Solid Waste		
1	daily trucks	No. of Trucks Delivering NaOH		
1.00	daily trucks	No. of Trucks Delivering sulfinol		
-1.00	daily trucks	No. of Trucks Delivering DEA		
Daily round trip 950.00	miles	Total Daily Truck Miles		
3.00	Daily trucks	Total No. of Trucks		
Annual round 32550	trip miles	Annual Truck Miles		
17.00	Annual trucks	Annual Trucks		

Note: This calculation takes into account the electricity needed to make 0.45 ton per day of NaOH to satisfy demand (1,019 kWh/day).

Worksheet B-26
Facility E

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	32,550	4.89	159,170	612
			TOTAL:	159,170	612

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - decreased use	-0.0397	MMscf/day	Natural Gas GHGs	-788.58	-0.0042	-0.0151	-790
electricity - increased use	26.51	MWh/day	Electricity GHGs	4827.77	0.0000	0.0000	4,828
water - increased use[1]	0.06	MMgal/day	Water Conveyance GHGs	84.78	0.0005	0.0009	85
wastewater - increased generation[1]	0.03	MMgal/day	Wastewater Processing GHGs	44.23	0.0003	0.0005	44
temporary construction activities[3]	2329	MT/year	Construction GHGs in CO2e				78
operational truck trips	62.27	MT/year	Operation GHGs in CO2e				62
						TOTAL CO2e:	4,307

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	-0.04	MMscf/day	Natural Gas GHGs	-788.58	-0.0042	-0.02	-790
electricity - increased use	26.51	MWh/day	Electricity GHGs	4827.77	0.0000	0.00	4,828
water - increased use[2]	0.06	MMgal/day	Water Conveyance GHGs	8.01	0.0000	0.0001	8
wastewater - increased generation[2]	0.03	MMgal/day	Wastewater Processing GHGs	4.18	0.0000	0.0000	4
temporary construction activities[3]	2328.70	MT/year	Construction GHGs in CO2e				78
operational truck trips	62.27	MT/year	Operation GHGs in CO2e				62
						TOTAL CO2e:	4,190

Note: The mitigation calculations assume that 100% of the total water demand for this facility can potentially be supplied by recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N2O/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

Fuel Gas Treatment
Module 2: Fuel Gas Systems
M22: Add TG-10 to MDEA

Utility/Infrastructure	Facility F Annual Usage		Daily Usage	
Natural Gas	2,000	MMbtu	5.48	MMbtu
Electricity	20,000	kWh	54.79	kWh
Water	0	MMgal	0.00	gal
Wastewater	0	MMgal	0.00	gal
Cooling Water	2,000	MMbtu	5.48	MMbtu
Compressed Air	0	1000 scf	0.00	scf
Solid Waste Disposal	0	tons	0.00	tons
TG-10 amine additive	4,000	gallons	10.96	gallons
Sulfur sales*	10.35	long tons	63.52	pounds
Plot Space needed	100	sf		
1 Truck Delivering TG-10[1]	400	round trip miles	400.00	round trip miles
1 Truck Hauling Sulfur Away[2]	50	round trip miles	50.00	round trip miles
No. of Trucks Delivering TG-10	1	trucks	1	truck
No. of Trucks Hauling Sulfur Away	1	trucks	1	truck

Facility F will have future access to recycled water.

Module 3A: FCCU
M1: Belco wet gas scrubber

Utility/Infrastructure	Facility F Annual Usage		Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	5,789,000	kWh	15860.27	kWh
Water	16	MMgal	43835.62	gal
Wastewater	8	MMgal	21917.81	gal
Cooling Water	200	MMbtu	0.55	MMbtu
Compressed Air	260	1000 scf	712.33	scf
Solid Waste Disposal	690	tons	1.89	tons
NaOH (50%)	738	tons	2.02	tons
Plot Space needed	1575	sf		
1 Truck Hauling Away Solid Waste[3]	11200	round trip miles	400.00	round trip miles
1 Truck Delivering NaOH[4]	1,000	round trip miles	50.00	round trip miles
No. of Trucks Hauling Away Solid Waste	28	trucks	1	truck
No. of Trucks Delivering NaOH	20	trucks	1	truck

Module 2: SRU/TGTU Systems

M13: EmeraChem ESx Gas Treater

Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	96,700	MMbtu	264.93	MMbtu
Electricity	1,182,000	kWh	3238.36	kWh
Water	0	MMgal	0.00	gal
Wastewater	0	MMgal	0.00	gal
Cooling Water	40	MMbtu	0.11	MMbtu
Compressed Air	600	1000 scf	1643.84	scf
Solid Waste Disposal	0	tons	0.00	tons
ESX Catalyst	400	pounds	1.10	pounds
Sulfur sales*	20.88	long tons	128.14	pounds
Plot Space needed	2500	sf		

Excluded - Facility F already meets the 5 ppm SOx level

[1]Assumes that one 5,000 gallon capacity storage tank will be installed for TG-10 storage. It will take 1 truck to deliver one year's worth of TG-10 solution, but the peak would be one truck per day.
4,000 gal/year x 1 truck/6,000 gallons = 0.67 trucks/year

[2]Assumes Hauling Sulfur away in a 25 ton capacity truck. It will take 1 extra truck to haul away one year's worth of sulfur; the peak would be one truck per day.

10.35 long tons/yr Sulfur x 2,240 lbs/long ton = 23,184 lbs/yr x 1 ton/2000 lbs = 11.59 tons/yr x 1 truck/25 tons = 0.46 trucks/year to haul extra sulfur away to a buyer

[3]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 28 trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.
690 tons/yr solid waste x 1 truck/25 tons = 27.6 trucks/year to haul extra solid waste away for recycling
This facility sends its solid waste to a cement plant for recycling which is 67.48 miles (one-way) away.
However, the cement plant has shut-down its kilns on 11/20/2009 so the solid waste may be sent a different cement kiln further away or out of state (a maximum of 200 miles, one-way to the California/Arizona border).

[4]Assumes that one 10,000 gallon capacity storage tank will be installed for NaOH storage. It will take 20 trucks to deliver one year's worth of NaOH 50% solution, but the peak would be one truck per day.
738 tons/yr NaOH x 2,000 lbs/ ton = 1,476,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 115,583 gal/year x 1 truck/6,000 gallons = 19.2 trucks/year

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation On-Road Equipment	Fuel	Annual Round-trip Distance (miles/year)	Mileage Rate (miles/ gallon)	2012 Mobile Source Emission Factors VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	12,650	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.12	0.50	1.50	0.002	0.07	0.06	53,331	1.47	53,362	24
SUBTOTAL	0	0	2	0	0	0	53,331	1	53,362	24
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

GRAND TOTALS (during Operation)

Daily Usage	Daily Usage		
5.48 MMbtu	5372.01 scf	Natural Gas	
20499.92 Kwh	20.50 MWh	Electricity	Note: This calculation takes into account the electricity needed to make 2.02 tons per day of NaOH to satisfy demand (4,585 kWh/day).
43835.62 gal	0.043835616 Mmgal	Water	
21917.81 gal	0.021917808 Mmgal	Wastewater	
6.03 MMbtu		Cooling Water	
712.33 scf		Compressed Air	
1.89 tons		Solid Waste Disposal	
63.52 pounds		Sulfur sales*	
2.02 tons		NaOH (50% by weight)	
10.96 gallons		TG-10 amine additive	
1675.00 sf		Plot Space needed	
Daily round trip 400.00 miles		1 Truck Delivering TG-10	
Daily round trip 50.00 miles		1 Truck Hauling Sulfur Away	
Daily round trip 400.00 miles		1 Truck Hauling Away Solid Waste	
Daily round trip 50.00 miles		1 Truck Delivering NaOH	
1 daily trucks		No. of Trucks Delivering TG-10	
1 daily trucks		No. of Trucks Hauling Sulfur Away	
1.00 daily trucks		No. of Trucks Hauling Away Solid Waste	
1.00 daily trucks		No. of Trucks Delivering NaOH	
Daily round trip 900.00 miles		Total Daily Truck Miles	
4 Daily trucks		Total No. of Trucks	
Annual round trip 12650.00 miles		Annual Truck Miles	
50 Annual trucks		Annual Trucks	

Incremental Increase in Fuel Usage From Operation (Truck #)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	12,650	4.89	61,859	238
			TOTAL	61,859	238

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - increased use	0.0054	MMscf/day	Natural Gas GHGs	106.71	0.0006	0.0020	107
electricity - increased use	20.50	MWh/day	Electricity GHGs	3732.75	0.0000	0.0000	3,733
water - increased use[1]	0.04	MMgal/day	Water Conveyance GHGs	58.98	0.0003	0.0006	59
wastewater - increased generation[1]	0.02	MMgal/day	Wastewater Processing GHGs	29.49	0.0002	0.0003	30
temporary construction activities[3]	2329	MT/year	Construction GHGs in CO2e				78
operational truck trips	24.20	MT/year	Operation GHGs in CO2e				24
						TOTAL CO2e	4,030

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.01	MMscf/day	Natural Gas GHGs	106.71	0.0006	0.00	107
electricity - increased use	20.50	MWh/day	Electricity GHGs	3732.75	0.0000	0.00	3,733
water - increased use[2]	0.04	MMgal/day	Water Conveyance GHGs	5.57	0.0000	0.0001	6
wastewater - increased generation[2]	0.02	MMgal/day	Wastewater Processing GHGs	2.79	0.0000	0.0000	3
temporary construction activities[3]	2328.70	MT/year	Construction GHGs in CO2e				78
operational truck trips	24.20	MT/year	Operation GHGs in CO2e				24
						TOTAL CO2e	3,960

Note: The mitigation calculations assume that 100% of the total water demand for this facility can potentially be supplied by recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3]GHGs from temporary construction activities are amortized over 30 years.

Worksheet B-28
Facility G

Module 2: Fuel Gas Systems
M21B: Merox treatment of delayed coker off-gas

Utility/Infrastructure	Annual Usage		Facility G Daily Usage	Daily Usage
Natural Gas	2,950	MMbtu	8.08 MMbtu	7923.72 scf
Electricity	1,042,900	kWh	2857.26 kWh	9.44 MWh
Water	5	MMgal	13698.63 gal	0.01 Mmgal
Wastewater	5	MMgal	13698.63 gal	0.01 Mmgal
Cooling Water	1,180	MMbtu	3.23 MMbtu	
Compressed Air	5,210	1000 scf	14273.97 scf	
Solid Waste Disposal	740	tons	2.03 tons	
Merox Catalyst	3,000	pounds	8.22 pounds	
NaOH (50%)	1,060	tons	2.90 tons	
Sulfur sales*	47	long tons	288.44 pounds	
plot space needed	6000	sf		
1 Truck Hauling Away Solid Waste[1]	12000	round trip miles	round trip 400.00 miles	
1 Truck Delivering Merox Catalyst[2]	500	round trip miles	round trip 500.00 miles	
1 Truck Delivering NaOH[3]	1400	round trip miles	round trip 50.00 miles	
1 Truck Hauling Sulfur Away[4]	100	round trip miles	round trip 50.00 miles	
No. of Trucks Hauling Away Solid Waste	30	trucks	1 truck	
No. of Trucks Delivering Merox Catalyst	1	trucks	1 truck	
No. of Trucks Delivering NaOH	28	trucks	1.00 truck	
No. of Trucks Hauling Away Sulfur	2	trucks	1.00 truck	

GRAND TOTALS (during Operation)

Daily Usage	Daily Usage	
8.08 MMbtu	7923.72 scf	Natural Gas
9442.54 Kwh	9.44 MWh	Electricity
13698.63 gal	0.01 MMgal	Water
13698.63 gal	0.01 MMgal	Wastewater
3.23 MMbtu		Cooling Water
14273.97 scf		Compressed Air
2.03 tons		Solid Waste Disposal
8.22 pounds		Merox Catalyst
2.90 tons		NaOH (50% by weight)
6000.00 sf		Plot Space needed
Daily round 400.00 trip miles		1 Truck Hauling Away Solid Waste[1]
Daily round 500.00 trip miles		1 Truck Delivering Merox Catalyst[2]
Daily round 50.00 trip miles		1 Truck Delivering NaOH[3]
Daily round 50.00 trip miles		1 Truck Hauling Sulfur Away[4]
1.00 daily trucks		No. of Trucks Hauling Away Solid Waste
1.00 daily trucks		No. of Trucks Delivering Merox Catalyst
1.00 daily trucks		No. of Trucks Delivering NaOH
1.00 daily trucks		No. of Trucks Hauling Sulfur Away
Daily round 1000.00 trip miles		Total Daily Truck Miles
4.00 Daily trucks		Total No. of Trucks
Annual round trip 14,000 miles		Annual Truck Miles
Annual 61 trucks		Annual Trucks

Note: This calculation takes into account the electricity needed to make 2.9 tons per day of NaOH to satisfy demand (6,535 kWh/day).

[1]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 30 trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.
740 tons/yr solid waste x 1 truck/25 tons = 29.6 trucks/year to haul extra solid waste away for recycling

[2]It will take one truck to deliver one year's worth of Merox catalyst; the peak would be one truck per day.
Merox is delivered by truck from Chicago. The distance from the California border to this facility is approximately 250 miles, one-way.

[3]Assumes that one 10,000 gallon capacity storage tank will be installed for NaOH storage. It will take 28 trucks to deliver one year's worth of NaOH 50% solution, but the peak would be one truck per day.
1,060 tons/yr NaOH x 2,000 lbs/ ton = 2,120,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 166,014 gal/year x 1 truck/6,000 gallons = 27.7 trucks/year

[4]Assumes Hauling Sulfur away in a 25 ton capacity truck. It will take 2 extra trucks to haul away one year's worth of sulfur; the peak would be one truck per day.
47 long tons/yr Sulfur x 2,240 lbs/long ton = 105,280 lbs/yr x 1 ton/2000 lbs = 52.64 tons/yr x 1 truck/25 tons = 2.1 trucks/year to haul extra sulfur away to a buyer

For Facility G, consultant recommends M21B for the fuel gas treatment systems.
Measures for the SRU/TGTU are more costly, with the best opportunity at Facility G being M17 [Module 3A].
For heaters, boilers, and furnaces, M30 [Module 3A] is the best opportunity for Facility G.
Facility G will not have future access to recycled water, but currently uses non-potable well water to supply the facility.

Module 3A: SRU/TGTU Systems
M17: Tail Gas NWGS
Tri-Mer Cloud

Chamber	Facility G			
Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	1,809,000	kWh	4956.16	kWh
Water	253	MMgal	693150.68	gal
Wastewater	61	MMgal	167123.29	gal
Cooling Water	168,700	MMbtu	462.19	MMbtu
Compressed Air	100	1000 scf	273.97	scf
Solid Waste Disposal	120	tons	0.33	tons
Soda Ash	45	tons	0.12	tons
plot space needed	3953	sf		

Excluded - not cost effective

Phase III: Operations - On-Road Vehicles and Fuel Use
Facility G

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	14,000	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Facility G

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.14	0.55	1.67	0.002	0.08	0.07	59,023	1.63	59,057	26.78
SUBTOTAL	0	1	2	0	10	0	59,023	2	59,057	26.78
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation Trucks	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	14,000	4.89	68,460	263
			TOTAL	68,460	263

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

Facility G: GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - increased use	0.008	MMscf/day	Natural Gas GHGs	157.40	0.0008	0.0030	158
electricity - increased use	9.44	MWh/day	Electricity GHGs	1719.36	0.0000	0.0000	1,719
water - increased use[2]	0.014	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	2
wastewater - increased generation[2]	0.014	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	2
temporary construction activities[3]	2329	MT/year	Construction GHGs in CO2e				78
operational truck trips	26.78	MT/year	Operation GHGs in CO2e				27
						TOTAL CO2e	1,985

Facility G: GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.01	MMscf/day	Natural Gas GHGs	157.40	0.0008	0.00	158
electricity - increased use	9.44	MWh/day	Electricity GHGs	1719.36	0.0000	0.00	1,719
water - increased use[2]	0.01	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	2
wastewater - increased generation[2]	0.01	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	2
temporary construction activities[3]	2328.70	MT/year	Construction GHGs in CO2e				78
operational truck trips	26.78	MT/year	Operation GHGs in CO2e				27
						TOTAL CO2e	1,985

Note: The mitigation calculations assume that 100% of the total water demand for this facility cannot potentially be supplied by recycled water because this facility does not have current or future access to recycled water. However, this facility has access to non-potable well water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water[1]
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation[2]
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

Facility J - Sulfuric Acid Plant
Belco wet gas scrubber

Utility/Infrastructure	Annual Usage		Daily Usage		Daily Usage		
Natural Gas	0	MMbtu	0.00	MMbtu	0	scf	
Electricity	2,452,800	kWh	9658.78	kWh	9.66	MWh	Note: This calculation takes into account the electricity needed to make 1.30 tons per day of NaOH to satisfy demand (2,939 kWh/day).
Water	7.15	MMgal	19589.04	gal	0.02	Mmgal	
Wastewater	3.94	MMgal	10800.00	gal	0.01	Mmgal	
Cooling Water	0	MMbtu	0.00	MMbtu			
Compressed Air	0	1000 scf	0.00	scf			
Solid Waste Disposal	0	tons	0.00	tons			
NaOH (50%)	473	tons	1.30	tons			
Plot Space Needed	500	sf					
		round trip		round trip			
1 Truck Delivering NaOH[1]	650	miles	50.00	miles			
No. of Trucks Delivering NaOH	13	trucks	1	truck			

[1]Assumes that one 10,000 gallon capacity storage tank will be installed for NaOH storage. It will take 13 trucks to deliver one year's worth of NaOH 50% solution, but the peak would be one truck per day.
473 tons/yr NaOH x 2,000 lbs/ ton = 946,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 74,080 gal/year x 1 truck/6,000 gallons = 12.35 trucks/year

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation On-Road Equipment Type	Fuel	Annual Round-trip Distance (miles/year)	Mileage Rate (miles/ gallon)	2012 Mobile Source Emission Factors: VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	650	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT/year)
Offsite (Heavy-Heavy Duty Truck)	0.01	0.03	0.08	0.000	0.00	0.00	2,740	0.08	2,742	1
SUBTOTAL	0	0	0	0	0	0	2,740	0	2,742	1
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	650	4.89	3,179	12
			TOTAL	3,179	12

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.0000	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.0000	0
electricity - increased use	9.66	MWh/day	Electricity GHGs	1758.73	0.0000	0.0000	1,759
water - increased use	0.02	MMgal/day	Water Conveyance GHGs	26.36	0.0002	0.0003	26
wastewater - increased generation	0.01	MMgal/day	Wastewater Processing GHGs	14.53	0.0001	0.0002	15
temporary construction activities	2329	MT/year	Construction GHGs in CO2e	[redacted]			78
operational truck trips	1.24	MT/year	Operation GHGs in CO2e				1
						TOTAL CO2e	1,879

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.00	MMscf/day	Natural Gas GHGs	0.00	0.00	0.00	0
electricity - increased use	9.66	MWh/day	Electricity GHGs	1758.73	0.00	0.00	1,759
water - increased use[2]	0.02	MMgal/day	Water Conveyance GHGs	2.49	0.0000	0.0000	2
wastewater - increased generation[2]	0.01	MMgal/day	Wastewater Processing GHGs	1.37	0.0000	0.0000	1
temporary construction activities[3]	2328.70	MT/year	Construction GHGs in CO2e	[redacted]			78
operational truck trips	1.24	MT/year	Operation GHGs in CO2e				1
						TOTAL CO2e	1,841

Note: The mitigation calculations assume that 100% of the total water demand for Sulfuric Acid Manufacturing at Facility J can potentially be supplied by recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N2O/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

Worksheet B-30
Solid Waste Handling

Facility ID	Current Solid Waste Hauled away (tons/day)	Type of Solid Waste	Solid Waste is trucked to?	Distance to local cement plant for recycling or Landfill for disposal (miles, one-way)	Distance to out of District cement plant for recycling or Landfill for disposal (miles, one-way)	Distance to out of state cement plant for recycling (miles, one-way)	Option 1: Proposed increase in Solid Waste (ton/day)	Option 1 Increase in Solid Waste will be trucked to?	Option 2: Proposed increase in Solid Waste (ton/day)	Option 2 Increase in Solid Waste will be trucked to?
A	1.12	FCCU fines	cement plant	71.9	131	200	0.77	cement plant	0.00	cement plant
B	4.66	FCCU fines	cement plant or Class III landfill	80.64	80.64	200	2.47	cement plant	1.37	cement plant
C	2.16	FCCU fines	cement plant	71.77	132	200	0.00	n/a	0.00	n/a
D	0.41	FCCU fines	cement plant	68.42	130	200	1.18	cement plant	1.18	cement plant
E	0.99	FCCU fines	cement plant	66.47	128	200	0.44	cement plant	0.00	cement plant
F	2	FCCU fines	cement plant	67.48	128	200	1.89	cement plant	0.00	cement plant
G	not provided	Catalyst fines	cement plant	65.95	127	200	2.03	cement plant	2.03	cement plant
H	175	baghouse fines	cement plant	67.7	129	200	0.44	cement plant	0.44	cement plant
I	not provided	ESP fines	Most is reused on site but some is sent to Class III Landfill	66.39	n/a	n/a	0.05	cement plant	0.05	cement plant
J	not provided						0.00	n/a	0.00	n/a
K	not provided	not provided	Reused on site or sent to Class III Landfill			n/a	2.49 11.75	Reused on site	2.49 7.56	Reused on site

Disposal Facilities Used by Facility B

Facility Name	Facility Type	Facility Class	Remaining Capacity (yds^3)	Address	Mileage	Permitted Capacity (yds^3)
Waste Management - Palmdale (Los Angeles County): Antelope Valley Public Landfill	Solid waste landfill Large volume waste transfer facility	Class III	2, 980,000	1200 West City Ranch Road, Palmdale CA 93551	80.64 from Facility B 66.39 from Facility I 71.06 from Facility K	6,480,000
Waste Management - Azusa (Los Angeles County): Azusa Land Reclamation Co. Landfill	Inert waste disposal site Major waste tire facility Asbestos Containing Materials disposal site Contaminated soil facility Solid waste disposal site	Class III	34,100,000	1211 West Gladstone Street, Azusa, CA 91702	34.34 from Facility B 23.65 from Facility I 38.77 from Facility K	66,670,000

Source:
www.cwmb.c

Facility A sends its solid waste to a cement plant for recycling which is 71.9 miles (one-way) away.
However, the cement plant has shut-down its kilns on 11/20/2009 so the solid waste may be sent a different cement kiln further away or out of state (a maximum of 200 miles, one-way to the California/Arizona border).
Facility A's catalyst fines are collected by a pneumatic tanker truck (USA Transport) and are transported to California Portland Cement, Colton, CA for recycling into cement.
In 2008 the facility shipped 408.61 tons. Analytical data has shown these catalyst fines to be non-hazardous.

Facility D sends its solid waste to a cement plant for recycling which is 68.42 miles (one-way) away.
However, the cement plant has shut-down its kilns on 11/20/2009 so the solid waste may be sent a different cement kiln further away or out of state (a maximum of 200 miles, one-way to the California/Arizona border).

Facility G sends its solid waste to a cement plant for recycling which is 66 miles (one-way) away.
However, the cement plant has shut-down its kilns on 11/20/2009 so the solid waste may be sent a different cement kiln further away or out of state (a maximum of 200 miles, one-way to the California/Arizona border).

PROPOSED PROJECT - OPTION 2: FCCUs USING SOx REDUCING ADDITIVES ONLY

FCCUs 6 Refineries Using SOx Reducing Additives to meet 5 ppm SOx limit Usage Rates		
0	Mmbtu/day	Natural Gas
0	kWh/day	Electricity
0	gal/day	Water
0	gal/day	Wastewater
0	Mmbtu/day	Cooling Water
0	scf/day	Compressed Air
0	tons/day	Solid Waste Disposal
2500	pounds/day	SOx Reducing Catalyst
0	sf	Plot Space Needed
2000	round trip miles/day	1 Truck Delivering SOx Reducing Catalyst
5	trucks/day	No. of Trucks Delivering SOx Reducing Catalyst
0	round trip miles/day	1 Truck Hauling Away Solid Waste[2]
0	trucks/day	No. of Trucks Hauling Away Solid Waste[2]
8000	round trip miles/year	Annual Truck Miles
20	trucks/year	Annual Trucks

*any increase in SOx Reducing Catalyst is a direct reduction in FCCU regenerator catalyst

Phase III: Operation On-Road Equipment Type	Fuel	Annual Round-trip Distance (miles/year)	Mileage Rate (miles/gallon)	2012 Mobile Source Emission Factors VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	8000.00	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.08	0.31	0.95	0.001	0.05	0.04	33727.26	0.93	33746.8363	15
SUBTOTAL	0	0	1	0	0	0	33,727	1	33,747	15
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	8000.00	4.89	39120.00	150.46
			TOTAL	39,120	150

*Assumes 260 days/year

Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.agmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

Notes:
Facility A already uses SOx reducing additives, I
Facility B already uses 800 lb/day of SOx reducing additives
Facility C no longer needs to use SOx reducing additives
Facility D does not currently use SOx reducing additives
Facility E has been testing with SOx reducing additives
Facility F already uses SOx reducing additives, but not sure how much

[1]Assumes catalyst deliveries are made by a 25 ton capacity truck. It will take an extra 20 trucks to deliver one year's worth of catalyst, but the peak would be one truck per day.
[2]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take 0 extra trucks to haul away one year's worth of solid waste.

Brands of SOx reducing additives: Intercat Super SOx-Getter Grace Davison Super DeSOx Most refineries are using Grace Davison's base catalyst and SOx reducing catalyst.

Phase III: Operations - GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - reduction	0.0000	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.0000	0
electricity - increased use	0.0000	MWh/day	Electricity GHGs	0.00	0.0000	0.0000	0
water - increased use[1]	0.00	MMgal/day	Water Conveyance GHGs	0.00	0.0000	0.0000	0
wastewater - increased generation[1]	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
temporary construction activities[3]	0	MT/project	Construction GHGs in CO2e				0
operational truck trips	15.30	MT/project	Operation GHGs in CO2e				15
						TOTAL CO2e	15
						Significance Threshold	10,000
						Exceed Significance?	NO

GHG Emission Factors:

1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF
[3] GHGs from temporary construction activities are amortized over 30 years.

PROPOSED PROJECT - OPTION 2: FACILITY A

Fuel Gas Treatment

Module 2: Fuel Gas Systems
M20B: Sulfinol conversion of two H2S absorbers

Facility A				
Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	-2,080	MMbtu	-5.70	MMbtu
Electricity	1,385,870	kWh	3796.90	kWh
Water	3	MMgal	8219.18	gal
Wastewater	2	MMgal	5479.45	gal
Cooling Water	400	MMbtu	1.10	MMbtu
Compressed Air	100	1000 scf	273.97	scf
Solid Waste Disposal	0	tons	0.00	tons
Plot Space Needed	100	sf		
		round trip		round trip
1 Truck Delivering Sulfinol	11000.00	miles	500.00	miles
No. of Trucks Delivering Sulfinol	22.00	trucks	1.00	truck
sulfinol	130670.00	gallons	358.00	gallons
		round trip		round trip
1 Existing Truck Delivering DEA	-1100.00	miles	-50.00	miles
No. of Existing Trucks Delivering DEA	-22.00	trucks	-1.00	truck
DEA usage	-127000.00	gallons	-347.95	gallons

SOx Reducing Additive for FCCU

Facility A				
Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	0	kWh	0.00	kWh
Water	0	MMgal	0.00	gal
Wastewater	0	MMgal	0.00	gal
Cooling Water	0	MMbtu	0.00	MMbtu
Compressed Air	0	1000 scf	0.00	scf
Solid Waste Disposal	0	tons	0.00	pounds
SOx Reducing catalyst	91.25	tons	500.00	pounds
Plot Space Needed	0	sf		
		round trip		round trip
1 Truck Hauling Away Solid Waste[2]	0	miles	0.00	miles
		round trip		round trip
1 Truck Delivering SOx Reducing Catalyst[3]	1,600	miles	400.00	miles
No. of Trucks Hauling Away Solid Waste	0	trucks	0	truck
No. of Trucks Delivering SOx Reducing Catalyst	4	trucks	1	truck

Module 2:
SRU/TGTU Systems
M13: EmeraChem ESx Gas Treating

Facility A				
Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	11,000	MMbtu	30.14	MMbtu
Electricity	1,085,000	kWh	2972.60	kWh
Water	0	MMgal	0.00	gal
Wastewater	0	MMgal	0.00	gal
Cooling Water	40	MMbtu	0.11	MMbtu
Compressed Air	770	1000 scf	2109.59	scf
Solid Waste Disposal	0	tons	0.00	tons
ESX Catalyst	400	pounds	1.10	pounds
Sulfur sales*	23.66	long tons	145.20	pounds
Plot Space Needed	2500	sf		
				round trip
1 Truck Hauling Sulfur Away[4]	100	round trip miles	50.00	miles
				round trip
1 Truck Delivering ESX Catalyst[5]	400	round trip miles	400.00	miles
No. of Trucks Hauling Sulfur Away	2	trucks	1	trucks
No. of Trucks Delivering ESX Catalyst	1	trucks	1	trucks

Facility A already accesses recycled water and will have increased future access to recycled water.

[1]Assumes that the existing DEA amine storage tank can be used for Sulfinol storage.

[2]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take 0 extra trucks to haul away one year's worth of solid waste.

[3]Assumes that one 25-ton truck will deliver catalyst. It will take 4 trucks to deliver one year's worth of catalyst, but the peak would be one truck per day.

One bulk catalyst truck can transport 25 tons.

[4]Assumes Hauling Sulfur away in a 25 ton capacity truck. It will take an extra 2 trucks to haul away one year's worth of sulfur, but the peak would be one truck per day.
23.66 long tons/yr Sulfur x 2,240 lbs/long ton = 52,998 lbs/yr x 1 ton/2000 lbs = 26.5 tons/yr x 1 truck/25 tons = 1.06 trucks/year to haul extra sulfur away to a buyer

[5] It will take one truck to deliver one year's worth of ESX Catalyst, but the peak would be one truck per day.

Grand Totals

Daily Usage			Daily Usage
24.44	MMbtu	Natural Gas	23959.17 scf
6769.51	kWh	Electricity	6.769507 MWh
8219.18	gal	Water	0.008219 Mmgal
5479.45	gal	Wastewater	0.005479 Mmgal
1.21	MMbtu	Cooling Water	
2383.56	scf	Compressed Air	
0.00	pounds	Solid Waste Disposal	
500.00	pounds	SOx Reducing catalyst	
1.10	pounds	ESX Catalyst	
358.00	gallons	sulfinol	
-347.95	gallons	DEA	
2600	sf	Plot Space Needed	
500.00	Daily round trip miles	1 Truck Delivering Sulfinol	
0.00	Daily round trip miles	1 Truck Hauling Away Solid Waste	
400.00	Daily round trip miles	1 Truck Delivering SOx Reducing Catalyst	
50.00	Daily round trip miles	1 Truck Hauling Away Sulfur	
400.00	Daily round trip miles	1 Truck Delivering ESX Catalyst	
-50.00	Daily round trip miles	1 Truck Delivering DEA (reduction)	
1	daily trucks	No. of Trucks Delivering Sulfinol	
0.00	daily trucks	No. of Trucks Hauling Away Solid Waste	
1.00	daily trucks	No. of Trucks Delivering SOx Reducing catalyst	
1	daily trucks	No. of Trucks Hauling Away Sulfur	
1	daily trucks	No. of Trucks Delivering Esx Catalyst	
-1.00	daily trucks	No. of Trucks Delivering DEA (reduction)	
1300.00	Daily round trip miles	Total Daily Truck Miles	
3.00	Daily trucks	Total No. of Daily Trucks	
12,000	Annual round trip miles	Annual Truck Miles	
7	Annual trucks	Total No. of Annual Trucks	

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)*	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	12,000	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.12	0.47	1.43	0.002	0.07	0.06	50,591	1.40	50,620	23
SUBTOTAL	0	0	1	0	0	0	50,591	1	50,620	23
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	12,000	4.89	58,680	226
			TOTAL	58,680	226

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - increased use	0.0240	MMscf/day	Natural Gas GHGs	475.92	0.0025	0.0091	477
electricity - increased use	6.77	MWh/day	Electricity GHGs	1232.63	0.0000	0.0000	1,233
water - increased use[2]	0.01	MMgal/day	Water Conveyance GHGs	1.04	0.0000	0.0000	1
wastewater - increased generation[2]	0.01	MMgal/day	Wastewater Processing GHGs	0.70	0.0000	0.0000	1
temporary construction activities[3]	0	MT/year	Construction GHGs in CO2e				0
operational truck trips	22.96	MT/year	Operation GHGs in CO2e				23
						TOTAL CO2e	1,734

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.0240	MMscf/day	Natural Gas GHGs	475.92	0.0025	0.01	477
electricity - increased use	6.7695	MWh/day	Electricity GHGs	1232.63	0.0000	0.00	1,233
water - increased use[2]	0.0082	MMgal/day	Water Conveyance GHGs	1.04	0.0000	0.0000	1
wastewater - increased generation[2]	0.0055	MMgal/day	Wastewater Processing GHGs	0.70	0.0000	0.0000	1
temporary construction activities[3]	0.0000	MT/year	Construction GHGs in CO2e				0
operational truck trips	22.9570	MT/year	Operation GHGs in CO2e				23
						TOTAL CO2e	1,734

Note: The mitigation calculations assume that 100% of the total water demand for this facility can potentially be supplied by recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

PROPOSED PROJECT - OPTION 2: FACILITY B

SOx Reducing Additive

Utility/Infrastructure	Facility B Annual Usage		Facility B Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	0	kWh	0.00	kWh
Water	0	MMgal	0.00	gal
Wastewater	0	MMgal	0.00	gal
Cooling Water	0	MMbtu	0.00	MMbtu
Compressed Air	0	1000 scf	0.00	scf
Solid Waste Disposal	0	tons	0.00	tons
SOx Reducing catalyst	91.25	tons	0.25	tons
Plot Space Needed	0	sf		
1 Truck Hauling Away Solid Waste[1]	0	round trip miles	0.00	round trip miles
1 Truck Delivering SOx Reducing Catalyst[2]	1,600	round trip miles	400.00	round trip miles
No. of Trucks Hauling Away Solid Waste	0	trucks	0	truck
No. of Trucks Delivering SOx Reducing Catalyst	4	trucks	1	truck

Module 3A: SRU/TGTU Systems
M17: Tail Gas NWGS
Tri-Mer Cloud Chamber

Utility/Infrastructure	Facility B Annual Usage for 2 units		Facility B Daily Usage for 2 units	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	4,395,600	kWh	12042.74	kWh
Water	51.1	MMgal	140000.00	gal
Wastewater	10.2	MMgal	27945.21	gal
Cooling Water	409,880	MMbtu	1122.96	MMbtu
Compressed Air	100	1000 scf	273.97	scf
Solid Waste Disposal	500	tons	1.37	tons
Soda Ash	190	tons	0.52	tons
Plot Space needed	7906	sf		
1 Truck Hauling Away Solid Waste[3]	8000	round trip miles	400.00	round trip miles
1 Truck Delivering Soda Ash[4]	400	round trip miles	50.00	round trip miles
No. of Trucks Hauling Away Solid Waste	20	trucks	1	truck
No. of Trucks Delivering Soda Ash	8	trucks	1	truck

[1]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take 0 extra trucks to haul away one year's worth of solid waste.

[2]Assumes that one 25-ton truck will deliver catalyst. It will take 4 trucks to deliver one year's worth of catalyst, but the peak would be one truck per day.

One bulk catalyst truck can transport 25 tons.

[3]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 20 trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.
500 tons/yr solid waste x 1 truck/25 tons = 20 trucks/year to haul extra solid waste away for recycling
This facility either sends its solid waste to a Class III landfill for disposal which is 80.64 miles (one-way) away or to a cement plant for recycling which is 67.48 miles (one-way) away.
However, the cement plant has shut-down its kilns on 11/20/2009 so the solid waste may be sent a different cement kiln further away or out of state (a maximum of 200 miles, one-way to the California/Arizona border).

[4]Assumes delivery of soda ash arrives in a 25 ton capacity truck. It will take an extra 8 trucks to deliver one year's worth of soda ash.
190 tons/yr soda ash x 1 truck/25 tons = 7.6 trucks/year to deliver soda ash

GRAND TOTALS (during Operation)

Daily Usage	Daily Usage	
0.00 MMbtu	0.00 scf	Natural Gas
12042.74 Kwh	12.04 MWh	Electricity
140000.00 gal		Water
27945.21 gal		Wastewater
1122.96 MMbtu		Cooling Water
273.97 scf		Compressed Air
1.37 tons		Solid Waste Disposal
0.25 tons		SOx Reducing catalyst
0.52 tons		Soda Ash (Na2CO3)
7906.00 sf		Plot Space needed
Daily round		1 Truck Hauling
400.00 trip miles		Away Solid Waste
		1 Truck Delivering
Daily round		SOx Reducing
400.00 trip miles		Catalyst[2]
Daily round		1 Truck Delivering
50.00 trip miles		Soda Ash[3]
		No. of Trucks
		Hauling Away Solid
1.00 daily trucks		Waste
1 daily trucks		No. of Trucks Delivering SOx Reducing Catalyst
1 daily trucks		No. of Trucks Delivering Soda Ash
Daily round		
850.00 trip miles		Total Daily Truck Miles
3.00 Daily trucks		Total No. of Trucks
Annual		
round trip		
10,000 miles		Annual Truck Miles
Annual		
32 trucks		Annual Trucks

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	10,000	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.10	0.39	1.19	0.002	0.06	0.05	42,159	1.17	42,184	19
SUBTOTAL	0	0	1	0	0	0	42,159	1	42,184	19
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	10,000	4.89	48,900	188
			TOTAL	48,900	188

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - increased use	0.0000	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.0000	0
electricity - increased use	12.04	MWh/day	Electricity GHGs	2192.82	0.0000	0.0000	2,193
water - increased use	0.14	MMgal/day	Water Conveyance GHGs	17.80	0.0001	0.0002	18
wastewater - increased generation	0.03	MMgal/day	Wastewater Processing GHGs	3.55	0.0000	0.0000	4
temporary construction activities	4657	MT/year	Construction GHGs in CO2e				155
operational truck trips	19.13	MT/year	Operation GHGs in CO2e				19
						TOTAL CO2e	2,389

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.00	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.00	0
electricity - increased use	12.04	MWh/day	Electricity GHGs	2192.82	0.0000	0.00	2,193
water - increased use	0.14	MMgal/day	Water Conveyance GHGs	17.80	0.0001	0.0002	18
wastewater - increased generation	0.03	MMgal/day	Wastewater Processing GHGs	3.55	0.0000	0.0000	4
temporary construction activities	4657.40	MT/year	Construction GHGs in CO2e				155
operational truck trips	19.13	MT/year	Operation GHGs in CO2e				19
						TOTAL CO2e	2,389

Note: The mitigation calculations assume that 100% of the total water demand for this facility can potentially be supplied by recycled water.

Facility B already accesses recycled water and will have increased future access to recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

PROPOSED PROJECT - OPTION 2: FACILITY D

Fuel Gas Treatment
Module 2: Fuel Gas Systems
M21A: Parallel Merox treatment for excess coker gas

Utility/Infrastructure	Facility D Annual Usage		Facility D Daily Usage
Natural Gas	440	MMbtu	1.21 MMbtu
Electricity	156,400	kWh	428.49 kWh
Water	5	MMgal	13698.63 gal
Wastewater	5	MMgal	13698.63 gal
Cooling Water	176	MMbtu	0.48 MMbtu
Compressed Air	780	1000 scf	2136.99 scf
Solid Waste Disposal	110	tons	0.30 tons
Merox Catalyst	3,000	pounds	0.0041 tons
NaOH (50%)	160	tons	0.44 tons
Sulfur sales*	11	long tons	67.51 pounds
Plot Space Needed	6000	sf	
1 Truck Hauling Away Solid Waste[1]	2000	round trip miles	round trip 400.00 miles
1 Truck Delivering Merox Catalyst[2]	500	round trip miles	round trip 500.00 miles
1 Truck Delivering NaOH[3]	250	round trip miles	round trip 50.00 miles
1 Truck Hauling Sulfur Away[4]	50	round trip miles	round trip 50.00 miles
No. of Trucks Hauling Away Solid Waste	5	trucks	1 truck
No. of Trucks Delivering Merox Catalyst	1	trucks	1 truck
No. of Trucks Delivering NaOH	5	trucks	1 truck
No. of Trucks Hauling Sulfur Away	1	trucks	1 truck

SOx Reducing Additive

Utility/Infrastructure	Facility D Annual Usage		Facility D Daily Usage
Natural Gas	0	MMbtu	0.00 MMbtu
Electricity	0	kWh	0.00 kWh
Water	0	MMgal	0.00 gal
Wastewater	0	MMgal	0.00 gal
Cooling Water	0	MMbtu	0.00 MMbtu
Compressed Air	0	1000 scf	0.00 scf
Solid Waste Disposal	0	tons	0.00 tons
SOx Reducing catalyst	91.25	tons	0.25 tons
Plot Space Needed	0	sf	
1 Truck Hauling Away Solid Waste[7]	0	round trip miles	round trip 0.00 miles
1 Truck Delivering SOx Reducing Catalyst[8]	1,600	round trip miles	round trip 400.00 miles
No. of Trucks Hauling Away Solid Waste	0	trucks	0 truck
No. of Trucks Delivering SOx Reducing Catalyst	4	trucks	1 truck

Module 3A: SRU/TGTU Systems
M17: Tail Gas NWGS Tri-Mer Cloud Chamber

Utility/Infrastructure	Facility D Annual Usage		Facility D Daily Usage
Natural Gas	0	MMbtu	0.00 MMbtu
Electricity	2,447,400	kWh	6705.21 kWh
Water	78.2	MMgal	214246.58 gal
Wastewater	15.7	MMgal	43013.70 gal
Cooling Water	228,200	MMbtu	625.21 MMbtu
Compressed Air	100	1000 scf	273.97 scf
Solid Waste Disposal	320	tons	0.88 tons
Soda Ash	123	tons	0.34 tons
Plot Space Needed	5930	sf	
1 Truck Hauling Away Solid Waste[5]	5200	round trip miles	round trip 400.00 miles
1 Truck Delivering Soda Ash[6]	250	round trip miles	round trip 50.00 miles
No. of Trucks Hauling Away Solid Waste	13	trucks	1 truck
No. of Trucks Delivering Soda Ash	5	trucks	1 truck

[1]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 5 trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.

110 tons/yr solid waste x 1 truck/25 tons = 4.48 trucks/year to haul extra solid waste away for recycling

[2]It will take one truck to deliver one year's worth of Merox catalyst; the peak would be one truck per day.
Merox is delivered by truck from Chicago. The distance from the California/Nevada border to this facility is approximately 250 miles, one-way.

[3]Assumes that one 10,000 gallon capacity storage tank will be installed for NaOH storage. It will take 5 trucks to deliver one year's worth of NaOH 50% solution, but the peak would be one truck per day.

160 tons/yr NaOH x 2,000 lbs/ ton = 320,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 25,059 gal/year x 1 truck/6,000 gallons = 4.2 trucks/year

[4]Assumes Hauling Sulfur away in a 25 ton capacity truck. It will take 1 extra truck to haul away one year's worth of sulfur; the peak would be one truck per day.
11 long tons/yr Sulfur x 2,240 lbs/long ton = 24,640 lbs/yr x 1 ton/2000 lbs = 12.32 tons/yr x 1 truck/25 tons = 0.49 trucks/year to haul extra sulfur away to a buyer

[5]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 13 trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.
320 tons/yr solid waste x 1 truck/25 tons = 12.8 trucks/year to haul extra solid waste away for recycling
This facility sends its solid waste to a cement plant for recycling which is 88.42 miles (one-way) away.
However, the cement plant has shut-down its kilns on 11/20/2009 so the solid waste may be sent a different cement kiln further away or out of state (a maximum of 200 miles, one-way to the California/Arizona border).

[6]Assumes delivery of soda ash arrives in a 25 ton capacity truck. It will take an extra 5 trucks to deliver one year's worth of soda ash.
123 tons/yr soda ash x 1 truck/25 tons = 4.92 trucks/year to deliver soda ash

[7]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take 0 extra trucks to haul away one year's worth of solid waste.

[8]Assumes that one 25-ton truck will deliver catalyst. It will take 4 trucks to deliver one year's worth of catalyst, but the peak would be one truck per day.
One bulk catalyst truck can transport 25 tons.

GRAND TOTALS (during Operation)

Daily Usage	Daily Usage	
1.21 MMbtu	1181.84 scf	Natural Gas
8127.70 Kwh	8.13 MWh	Electricity
227945.21 gal	0.227945205 Mmgal	Water
56712.33 gal	0.056712329 Mmgal	Wastewater
625.69 MMbtu		Cooling Water
2410.96 scf		Compressed Air
1.18 tons		Solid Waste Disposal
0.0041 tons		Merox Catalyst
0.25 tons		SOx Reducing Catalyst
0.44 tons		NaOH (50%)
87.51 pounds		Sulfur sales*
0.34 tons		soda ash
11930.00 sf		Plot Space needed

Note: This calculation takes into account the electricity needed to make 0.44 tons per day of NaOH to satisfy demand (994 kWh/day).

400.00	Daily round trip miles	1 Truck Hauling Away Solid Waste
500.00	Daily round trip miles	1 Truck Delivering Merox Catalyst
50.00	Daily round trip miles	1 Truck Delivering NaOH
50.00	Daily round trip miles	1 Truck Hauling Sulfur Away
400.00	Daily round trip miles	1 Truck Hauling Away Solid Waste
50.00	Daily round trip miles	1 Truck Delivering Soda Ash
0.00	Daily round trip miles	1 Truck Hauling Away Solid Waste
400.00	Daily round trip miles	1 Truck Delivering SOx Reducing Catalyst
2	daily trucks	No. of Trucks Hauling Away Solid Waste
1	daily trucks	No. of Trucks Delivering Merox Catalyst
1.00	daily trucks	No. of Trucks Delivering NaOH
1.00	daily trucks	No. of Trucks Hauling Sulfur Away
1	daily trucks	No. of Trucks Delivering Soda Ash
1	daily trucks	No. of Trucks Delivering SOx Reducing Catalyst
1850.00	Daily round trip miles	Total Daily Truck Miles
7	Daily trucks	Total No. of Trucks
9850.00	Annual round trip miles	Annual Truck Miles
34	Annual trucks	Annual Trucks

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	9,850	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.10	0.39	1.17	0.002	0.06	0.05	41,527	1.15	41,551	19
SUBTOTAL	0	0	1	0	0	0	41,527	1	41,551	19
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	9,850	4.89	48,167	185
			TOTAL	48,167	185

*Assumes 260 days/year

Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - increased use	0.0012	MMscf/day	Natural Gas GHGs	23.48	0.0001	0.0004	24
electricity - increased use	8.13	MWh/day	Electricity GHGs	1479.94	0.0000	0.0000	1,480
water - increased use[2]	0.23	MMgal/day	Water Conveyance GHGs	28.98	0.0002	0.0003	29
wastewater - increased generation[2]	0.06	MMgal/day	Wastewater Processing GHGs	7.21	0.0000	0.0001	7
temporary construction activities[3]	2329	MT/year	Construction GHGs in CO2e	[redacted]			78
operational truck trips	18.84	MT/year	Operation GHGs in CO2e				19
						TOTAL CO2e	1,636

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.00	MMscf/day	Natural Gas GHGs	23.48	0.0001	0.00	24
electricity - increased use	8.13	MWh/day	Electricity GHGs	1479.94	0.0000	0.00	1,480
water - increased use[2]	0.23	MMgal/day	Water Conveyance GHGs	28.98	0.0002	0.0003	29
wastewater - increased generation[2]	0.06	MMgal/day	Wastewater Processing GHGs	7.21	0.0000	0.0001	7
temporary construction activities[3]	2328.70	MT/year	Construction GHGs in CO2e	[redacted]			78
operational truck trips	18.84	MT/year	Operation GHGs in CO2e				19
						TOTAL CO2e	1,636

Facility D already accesses recycled water and will have increased future access to recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO_2/MMscf fuel burned
0.64 lb N_2O/MMscf fuel burned
2.3 lb CH_4/MMscf fuel burned
1,110 lb CO_2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water[1]
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation[2]
640 lb CO_2/MWh for electricity use due to water conveyance
0.0067 lb CH_4/MWh for electricity use due to water conveyance
0.0037 lb N_2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

PROPOSED PROJECT - OPTION 2 & ALTERNATIVE C - OPTION 2: FACILITY E

Fuel Gas Treatment
Module 2: Fuel Gas Systems
M20: Convert amine absorbers to Sulfinol

	Facility E		
Utility/Infrastructure	Annual Usage		Daily Usage
Natural Gas	-14,780	MMbtu	-40.49 MMbtu
Electricity	2,418,610	kWh	6626.33 kWh
Water	5	MMgal	13698.63 gal
Wastewater	4	MMgal	10958.90 gal
Cooling Water	700	MMbtu	1.92 MMbtu
Compressed Air	100	1000 scf	273.97 scf
Solid Waste Disposal	0	tons	0.00 tons
Sulfur sales*	56.56	long tons	347.11 pounds
Plot Space Needed	100	sf	
1 Truck Hauling Sulfur Away[2]	150	round trip miles	round trip 50.00 miles
No. of Trucks Hauling Sulfur Away	3	trucks	1 truck
sulfinol	385075.00	gallons	1055.00 gallons
1 Truck Delivering Sulfinol[1]	32500.00	round trip miles	round trip 500.00 miles
No. of Trucks Delivering Sulfinol	65.00	trucks	1.00 truck
1 Existing Truck Delivering DEA	-3150.00	round trip miles	round trip -50.00 miles
No. of Existing Trucks Delivering DEA	-63.00	trucks	-1.00 truck
DEA usage	-374490.00	gallons	-1026.00 gallons

SOx Reducing Additive for FCCU

	Facility E		
Utility/Infrastructure	Annual Usage		Daily Usage
Natural Gas	0	MMbtu	0.00 MMbtu
Electricity	0	kWh	0.00 kWh
Water	0	MMgal	0.00 gal
Wastewater	0	MMgal	0.00 gal
Cooling Water	0	MMbtu	0.00 MMbtu
Compressed Air	0	1000 scf	0.00 scf
Solid Waste Disposal	0	tons	0.00 tons
SOx Reducing catalyst	91.25	tons	0.25 tons
Plot Space Needed	0	sf	
1 Truck Hauling Away Solid Waste[3]	0	round trip miles	round trip 0.00 miles
1 Truck Delivering SOx Reducing Catalyst[4]	1,600	round trip miles	round trip 400.00 miles
No. of Trucks Hauling Away Solid Waste	0	trucks	0 truck
No. of Trucks Delivering SOx Reducing Catalyst	4	trucks	1 truck

[1]Assumes that the existing DEA amine storage tank can be used for Sulfinol storage.

[2]Assumes Hauling Sulfur away in a 25 ton capacity truck. It will take an extra 3 trucks to haul away one year's worth of sulfur, but the peak would be one truck per day.
56.56 long tons/yr Sulfur x 2,240 lbs/long ton = 126,695 lbs/yr = 63.35 tons/yr x 1 truck/25 tons = 2.53 trucks/year to haul extra sulfur away to a buyer

[3]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take 0 trucks to haul away one year's worth of solid waste.

[4]Assumes that one 25-ton truck will deliver catalyst. It will take 4 trucks to deliver one year's worth of catalyst, but the peak would be one truck per day.
One bulk catalyst truck can transport 25 tons.

GRAND TOTALS (during Operation)

Daily Usage		Daily Usage
-40.49 MMbtu	Natural Gas	-39699.2 scf
6626.33 kWh	Electricity	6.626329 MWh
13698.63 gal	Water	0.013699 Mmgal
10958.90 gal	Wastewater	0.010959 Mmgal
1.92 MMbtu	Cooling Water	
273.97 scf	Compressed Air	
0.00 tons	Solid Waste Disposal	
0.25 tons	SOx Reducing catalyst	
347.11 pounds	Sulfur sales*	
1055.00 gallons	sulfinol	
-1026.00 gallons	DEA	
100.00 sf	Plot Space Needed	
50.00 Daily round trip miles	1 Truck Hauling Sulfur Away	
0.00 Daily round trip miles	1 Truck Hauling Away Solid Waste	
400.00 Daily round trip miles	1 Truck Delivering SOx Reducing catalyst	
500 Daily round trip miles	1 Truck Delivering Sulfinol	
-50.00 Daily round trip miles	1 Truck Delivering DEA	
1 daily trucks	No. of Trucks Hauling Sulfur Away	
0 daily trucks	No. of Trucks Hauling Away Solid Waste	
1 daily trucks	No. of Trucks Delivering SOx Reducing catalyst	
1 daily trucks	No. of Trucks Delivering Sulfinol	
-1.00 daily trucks	No. of Trucks Delivering DEA	
900.00 Daily round trip miles	Total Daily Truck Miles	
2.00 Daily trucks	Total No. of Trucks	
31100 Annual round trip miles	Annual Truck Miles	
9.00 Annual trucks	Annual Trucks	

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	31,100	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.30	1.22	3.70	0.005	0.18	0.15	131,115	3.62	131,191	59
SUBTOTAL	0	1	4	0	0	0	131,115	4	131,191	59
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	31,100	4.89	152,079	585
			TOTAL	152,079	585

*Assumes 260 days/year

Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - decreased use	-0.0397	MMscf/day	Natural Gas GHGs	-788.58	-0.0042	-0.0151	-790
electricity - increased use	6.63	MWh/day	Electricity GHGs	1206.56	0.0000	0.0000	1,207
water - increased use[1]	0.01	MMgal/day	Water Conveyance GHGs	18.43	0.0001	0.0002	18
wastewater - increased generation[1]	0.01	MMgal/day	Wastewater Processing GHGs	14.74	0.0001	0.0002	15
temporary construction activities[3]	0	MT/year	Construction GHGs in CO2e				0
operational truck trips	59.50	MT/year	Operation GHGs in CO2e				59
						TOTAL CO2e	509

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	-0.04	MMscf/day	Natural Gas GHGs	-788.58	-0.0042	-0.02	-790
electricity - increased use	6.63	MWh/day	Electricity GHGs	1206.56	0.0000	0.00	1,207
water - increased use[2]	0.01	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	2
wastewater - increased generation[2]	0.01	MMgal/day	Wastewater Processing GHGs	1.39	0.0000	0.0000	1
temporary construction activities[3]	0.00	MT/year	Construction GHGs in CO2e				0
operational truck trips	59.50	MT/year	Operation GHGs in CO2e				59
						TOTAL CO2e	479

Note: The mitigation calculations assume that 100% of the total water demand for this facility can potentially be supplied by recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

PROPOSED PROJECT - OPTION 2 & ALTERNATIVE C - OPTION 2: FACILITY F

Fuel Gas Treatment
Module 2: Fuel Gas Systems

M22: Add TG-10 to MDEA	Facility F			
Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	2,000	MMbtu	5.48	MMbtu
Electricity	20,000	kWh	54.79	kWh
Water	0	MMgal	0.00	gal
Wastewater	0	MMgal	0.00	gal
Cooling Water	2,000	MMbtu	5.48	MMbtu
Compressed Air	0	1000 scf	0.00	scf
Solid Waste Disposal	0	tons	0.00	tons
TG-10 amine additive	4,000	gallons	10.96	gallons
Sulfur sales*	10.35	long tons	63.52	pounds
Plot Space needed	100	sf		
1 Truck Delivering TG-10[1]	400	round trip miles	400.00	round trip miles
1 Truck Hauling Sulfur Away[2]	50	round trip miles	50.00	round trip miles
No. of Trucks Delivering TG-10	1	trucks	1	truck
No. of Trucks Hauling Sulfur Away	1	trucks	1	truck

SOx Reducing Additive for FCCU	Facility F			
Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	0	kWh	0.00	kWh
Water	0	MMgal	0.00	gal
Wastewater	0	MMgal	0.00	gal
Cooling Water	0	MMbtu	0.00	MMbtu
Compressed Air	0	1000 scf	0.00	scf
Solid Waste Disposal	0	tons	0.00	tons
SOx Reducing catalyst	91.25	tons	0.25	tons
Plot Space Needed	0	sf		
1 Truck Hauling Away Solid Waste	0	round trip miles	0.00	round trip miles
1 Truck Delivering SOx Reducing Catalyst[4]	1,600	round trip miles	400.00	round trip miles
No. of Trucks Hauling Away Solid Waste	0	trucks	0	truck
No. of Trucks Delivering SOx Reducing Catalyst	4	trucks	1	truck

[1]Assumes that one 10,000 gallon capacity storage tank will be installed for TG-10 storage. It will take 1 truck to deliver one year's worth of TG-10 solution, but the peak would be one truck per day.

4,000 gal/year x 1 truck/6,000 gallons = 0.67 trucks/year

[2]Assumes Hauling Sulfur away in a 25 ton capacity truck. It will take 1 extra truck to haul away one year's worth of sulfur; the peak would be one truck per day.

10.35 long tons/yr Sulfur x 2,240 lbs/long ton = 23,184 lbs/yr x 1 ton/2000 lbs = 11.59 tons/yr x 1 truck/25 tons = 0.46 trucks/year to haul extra sulfur away to a buyer

[3]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 0 trucks to haul away one year's worth of solid waste.

[4]Assumes that one 25-ton truck will deliver catalyst. It will take 4 trucks to deliver one year's worth of catalyst, but the peak would be one truck per day.
One bulk catalyst truck can transport 25 tons.

GRAND TOTALS (during Operation)

Daily Usage	Daily Usage	
5.48 MMbtu	5372.01 scf	Natural Gas
54.79 Kwh	0.05 MWh	Electricity
0.00 gal	0 Mmgal	Water
0.00 gal	0 Mmgal	Wastewater
5.48 MMbtu		Cooling Water
0.00 scf		Compressed Air
0.00 tons		Solid Waste Disposal
63.52 pounds		Sulfur sales*
0.25 tons		SOx Reducing catalyst
10.96 gallons		TG-10 amine additive
100.00 sf		Plot Space needed
Daily round		
400.00 trip miles		1 Truck Delivering TG-10
Daily round		
50.00 trip miles		1 Truck Hauling Sulfur Away
Daily round		1 Truck Hauling Away Solid
0.00 trip miles		Waste
Daily round		1 Truck Delivering SOx
400.00 trip miles		Reducing Catalyst
1 daily trucks		No. of Trucks Delivering TG-10
1 daily trucks		No. of Trucks Hauling Sulfur Away
0.00 daily trucks		No. of Trucks Hauling Away Solid Waste
1.00 daily trucks		No. of Trucks Delivering SOx Reducing Catalyst
Daily round		
850.00 trip miles		Total Daily Truck Miles
3 Daily trucks		Total No. of Trucks
Annual round		
2050.00 trip miles		Annual Truck Miles
6 Annual trucks		Annual Trucks

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	2,050	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT/year)
Offsite (Heavy-Heavy Duty Truck)	0.02	0.08	0.24	0.000	0.01	0.01	8,643	0.24	8,648	4
SUBTOTAL	0	0	0	0	0	0	8,643	0	8,648	4
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	2,050	4.89	10,025	39
			TOTAL:	10,025	39

*Assumes 260 days/year

Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - increased use	0.0054	MMscf/day	Natural Gas GHGs	106.71	0.0006	0.0020	107
electricity - increased use	0.05	MWh/day	Electricity GHGs	9.98	0.0000	0.0000	10
water - increased use[1]	0.00	MMgal/day	Water Conveyance GHGs	0.00	0.0000	0.0000	0
wastewater - increased generation[1]	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
temporary construction activities[3]	0	MT/year	Construction GHGs in CO2e	[redacted]			0
operational truck trips	3.92	MT/year	Operation GHGs in CO2e				4
						TOTAL CO2e	121

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.01	MMscf/day	Natural Gas GHGs	106.71	0.0006	0.00	107
electricity - increased use	0.05	MWh/day	Electricity GHGs	9.98	0.0000	0.00	10
water - increased use[2]	0.00	MMgal/day	Water Conveyance GHGs	0.00	0.0000	0.0000	0
wastewater - increased generation[2]	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
temporary construction activities[3]	0.00	MT/year	Construction GHGs in CO2e	[redacted]			0
operational truck trips	3.92	MT/year	Operation GHGs in CO2e				4
						TOTAL CO2e	121

Note: The mitigation calculations assume that 100% of the total water demand for this facility can potentially be supplied by recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N2O/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

Worksheet B-37
NaOH Losses - Option 1 and
NaOH Losses - Alternative C, Option 1

PROPOSED PROJECT - OPTION 1 & ALTERNATIVE C - OPTION 1: NaOH LOSSES

Facility ID	NaOH Demand (tons/day)	Q = Fill Rate = NaOH Demand (MMgal/day)	S = Saturation Factor	P = Vapor Pressure of material Loaded (psia)	M = NaOH vapor molecular weight (lb/lbmole)	T= temperature of liquid loaded (°R)	Daily PM10 Filling Loss (lb/day)	$E_{loading}$ = Hourly PM10 Filling Loss (lb/hr)	$E_{working}$ = Hourly PM10 Working Loss (lb/hr)	Total Hourly PM10 Loss (lb/hr)	Acute Screening Level - 25 meters (lb/hr)	Does Hourly Filling Loss Exceed Acute Screening Level? (Yes/No)	Significant ?
A	0.81	0.13	1.45	0.0420	24.8	544.67	4.37E-03	1.82E-04	5.46E-04	7.28E-04	4.00E-03	NO	NO
B	1.17	0.18	1.45	0.0420	24.8	544.67	6.34E-03	2.64E-04	7.93E-04	1.06E-03	4.00E-03	NO	NO
C	0.00	0	1.45	0.0420	24.8	544.67	0	0	0	0	4.00E-03	NO	NO
D	0.44	0.07	1.45	0.0420	24.8	544.67	2.38E-03	9.90E-05	2.97E-04	3.96E-04	4.00E-03	NO	NO
E	0.45	0.07	1.45	0.0420	24.8	544.67	2.44E-03	1.01E-04	3.04E-04	4.06E-04	4.00E-03	NO	NO
F	2.02	0.32	1.45	0.0420	24.8	544.67	1.10E-02	4.57E-04	1.37E-03	1.83E-03	4.00E-03	NO	NO
G	2.90	0.46	1.45	0.0420	24.8	544.67	1.57E-02	6.56E-04	1.97E-03	2.62E-03	4.00E-03	NO	NO
H	3.37	0.53	1.45	0.0420	24.8	544.67	1.82E-02	7.60E-04	2.28E-03	3.04E-03	4.00E-03	NO	NO
I	0.79	0.12	1.45	0.0420	24.8	544.67	4.28E-03	1.78E-04	5.35E-04	7.14E-04	4.00E-03	NO	NO
J	1.30	0.20	1.45	0.0420	24.8	544.67	7.03E-03	2.93E-04	8.78E-04	1.17E-03	4.00E-03	NO	NO
K	0	0	1.45	0.0420	24.8	544.67	0	0	0	0	4.00E-03	NO	NO
TOTAL	**13.24**	**2.08**					**0.07**						

Facility ID	Electricity Needed to Produce NaOH* (kWh/day)
A	1826
B	2653
C	0
D	994
E	1019
F	4585
G	6585
H	7631
I	1791
J	2939
K	0
TOTAL	30023

NaOH @ 50% solution density = 12.747 lb/gal
Mv for NaOH solution = 24.8 lb/lbmol
Vapor Pressure for NaOH = 2.18 mmHg at 29.4oC or 85oF = 0.042 psia
Loading Temperature = 85oF to 100oF (544.67oR to 559.67oR)
Breathing Loss = 3 * Filling Loss

Filling Loss:

$$E_{Loading}, \, lb/day = (12.46)\frac{(S)(P)(M)(Q)}{T}$$ where:

S = saturation factor (dimensionless; obtained from Table 5.2-1 in AP-42)
= 1.45 (Splash loading: dedicated normal service)
P = vapor pressure of the material loaded at temperature T (psia)
M = vapor molecular weight (lb/lb-mole)
Q = volume of material loaded (1,000 gal/day)
T = temperature of liquid loaded (°R).

*It takes approximately 2,500 kWh to produce one metric ton of NaOH.
Thus, approximately 22,444 kWh per day of additional electricity may be needed to produce additional NaOH to meet the needs of the proposed project, calculated as follows:

$$\frac{9.9 \text{ tons NaOH}}{\text{Day}} \times \frac{2{,}000 \text{ lbs}}{\text{ton}} \times \frac{1 \text{ metric ton}}{2{,}205 \text{ lbs}} \times \frac{2{,}500 \text{ kWh}}{1 \text{ metric ton of NaOH produced}} = 22{,}444 \text{ kWh/day}$$

Worksheet B-38
NaOH Losses - Option 2

PROPOSED PROJECT - OPTION 2: NaOH LOSSES

Facility ID	NaOH Demand (tons/day)	Q = Fill Rate = NaOH Demand (MMgal/day)	S = Saturation Factor	P = Vapor Pressure of material Loaded (psia)	M = NaOH vapor molecular weight (lb/lbmole)	T= temperature of liquid loaded (°R)	Daily PM10 Filling Loss (lb/day)	$E_{loading}$ = Hourly PM10 Filling Loss (lb/hr)	$E_{working}$ = Hourly PM10 Working Loss (lb/hr)	Total Hourly PM10 Loss (lb/hr)	Acute Screening Level - 25 meters (lb/hr)	Does Hourly Filling Loss Exceed Acute Screening Level? (Yes/No)	Significant ?
A	0.00	0.00	1.45	0.0420	24.8	544.67	0.00	0.00E+00	0.00E+00	0.00E+00	4.00E-03	NO	NO
B	0.00	0.00	1.45	0.0420	24.8	544.67	0.00	0.00E+00	0.00E+00	0.00E+00	4.00E-03	NO	NO
C	0.00	0	1.45	0.0420	24.8	544.67	0	0	0.00E+00	0.00E+00	4.00E-03	NO	NO
D	0.44	0.07	1.45	0.0420	24.8	544.67	0	0	2.97E-04	3.96E-04	4.00E-03	NO	NO
E	0.00	0.00	1.45	0.0420	24.8	544.67	0.00	0.00E+00	0.00E+00	0.00E+00	4.00E-03	NO	NO
F	0.00	0.00	1.45	0.0420	24.8	544.67	0.00	0.00E+00	0.00E+00	0.00E+00	4.00E-03	NO	NO
G	2.90	0.46	1.45	0.0420	24.8	544.67	0	0	1.97E-03	2.62E-03	4.00E-03	NO	NO
H	3.37	0.53	1.45	0.0420	24.8	544.67	0.02	7.60E-04	2.28E-03	3.04E-03	4.00E-03	NO	NO
I	0.79	0.12	1.45	0.0420	24.8	544.67	0.00	1.78E-04	5.35E-04	7.14E-04	4.00E-03	NO	NO
J	1.30	0.20	1.45	0.0420	24.8	544.67	0.01	2.93E-04	8.78E-04	1.17E-03	4.00E-03	NO	NO
K	0	0	1.45	0.0420	24.8	544.67	0	0	0.00E+00	0.00E+00	4.00E-03	NO	NO
TOTAL	**8.79**	**1.38**					**0.05**						

Facility ID	Electricity Needed to Produce NaOH* (kWh/day)
A	0
B	0
C	0
D	994
E	0
F	0
G	6585
H	7631
I	1781
J	2939
K	0
TOTAL	19940

NaOH @ 50% solution density = 12.747 lb/gal
Mv for NaOH solution = 24.8 lb/lbmol
Vapor Pressure for NaOH = 2.18 mmHg at 29.4oC or 85oF = 0.042 psia
Loading Temperature = 85oF to 100oF (544.67oR to 559.67oR)
Breathing Loss = 3 * Filling Loss

Filling Loss:

$$E_{Loading}, {}^{lb}/_{day} = (12.46)\frac{(S)(P)(M)(Q)}{T}$$ where:

S = saturation factor (dimensionless; obtained from Table 5.2-1 in AP-42)
= 1.45 (Splash loading: dedicated normal service)
P = vapor pressure of the material loaded at temperature T (psia)
M = vapor molecular weight (lb/lb-mole)
Q = volume of material loaded (1,000 gal/day)
T = temperature of liquid loaded (°R).

*It takes approximately 2,500 kWh to produce one metric ton of NaOH.
Thus, approximately 12,361 kWh per day of additional electricity may be needed to produce additional NaOH to meet the needs of the proposed project, calculated as follows:

$$\frac{5.45 \text{ tons NaOH}}{\text{Day}} \times \frac{2{,}000 \text{ lbs}}{\text{ton}} \times \frac{1 \text{ metric ton}}{2{,}205 \text{ lbs}} \times \frac{2{,}500 \text{ kWh}}{1 \text{ metric ton of NaOH produced}} = 12{,}361 \text{ kWh/day}$$

Worksheet B-39
NaOH Losses - Alternative B

ALTERNATIVE B: NaOH LOSSES

Facility ID	NaOH Demand (tons/day)	Q = Fill Rate = NaOH Demand (MMgal/day)	S = Saturation Factor	P = Vapor Pressure of material Loaded (psia)	M = NaOH vapor molecular weight (lb/lbmole)	T= temperature of liquid loaded (°R)	Daily PM10 Filling Loss (lb/day)	$E_{loading}$ = Hourly PM10 Filling Loss (lb/hr)	$E_{working}$ = Hourly PM10 Working Loss (lb/hr)	Total Hourly PM10 Loss (lb/hr)	Acute Screening Level - 25 meters (lb/hr)	Does Hourly Filling Loss Exceed Acute Screening Level? (Yes/No)	Significant ?
A	0	0.00	1.45	0.0420	24.8	544.67	0.00	0.00E+00	0.00E+00	0.00E+00	4.00E-03	NO	NO
B	0	0.00	1.45	0.0420	24.8	544.67	0.00	0.00E+00	0.00E+00	0.00E+00	4.00E-03	NO	NO
C	0	0	1.45	0.0420	24.8	544.67	0	0	0.00E+00	0.00E+00	4.00E-03	NO	NO
D	0	0	1.45	0.0420	24.8	544.67	0	0	0.00E+00	0.00E+00	4.00E-03	NO	NO
E	0	0.00	1.45	0.0420	24.8	544.67	0.00	0.00E+00	0.00E+00	0.00E+00	4.00E-03	NO	NO
F	0	0.00	1.45	0.0420	24.8	544.67	0.00	0.00E+00	0.00E+00	0.00E+00	4.00E-03	NO	NO
G	0	0	1.45	0.0420	24.8	544.67	0	0	0.00E+00	0.00E+00	4.00E-03	NO	NO
H	3.37	0.53	1.45	0.0420	24.8	544.67	0.02	7.60E-04	2.28E-03	3.04E-03	4.00E-03	NO	NO
I	0.79	0.12	1.45	0.0420	24.8	544.67	0.00	1.78E-04	5.35E-04	7.14E-04	4.00E-03	NO	NO
J	1.30	0.20	1.45	0.0420	24.8	544.67	0.01	2.93E-04	8.78E-04	1.17E-03	4.00E-03	NO	NO
K	0	0	1.45	0.0420	24.8	544.67	0	0	0.00E+00	0.00E+00	4.00E-03	NO	NO
TOTAL	**5.45**	**0.86**					**0.03**						

Facility ID	Electricity Needed to Produce NaOH* (kWh/day)
A	0
B	0
C	0
D	0
E	0
F	0
G	0
H	7631
I	1791
J	2939
K	0
TOTAL	12361

NaOH @ 50% solution density = 12.747 lb/gal
Mv for NaOH solution = 24.8 lb/lbmol
Vapor Pressure for NaOH = 2.18 mmHg at 29.4oC or 85oF = 0.042 psia
Loading Temperature = 85oF to 100oF (544.67oR to 559.67oR)
Breathing Loss = 3 * Filling Loss

Filling Loss:

$$E_{Loading}, \frac{lb}{day} = (12.46)\frac{(S)(P)(M)(Q)}{T}$$ where:

S = saturation factor (dimensionless; obtained from Table 5.2-1 in AP-42)
= 1.45 (Splash loading: dedicated normal service)
P = vapor pressure of the material loaded at temperature T (psia)
M = vapor molecular weight (lb/lb-mole)
Q = volume of material loaded (1,000 gal/day)
T = temperature of liquid loaded (°R).

*It takes approximately 2,500 kWh to produce one metric ton of NaOH.
Thus, approximately 12,361 kWh per day of additional electricity may be needed to produce additional caustic to meet the needs of the proposed project, calculated as follows:

$$\frac{5.45 \text{ tons NaOH}}{\text{Day}} \times \frac{2{,}000 \text{ lbs}}{\text{ton}} \times \frac{1 \text{ metric ton}}{2{,}205 \text{ lbs}} \times \frac{2{,}500 \text{ kWh}}{1 \text{ metric ton of NaOH produced}} = 12{,}361 \text{ kWh/day}$$

Worksheet B-40
NaOH Losses - Alternative C, Option 2

ALTERNATIVE C - OPTION 2: NaOH LOSSES

Facility ID	NaOH Demand (tons/day)	Q = Fill Rate = NaOH Demand (MMgal/day)	S = Saturation Factor	P = Vapor Pressure of material Loaded (psia)	M = NaOH vapor molecular weight (lb/lbmole)	T= temperature of liquid loaded (°R)	Daily PM10 Filling Loss (lb/day)	$E_{loading}$ = Hourly PM10 Filling Loss (lb/hr)	$E_{working}$ = Hourly PM10 Working Loss (lb/hr)	Total Hourly PM10 Loss (lb/hr)	Acute Screening Level - 25 meters (lb/hr)	Does Hourly Filling Loss Exceed Acute Screening Level? (Yes/No)	Significant ?
A	0.00	0.00	1.45	0.0420	24.8	544.67	0.00	0.00E+00	0.00E+00	0.00E+00	4.00E-03	NO	NO
B	0.00	0.00	1.45	0.0420	24.8	544.67	0.00	0.00E+00	0.00E+00	0.00E+00	4.00E-03	NO	NO
C	0.00	0.00	1.45	0.0420	24.8	544.67	0	0	0.00E+00	0.00E+00	4.00E-03	NO	NO
D	0.44	0.07	1.45	0.0420	24.8	544.67	0	0	2.97E-04	3.96E-04	4.00E-03	NO	NO
E	0.00	0.00	1.45	0.0420	24.8	544.67	0.00	0.00E+00	0.00E+00	0.00E+00	4.00E-03	NO	NO
F	0.00	0.00	1.45	0.0420	24.8	544.67	0.00	0.00E+00	0.00E+00	0.00E+00	4.00E-03	NO	NO
G	2.90	0.46	1.45	0.0420	24.8	544.67	0	0	1.97E-03	2.62E-03	4.00E-03	NO	NO
H	3.37	0.53	1.45	0.0420	24.8	544.67	0.02	7.60E-04	2.28E-03	3.04E-03	4.00E-03	NO	NO
I	0.79	0.12	1.45	0.0420	24.8	544.67	0.00	1.78E-04	5.35E-04	7.14E-04	4.00E-03	NO	NO
J	1.30	0.20	1.45	0.0420	24.8	544.67	0.01	2.93E-04	8.78E-04	1.17E-03	4.00E-03	NO	NO
K	0.00	0.00	1.45	0.0420	24.8	544.67	0	0	0.00E+00	0.00E+00	4.00E-03	NO	NO
TOTAL	**8.79**	**1.38**					**0.05**						

Facility ID	Electricity Needed to Produce NaOH* (kWh/day)
A	0
B	0
C	0
D	994
E	0
F	0
G	6585
H	7831
I	1791
J	2939
K	0
TOTAL	19940

NaOH @ 50% solution density = 12.747 lb/gal
Mv for NaOH solution = 24.8 lb/lbmol
Vapor Pressure for NaOH = 2.18 mmHg at 29.4oC or 85oF = 0.042 psia
Loading Temperature = 85oF to 100oF (544.67oR to 559.67oR)
Breathing Loss = 3 * Filling Loss

Filling Loss:

$$E_{Loading}, \frac{lb}{day} = (12.46)\frac{(S)(P)(M)(Q)}{T}$$ where:

S = saturation factor (dimensionless; obtained from Table 5.2-1 in AP-42)
= 1.45 (Splash loading: dedicated normal service)
P = vapor pressure of the material loaded at temperature T (psia)
M = vapor molecular weight (lb/lb-mole)
Q = volume of material loaded (1,000 gal/day)
T = temperature of liquid loaded (°R).

*It takes approximately 2,500 kWh to produce one metric ton of NaOH.
Thus, approximately 12,361 kWh per day of additional electricity may be needed to produce additional caustic to meet the needs of the proposed project, calculated as follows:

$$\frac{5.45 \text{ tons NaOH}}{\text{Day}} \times \frac{2{,}000 \text{ lbs}}{\text{ton}} \times \frac{1 \text{ metric ton}}{2{,}205 \text{ lbs}} \times \frac{2{,}500 \text{ kWh}}{1 \text{ metric ton of NaOH produced}} = 12{,}361 \text{ kWh/day}$$

ALTERNATIVE B: Facility C

Facility C - Sulfuric Acid Plant **Facility C**
Cansolv **(existing system going from 20 ppm to 10 ppm)**

Utility/Infrastructure	Annual Usage		Daily Usage		Usage/Ratings
Natural Gas	0	MMbtu	0.00	MMbtu	MMbtu
Electricity	0	kWh	0.00	kWh	kW
Water*	2.31	MMgal	6336.00	gal	0.006336 mmgal/day (1,100 lb/hr steam = 2.2 gal/min water plus 2.2 gal/min ext
Wastewater	0	MMgal	0.00	gal	0 mmgal/day
Cooling Water	0	MMbtu	0.00	MMbtu	
Compressed Air	0	1000 scf	0.00	scf	
Solid Waste Disposal	0	tons	0.00	tons	
Amine	0	gal	0.00	gal	
Plot Space Needed	0	sf			

*as steam

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	0	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.00	0.00	0.00	0.000	0.00	0.00	0	0.00	0	0
SUBTOTAL	0	0	0	0	0	0	0	0	0	0
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	0	4.89	0	0
			TOTAL	0	0

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.0000	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.0000	0
electricity - increased use	0.00	MWh/day	Electricity GHGs	0.00	0.0000	0.0000	0
water - increased use	0.01	MMgal/day	Water Conveyance GHGs	8.52	0.0000	0.0001	9
wastewater - increased generation	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
temporary construction activities	0	MT/year	Construction GHGs in CO2e				0
operational truck trips	0.00	MT/year	Operation GHGs in CO2e				0
						TOTAL CO2e	9

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source[3]	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.00	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.00	0
electricity - increased use	0.00	MWh/day	Electricity GHGs	0.00	0.0000	0.00	0
water - increased use[2]	0.01	MMgal/day	Water Conveyance GHGs	0.81	0.0000	0.0000	1
wastewater - increased generation	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
temporary construction activities[3]	0.00	MT/year	Construction GHGs in CO2e				0
operational truck trips	0.00	MT/year	Operation GHGs in CO2e				0
						TOTAL CO2e	1

Note: The mitigation calculations assume that 100% of the total water demand for FCCUs can potentially be supplied by recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

ALTERNATIVE C - OPTION 1: FACILITY A

Fuel Gas Treatment
Module 2: Fuel Gas Systems
M20B: Sulfinol conversion for two H2S absorbers

Utility/Infrastructure	Facility A Annual Usage		Facility A Daily Usage	
Natural Gas	-2,080	MMbtu	-5.70	MMbtu
Electricity	1,385,870	kWh	3796.90	kWh
Water	3	MMgal	8219.18	gal
Wastewater	2	MMgal	5479.45	gal
Cooling Water	400	MMbtu	1.10	MMbtu
Compressed Air	100	1000 scf	273.97	scf
Solid Waste Disposal	0	tons	0.00	tons
Plot Space Needed	100	sf		
1 Truck Delivering Sulfinol		round trip 11000 miles		round trip 500 miles
No. of Trucks Delivering Sulfinol		22 trucks		1 truck
Sulfinol		130670 gallons		358 gallons
1 Existing Truck Delivering DEA		round trip -1100 miles		round trip -50 miles
No. of Existing Trucks Delivering DEA		-22 trucks		-1 truck
DEA usage		-127000 gallons		-348 gallons

Module 3A: FCCU
M1: Beico wet gas scrubber

Utility/Infrastructure	Facility A Annual Usage		Facility A Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	9,238,000	kWh	25309.59	kWh
Water	26	MMgal	71232.88	gal
Wastewater	12	MMgal	32876.71	gal
Cooling Water	320	MMbtu	0.88	MMbtu
Compressed Air	410	1000 scf	1123.29	scf
Solid Waste Disposal	280	tons	0.77	tons
NaOH (50%)	294	tons	0.81	tons
Plot Space Needed	2000	sf		
1 Truck Hauling Away Solid Waste[2]	4800	round trip miles	400.00	round trip miles
1 Truck Delivering NaOH[3]	400	round trip miles	50.00	round trip miles
No. of Trucks Hauling Away Solid Waste	12	trucks	1	truck
No. of Trucks Delivering NaOH	8	trucks	1	truck

[1]Assumes that the existing DEA amine storage tank can be used for Sulfinol storage.

[2]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 12 trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.
280 tons/yr solid waste x 1 truck/25 tons = 11.2 trucks/year to haul extra solid waste away for recycling

[3]Assumes that one 10,000 gallon capacity storage tank will be installed for NaOH storage. It will take 8 trucks to deliver one year's worth of NaOH 50% solution, but the peak would be one truck per day.

294 tons/yr NaOH x 2,000 lbs/ ton = 328,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 46,045 gal/year x 1 truck/6,000 gallons = 7.67 trucks/year

Facility A estimated that a wet gas scrubber would generate 40 million gals per year wastewater = 109,589 gals per day.
Facility A has two distinct wastewater systems. System One is the un-segregated system, which handles water from cooling towers, boiler blowdowns, and stormwater.
This wastewater receives primary treatment, the maximum capacity for this system is 5000 gpm; the facility is currently running at about 3000 gpm.
System Two is the segregated system, which handles process water. This wastewater receives primary and secondary (biological) treatment.
The maximum capacity for this system is 2000 gpm; the facility is currently running at about 1800 gpm.
Facility A has some wastewater storage capacity to handle surges due to storms and upsets.

Grand Totals

Daily Usage			Daily Usage	
-5.70	MMbtu	Natural Gas	-5586.89	scf
30933	kWh	Electricity	30.93	MWh
79452.05	gal	Water	0.08	Mmgal
38356.16	gal	Wastewater	0.04	Mmgal
1.97	MMbtu	Cooling Water		
1397.26	scf	Compressed Air		
0.77	tons	Solid Waste Disposal		
0.81	tons	NaOH (50%)		
358.00	gallons	sulfinol		
-348	gallons	DEA		
2100	sf	Plot Space Needed		
	Daily round trip	1 Truck Delivering		
500.00	miles	Sulfinol		
	Daily round trip	1 Truck Hauling Away		
400.00	miles	Solid Waste		
	Daily round trip	1 Truck Delivering		
50.00	miles	NaOH		
	Daily round trip			
-50	miles	1 Truck Delivering DEA		
		No. of Trucks Delivering		
1	daily trucks	Sulfinol		
		No. of Trucks Hauling		
1.00	daily trucks	Away Solid Waste		
1.00	daily trucks	No. of Trucks Delivering NaOH		
-1	daily trucks	No. of Trucks Delivering DEA		
	Daily round trip			
900.00	miles	Total Daily Truck Miles		
2.00	Daily trucks	Total No. of Trucks		
	Annual round trip			
15,100	miles	Annual Truck Miles		
20	Annual trucks	Annual Trucks		

Note: This calculation takes into account the electricity needed to make 0.81 tons per day of NaOH to satisfy demand (1,826 kWh/day).

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	15,100	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.15	0.59	1.80	0.002	0.09	0.08	63,660	1.76	63,697	29
SUBTOTAL	0	1	2	0	0	0	63,660	2	63,697	29
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	15,100	4.89	73,839	284
			TOTAL	73,839	284

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - increased use	-0.0056	MMscf/day	Natural Gas GHGs	-110.98	-0.0006	-0.0021	-111
electricity - increased use	30.93	MWh/day	Electricity GHGs	5632.47	0.0000	0.0000	5,632
water - increased use	0.08	MMgal/day	Water Conveyance GHGs	10.10	0.0001	0.0001	10
wastewater - increased generation	0.04	MMgal/day	Wastewater Processing GHGs	4.88	0.0000	0.0001	5
temporary construction activities[3]	1164	MT/year	Construction GHGs in CO2e				39
operational truck trips	28.89	MT/year	Operation GHGs in CO2e				29
						TOTAL CO2e	5,604

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	-0.0056	MMscf/day	Natural Gas GHGs	-110.98	-0.0006	0.00	-111
electricity - increased use	30.9330	MWh/day	Electricity GHGs	5632.47	0.0000	0.00	5,632
water - increased use	0.0795	MMgal/day	Water Conveyance GHGs	10.10	0.0001	0.0001	10
wastewater - increased generation	0.0384	MMgal/day	Wastewater Processing GHGs	4.88	0.0000	0.0001	5
temporary construction activities[3]	1164.3504	MT/year	Construction GHGs in CO2e				39
operational truck trips	28.8876	MT/year	Operation GHGs in CO2e				29
						TOTAL CO2e	5,604

Note: The mitigation calculations assume that 100% of the total water demand for this facility can potentially be supplied by recycled water.

Facility A already accesses recycled water and will have increased future access to recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

ALTERNATIVE C - OPTION 1: FACILITY B

Module 3A: FCCU

M1: Belco wet gas scrubber			**Facility B**	
Utility/Infrastructure	Annual Usage		Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	12,080,000	kWh	33095.89	kWh
Water	28	MMgal	76712.33	gal
Wastewater	13	MMgal	35616.44	gal
Cooling Water	410	MMbtu	1.12	MMbtu
Compressed Air	440	1000 scf	1205.48	scf
Solid Waste Disposal	400	tons	1.10	tons
NaOH (50%)	427	tons	1.17	tons
Plot Space needed	2000	sf		
1 Truck Hauling Away Solid Waste[1]	6400	round trip miles	400.00	round trip miles
1 Truck Delivering NaOH[2]	600	round trip miles	50.00	round trip miles
No. of Trucks Hauling Away Solid Waste	16	trucks	1	truck
No. of Trucks Delivering NaOH	12	trucks	1	truck

[1]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 16 trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.
400 tons/yr solid waste x 1 truck/25 tons = 16 trucks/year to haul extra solid waste away for recycling
This facility either sends its solid waste to a Class III landfill for disposal which is 80.64 miles (one-way) away or to a cement plant for recycling which is.67.48 miles (one-way) away.
However, the cement plant has shut-down its kilns on 11/20/2009 so the solid waste may be sent a different cement kiln further away or out of state (a maximum of 200 miles, one-way to the California/Arizona border).

[2]Assumes that one 10,000 gallon capacity storage tank will be installed for NaOH storage. It will take 12 trucks to deliver one year's worth of NaOH 50% solution, but the peak would be one truck per day.
427 tons/yr NaOH x 2,000 lbs/ ton = 854,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 66,875 gal/year x 1 truck/6,000 gallons = 11.1 trucks/year

GRAND TOTALS (during Operation)

Daily Usage	Daily Usage		
0.00 MMbtu	0.00 scf	Natural Gas	
			Note: This calculation takes into account the electricity needed to make 1.17 tons per day of NaOH to satisfy demand (2,653 kWh/day).
35748.64 Kwh	35.75 MWh	Electricity	
76712.33 gal		Water	
35616.44 gal		Wastewater	
1.12 MMbtu		Cooling Water	
1205.48 scf		Compressed Air	
1.10 tons		Solid Waste Disposal	
1.17 tons		NaOH (50% by weight)	
2000.00 sf		Plot Space needed	
Daily round			
400.00 trip miles		1 Truck Hauling Away Solid Waste	
Daily round			
50.00 trip miles		1 Truck Delivering NaOH	
1.00 daily trucks		No. of Trucks Hauling Away Solid Waste	
1 daily trucks		No. of Trucks Delivering NaOH	
Daily round			
450.00 trip miles		Total Daily Truck Miles	
2.00 Daily trucks		Total No. of Trucks	
Annual round			
7,000 trip miles		Annual Truck Miles	
28 Annual trucks		Annual Trucks	

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	7,000	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.07	0.28	0.83	0.001	0.04	0.03	29,511	0.82	29,528	13
SUBTOTAL	0	0	1	0	0	0	29,511	1	29,528	13
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	7,000	4.89	34,230	132
			TOTAL	34,230	132

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - increased use	0.0000	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.0000	0
electricity - increased use	35.75	MWh/day	Electricity GHGs	6509.33	0.0000	0.0000	6,509
water - increased use[1]	0.08	MMgal/day	Water Conveyance GHGs	9.75	0.0001	0.0001	10
wastewater - increased generation[1]	0.04	MMgal/day	Wastewater Processing GHGs	4.53	0.0000	0.0000	5
temporary construction activities[2]	2329	MT/year	Construction GHGs in CO2e				78
operational truck trips	13.39	MT/year	Operation GHGs in CO2e				13
						TOTAL CO2e:	6,615

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.00	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.00	0
electricity - increased use	35.75	MWh/day	Electricity GHGs	6509.33	0.0000	0.00	6,509
water - increased use[1]	0.08	MMgal/day	Water Conveyance GHGs	9.75	0.0001	0.0001	10
wastewater - increased generation[1]	0.04	MMgal/day	Wastewater Processing GHGs	4.53	0.0000	0.0000	5
temporary construction activities[2]	2328.70	MT/year	Construction GHGs in CO2e				78
operational truck trips	13.39	MT/year	Operation GHGs in CO2e				13
						TOTAL CO2e	6,615

Note: The mitigation calculations assume that 100% of the total water demand for this facility can potentially be supplied by recycled water.
Facility B already accesses recycled water and will have increased future access to recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water[1]
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation[2]
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

ALTERNATIVE C - OPTION 1: FACILITY D

Fuel Gas Treatment
Module 2: Fuel Gas Systems
M21A: Parallel Merox treatment for excess coker gas

Facility D									
Utility/Infrastructure	Annual Usage		Daily Usage		Daily Usage		Daily Usage		
Natural Gas	440	MMbtu	1.21	MMbtu	1.21	MMbtu	1181.84	scf	Natural Gas
Electricity	156,400	kWh	428.49	kWh	1422.50	Kwh	1.42	MWh	Electricity
Water	5	MMgal	13698.63	gal	13698.63	gal	0.01369863	Mmgal	Water
Wastewater	5	MMgal	13698.63	gal	13698.63	gal	0.01369863	Mmgal	Wastewater
Cooling Water	176	MMbtu	0.48	MMbtu	0.48	MMbtu			Cooling Water
Compressed Air	780	1000 scf	2136.99	scf	2136.99	scf			Compressed Air
Solid Waste Disposal	110	tons	0.30	tons	0.30	tons			Solid Waste Disposal
Merox Catalyst	3,000	pounds	8.22	pounds	8.22	pounds			Merox Catalyst
NaOH	160	tons	0.44	tons	0.44	tons			NaOH
Sulfur sales*	11	long tons	67.51	pounds	67.51	pounds			Sulfur sales*
Plot Space Needed	6000	sf			6000.00	sf			Plot Space needed
1 Truck Hauling Away Solid Waste[1]	2000	round trip miles	400.00	round trip miles	400.00	Daily round trip miles			1 Truck Hauling Away Solid Waste[1]
1 Truck Delivering Merox Catalyst[2]	500	round trip miles	500.00	round trip miles	500.00	Daily round trip miles			1 Truck Delivering Merox Catalyst[2]
1 Truck Delivering NaOH[3]	250	round trip miles	50.00	round trip miles	50.00	Daily round trip miles			1 Truck Delivering NaOH[3]
1 Truck Hauling Sulfur Away[4]	50	round trip miles	50.00	round trip miles	50.00	Daily round trip miles			1 Truck Hauling Sulfur Away[4]
No. of Trucks Hauling Away Solid Waste	5	trucks	1	truck	1	daily trucks			No. of Trucks Hauling Away Solid Waste
No. of Trucks Delivering Merox	1	trucks	1	truck	1	daily trucks			No. of Trucks Delivering Merox
No. of Trucks Delivering NaOH	5	trucks	1	truck	1	daily trucks			No. of Trucks Delivering NaOH
No. of Trucks Hauling Sulfur Away	1	trucks	1	truck	1	daily trucks			No. of Trucks Hauling Sulfur Away
					1000.00	Daily round trip miles			Total Daily Truck Miles
					4.00	Daily trucks			Total No. of Trucks
					2800.00	Annual round trip			Annual Truck Miles
					12	Annual trucks			Annual Trucks

GRAND TOTALS (during Operation)

Note: This calculation takes into account the electricity needed to make 0.44 tons per day of NaOH to satisfy demand (994 kWh/day).

[1]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 5 trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.
110 tons/yr solid waste x 1 truck/25 tons = 4.46 trucks/year to haul extra solid waste away for recycling

[2]It will take one truck to deliver one year's worth of Merox catalyst; the peak would be one truck per day.

Merox is delivered by truck from Chicago. The distance from the California/Nevada border to this facility is approximately 250 miles, one-way.

[3]Assumes that one 10,000 gallon capacity storage tank will be installed for NaOH storage. It will take 5 trucks to deliver one year's worth of NaOH 50% solution, but the peak would be one truck per day.
160 tons/yr NaOH x 2,000 lbs/ ton = 320,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 25,059 gal/year x 1 truck/6,000 gallons = 4.2 trucks/year

[4]Assumes Hauling Sulfur away in a 25 ton capacity truck. It will take 1 extra truck to haul away one year's worth of sulfur; the peak would be one truck per day.
11 long tons/yr Sulfur x 2,240 lbs/long ton = 24,640 lbs/yr x 1 ton/2000 lbs = 12.32 tons/yr x 1 truck/25 tons = 0.49 trucks/year to haul extra sulfur away to a buyer

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	2,800	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.03	0.11	0.33	0.000	0.02	0.01	11,805	0.33	11,811	5
SUBTOTAL	0	0	0	0	0	0	11,805	0	11,811	5
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	2,800	4.89	13,692	53
			TOTAL	13,692	53

*Assumes 260 days/year

Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - increased use	0.0012	MMscf/day	Natural Gas GHGs	23.48	0.0001	0.0004	24
electricity - increased use	1.42	MWh/day	Electricity GHGs	259.02	0.0000	0.0000	259
water - increased use[1]	0.01	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	2
wastewater - increased generation[1]	0.01	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	2
temporary construction activities[3]	1164	MT/year	Construction GHGs in CO2e				39
operational truck trips	5.36	MT/year	Operation GHGs in CO2e				5
						TOTAL CO2e	330

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.00	MMscf/day	Natural Gas GHGs	23.48	0.0001	0.00	24
electricity - increased use	1.42	MWh/day	Electricity GHGs	259.02	0.0000	0.00	259
water - increased use[2]	0.01	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	2
wastewater - increased generation[2]	0.01	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	2
temporary construction activities[3]	1164.35	MT/year	Construction GHGs in CO2e				39
operational truck trips	5.36	MT/year	Operation GHGs in CO2e				5
						TOTAL CO2e	330

Facility D already accesses recycled water and will have increased future access to recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

ALTERNATIVE C - OPTION 2: FACILITY A

Fuel Gas Treatment
Module 2: Fuel Gas Systems
M20B: Sulfinol conversion for #5 and #6 H2S

Utility/Infrastructure	Facility A Annual Usage		Facility A Daily Usage	
Natural Gas	-2,080	MMbtu	-5.70	MMbtu
Electricity	1,385,870	kWh	3796.90	kWh
Water	3	MMgal	8219.18	gal
Wastewater	2	MMgal	5479.45	gal
Cooling Water	400	MMbtu	1.10	MMbtu
Compressed Air	100	1000 scf	273.97	scf
Solid Waste Disposal	0	tons	0.00	tons
Plot Space Needed	100	sf		
		round trip		round trip
1 Truck Delivering Sulfinol	11000	miles	500	miles
No. of Trucks Delivering Sulfinol	22	trucks	1	truck
Sulfinol	130670	gallons	358	gallons
		round trip		round trip
1 Existing Truck Delivering DEA	-1100	miles	-50	miles
No. of Existing Trucks Delivering DEA	-22	trucks	-1	truck
DEA usage	-127000	gallons	-348	gallons

SOx Reducing Additive for FCCU

Utility/Infrastructure	Facility A Annual Usage		Facility A Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	0	kWh	0.00	kWh
Water	0	MMgal	0.00	gal
Wastewater	0	MMgal	0.00	gal
Cooling Water	0	MMbtu	0.00	MMbtu
Compressed Air	0	1000 scf	0.00	scf
Solid Waste Disposal	0	tons	0.00	pounds
SOx Reducing catalyst	91.25	tons	500.00	pounds
Plot Space Needed	0	sf		
		round trip		round trip
1 Truck Hauling Away Solid Waste[2]	0	miles	0.00	miles
		round trip		round trip
1 Truck Delivering SOx Reducing Catalyst[3]	1,600	miles	400.00	miles
No. of Trucks Hauling Away Solid Waste	0	trucks	0	truck
No. of Trucks Delivering SOx Reducing Catalyst	4	trucks	1	truck

Grand Totals

Daily Usage		Daily Usage
-5.70	MMbtu	Natural Gas -5586.89 scf
3796.90	kWh	Electricity 3.796904 MWh
8219.18	gal	Water 0.008219 Mmgal
5479.45	gal	Wastewater 0.005479 Mmgal
1.10	MMbtu	Cooling Water
273.97	scf	Compressed Air
0.00	pounds	Solid Waste Disposal
500.00	pounds	SOx Reducing catalyst
358.00	gallons	sulfinol
-348	gallons	DEA
100	sf	Plot Space Needed
500.00	Daily round trip miles	1 Truck Delivering Sulfinol
0.00	Daily round trip miles	1 Truck Hauling Away Solid Waste
400.00	Daily round trip miles	1 Truck Delivering SOx Reducing Catalyst
-50	Daily round trip miles	1 Truck Delivering DEA
1	daily trucks	No. of Trucks Delivering Sulfinol
0.00	daily trucks	No. of Trucks Hauling Away Solid Waste
1.00	daily trucks	No. of Trucks Delivering SOx Reducing catalyst
-1	daily trucks	No. of Trucks Delivering DEA
850.00	Daily round trip miles	Total Daily Truck Miles
1.00	Daily trucks	Total No. of Daily Trucks
11,500	Annual round trip miles	Annual Truck Miles
4	Annual trucks	Total No. of Annual Trucks

[1]Assumes that the existing DEA amine storage tank can be used for Sulfinol storage.

[2]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take no extra trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.

[3]Assumes that one 25-ton truck will deliver catalyst. It will take 4 trucks to deliver one year's worth of catalyst, but the peak would be one truck per day. One bulk catalyst truck can transport 25 tons.

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	11,500	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.11	0.45	1.37	0.002	0.07	0.06	48,483	1.34	48,511	22
SUBTOTAL	0	0	1	0	0	0	48,483	1	48,511	22
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	11,500	4.89	56,235	216
*Assumes 260 days/year			TOTAL:	56,235	216

Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - increased use	-0.0056	MMscf/day	Natural Gas GHGs	-110.98	-0.0006	-0.0021	-111
electricity - increased use	3.80	MWh/day	Electricity GHGs	691.36	0.0000	0.0000	691
water - increased use[1]	0.01	MMgal/day	Water Conveyance GHGs	1.04	0.0000	0.0000	1
wastewater - increased generation[1]	0.01	MMgal/day	Wastewater Processing GHGs	0.70	0.0000	0.0000	1
temporary construction activities[3]	582	MT/year	Construction GHGs in CO2e				20
operational truck trips	22.00	MT/year	Operation GHGs in CO2e				22
						TOTAL CO2e	624

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	-0.0056	MMscf/day	Natural Gas GHGs	-110.98	-0.0006	0.00	-111
electricity - increased use	3.7969	MWh/day	Electricity GHGs	691.36	0.0000	0.00	691
water - increased use[2]	0.0082	MMgal/day	Water Conveyance GHGs	1.04	0.0000	0.0000	1
wastewater - increased generation[2]	0.0055	MMgal/day	Wastewater Processing GHGs	0.70	0.0000	0.0000	1
temporary construction activities[3]	582.1752	MT/year	Construction GHGs in CO2e				19
operational truck trips	22.0005	MT/year	Operation GHGs in CO2e				22
						TOTAL CO2e	623

Note: The mitigation calculations assume that 100% of the total water demand for this facility can potentially be supplied by recycled water.

Facility A already accesses recycled water and will have increased future access to recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N2O/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3]GHGs from temporary construction activities are amortized over 30 years.

ALTERNATIVE C - OPTION 2: FACILITY B

GRAND TOTALS (during Operation)

SOx Reducing Additive Utility/Infrastructure	Facility B Annual Usage		Facility B Daily Usage		Daily Usage	Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu	0.00 MMbtu	0.00 scf	Natural Gas
Electricity	0	kWh	0.00	kWh	0.00 Kwh	0.00 MWh	Electricity
Water	0	MMgal	0.00	gal	0.00 gal		Water
Wastewater	0	MMgal	0.00	gal	0.00 gal		Wastewater
Cooling Water	0	MMbtu	0.00	MMbtu	0.00 MMbtu		Cooling Water
Compressed Air	0	1000 scf	0.00	scf	0.00 scf		Compressed Air
Solid Waste Disposal	0	tons	0.00	tons	0.00 tons		Solid Waste Disposal
SOx Reducing catalyst	91.25	tons	0.25	tons	0.25 tons		SOx Reducing catalyst
Plot Space Needed	0	sf			0.00 sf		Plot Space needed
1 Truck Hauling Away Solid Waste[1]	0	round trip miles	0.00	round trip miles	Daily round trip 0.00 miles		1 Truck Hauling Away Solid Waste[1]
1 Truck Delivering SOx Reducing Catalyst[2]	1,600	round trip miles	400.00	round trip miles	Daily round trip 400.00 miles		1 Truck Delivering SOx Reducing Catalyst[2]
No. of Trucks Hauling Away Solid Waste	0	trucks	0	truck	0.00 daily trucks		No. of Trucks Hauling Away Solid Waste
No. of Trucks Delivering SOx Reducing Catalyst	4	trucks	1	truck	1 daily trucks		No. of Trucks Delivering SOx Reducing Catalyst
					0 daily trucks		No. of Trucks Delivering Soda Ash
					Daily round trip 400.00 miles		Total Daily Truck Miles
					Daily 1.00 trucks		Total No. of Trucks
					round trip 1,600 miles		Annual Truck Miles
					Annual 4 trucks		Annual Trucks

[1]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take no extra trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.

[2]Assumes that one 25-ton truck will deliver catalyst. It will take 4 trucks to deliver one year's worth of catalyst, but the peak would be one truck per day.

One bulk catalyst truck can transport 25 tons.

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation On-Road Equipment Type	Fuel	Annual Round-trip Distance (miles/year)	Mileage Rate (miles/ gallon)	2012 Mobile Source Emission Factors VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	1,600	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.02	0.06	0.19	0.000	0.01	0.01	6,745	0.19	6,749	3
SUBTOTAL	0	0	0	0	0	0	6,745	0	6,749	3
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)[1]	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	1,600	4.89	7,824	30
			TOTAL	7,824	30

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - increased use	0.0000	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.0000	0
electricity - increased use	0.00	MWh/day	Electricity GHGs	0.00	0.0000	0.0000	0
water - increased use[2]	0.00	MMgal/day	Water Conveyance GHGs	0.00	0.0000	0.0000	0
wastewater - increased generation[1]	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
temporary construction activities[3]	0	MT/year	Construction GHGs in CO2e				0
operational truck trips	3.06	MT/year	Operation GHGs in CO2e				3
						TOTAL CO2e	3

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.00	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.00	0
electricity - increased use	0.00	MWh/day	Electricity GHGs	0.00	0.0000	0.00	0
water - increased use[2]	0.00	MMgal/day	Water Conveyance GHGs	0.00	0.0000	0.0000	0
wastewater - increased generation[2]	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
temporary construction activities[3]	0.00	MT/year	Construction GHGs in CO2e				0
operational truck trips	3.06	MT/year	Operation GHGs in CO2e				3
						TOTAL CO2e	3

Note: The mitigation calculations assume that 0% of the total water demand for this facility can potentially be supplied by recycled water.

Facility B already accesses recycled water and will have increased future access to recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

ALTERNATIVE C - OPTION 2: FACILITY D

Fuel Gas Treatment
Module 2: Fuel Gas Systems
M21A: Parallel Merox treatment for excess coker gas

Utility/Infrastructure	Facility D Annual Usage		Facility D Daily Usage	
Natural Gas	440	MMbtu	1.21	MMbtu
Electricity	156,400	kWh	428.49	kWh
Water	5	MMgal	13698.63	gal
Wastewater	5	MMgal	13698.63	gal
Cooling Water	176	MMbtu	0.48	MMbtu
Compressed Air	780	1000 scf	2136.99	scf
Solid Waste Disposal	110	tons	0.30	tons
Merox Catalyst	3,000	pounds	0.0041	tons
NaOH (50% by weight)	160	tons	0.44	tons
Sulfur sales*	11	long tons	67.51	pounds
Plot Space Needed	6000	sf		
1 Truck Hauling Away Solid Waste[1]	2000	round trip miles	400.00	round trip miles
1 Truck Delivering Merox Catalyst[2]	500	round trip miles	500.00	round trip miles
1 Truck Delivering NaOH[3]	250	round trip miles	50.00	round trip miles
1 Truck Hauling Sulfur Away[4]	50	round trip miles	50.00	round trip miles
No. of Trucks Hauling Away Solid Waste	5	trucks	1	truck
No. of Trucks Delivering Merox	1	trucks	1	truck
No. of Trucks Delivering NaOH	5	trucks	1	truck
No. of Trucks Hauling Sulfur Away	1	trucks	1	truck

SOx Reducing Additive

Utility/Infrastructure	Facility D Annual Usage		Facility D Daily Usage	
Natural Gas	0	MMbtu	0.00	MMbtu
Electricity	0	kWh	0.00	kWh
Water	0	MMgal	0.00	gal
Wastewater	0	MMgal	0.00	gal
Cooling Water	0	MMbtu	0.00	MMbtu
Compressed Air	0	1000 scf	0.00	scf
Solid Waste Disposal	0	tons	0.00	tons
SOx Reducing catalyst	91.25	tons	0.25	tons
Plot Space Needed	0	sf		
1 Truck Hauling Away Solid Waste[5]	0	round trip miles	0.00	round trip miles
1 Truck Delivering SOx Reducing Catalyst[6]	1,600	round trip miles	400.00	round trip miles
No. of Trucks Hauling Away Solid Waste	0	trucks	0	truck
No. of Trucks Delivering SOx Reducing Catalyst	4	trucks	1	truck

[1]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take an extra 5 trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.

110 tons/yr solid waste x 1 truck/25 tons = 4.46 trucks/year to haul extra solid waste away for recycling

[2]It will take one truck to deliver one year's worth of Merox catalyst; the peak would be one truck per day.

Merox is delivered by truck from Chicago. The distance from the California/Nevada border to this facility is approximately 250 miles, one-way.

[3]Assumes that one 10,000 gallon capacity storage tank will be installed for NaOH storage. It will take 5 trucks to deliver one year's worth of NaOH 50% solution, but the peak would be one truck per day.
160 tons/yr NaOH x 2,000 lbs/ ton = 320,000 lbs/yr x 1 gal NaOH @ 50%/12.77 lbs = 25,059 gal/year x 1 truck/6,000 gallons = 4.2 trucks/year

[4]Assumes Hauling Sulfur away in a 25 ton capacity truck. It will take 1 extra truck to haul away one year's worth of sulfur; the peak would be one truck per day.
11 long tons/yr Sulfur x 2,240 lbs/long ton = 24,640 lbs/yr x 1 ton/2000 lbs = 12.32 tons/yr x 1 truck/25 tons = 0.49 trucks/year to haul extra sulfur away to a buyer

[5]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take no extra trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.

[6]Assumes that one 25-ton truck will deliver catalyst. It will take 4 trucks to deliver one year's worth of catalyst, but the peak would be one truck per day.
One bulk catalyst truck can transport 25 tons.

GRAND TOTALS (during Operation)

Daily Usage	Daily Usage		
1.21 MMbtu	1181.84 scf	Natural Gas	
			Note: This calculation takes into account the electricity needed to make 0.44 tons per day of NaOH to satisfy demand (994 kWh/day).
1422.50 Kwh	1.42 MWh	Electricity	
13698.63 gal	0.01369863 Mmgal	Water	
13698.63 gal	0.01369863 Mmgal	Wastewater	
0.48 MMbtu		Cooling Water	
2136.99 scf		Compressed Air	
0.30 tons		Solid Waste Disposal	
0.0041 tons		Merox Catalyst	
0.44 tons		SOx Reducing Catalyst	
0.44 tons		NaOH	
67.51 pounds		Sulfur sales*	
6000.00 sf		Plot Space needed	
Daily round trip 400.00 miles		1 Truck Hauling Away Solid Waste	
Daily round trip 500.00 miles		1 Truck Delivering Merox Catalyst	
Daily round trip 50.00 miles		1 Truck Delivering NaOH	
Daily round trip 50.00 miles		1 Truck Hauling Sulfur Away	
Daily round trip 0.00 miles		1 Truck Hauling Away Solid Waste	
Daily round trip 400.00 miles		1 Truck Delivering SOx Reducing Catalyst	
1 daily trucks		No. of Trucks Hauling Away Solid Waste	
1 daily trucks		No. of Trucks Delivering M	
1.00 daily trucks		No. of Trucks Delivering N	
1.00 daily trucks		No. of Trucks Hauling Sulfu	
1 daily trucks		No. of Trucks Hauling Delivering SOx Reducing Catalyst	
Daily round trip 1400.00 miles	Total Daily Truck Miles		
5.00 Daily trucks	Total No. of Trucks		
Annual round trip 4400.00 miles	Annual Truck Miles		
16 Annual trucks	Annual Trucks		

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III: Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	4,400	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.04	0.17	0.52	0.001	0.03	0.02	18,550	0.51	18,561	8
SUBTOTAL	0	10	1	0	0	0	18,550	1	18,561	8
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	4,400	4.89	21,516	83
			TOTAL	21,516	83

*Assumes 260 days/year
Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - increased use	0.0012	MMscf/day	Natural Gas GHGs	23.48	0.0001	0.0004	24
electricity - increased use	1.42	MWh/day	Electricity GHGs	259.02	0.0000	0.0000	259
water - increased use[2]	0.01	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	2
wastewater - increased generation[2]	0.01	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	2
temporary construction activities[3]	582	MT/year	Construction GHGs in CO2e	[redacted]			20
operational truck trips	8.42	MT/year	Operation GHGs in CO2e				8
						TOTAL CO2e	314

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.00	MMscf/day	Natural Gas GHGs	23.48	0.0001	0.00	24
electricity - increased use	1.42	MWh/day	Electricity GHGs	259.02	0.0000	0.00	259
water - increased use[2]	0.01	MMgal/day	Water Conveyance GHGs	1.74	0.0000	0.0000	2
wastewater - increased generation[2]	0.01	MMgal/day	Wastewater Processing GHGs	1.74	0.0000	0.0000	2
temporary construction activities[3]	582.18	MT/year	Construction GHGs in CO2e	[redacted]			19
operational truck trips	8.42	MT/year	Operation GHGs in CO2e				8
						TOTAL CO2e	314

Facility D already accesses recycled water and will have increased future access to recycled water.

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N2O/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, *Final Staff Report*, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

ALTERNATIVE C - OPTION 2: FCCUs only for FACILITIES A, B, D, E, & F*

* The assumptions for SOx reducing additive are the same for Facility A, B, D, E & F.

SOx Reducing Additive

Utility/Infrastructure	Facility A Annual Usage		Daily Usage
Natural Gas	0	MMbtu	0.00 MMbtu
Electricity	0	kWh	0.00 kWh
Water	0	MMgal	0.00 gal
Wastewater	0	MMgal	0.00 gal
Cooling Water	0	MMbtu	0.00 MMbtu
Compressed Air	0	1000 scf	0.00 scf
Solid Waste Disposal	0	tons	0.00 pounds
SOx Reducing catalyst	91.25	tons	500.00 pounds
Plot Space Needed	0	sf	
1 Truck Hauling Away Solid Waste[2]	0	round trip miles	round trip 0.00 miles
1 Truck Delivering SOx Reducing Catalyst[3]	1,600	round trip miles	round trip 400.00 miles
No. of Trucks Hauling Away Solid Waste	0	trucks	0 truck
No. of Trucks Delivering SOx Reducing Catalyst	4	trucks	1 truck

Grand Totals

Daily Usage		Daily Usage	
0.00	MMbtu	Natural Gas	0 scf
0.00	kWh	Electricity	0 MWh
0.00	gal	Water	0 Mmgal
0.00	gal	Wastewater	0 Mmgal
0.00	MMbtu	Cooling Water	
0.00	scf	Compressed Air	
0.00	pounds	Solid Waste Disposal	
2500.00	pounds	SOx Reducing catalyst	
0	sf	Plot Space Needed	
	Daily round	1 Truck Hauling	
0.00	trip miles	Away Solid Waste	
		1 Truck Delivering	
	Daily round	SOx Reducing	
2000.00	trip miles	Catalyst	
		No. of Trucks	
		Hauling Away Solid	
0.00	daily trucks	Waste	
5.00	daily trucks	No. of Trucks Delivering SOx Reducing catalyst	
	Daily round		
2000.00	trip miles	Total Daily Truck Miles	
5.00	Daily trucks	Total No. of Trucks	
	Annual round trip		
8,000	miles	Annual Truck Miles	
	Annual		
20	trucks	Total No. of Annual Trucks	

[1]Assumes that one 10,000 gallon capacity storage tank will be installed for Sulfinol storage. It will take 2 trucks to deliver one year's worth of Sulfinol, but the peak would be one truck per day.

[2]Assumes Hauling Solid Waste away in a 25 ton capacity truck. It will take no extra trucks to haul away one year's worth of solid waste, but the peak would be one truck per day.

[3]Assumes that one 25-ton truck will deliver catalyst. It will take 4 trucks to deliver one year's worth of catalyst, but the peak would be one truck per day. One bulk catalyst truck can transport 25 tons.

Phase III: Operations - On-Road Vehicles and Fuel Use

Phase III Operation		Annual Round-trip Distance	Mileage Rate	2012 Mobile Source Emission Factors							
On-Road Equipment Type	Fuel	(miles/year)	(miles/ gallon)	VOC (lb/mile)	CO (lb/mile)	NOx (lb/mile)	SOx (lb/mile)	PM10 (lb/mile)	PM2.5 (lb/mile)	CO2 (lb/mile)	CH4 (lb/mile)
Offsite (Heavy-Heavy Duty Truck)	diesel	8,000	4.89	0.0025	0.0102	0.0309	0.00004	0.0015	0.0013	4.2159	0.0001

*Assumes 260 days/year

Incremental Increase in Offsite Combustion Emissions from Operation Vehicles	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2 (lb/year)	CH4 (lb/year)	CO2e (lb/year)	CO2e (MT*/year)
Offsite (Heavy-Heavy Duty Truck)	0.08	0.31	0.95	0.001	0.05	0.04	33,727	0.93	33,747	15
SUBTOTAL	0	0	1	0	0	0	33,727	1	33,747	15
Significance Threshold	55	550	55	150	150	55	n/a	n/a	n/a	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a	n/a	n/a	n/a

*1 metric ton (MT) = 2,205 pounds

Equation: No. of Vehicles x Emission Factor (lb/mile) x No. of Round-Trips/Day or year x Round-Trip length (mile/day or year) = Offsite Operation Emissions (lb/day or year)

Incremental Increase in Fuel Usage From Operation (Truck Trips)	Equipment Type	Total Miles Driven (miles/year)	Mileage Rate (miles/gal)	Total Diesel Fuel Usage (gal/year)	Total Diesel Fuel Usage (gal/day)*
Workers' Vehicles - Offsite Delivery/Haul	Heavy Duty Truck	8,000	4.89	39,120	150
			TOTAL	39,120	150

*Assumes 260 days/year

Source: On-Road Mobile Emission Factors (EMFAC 2007 v2.3), Scenario Year 2012
http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html/onroadEFHHDT07_26.xls

GHG Emissions - Unmitigated

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas - increased use	0.0000	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.0000	0
electricity - increased use	0.00	MWh/day	Electricity GHGs	0.00	0.0000	0.0000	0
water - increased use[1]	0.00	MMgal/day	Water Conveyance GHGs	0.00	0.0000	0.0000	0
wastewater - increased generation[1]	0.00	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
temporary construction activities[3]	0	MT/year	Construction GHGs in CO2e				0
operational truck trips	15.30	MT/year	Operation GHGs in CO2e				15
						TOTAL CO2e	15

GHG Emissions - Mitigated by Using Recycled Water

GHG Activity	Amount	Units	GHG Emissions Source	CO2 (MT/yr)	N2O (MT/yr)	CH4 (MT/yr)	Total CO2e (MT/yr)
natural gas use	0.0000	MMscf/day	Natural Gas GHGs	0.00	0.0000	0.00	0
electricity - increased use	0.0000	MWh/day	Electricity GHGs	0.00	0.0000	0.00	0
water - increased use[2]	0.0000	MMgal/day	Water Conveyance GHGs	0.00	0.0000	0.0000	0
wastewater - increased generation[2]	0.0000	MMgal/day	Wastewater Processing GHGs	0.00	0.0000	0.0000	0
temporary construction activities[3]	0.0000	MT/year	Construction GHGs in CO2e				0
operational truck trips	15.3047	MT/year	Operation GHGs in CO2e				15
						TOTAL CO2e	15

GHG Emission Factors:
1 metric ton (MT) = 2,205 pounds
120,000 lb CO2/MMscf fuel burned
0.64 lb N20/MMscf fuel burned
2.3 lb CH4/MMscf fuel burned
1,110 lb CO2e/MWh for electricity when source of power is not identified
(CEC, September 6, 2007 - Reporting and Verification of Greenhouse Gas Emissions in the Electricity Sector)
12,700 kWh/MMgallons for electricity use for water conveyance - potable water
1,200 kWh/MMgallons for electricity use for water conveyance - recycled water as mitigation
640 lb CO2/MWh for electricity use due to water conveyance
0.0067 lb CH4/MWh for electricity use due to water conveyance
0.0037 lb N2O/MWh for electricity use due to water conveyance

[1]California's Water – Energy Relationship, Table 1-3, Page 11, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[2]California's Water – Energy Relationship, Table 1-2, Page 9, California Energy Commission, Final Staff Report, CEC-700-2005-011-SF, November 2005.
http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

[3] GHGs from temporary construction activities are amortized over 30 years.

APPENDIX C

NOTICE OF PREPARATION AND INITIAL STUDY

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

SUBJECT: **NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL ASSESSMENT**

PROJECT TITLE: **PROPOSED AMENDED REGULATION XX: REGIONAL CLEAN AIR INCENTIVES MARKET (RECLAIM)**

In accordance with the California Environmental Quality Act (CEQA), the South Coast Air Quality Management District (SCAQMD), as the Lead Agency, has prepared this Notice of Preparation (NOP) and Initial Study (IS). This NOP serves two purposes: 1) to solicit information on the scope of the environmental analysis for the proposed project, and 2) to notify the public that the SCAQMD will prepare a Draft Environmental Assessment (EA) to further assess potential environmental impacts that may result from implementing the proposed project.

This letter, NOP and the attached IS are not SCAQMD applications or forms requiring a response from you. Their purpose is simply to provide information to you on the above project. If the proposed project has no bearing on you or your organization, no action on your part is necessary.

Comments focusing on your area of expertise, your agency's area of jurisdiction, or issues relative to the environmental analysis should be addressed to Ms. Barbara Radlein (c/o CEQA) at the address shown above, or sent by FAX to (909) 396-3324 or by e-mail to bradlein@aqmd.gov. Comments must be received no later than 5:00 PM on Tuesday, July 21, 2009. Please include the name and phone number of the contact person for your agency. Questions relative to the proposed amended regulation should be directed to Ms. Minh Pham at (909) 396-2613.

The Public Hearing for the proposed amended regulation is scheduled for November 6, 2009. (Note: Public meeting dates are subject to change).

Date: June 18, 2009 **Signature:** Steve Smith

Steve Smith, Ph.D.
Program Supervisor
Planning, Rules, and Area Sources

Reference: California Code of Regulations, Title 14, Sections 15082(a), 15103, and 15375

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 Copley Drive, Diamond Bar, CA 91765-4178

NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL ASSESSMENT

Project Title:
Draft Environmental Assessment for Proposed Amended Regulation XX – Regional Clean Air Incentives Market (RECLAIM)

Project Location:
South Coast Air Quality Management District (SCAQMD) area of jurisdiction consisting of the four-county South Coast Air Basin (Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties), and the Riverside County portions of the Salton Sea Air Basin and the Mojave Desert Air Basin

Description of Nature, Purpose, and Beneficiaries of Project:
SCAQMD staff is proposing amendments to Regulation XX – Regional Clean Air Incentives Market (RECLAIM), Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx), to reduce the allowable SOx emission limits based on current Best Available Retrofit Control Technology (BARCT) for the following industrial equipment and processes: 1) fluid catalytic cracking units (FCCUs); 2) refinery boilers and heaters; 3) sulfur recovery – tail gas treatment units; 4) sulfuric acid manufacturing process; 5) container glass manufacturing process; 6) coke calcining; and, 7) portland cement manufacturing. Additional amendments are proposed to establish procedures and criteria for reducing RECLAIM Trading Credits (RTCs) and RTC adjustment factors for year 2013 and later. Other minor changes are proposed for clarity and consistency throughout the regulation. The Initial Study identifies the topics of aesthetics, air quality, energy, hydrology and water quality, hazards and hazardous materials, and transportation/traffic as areas that may be adversely affected by the proposed project. Impacts to these environmental areas will be further analyzed in the Draft EA.

Lead Agency:	**Division:**
South Coast Air Quality Management District	Planning, Rule Development and Area Sources

Initial Study and all supporting documentation are available at:	**or by calling:**	**or by accessing the SCAQMD's website at:**
SCAQMD Headquarters 21865 Copley Drive Diamond Bar, CA 91765	(909) 396-2039	http://www.aqmd.gov/ceqa/aqmd.html

The Public Notice of Preparation is provided through the following:

☑ Los Angeles Times (June 19, 2009) ☑ AQMD Website ☑ AQMD Mailing List

Initial Study 30-day Review Period:
June 19, 2009 – July 21, 2009

Scheduled Public Meeting Dates (subject to change):
Public Workshop/CEQA Scoping Meeting: June 23, 2009, 2:00pm to 4:00pm; SCAQMD Headquarters
SCAQMD Governing Board Hearing: November 6, 2009, 9:00 a.m.; SCAQMD Headquarters

The proposed project may have statewide, regional or areawide significance; therefore, a CEQA scoping meeting is required (pursuant to Public Resources Code §21083.9(a)(2)).

Send CEQA Comments to:	**Phone:**	**Email:**	**Fax:**
Ms. Barbara Radlein	(909) 396-2716	bradlein@aqmd.gov	(909) 396-3324

Direct Questions on Proposed Amendments:	**Phone:**	**Email:**	**Fax:**
Ms. Minh Pham	(909) 396-2613	mpham@aqmd.gov	(909) 396-3324

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Initial Study for Proposed Amended Regulation XX – Regional Clean Air Incentives Market (RECLAIM)

June 2009

SCAQMD No. 06182009BAR
State Clearinghouse No: To Be Determined

Author:	Barbara Radlein	Air Quality Specialist
Technical Assistance:	Minh Pham, M.S., P.E.	Air Quality Specialist
Reviewed By:	Steve Smith, Ph.D.	Program Supervisor, CEQA
	Joe Cassmassi	Planning and Rules Manager, Planning, Rule Development, and Area Sources
	Gary Quinn, P.E.	Program Supervisor, Planning, Rule Development, and Area Sources
	Barbara Baird	District Counsel

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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Mayor, City of Chino
Cities Representative, San Bernardino County

EXECUTIVE OFFICER:
BARRY R. WALLERSTEIN, D.Env.

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INTRODUCTION

The California Legislature created the South Coast Air Quality Management District (SCAQMD) in 1977[1] as the agency responsible for developing and enforcing air pollution control rules and regulations in the South Coast Air Basin (Basin) and portions of the Salton Sea Air Basin and Mojave Desert Air Basin, referred to herein as the district. By statute, the SCAQMD is required to adopt an air quality management plan (AQMP) demonstrating compliance with all federal and state ambient air quality standards for the district[2]. Furthermore, the SCAQMD must adopt rules and regulations that carry out the AQMP[3]. The 2007 AQMP concluded that major reductions in emissions of volatile organic compounds (VOCs), oxides of sulfur (SOx) and oxides of nitrogen (NOx) are necessary to attain the air quality standards for ozone (the key ingredient of smog) and particulate matter (PM10 and PM2.5). Ozone, a criteria pollutant which has been shown to adversely affect human health, is formed when VOCs react with NOx in the atmosphere. VOCs, NOx, SOx (especially sulfur dioxide) and ammonia also contribute to the formation of PM10 and PM2.5.

The Basin is designated by the United States Environmental Protection Agency (EPA) as a non-attainment area for PM2.5 emissions because the federal PM2.5 standards have been exceeded. For this reason, the SCAQMD is required to evaluate all feasible control measures in order to reduce direct PM2.5 emissions, as well as PM2.5 precursors, such as NOx and SOx. The 2007 AQMP contains a multi-pollutant control strategy to achieve attainment with the federal PM2.5 standards with NOx and SOx reductions identified as the two most effective tools in reaching attainment with the PM2.5 standards.

As part of this ongoing PM2.5 reduction effort, SCAQMD staff is proposing amendments to Regulation XX – Regional Clean Air Incentives Market (RECLAIM) to achieve additional SOx emission reductions as outlined in the 2007 AQMP in Control Measure CMB-02: Further SOx Reduction for RECLAIM (CM #2007CMB-02). Amendments are proposed to Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx), to address Best Available Retrofit Control Technology (BARCT) requirements, which may require installation or modification of SOx emission control equipment. Other changes proposed are administrative in nature and include minor clarifications for continuity.

The primary focus of the proposed project is to bring the SOx RECLAIM program up-to-date with the latest BARCT requirements to achieve, at a minimum, the proposed SOx emission reductions in CM #2007CMB-02 (at least 2.9 tons per day by compliance year 2014). The proposed project may achieve additional SOx emission reductions depending on the actual BARCT SOx emission control efficiencies. The proposed project will affect the following types of equipment and processes at SOx RECLAIM facilities: 1) petroleum coke calciners; 2) cement kilns; 3) coal-fired boiler (cogeneration); 4) container glass melting furnace; 5) diesel combustion; 6) fluid catalytic cracking units (FCCUs); 7) refinery boilers/heaters; 8) sulfur recovery units/tail gas treatment units; and, 9) sulfuric acid manufacturing. Additional amendments are proposed to establish procedures and criteria for reducing RECLAIM Trading Credits (RTCs) and RTC adjustment factors for year 2013 and later. Other minor changes are proposed for clarity and consistency throughout the proposed amended rules.

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[1] The Lewis-Presley Air Quality Management Act, 1976 Cal. Stats., ch 324 (codified at Health & Safety Code, §§40400-40540).
[2] Health & Safety Code, §40460 (a).
[3] Health & Safety Code, §40440 (a).

The proposed project is estimated to reduce at least 2.9 tons per day of SOx emissions or more by 2014. Despite this projected environmental benefit to air quality, this Initial Study, prepared pursuant to the California Environmental Quality Act (CEQA), identifies the following environmental topics as areas that may be adversely affected by the proposed project: aesthetics, air quality, energy, hydrology and water quality, hazards and hazardous materials, and transportation/traffic. A Draft Environmental Assessment (EA) will be prepared to analyze further whether the potential impacts to these environmental topics are significant. Any other potentially significant environmental impacts identified through this Notice of Preparation/Initial Study process will also be analyzed in the Draft EA.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The proposed amendments to Regulation XX are considered a "project" as defined by CEQA. CEQA requires that the potential adverse environmental impacts of proposed projects be evaluated and that methods to reduce or avoid identified significant adverse environmental impacts of these projects be implemented if feasible. The purpose of the CEQA process is to inform the SCAQMD's Governing Board, public agencies, and interested parties of potential adverse environmental impacts that could result from implementing the proposed project and to identify feasible mitigation measures or alternatives, when an impact is significant.

California Public Resources Code §21080.5 allows public agencies with regulatory programs to prepare a plan or other written documents in lieu of an environmental impact report once the Secretary of the Resources Agency has certified the regulatory program. The SCAQMD's regulatory program was certified by the Secretary of Resources Agency on March 1, 1989, and is codified as SCAQMD Rule 110. Pursuant to Rule 110 (the rule which implements the SCAQMD's certified regulatory program), SCAQMD is preparing a Draft Environmental Assessment (EA) to evaluate potential adverse impacts from the proposed project.

The SCAQMD as Lead Agency for the proposed project, has prepared this Initial Study (which includes an Environmental Checklist and project description). The Environmental Checklist provides a standard evaluation tool to identify a project's adverse environmental impacts. The Initial Study is also intended to provide information about the proposed project to other public agencies and interested parties prior to the release of the Draft Environmental Assessment (EA). Written comments on the scope of the environmental analysis will be considered (if received by the SCAQMD during the 30-day review period) when preparing the Draft EA.

PROJECT LOCATION

The proposed amendments to Regulation XX would apply to equipment and processes operated at SOx RECLAIM facilities located throughout the entire SCAQMD jurisdiction. The SCAQMD has jurisdiction over an area of approximately 10,743 square miles, consisting of the four-county South Coast Air Basin (Basin) (Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties), and the Riverside County portions of the Salton Sea Air Basin (SSAB) and Mojave Desert Air Basin (MDAB). The Basin, which is a subarea of the SCAQMD's jurisdiction, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. It includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. The Riverside County portion of the SSAB is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley. The federal nonattainment area (known as the Coachella Valley Planning Area) is a subregion of Riverside County and the

SSAB that is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley to the east (Figure 1-1).

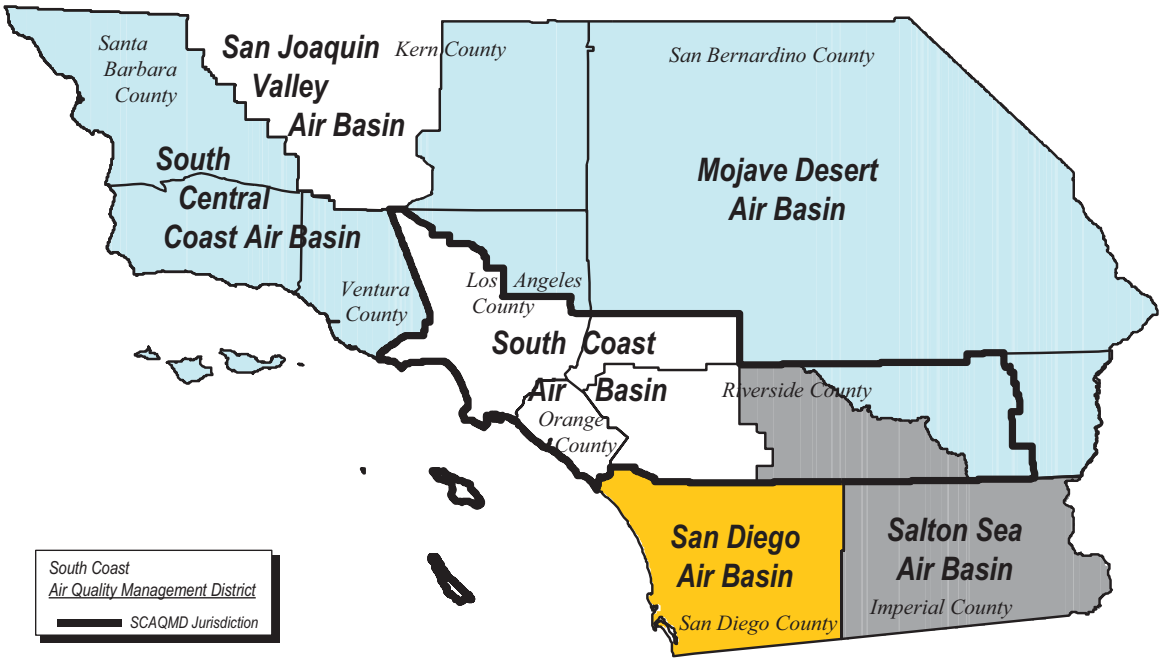


Figure 1-1
South Coast Air Quality Management District

PROJECT BACKGROUND

Adopted in October 1993, Regulation XX – RECLAIM, is comprised of 11 rules which contain a declining cap and trade mechanism to reduce NOx and SOx emissions from the largest stationary sources in the Basin. The portion of Regulation XX that focuses on reducing NOx emissions is referred to as "NOx RECLAIM" while the portion that focuses on reducing SOx emissions is referred to as "SOx RECLAIM." Regulation XX contains applicability requirements, NOx and SOx facility allocations, general requirements, as well as monitoring, reporting, and recordkeeping requirements for NOx and SOx sources located at RECLAIM facilities. The RECLAIM program started with 41 SOx facilities and 392 NOx facilities, but by the end of the 2005 compliance year, the program is populated with 33 SOx facilities and 304 NOx facilities. The reduction in the number of facilities participating in the RECLAIM program since inception has been primarily due to facility shutdowns.

Under the SOx RECLAIM program, the RECLAIM facilities were issued annual allocations of SOx emissions (also known as facility caps), which declined annually from 1993 until 2003 and remained constant after 2003. In 1993, annual allocations were issued to the RECLAIM facilities and the facility cap reflected BARCT in effect at that time. SCAQMD staff has since

conducted a BARCT reassessment for NOx in 2005, but not for SOx. A BARCT reassessment is now necessary for SOx RECLAIM to assure that the participating facilities will continue to achieve emission reductions as expeditiously as possible. Under the RECLAIM program, the facilities have the flexibility to install air pollution control equipment, change method of operations, or purchase RTCs to meet BARCT levels.

PROJECT OBJECTIVE

The primary focus of the proposed project is to bring the SOx RECLAIM program up-to-date with the latest BARCT requirements to achieve, at a minimum, the proposed SOx emission reductions in CM #2007CMB-02 (at least 2.9 tons per day by compliance year 2014). Another objective of the proposed project is to establish procedures and criteria for reducing RTCs and RTC adjustment factors for year 2013 and later. Other minor changes are proposed for clarity and consistency throughout the proposed amended rules. The proposed project is estimated to reduce at least 2.9 tons per day of SOx emissions by 2014, which will assist the SCAQMD with attaining state and federal ambient air quality standards for PM10 and PM2.5.

PROJECT DESCRIPTION

The proposed project will affect the following types of equipment and processes at 12 SOx RECLAIM facilities: 1) petroleum coke calciners; 2) cement kilns; 3) coal-fired boiler (cogeneration); 4) container glass melting furnace; 5) diesel combustion; 6) fluid catalytic cracking units; 7) refinery boilers/heaters; 8) sulfur recovery units/tail gas treatment units; and, 9) sulfuric acid manufacturing. The following is a summary of the key proposed amendments to Rule 2002. Other minor changes are also proposed for clarity and consistency throughout the rule. A copy of the proposed amended rule can be found in Appendix A.

Proposed Amended Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx)

<u>RECLAIM Allocations - subdivision (b)</u>

Cross-references in paragraph (b)(3) have been modified for clarity and continuity with the proposed revisions in subdivision (f) regarding annual allocations for NOx and SOx and adjustments to RTC holdings.

<u>Establishment of Starting Allocations - subdivision (c)</u>

Cross-references to procedures for reducing SOx RTCs for compliance year 2014 and later have been added to paragraph (c)(3) and subparagraph (c)(5)(C).

<u>Annual Allocations for NOx and SOx and Adjustments to RTC Holdings - subdivision (f)</u>

In accordance with the analysis prepared for Control Measure #2007CMB-02 in the 2007 AQMP which estimates an additional reduction in SOx RECLAIM emissions of 2.9 tons per day by 2014, new criteria, procedures, and adjustment factors for adjusting SOx RTC holdings have been added to paragraph (f)(2) in order to achieve these projected emission reductions from SOx RTC holders by compliance year 2013 and later. The actual amount of reductions will depend on the analysis of what is technically and economically feasible. It is expected that the adjustment factors for compliance year 2013 and later will be developed based on current BARCT evaluations and are expected to be within the range of three tons per day to eight tons per day. The proposed changes would also comply with the BARCT requirements applicable to market-based incentive programs. Specifically, the BARCT adjustment that will be made to

each facility's holdings will be implemented on a programmatic basis, with an equal percentage reduction to all RTC holdings beginning in compliance year 2013.

RECLAIM SOx 2014 BARCT – Table 4

New Table 4 has been added to Rule 2002 to establish BARCT for petroleum coke calciners, cement kilns and coal-fired boilers, container glass melting furnaces, diesel combustion, fluid catalytic cracking units, refinery boilers and heaters, sulfur recovery units/tail gas treatment units, and sulfuric acid manufacturing. Currently, Table 4 contains a list of the control technologies that could be used to achieve BARCT. However, Table 4 does not yet contain the BARCT emission rates, for all of the aforementioned equipment except diesel combustion, which has a limit of 15 parts per million by volume (ppmv) to be consistent with existent emission limits in SCAQMD Rule 431.2 – Sulfur Content of Liquid Fuels. Initial estimates show that a range of SOx emission reductions between three tons per day to eight tons per day are under consideration for the proposed project, but the actual amount of SOx reductions will depend on the analysis of what is technically and economically feasible. As the rule development process progresses, eventually Table 4 will contain BARCT emission rates appropriate to the basic equipment listed.

TECHNOLOGY OVERVIEW

SOx Emission Sources

The SOx RECLAIM program consists of 33 facilities as of the 2005 Compliance Year. Of these 33, 12 RECLAIM facilities represent the top emitters of SOx (i.e., emit 95 percent of the total SOx emissions from all RECLAIM facilities). For this reason, the proposed project will focus on reducing SOx emissions from these top emitters. They are:

- Six refineries: BP (Carson location); ConocoPhillips (Wilmington location); Chevron; ExxonMobil; Ultramar (also referred to as Valero); and, Equilon (also referred to as Tesoro)
- Two sulfuric acid plants: Rhodia Inc. and ConocoPhillips (Carson location)
- One coke calciner plant: BP (Wilmington location)
- One cement manufacturing plant: California Portland Cement
- Two container glass manufacturing plants: Owens-Brockway Glass Container Inc. and Saint-Gobain Containers Inc.

On an equipment/process basis, Table 1-1 shows the distribution of SOx emissions with respect to the equipment/processes at these 12 SOx RECLAIM facilities. These source categories are responsible for 80 percent of the facility emissions.

Table 1-1
Distribution of SOx Emissions at RECLAIM Facilities By Equipment/Process

Equipment/Process	Percentage of Emissions
FCCUs	33%
Refinery Process Heaters and Boilers	31%
Sulfuric Acid Manufacturing	12%
Sulfur Recovery Units and Tail Gas Units	10%
Cement Kilns and Glass Melting Furnaces	7%
Other Miscellaneous Processes/Equipment	7%

Reference: Baseline emissions from Compliance Year 2005

Of the 12 facilities, six refineries operate one FCCU each, one sulfur recovery and tail gas unit each, and a multitude of refinery process heaters and boilers. The quantity of SOx emissions from the six refineries alone comprise approximately 74 percent of the total SOx emitted from the 12 RECLAIM facilities that will be affected by the proposed project. The remaining six facilities emit 26 percent of the total.

To appreciate the mechanics of SOx control equipment and techniques, it is necessary to first understand how SOx emissions are generated from the equipment and processes listed in Table 1-1.

FCCUs

The purpose of a FCCU at a refinery is to convert or "crack" heavy oils (hydrocarbons), with the assistance of a catalyst, into gasoline and lighter petroleum products. Each FCCU consists of three main components: a reaction chamber, a catalyst regenerator and a fractionator. All six refineries each operate one FCCU.

The cracking process begins in the reaction chamber where fresh catalyst is mixed with pre-heated heavy oils (crude) known as the fresh feed. The catalyst typically used for cracking is a fine powder made up of tiny particles with surfaces covered by several microscopic pores. A high heat-generating chemical reaction occurs that converts the heavy oil liquid into a cracked hydrocarbon vapor mixed with catalyst. As the cracking reaction progresses, the cracked hydrocarbon vapor is routed to a distillation column or fractionator for further separation into lighter hydrocarbon components than crude such as light gases, gasoline, light gas oil, and cycle oil.

Towards the end of the reaction, the catalyst surface becomes inactive or spent because the pores are gradually coated with a combination of heavy oil liquid residue and solid carbon (coke), thereby reducing its efficiency or ability to react with fresh heavy liquid oil in the feed. To prepare the spent catalyst for re-use, the remaining oil residue is removed by steam stripping. The spent catalyst is later cycled to the second component of the FCCU, the regenerator, where hot air burns the coke layer off of the surface of each catalyst particle to produce reactivated or regenerated catalyst. Subsequently, the regenerated catalyst is cycled back to the reaction chamber and mixed with more fresh heavy liquid oil feed. Thus, as the heavy oils enter the cracking process through the reaction chamber and exit the fractionator as lighter components, the catalyst continuously circulates between the reaction chamber and the regenerator.

During the regeneration cycle, large quantities of catalyst are lost in the form of catalyst fines or particulates thus making FCCUs a major source of primary particulate emissions at refineries. In addition, particulate precursor emissions such as SOx (because crude oil naturally contains sulfur) and NOx, additional secondary particulates (i.e., formed as a result of various chemical reactions), plus carbon monoxide (CO) and carbon dioxide (CO2) are produced due to coke burn-off during the regenerator process.

The potential available control technologies to reduce SOx emissions from a FCCU are:

1. Processing of low sulfur feed stocks;
2. Feed hydro-treating;
3. Flue gas scrubbing via wet gas scrubbers;

4. Using SOx reducing catalyst; or,
5. Using a combination of these control technologies.

The type of SOx control option to be utilized in response to the proposed project for FCCUs will depend on each refinery's individual operations and the current control technologies and techniques in place. For example, all six refineries already process low sulfur feed stocks and utilize feed hydrotreating for their FCCUs. Thus, the Draft EA will evaluate the possibility that each refinery may rely on wet gas scrubbers or SOx reducing additives or a combination of both control options in order to comply with the BARCT requirements for the FCCU portion of the proposed project.

Refinery Process Heaters and Boilers

Refinery process heaters and boilers are used extensively throughout various processes in refinery operations such as distillation, hydrotreating, fluid catalytic cracking, alkylation, reforming, and delayed coking. There are approximately 300 refinery process heaters and boilers operating throughout the six aforementioned refineries and the top 16 emitters in this category collectively emitted about one ton per day of SOx in 2005. Refinery process heaters and boilers are primarily fueled by refinery gas, one of several products generated at the refinery. In addition, most of the refinery process heaters and boilers are designed to also operate on natural gas, but liquid or solid fuels are rarely used.

SOx is created from the combustion of fuel that contains sulfur or sulfur compounds. To reduce SOx emissions from these refinery process heaters and boilers, the refinery operators can opt to use lower sulfur-containing fuels to reduce the sulfur input on the front end (e.g., fuel gas treatment), or to install flue gas scrubber (wet scrubber) to reduce SOx emissions in the flue gas after it exits the refinery process heaters and boilers on the back end. The Draft EA will evaluate the possibility that each refinery may rely on either control option in order to comply with the refinery process heaters and boilers portion of the proposed project.

Sulfur Recovery Units and Tail Gas Units

Because sulfur is a naturally occurring and undesirable component of crude oil, refineries employ a sulfur recovery system to maximize sulfur removal. A typical sulfur removal or recovery system will include a sulfur recovery unit (e.g., Claus unit) followed by a tail gas treatment unit (e.g., amine treating) for maximum removal of hydrogen sulfide (H2S). A Claus unit consists of a reactor, catalytic converters and condensers. Two chemical reactions occur in a Claus unit. The first reaction occurs in the reactor, where a portion of H2S reacts with air to form sulfur dioxide (SO2) followed by a second reaction in the catalytic converters where SO2 reacts with H2S to form liquid elemental sulfur. Side reactions producing carbonyl sulfide (COS) and carbon disulfide (CS2) can also occur. These side reactions are problematic for Claus plant operators because COS and CS2 cannot be easily converted to elemental sulfur and carbon dioxide. Liquid sulfur is recovered after the final condenser. The combination of two converters with two condensers in series will generally remove as much as 95 percent of the sulfur from the incoming acid gas. To increase removal efficiency, some newer sulfur recovery units may be designed with three to four sets of converters and condensers.

To recover the remaining sulfur compounds after the final pass through the last condenser, the gas is sent to a tail gas treatment process such as a SCOT or Wellman-Lord treatment process. For example, the SCOT tail gas treatment is a process where the tail gas is sent to a catalytic reactor and the sulfur compounds in the tail gas are converted to H2S. The H2S is absorbed by a

solution of amine or diethanol amine (DEA) in the H2S absorber, steam-stripped from the absorbent solution in the H2S stripper, concentrated, and recycled to the front end of the sulfur recovery unit. This approach typically increases the overall sulfur recovery efficiency of the Claus unit to 99.8 percent or higher. However, the fresh acid gas feed rate to the sulfur recovery unit is reduced by the amount of recycled stream, which reduces the capacity of the sulfur recovery unit. The residual H2S in the treated gas from the absorber is typically vented to a thermal oxidizer where it is oxidized to sulfur dioxide (SO2) before venting to the atmosphere.

The Wellman-Lord tail gas treatment process is when the sulfur compounds in the tail gas are first incinerated to oxidize to SO2. After the incinerator, the tail gas enters a SO2 absorber, where the SO2 is absorbed in a sodium sulfite (Na_2SO_3) solution to form sodium bisulfite ($NaHSO_3$) and sodium pyrosulfate ($Na_2S_2O_5$). The absorbent rich in SO_2 is then stripped, and the SO_2 is recycled back to the beginning of the Claus unit. The residual sulfur compounds in the treated tail gas from the SO2 absorber is then vented to a thermal oxidizer where it is oxidized to SO2 before venting to the atmosphere.

There are three main strategies that can be employed to further reduce SO2 emissions from each sulfur recovery/tail gas treatment unit operating at the six refineries: 1) increase the efficiency of the sulfur recovery unit; 2) improve the efficiency of the tail gas treatment process; and, 3) install a wet gas scrubber as an alternative to the thermal oxidizer[4]. The type of SOx control option to be utilized in response to this portion of the proposed project will depend on each refinery's individual operations and the current control technologies and techniques in place. Thus, the Draft EA will evaluate the possibility that each refinery may rely on the SOx control strategies identified above in order to comply with the sulfur recovery/tail gas treatment unit portion of the proposed project.

Sulfuric Acid Manufacturing

Sulfuric acid is a commodity chemical that is used in manufacturing phosphate and nitrogen fertilizers, detergents, paper, rust removers. It is also used extensively in automobile manufacturing, metal smelting, water treatment and oil refining processes.

There are two facilities in the Basin that manufacture sulfuric acid. The sulfuric acid manufacturing process includes three basic operations. First, the sulfur in the feedstock is oxidized to sulfur dioxide (SO2) in a furnace. The SO2 is then catalytically oxidized (using vanadium as the catalyst) to sulfur trioxide (SO3) in a multi-staged catalytic reactor (or converter). Lastly, the sulfur trioxide is absorbed (e.g., combined with water) to create a strong sulfuric acid (H_2SO_4) solution.

In a dual or two-stage absorption process, the SO3 gas formed from the primary converter is sent to a first absorber where most of the SO3 is removed to form H_2SO_4. The remaining unconverted SO2 and SO3 are directed to a secondary converter and absorber set to further remove H_2SO_4.

The conversion of SO2 to H_2SO_4 is an incomplete, exothermic reaction which means that there is always one to two percent of SO2 that does not get converted to H_2SO_4. The success of conversion is affected by the number of stages in the catalytic converter, the amount of catalyst used, temperature and pressure, and the concentrations of the reactants, SO2 and elemental

[4] All six refineries have thermal oxidizers at the end of their tail gas treatment units.

oxygen (O_2). The remaining SO2 in the exhaust gas stream from the absorbers is vented to ESPs, scrubbers, and mist eliminators to remove SO_2 and acid mist prior to venting to the atmosphere. Because the conversion of SO2 to H_2SO_4 is exothermic (e.g., produces a great deal of heat), the heat is recovered and converted into useful energy for operating steam-driven compressors, waste heat boilers, and heat exchangers. The Draft EA will evaluate the possibility that each sulfuric acid manufacturing facility may rely on wet gas scrubbers in order to comply with the BARCT requirements for this portion of the proposed project

Container Glass Melting Furnace

A container glass melting furnace is the main equipment used for manufacturing glass products, such as bottles, glass wares, pressed and blown glass, tempered glass, and safety glass. The manufacturing process consists of four phases: 1) preparation of the raw materials; 2) melting the mixture of raw materials in the furnace; 3) forming the desired shape; and, 4) finishing the final product. Raw materials, such as sand, limestone, and soda ash, are crushed and mixed with cullets (recycled glass pieces) to ensure homogeneous melting. The raw materials mixture is then conveyed to a continuous regenerative side-port melting furnace. As the mixture enters the furnace through a feeder, it melts and blends with the molten glass already in the furnace, and eventually flows to a refiner section, forming machine, and annealing ovens. The final products undergo inspection, testing, packaging and storage. Any damaged or undesirable glass is transferred back to be recycled as cullets.

SOx is generated from a container glass melting furnace in two ways: 1) during the decomposition of the sulfates in the raw materials; and, 2) from combusting fuel (that contains sulfur) to generate high heating values in the furnace. The container glass melting furnace contributes over 99 percent of the total SOx emissions from a glass manufacturing plant.

SOx emissions from a container glass melting furnace are typically controlled by a scrubber followed by a dry electrostatic precipitator (ESP) to control particulates. Two glass melting facilities are in the SOx RECLAIM program, but only one of these facilities is currently operating. The type of SOx control option to be utilized in response to the proposed project will depend on this facility's individual operations and the current control technologies and techniques in place. Thus, the Draft EA will evaluate the possibility that operators of the glass melting facility may rely on a wet gas scrubber or dry gas scrubber to further control SOx emissions in order to comply with the BARCT requirements for the FCCU portion of the proposed project.

Petroleum Coke Calciner

Petroleum coke, the heaviest portion of crude oil, cannot be recovered in the normal oil refinining process. Instead, it is processed in a delayed coker unit to generate a carbonaceous solid referred to as "green coke," a commodity. To improve quality of the product, if the green coke has a low metals content, it will be sent to a calciner to make calcined petroleum coke. Calcined petroleum coke can be used to make anodes for the aluminum, steel, and titanium smelting industry. If the green coke has a high metals content, it is used a fuel grade coke by the fuel, cement, steel, calciner and specialty chemicals industries.

The process of making calcined petroleum coke begins when the green coke feed from the delayed coker unit is screened and transported to the calciner unit where it is stored in a covered coke storage barn. The screened and dried green coke is introduced into the top end of a rotary kiln and is tumbled by rotation under high temperatures that range between 2,000 and 2,500

degrees Fahrenheit (^{o}F). The rotary kiln relies on gravity to move coke through the kiln countercurrent to a hot stream of combustion air produced by the combustion of natural gas or fuel oil. As the green coke flows to the bottom of the kiln, it rests in the kiln for approximately one additional hour to eliminate any remaining moisture, impurities, and hydrocarbons. Once discharged from the kiln, the calcined coke is dropped into a cooling chamber, where it is quenched with water, treated with de-dusting agents to minimize dust, carried by conveyors to storage tanks. Eventually, the calcined coke is transported by truck to the Port of Long Beach for export, or is loaded onto railcars for shipping to domestic customers.

Because sulfur is a naturally occurring and undesirable component of crude oil, it remains a component of the green coke after it exits the delayed coking unit. As the green coke is processed under high heat conditions in the rotary kiln, SOx emissions are generated. SOx is also generated from combusting fuel oil (that contains sulfur) to generate high heating values in the rotary kiln.

There is only one petroleum coke calciner in the Basin and the SOx emissions from the unit are controlled by a dry scrubber. The existing control system also includes a spray dryer, a reverse-air baghouse, a slurry storage system, a slurry circulating system, and a pneumatic conveying system. Calcium hydroxide (CaOH) slurry is the absorbing medium for SO2 control. The type of SOx control option to be utilized in response to the proposed project will depend on this facility's individual operations and the current control technologies and techniques in place. Thus, the Draft EA will evaluate the possibility that operators of the petroleum coke calcining facility may rely on a wet gas scrubber to further control SOx emissions in order to comply with the BARCT requirements for the petroleum coke calcining portion of the proposed project.

Cement Kiln and Coal-Fired Boiler

Of the two Portland cement manufacturing facilities located in the Basin, California Portland Cement Company (CPCC) and TXI Riverside Cement Company (TXI), the quantity of SOx emissions from CPCC at 100.5 tons per year is substantially greater than TXI's SOx emissions at 0.7 ton per year for compliance year 2005. Because the proposed project is directed at reducing emissions from the top 12 SOx emitters, the following discussion is limited to reducing SOx emissions at the CPCC facility.

CPCC manufactures gray Portland cement in two cement kilns and follows a four-step process of: 1) acquiring raw materials; 2) preparing the raw materials to be blended into a raw mix; 3) pyroprocessing of the raw mix to make clinker; and, 4) grinding and milling clinker into cement. The raw materials used for manufacturing cement include calcium, silica, alumina and iron, with calcium having the highest concentration. These raw materials are obtained from a limestone quarry for calcium, sand for silica; and shale and clay for alumina and silica.

The raw materials are crushed, milled, blended into a raw mix and stored. Primary, secondary and tertiary crushers are used to crush the raw materials until they are about ¾-inch or smaller in size. Raw materials are then conveyed to rock storage silos. Belt conveyors are typically used for this transport. Roller mills or ball mills are used to blend and pulverize raw materials into fine powder. Pneumatic conveyors are typically used to transport the fine raw mix to be stored in silos until it is ready to be pyroprocessed.

The pyroprocess in a kiln consists of three phases during which clinker is produced from raw materials undergoing physical changes and chemical reactions. The first phase in a kiln, the

drying and pre-heating zone, operates at a temperature between 70 ^{o}F and 1650 ^{o}F and evaporates any remaining water in the raw mix of materials entering the kiln. Essentially this is the warm-up phase which stabilizes the temperature of the refractory fire brick inside the mouth opening of the kiln. The second phase, the calcining zone, operates at a temperature between 1100 ^{o}F and 1650 ^{o}F and converts the calcium carbonate from the limestone in the kiln feed into calcium oxide and releases carbon dioxide. During the third phase, the burning zone operates on average at 2200 ^{o}F to 2700 ^{o}F (though the flame temperature can exceed 3400 ^{o}F) during which several reactions and side reactions occur. The first reaction is calcium oxide (produced during the calcining zone) with silicate to form dicalcium silicate and the second reaction is the melting of calcium oxide with alumina and iron oxide to form the liquid phase of the materials. Despite the high temperatures, the constituents of the kiln feed do not combust during pyroprocessing. As the materials move towards the discharge end of the kiln, the temperature drops and eventually clinker nodules form and volatile constituents, such as sodium, potassium, chlorides, and sulfates, evaporate. Any excess calcium oxide reacts with dicalcium silicate to form tricalcium silicate. The red hot clinker exits the kiln, is cooled in the clinker cooler, passes through a crusher and is conveyed to storage for protection from moisture. Since clinker is water reactive, if it gets wet, it will set into concrete.

Heat used in CPCC's kilns is supplied through the combustion of different fuels such as coal, coke, oil, natural gas, and discarded automobile tires. The combustion gases are vented to a baghouse for dust control, and the collected dust is returned to the process or recycled if they meet certain criteria, or is discarded to landfills. Post-combustion control for SOx is not currently used at CPCC.

In addition to the cement kilns, another potential source of SOx emissions at CPCC could be from the coal-fired steam boiler due to the high sulfur content in coal. While CPCC reported that the coal-fired steam boiler has not been in operation since 2002, CPCC may begin operating the boiler again in the near future if circumstances in energy costs or fuel sources change.

SOx emissions from the cement kilns and coal-fired boiler are generated from the following: 1) combustion of sulfur in the fuel; and, 2) oxidation of sulfides (e.g. pyrites) in the raw materials entering the cement kiln. Fuel switching, process alterations, dry and wet scrubbers are commercially available control technologies to reduce SOx emissions. The type of scrubber to be utilized in response to the proposed project will depend on this facility's individual operations and how it will function with the current control technologies and techniques in place at CPCC (e.g., the baghouse). Thus, the Draft EA will evaluate the possibility that operators of CPCC may rely on a wet gas scrubber or dry gas scrubber, or a hybrid of dry gas scrubber with a baghouse, to further control SOx emissions in order to comply with the BARCT requirements for the cement kiln and coal-fired boiler portion of the proposed project.

SOx Control Technologies

On an equipment/process basis, Table 1-2 shows the control technologies that will be considered as part of the BARCT analysis for the proposed project. The following discussions will elaborate on the various technologies listed in Table 1-2.

Table 1-2
BARCT Control Technologies Under Consideration
for SOx Emitting Equipment/Processes

Equipment/Process	BARCT Control Technology
Petroleum Coke Calciner	Wet Gas Scrubber
Cement Kilns and Coal-Fired Boiler	1. Dry Gas Scrubber 2. Wet Gas Scrubber 3. Combination of both
Container Glass Melting Furnaces	1. Dry Gas Scrubber 2. Wet Gas Scrubber
FCCUs	1. Wet Gas Scrubber 2. SOx Reducing Catalyst 3. Combination of both
Refinery Process Heaters and Boilers	1. Wet Gas Scrubber 2. Fuel Gas Treatment
Sulfuric Acid Manufacturing	Wet Gas Scrubber
Sulfur Recovery Units/Tail Gas Units	1. Wet Gas Scrubber 2. Selective Oxidation Catalyst

Wet Gas Scrubbers

Wet gas scrubbers are used to control both SOx and particulate emissions and can be installed on petroleum coke calciners, cement kilns and coal-fired boilers, container glass melting furnaces, FCCUs, refinery process heaters and boilers, sulfuric acid manufacturing, and sulfur recovery units/tail gas units. There are two types of wet gas scrubbers: 1) caustic-based non-regenerative wet gas scrubber; and, 2) regenerative wet gas scrubber. Both systems can be used to achieve below a 25 ppmv SOx outlet concentration.

In non-regenerative wet gas scrubbing, caustic soda (sodium hydroxide - NaOH) or other alkaline reagents, such as soda ash and magnesium hydroxide, are used as an alkaline absorbing reagent (absorbent) to capture SO2 emissions. The absorbent captures SO2 and sulfuric acid mist (H2SO4) and converts it to various types of sulfites and sulfates (e.g., NaHSO3, Na2SO3, and Na2SO4). The absorbed sulfites and sulfates are later separated by a purge treatment system and the treated water, free of suspended solids, is either discharged or recycled.

One example of the caustic-based non-regenerative scrubbing system is the proprietary Electro Dynamic Venturi (EDV) scrubbing system offered by BELCO Technologies Corporation. An EDV scrubbing system consists of three main modules: 1) a spray tower module; 2) a filtering module; and, 3) a droplet separator module. The flue gas enters the spray tower module, which is an open tower with multiple layers of spray nozzles. The nozzles supply a high density stream of caustic water that is directed in a countercurrent flow to the gas flow and encircles, encompasses, wets, and saturates the flue gas. Multiple stages of liquid/gas absorption occur in the spray tower module and SO2 and acid mist are captured and converted to sulfites and sulfates. Large particles in the flue gas are also removed by impaction with the water droplets.

The flue gas saturated with heavy water droplets continues to move up the wet scrubber to the filtering module where the flue gas reaches super-saturation. At this point, water continues to

condense and the fine particles in the gas stream begin to cluster together, to form larger and heavier groups of particles. Next, the flue gas, super-saturated with heavy water droplets, enters the droplet separator module causing the water droplets to impinge on the walls of parallel spin vanes and drain to the bottom of the scrubber.

The spent caustic water purged from the wet scrubber is later processed in a purge treatment unit. The purge treatment unit contains a clarifier that removes suspended solids for disposal. The effluent from the clarifier is oxidized with agitated air which helps convert sulfites to sulfates and also reduces the chemical oxygen demand (COD) so that the effluent can be safely discharged to a waste water system.

A regenerative wet gas scrubber removes SO2 from the flue gas by using a buffer solution that can be regenerated. The buffer is then sent to a regenerative plant where the SO2 is extracted as concentrated SO2. The concentrated SO2 is then sent to a sulfur recovery unit (SRU) to recover the liquid SO2, sulfuric acid and elemental sulfur as a by-product. When the inlet SO2 concentrations are high, a substantial amount of sulfur-based by-products can be recovered and later sold as a commodity for use in the fertilizer, chemical, pulp and paper industries. For this reason, the use of regenerative wet gas scrubber is favored over non-regenerative wet gas scrubber.

One example of a regenerative scrubber is the proprietary LABSORB offered by BELCO Technologies Corporation. [5, 6] The LABSORB scrubbing process uses a patented non-organic aqueous solution of sodium phosphate salts as a buffer. This buffer is made from two common available products, caustic and phosphoric acid. The LABSORB scrubbing system is capable of reducing SOx to below 25 ppmv. The LABSORB system consists of: 1) a quench pre-scrubber; 2) an absorber; and, 3) a regeneration section which typically includes a stripper and a heat exchanger.

In the scrubbing side of the regenerative scrubbing system, the quench pre-scrubber is used to wash out any large particles that are carried over, plus any acid components in the flue gas such as hydrofluoric acid (HF), hydrochloric acid, and SO3. The absorption of SO2 is carried out in the absorber. The absorber typically consists of one single, high-efficiency packed bed scrubber filled with high-efficiency structural packing material. However, if the inlet SO2 concentration is low, a multiple-staged packed bed scrubber, or a spray-and-plate tower scrubber, may be used instead to achieve an outlet SO2 concentration of less than 25 ppmv.

The third step in the regenerative wet gas scrubbing system is the regenerative section in which the SO2-rich buffer stream is steam heated to evaporate the water from the buffer. The buffer stream is then sent to a stripper/condenser unit to separate the SO2 from the buffer. The buffer free of SO2 is returned to the buffer mixing tank while the condensed-SO2 gas stream is sent back to the SRU for further treatment.

[5] *Evaluating Wet Scrubbers*, Edwin H. Weaver of BELCO Technologies Corporation, Petroleum Technology Quarterly, Quarter 3, 2006.

[6] *A Logical and Cost Effective Approach for Reducing Refinery FCCU Emissions.* S.T. Eagleson, G. Billemeyer, N. Confuorto, and E. H. Weaver of BELCO, and S. Singhania and N. Singhania of Singhania Technical Services Pvt., India, Presented at PETROTECH 6th International Petroleum Conference in India, January 2005.

Dry Gas Scrubbers

Dry gas scrubbers are used to control SOx emissions and can be installed to control emissions from cement kilns and coal-fired boilers, container glass melting furnaces, and refinery boilers and heaters. In dry gas scrubbers, a dry calcium- and sodium-based alkaline powdered sorbent is used to absorb SO2 from the flue (outlet) gas stream. There are two types of dry scrubbers: 1) spray dryer scrubbers; and, 2) dry injection scrubbers.

A spray dryer scrubber is configured so that the reaction between SO2 in the flue gas and the dry sorbent takes place in a separate, dedicated reactor (or scrubber). A dry injection scrubber is configured so that the sorbent is injected directly via multiple injection ports into the SO2-producing equipment or ducting system. Spray dryer scrubbers can achieve about 80 percent to 90 percent SO2 removal efficiency, while dry injection scrubbers can achieve about 50 percent to 80 percent SO2 removal efficiency.

Dry gas scrubbers require high temperatures in the range of 1,800 ^{o}F to 2,000 ^{o}F in order to decompose the sorbent into porous solids with high adsorbing surface area to ensure efficient SO2 removal. Because particulates are formed during the dry gas scrubbing process, cyclones and ESPs are additional control equipment units that are typically installed downstream of a dry scrubber.

SOx Reducing Additives

To help reduce condensable particulate matter from sulfur, SOx reducing catalysts are used for reducing the production of SOx by-products in FCCUs. SOx reducing catalyst is a metal oxide compound such as aluminum oxide (Al_2O_3), magnesium oxide (MgO), vanadium pentoxide (V_2O_5) or a combination of the three that is added to the FCCU catalyst as it circulates throughout the reactor. In the regenerator of the FCCU, sulfur bearing coke is burned and SO2, CO, and CO2 by-products are formed. A portion of SO2 will react with excess oxygen and form SO3 which will either stay in the flue gas or react with the metal oxide in the SOx reducing catalyst to form metal sulfate. In the FCCU reactor, the metal sulfate will react with hydrogen to form either metal sulfide and water, or more metal oxide. In the steam stripper section of the FCCU reactor, metal sulfide reacts with steam to form metal oxide and hydrogen sulfide. The net effect of these reactions is that the quantity of SOx in the regenerator is typically reduced between 40 to 65 percent while the quantity of hydrogen sulfide (H_2S) in the reactor is increased. Generally, the increase in H_2S is handled by sulfur recovery processes located elsewhere within the refinery.

Fuel Gas Treatment

Currently, SCAQMD Rule 431.1 – Sulfur Content of Gaseous Fuels, limits the sulfur content in refinery fuel gas to 40 ppmv sulfur. This limit has already been incorporated in the SOx RECLAIM allocations and resulted in an emission factor of 6.76 pounds of SOx per million cubic feet of refinery gas. However, the sulfur content in refinery fuel gas may be further reduced to a range between 25 ppmv and 35 ppmv and the outlet SOx concentrations from refinery boilers and process heaters may also be limited to less than 20 ppmv by implementing efficiency improvements to fuel gas treatment.

Refinery fuel gas, commonly used for operating refinery process heaters and boilers, is treated in various acid gas processing units such as an amine or Merox treating unit for removal of sour components such as hydrogen sulfide, carbonyl sulfide, mercaptan, and ammonia. Lean amine is generally used as an absorbent. At the end of the process, the lean amine is regenerated to form

rich amine, and H2S is recovered in acid gas which is then fed to the sulfur recovery unit/tail gas treatment unit for more processing. By improving the efficiency of the amine treating unit to recover more sulfur from the inlet acid gas stream, the sulfur content in the refinery fuel gas at the outlet, and subsequently the SOx emissions from boilers and heaters that use these refinery fuel gases can be reduced.

Selective Oxidation Catalyst

EmeraChem Power LLC markets a proprietary catalytic gas treatment called selective oxidation catalyst "ESx" that is typically used as a sulfur reducing agent in conjunction with its "EMx NOx trap" catalyst to treat combustion exhaust gases from incinerators, process heaters, turbines and boilers. The ESx catalyst can also be used as part of SOx reduction for sulfur recovery units/tail gas treatment units. The ESx catalyst can reduce multiple sulfur species, including SO2, SO3, and H2S from the tail gas stream while also removing CO, VOC, and PM10 emissions. ESx catalyst is a platinum group metal catalyst that stores sulfur species and simultaneously assists in the catalytic oxidation of CO and VOCs. The ESx units are typically outfitted with multiple chambers such that at least one chamber is always in regeneration while the other units are working to store SOx. In the storage process, SO2 is oxidized to SO3 and is stored by EmeraChem's sorber. The catalyst regeneration process releases sulfur as SO2.

ALTERNATIVES

The Draft EA will discuss and compare alternatives to the proposed project as required by CEQA and by SCAQMD Rule 110. Alternatives must include realistic measures for attaining the basic objectives of the proposed project and provide a means for evaluating the comparative merits of each alternative. In addition, the range of alternatives must be sufficient to permit a reasoned choice and it need not include every conceivable project alternative. The key issue is whether the selection and discussion of alternatives fosters informed decision making and public participation. A CEQA document need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative.

SCAQMD Rule 110 does not impose any greater requirements for a discussion of project alternatives in an environmental assessment than is required for an Environmental Impact Report under CEQA. Alternatives will be developed based in part on the major components of the proposed rule. The rationale for selecting alternatives rests on CEQA's requirement to present "realistic" alternatives; that is alternatives that can actually be implemented. CEQA also requires an evaluation of a "No Project Alternative."

SCAQMD's policy document Environmental Justice Program Enhancements for fiscal year (FY) 2002-03, Enhancement II-1 recommends that all SCAQMD CEQA assessments include a feasible project alternative with the lowest air toxics emissions. In other words, for any major equipment or process type under the scope of the proposed project that creates a significant environmental impact, at least one alternative, where feasible, shall be considered from a "least harmful" perspective with regard to hazardous air emissions.

The Governing Board may choose to adopt any portion or all of any alternative presented in the EA. The Governing Board is able to adopt any portion or all of any of the alternatives presented because the impacts of each alternative will be fully disclosed to the public and the public will have the opportunity to comment on the alternatives and impacts generated by each alternative.

Written suggestions on potential project alternatives received during the comment period for the Initial Study will be considered when preparing the Draft EA.

CHAPTER 2 - ENVIRONMENTAL CHECKLIST

Introduction

General Information

Potentially Significant Impact Areas

Determination

Environmental Checklist and Discussion

INTRODUCTION

The environmental checklist provides a standard evaluation tool to identify a project's adverse environmental impacts. This checklist identifies and evaluates potential adverse environmental impacts that may be created by adopting the proposed amendments to Regulation XX.

GENERAL INFORMATION

Project Title:	Proposed Amended Regulation XX – Regional Clean Air Incentives Market (RECLAIM)
Lead Agency Name:	South Coast Air Quality Management District
Lead Agency Address:	21865 Copley Drive, Diamond Bar, CA 91765
CEQA Contact Person:	Barbara Radlein, (909) 396-2716
Rule Contact Person:	Minh Pham, (909) 396-2613
Project Sponsor's Name:	South Coast Air Quality Management District
Project Sponsor's Address:	21865 Copley Drive, Diamond Bar, CA 91765
General Plan Designation:	Not applicable
Zoning:	Not applicable
Description of Project:	SCAQMD staff is proposing amendments to Regulation XX – Regional Clean Air Incentives Market (RECLAIM), Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx), to reduce the allowable SOx emission limits based on current Best Available Retrofit Control Technology (BARCT) for the following industrial equipment and processes: 1) fluid catalytic cracking units (FCCUs); 2) refinery boilers and heaters; 3) sulfur recovery – tail gas treatment units; 4) sulfuric acid manufacturing process; 5) container glass manufacturing process; 6) coke calcining; and, 7) portland cement manufacturing. Additional amendments are proposed to establish procedures and criteria for reducing RECLAIM Trading Credits (RTCs) and RTC adjustment factors for year 2013 and later. Other minor changes are proposed for clarity and consistency throughout the regulation. The Initial Study identifies the topics of aesthetics, air quality, energy, hydrology and water quality, hazards and hazardous materials, and transportation/traffic as areas that may be adversely affected by the proposed project. Impacts to these environmental areas will be further analyzed in the Draft EA.
Surrounding Land Uses and Setting:	Residential, but primarily commercial, industrial and/or institutional
Other Public Agencies Whose Approval is Required:	Not applicable

POTENTIALLY SIGNIFICANT IMPACT AREAS

The following environmental impact areas have been assessed to determine their potential to be affected by the proposed project. Any checked items represent areas that may be adversely affected by the proposed project. An explanation relative to the determination of impacts can be found following the checklist for each area.

☑	Aesthetics	☐	Geology and Soils	☐	Population and Housing
☐	Agricultural Resources	☑	Hazards and Hazardous Materials	☐	Public Services
☑	Air Quality	☑	Hydrology and Water Quality	☐	Recreation
☐	Biological Resources	☐	Land Use and Planning	☐	Solid/Hazardous Waste
☐	Cultural Resources	☐	Mineral Resources	☑	Transportation/Traffic
☑	Energy	☐	Noise	☑	Mandatory Findings

DETERMINATION
On the basis of this initial evaluation:

☐ I find the proposed project, in accordance with those findings made pursuant to CEQA Guideline §15252, COULD NOT have a significant effect on the environment, and that an ENVIRONMENTAL ASSESSMENT with no significant impacts has been prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will NOT be significant effects in this case because revisions in the project have been made by or agreed to by the project proponent. An ENVIRONMENTAL ASSESSMENT with no significant impacts will be prepared.

☑ I find that the proposed project MAY have a significant effect(s) on the environment, and an ENVIRONMENTAL ASSESSMENT will be prepared.

☐ I find that the proposed project MAY have a "potentially significant impact" on the environment, but at least one effect 1)has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL ASSESSMENT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL ASSESSMENT pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL ASSESSMENT, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Date: June 18, 2009 **Signature:** Steve Smith

Steve Smith, Ph.D.
Program Supervisor, CEQA Section
Planning, Rules, and Area Sources

ENVIRONMENTAL CHECKLIST AND DISCUSSION

Since SOx is a precursor pollutant to fine particulate matter as PM10 and PM2.5, SCAQMD staff is proposing amendments to Regulation XX – RECLAIM to achieve additional SOx emission reductions as outlined in the 2007 AQMP. Specifically, amendments are proposed to SCAQMD Rule 2002, to address BARCT requirements, which may require installation or modification of SOx emission control equipment. Other changes proposed are administrative in nature and include minor clarifications for continuity.

The amendments proposed in Rule 2002 for the overall reductions in SOx RTC allocations, which include the anticipated feasible SOx emissions reductions due to compliance with proposed BARCT requirements, are expected to involve physical changes at affected facilities which may cause potentially significant impacts to the following environmental topics: aesthetics, air quality, energy, hydrology and water quality, hazards and hazardous materials, and transportation/traffic. Therefore, the type of emission reduction projects that may be undertaken to comply with the proposed project, primarily the reduced total amounts of SOx credits available in the RECLAIM program, are the main focus of the analysis in this Initial Study.

Preliminary review of the SCAQMD's RECLAIM database indicates that certain equipment at 12 SOx RECLAIM facilities are currently not operating at proposed BARCT levels. This analysis assumes that operators at RECLAIM facilities will elect to reduce emissions at their facilities through further control of emissions from equipment not operating at BARCT rather than purchasing SOx RTCs, as is currently allowed under the RECLAIM program. The rationale for this assumption is that controlling emissions from equipment not operating at BARCT will be the most cost effective approach and produces the most conservative analysis of secondary adverse environmental impacts.

The physical changes involved with the type of emission control strategies that are expected to occur focus on the installation of new or the modification of existing control equipment at the following stationary sources of SOx: petroleum coke calciners, cement kilns, coal-fired boiler, container glass melting furnaces, diesel combustion of liquid fuels, FCCUs, refinery boilers and process heaters, sulfur recovery units/tail gas treatment units, and sulfuric acid manufacturing facilities. To control SOx emissions from these sources, the following technologies are proposed as BARCT: wet gas scrubbers, dry gas scrubbers, hybrid dry gas scrubber (dry gas scrubber plus a baghouse), SOx reducing catalysts, fuel gas treatment, and selective oxidation catalyst treatment.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
I.	**AESTHETICS.** Would the project:			
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☑
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☑
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☑	☐	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☑	☐

Significance Criteria

The proposed project impacts on aesthetics will be considered significant if:

- The project will block views from a scenic highway or corridor.
- The project will adversely affect the visual continuity of the surrounding area.
- The impacts on light and glare will be considered significant if the project adds lighting which would add glare to residential areas or sensitive receptors.

Discussion

I. a), & b) Implementation of the proposed project is expected to involve construction activities related to the modification of existing equipment at the top 12 SOx emitting RECLAIM facilities. The distribution of these SOx RECLAIM facilities is as follows: six are oil refineries, two are sulfuric acid manufacturing plants, one is a coke calciner plant, one is a cement manufacturing plant, and two are container glass manufacturing plants.

The physical changes involved with the type of SOx emission control strategies that are expected focus on the installation of new or the modification of existing control equipment at the following stationary sources of SOx: petroleum coke calciners, cement kilns, coal-fired boiler, container glass melting furnaces, diesel combustion of liquid fuels, FCCUs, refinery boilers and process heaters, sulfur recovery units/tail gas treatment units, and sulfuric acid manufacturing facilities. To control SOx emissions from these sources, the following technologies are proposed as BARCT: wet gas scrubbers, dry gas scrubbers, hybrid dry gas scrubber (dry gas scrubber plus a baghouse), SOx reducing catalysts, fuel gas treatment, and selective oxidation catalyst treatment.

Construction activities are expected as part of the proposed project. However, the construction activities are not expected to adversely impact views and aesthetics resources since most of the heavy equipment and activities are expected to occur within the confines of each existing facility and are expected to introduce only minor visual changes to areas outside each facility, if at all, depending on the location of the construction activities within the facility. Except for the use of cranes, the majority of the construction equipment is expected to be low in height and not

substantially visible to the surrounding area due to existing fencing along the property lines and existing structures currently within the facilities that would buffer the views of the construction activities. Further, the construction activities are expected to be temporary in nature and will cease following completion of the equipment installation or modifications.

Depending on the type of SOx emissions control employed, the proposed project could potentially introduce minor visual changes at some facilities. The affected units, depending upon their locations within each facility, could potentially be visible to areas outside of each facility. However, the affected units are expected to be about the same size profile as existing equipment present at each affected facility. The general appearance of the affected units is not expected to differ significantly from other equipment units such that no significant impacts to aesthetics are expected. Further, no scenic highways or corridors are located in the vicinities of the affected facilities such that the proposed project would not obstruct scenic resources or degrade the existing visual character of a site, including but not limited to, trees, rock outcroppings, or historic buildings.

I. c) All construction and operational activities associated with the proposed project are expected to take place within the boundaries of the existing RECLAIM facilities. The new equipment to be installed, or the existing equipment to be modified as part of the proposed project, will be similar in size, appearance, and profile to the existing equipment, with the exception of any installation of a wet gas scrubber

Except for the use of cranes, the majority of construction equipment that will be used to comply with the proposed project will be low in height and will not be visible to the surrounding areas due to the presence of existing fences and other structures that buffer views. During construction, cranes may be visible to the surrounding areas. Since the construction activities are temporary in nature, all construction equipment will be removed following completion of the proposed project.

Wet gas scrubber technology is potentially BARCT for six oil refineries (for six FCCUs and six sulfur recovery units/tail gas treatment units), two sulfuric acid manufacturing plants, one coke calciner plant, one cement manufacturing plant, and two container glass manufacturing plants. Upon completion of construction of all of these wet gas scrubbers, the operational activities of these units will emit flue gas that is saturated with water, forming a visible steam plume from a relatively high flue gas stack (approximately 200 feet above grade). Each stack and subsequent plume will have the potential to generate significant aesthetic impacts. Therefore, these potential impacts to aesthetics will be addressed in the Draft Environmental Assessment (EA) for the proposed project.

I. d) There are no components in the proposed project that would require construction activities to occur at night. Therefore, no additional lighting at the affected facilities would be required as a result of complying with the proposed project. However, if facility operators determine that the construction schedule requires nighttime activities, temporary lighting may be required. Nonetheless, since construction of the proposed project would be completely located within the boundaries of each affected facility, additional temporary lighting is not expected to be discernable from the existing permanent night lighting.

Additional permanent light sources may be installed on any installation of new equipment, to provide illumination for operations personnel at night, in accordance with applicable safety standards. Similarly, any existing equipment that would be modified as part of the proposed project are located in existing structures or areas that already have lighting systems in place for the same reasons. These additional light sources are not expected to create an impact because each component of the proposed project will be located within an existing industrial facility that operates up to 24 hours per day and the equipment is not restricted to operate during a specific time of day. The proposed project contains no provisions that would require affected equipment to operate differently during existing daytime or nighttime operations. Further, any new lighting that will be installed on the proposed equipment will be consistent in intensity and type with the existing lighting on equipment and other structures within each affected facility. While residential areas are located near some of the affected facilities, any additional lighting will be placed by and focused on the new equipment. For the aforementioned reasons, the proposed project is not expected to create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. Therefore, less than significant impacts to light and glare are expected from the proposed project.

Based upon these considerations, significant adverse impacts to aesthetics are expected from the implementation of the proposed project and will be further analyzed in the Draft EA.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
II.	**AGRICULTURE RESOURCES.** Would the project:			
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☑
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☑
c)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☑

Significance Criteria

Project-related impacts on agricultural resources will be considered significant if any of the following conditions are met:

- The proposed project conflicts with existing zoning or agricultural use or Williamson Act contracts.

- The proposed project will convert prime farmland, unique farmland or farmland of statewide importance as shown on the maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency, to non-agricultural use.
- The proposed project would involve changes in the existing environment, which due to their location or nature, could result in conversion of farmland to non-agricultural uses.

Discussion

II. a), b), & c) All construction and operational activities that would occur as a result of implementing the proposed project are expected to occur within the confines of the existing affected facilities. The proposed project would be consistent with the commercial, industrial and institutional zoning requirements for the various facilities and there are no agricultural resources or operations on or near the affected facilities. No agricultural resources including Williamson Act contracts are located within or would be impacted by construction activities at the affected facilities. Therefore, the proposed project would not result in any new construction of buildings or other structures that would convert farmland to non-agricultural use or conflict with zoning for agricultural use or a Williamson Act contract. Since the proposed project would not substantially change the facility or process for which the affected units are utilized, there are no provisions in the proposed project that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments and no land use or planning requirements relative to agricultural resources will be altered by the proposed project

Based upon these considerations, significant agricultural resource impacts are not expected from the implementation of the proposed project and will not be further analyzed in the Draft EA.

	Potentially Significant Impact	**Less Than Significant Impact**	**No Impact**
III. AIR QUALITY. Would the project:			
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☑
b) Violate any air quality standard or contribute to an existing or projected air quality violation?	☑	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☑	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☑	☐	☐

	Potentially Significant Impact	Less Than Significant Impact	No Impact
e) Create objectionable odors affecting a substantial number of people?	☐	☑	☐
f) Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?	☐	☐	☑

Significance Criteria
To determine whether or not air quality impacts from the proposed project may be significant, impacts will be evaluated and compared to the criteria in Table 2-1. If impacts exceed any of the criteria in Table 2-1, they will be considered further in the Draft EA. As necessary, all feasible mitigation measures will be identified in the Draft EA and implemented to reduce significant impacts to the maximum extent feasible.

Discussion
Upon initial examination of the proposed project, the main focus of this analysis pertains to establishing BARCT for the following top 12 stationary sources in the SOx RECLAIM program: petroleum coke calciners, cement kilns, coal-fired boiler, container glass melting furnaces, diesel combustion of liquid fuels, FCCUs, refinery boilers and process heaters, sulfur recovery units/tail gas treatment units, and sulfuric acid manufacturing facilities. To control SOx emissions from these sources, the following technologies are proposed as BARCT: wet gas scrubbers, dry gas scrubbers, hybrid dry gas scrubber (dry gas scrubber plus a baghouse), SOx reducing catalysts, fuel gas treatment, and selective oxidation catalyst treatment. The physical changes involved with the type of SOx emission control strategies that are expected to occur focus on the installation of new or the modification of existing control equipment. The possibility of these types of SOx control technologies being used to comply with the proposed project and potential secondary adverse air quality impacts they may generate will be further evaluated in the Draft EA. The remaining portions of the proposed project are procedural in nature and will not result in an adverse air quality impact.

III. a) The SCAQMD is required by law to prepare a comprehensive district-wide AQMP which includes strategies (e.g., control measures) to reduce emission levels to achieve and maintain state and federal ambient air quality standards, and to ensure that new sources of emissions are planned and operated to be consistent with the SCAQMD's air quality goals. The AQMP's air pollution reduction strategies include control measures which target stationary, mobile and indirect sources. These control measures are based on feasible methods of attaining ambient air quality standards. Pursuant to the provisions of both the state and federal Clean Air Acts, the SCAQMD is required to attain the state and federal ambient air quality standards for all criteria pollutants, including PM10 and PM2.5. Although the District is currently classified as attainment for both state and federal SO2 ambient air quality standards, SOx is a precursor pollutant to PM10 and PM2.5. The proposed project implements AQMP Control Measure CM #2007CMB-02 which will bring the SOx RECLAIM program up-to-date with the latest BARCT

Table 2-1
SCAQMD Air Quality Significance Thresholds

Mass Daily Thresholds [a]		
Pollutant	**Construction [b]**	Operation [c]
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
SOx	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TACs) and Odor Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality for Criteria Pollutants [d]		
NO2 1-hour average annual average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.25 ppm (state) 0.053 ppm (federal)	
PM10 24-hour average annual geometric average annual arithmetic mean	10.4 μg/m^3 (construction)[e] & 2.5 μg/m^3 (operation) 1.0 μg/m^3 20 μg/m^3	
PM2.5 24-hour average	10.4 μg/m^3 (construction)[e] & 2.5 μg/m^3 (operation)	
Sulfate 24-hour average	1 μg/m^3	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) 9.0 ppm (state/federal)	

[a] Source: SCAQMD CEQA Handbook (SCAQMD, 1993)
[b] Construction thresholds apply to both the South Coast Air Basin and Coachella Valley (Salton Sea and Mojave Desert Air Basins).
[c] For Coachella Valley, the mass daily thresholds for operation are the same as the construction thresholds.
[d] Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.
[e] Ambient air quality threshold based on SCAQMD Rule 403.

KEY: lbs/day = pounds per day; ppm = parts per million; μg/m^3 = microgram per cubic meter; ≥ greater than or equal to

requirements to achieve, at a minimum, the proposed SOx emission reductions in CM #2007CMB-02 (at least 2.9 tons per day by compliance year 2014). Therefore, the proposed project will not obstruct or conflict with the implementation of the AQMP.

Although the proposed project has the potential to temporarily increase VOC, NOx, CO, PM10 and TAC emissions (as diesel PM) that could exceed the air quality significance thresholds for construction activities, the proposed project is not expected to interfere with achieving at least 2.9 tons per day of SOx emission reductions by the year 2014, which is consistent with the goals of the 2007 AQMP to achieve additional SOx emission reductions (and reduce SOx precursors as PM 2.5 and PM10) from stationary sources, which will assist in attaining state and federal PM2.5 and PM10 ambient air quality standards. Further, the temporary increase in VOC, NOx, CO, PM10 and TAC emissions (as diesel PM) due to construction is not expected to impede the emission reduction goals of the 2007 AQMP because the inventory prepared for the 2007 AQMP already takes into account the future emission estimates from all construction activities associated with implementing the proposed control measures[7]. Further, implementation of all other SCAQMD SOx rules along with AQMP control measures, when considered together, is expected to reduce SOx emissions throughout the region overall by 2020. Therefore, implementing the proposed project will not conflict or obstruct implementation of the AQMP.

III. b) The objective of the proposed project is to reduce SOx emissions from the following top 12 stationary sources in the SOx RECLAIM program: petroleum coke calciners, cement kilns, coal-fired boiler, container glass melting furnaces, diesel combustion of liquid fuels, FCCUs, refinery boilers and process heaters, sulfur recovery units/tail gas treatment units, and sulfuric acid manufacturing facilities. The proposed project is estimated to reduce emissions, at a minimum, of up to 2.9 tons per day of SOx by 2014 from these affected units. Compliance with the proposed project is expected to be achieved by the following SOx control technologies: wet gas scrubbers, dry gas scrubbers, hybrid dry gas scrubber (dry gas scrubber plus a baghouse), SOx reducing catalysts, fuel gas treatment, and selective oxidation catalyst treatment.

Implementation of the proposed project is expected to involve construction activities related to the installation or modification of the aforementioned SOx control technologies at 12 industrial facilities. The proposed project may also involve the construction of new buildings or other structures as part of installation or modification of the SOx controls. Construction-related activities are also expected to generate emissions from worker vehicles, trucks, and construction equipment. Due to the large scale of construction that would be expected from implementing the proposed project, project-specific construction emissions are potentially significant.

While the operational-related activities are expected to reduce emissions of SOx, a simultaneous increase in emissions of other criteria pollutants such as NOx and VOCs are expected from operations of stationary support equipment associated with the installed or modified SOx control equipment, as well as operational emissions associated with periodic truck deliveries of supplies needed to operate the SOx control equipment. Thus, the air quality impacts associated with the construction and operational phases of the proposed project are potentially significant and will be evaluated in the Draft EA.

[7] SCAQMD's Final Program Environmental Impact Report for the 2007 Air Quality Management Plan, SCH#2006111064, June 2007.

III. c) The anticipated SOx emission reductions that would result from implementing the proposed project are expected to improve the overall air quality in the Basin by enhancing the probability of attaining and maintaining state and federal ambient air quality standards for PM10 and PM2.5. However, the secondary construction and operation impacts associated with reducing SOx have the potential for creating significant adverse cumulative air quality impacts that will be evaluated in the Draft EA. In addition, operational activities associated with the proposed project also have the potential to increase emissions of greenhouse gases (GHGs); these potential increases will be evaluated in the Draft EA as part of the cumulative impacts discussion.

III. d) Emission sources associated with the construction-related activities as a result of implementing the proposed project may temporarily emit toxic air contaminants (TACs). Further, emissions sources associated with the operational-related activities as a result of implementing the proposed project may emit TACs. The impact of these emissions on sensitive populations, including individuals at hospitals, nursing facilities, daycare centers, schools, and elderly intensive care facilities, as well as residential and off-site occupational areas, will be evaluated in the Draft EA.

III. e) The proposed project is not expected to create significant adverse objectionable odors, either during construction or during operations. Sulfur compounds such as hydrogen sulfide, sulfur dioxide, sulfur trioxide, and sulfuric acid are the primary sources of odors from existing operations throughout the 12 affected SOx RECLAIM facilities. However, the objective of the proposed project is to implement BARCT which is expected to result in the installation of SOx controls and the reduction of sulfur-laden compounds that could otherwise generate odors. In other words, the proposed project is expected to reduce odor generation potential, a beneficial result of implementing the proposed project. Therefore, no significant odor impacts are expected from the proposed project.

III. f) The proposed project will be required to comply with all applicable SCAQMD, CARB, and EPA rules and regulations. Thus, the proposed project is not expected to diminish an existing air quality rule or future compliance requirements. Further, adopting and implementing the proposed project enhances existing air pollution control rules that are expected to assist the SCAQMD in its efforts to attain and maintain with a margin of safety the state and federal ambient air quality standards for PM10 and PM2.5.

Based upon these considerations, the air quality impacts associated with increased emissions of criteria air contaminants and GHGs during the construction phase and the increased emissions of GHGs during the operation phase of the proposed project will be evaluated further in the Draft EA.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES. Would the project:			
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☑
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☑
c) Have a substantial adverse effect on federally protected wetlands as defined by §404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☑
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☑
e) Conflicting with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☑
f) Conflict with the provisions of an adopted Habitat Conservation plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☑

Significance Criteria

Impacts on biological resources will be considered significant if any of the following criteria apply:

- The project results in a loss of plant communities or animal habitat considered to be rare, threatened or endangered by federal, state or local agencies.
- The project interferes substantially with the movement of any resident or migratory wildlife species.
- The project adversely affects aquatic communities through construction or operation of the project.

Discussion

IV. a), b), c), & d) The proposed project would only affect units operating at 12 existing facilities located throughout the district. All of the affected units operating at existing facilities are located primarily in industrial areas, which have already been greatly disturbed. These areas currently do not support riparian habitat, federally protected wetlands, or migratory corridors. Additionally, special status plants, animals, or natural communities are not expected to be found within close proximity to the affected facilities. Therefore, the proposed project would have no direct or indirect impacts that could adversely affect plant or animal species or the habitats on which they rely in the SCAQMD's jurisdiction. The current and expected future land use development to accommodate population growth is primarily due to economic considerations or local government planning decisions. A conclusion in the Program Environmental Impact Report (EIR) for the 2007 AQMP was that population growth in the region would have greater adverse effects on plant species and wildlife dispersal or migration corridors in the basin than SCAQMD regulatory activities, (e.g., air quality control measures or regulations). The current and expected future land use development to accommodate population growth is primarily due to economic considerations or local government planning decisions.

IV. e) & f) The proposed project is not envisioned to conflict with local policies or ordinances protecting biological resources or local, regional, or state conservation plans. Land use and other planning considerations are determined by local governments and no land use or planning requirements will be altered by the proposed project. Additionally, the proposed project will not conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or any other relevant habitat conservation plan, and would not create divisions in any existing communities because all activities associated with complying with the proposed project will occur at existing industrial facilities.

Based upon these considerations, significant biological resource impacts are not expected from the implementation of the proposed project and will not be further analyzed in the Draft EA.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
V.	**CULTURAL RESOURCES.** Would the project:			
a)	Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☑
b)	Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?	☐	☐	☑
c)	Directly or indirectly destroy a unique paleontological resource, site, or feature?	☐	☐	☑
d)	Disturb any human remains, including those interred outside a formal cemeteries?	☐	☐	☑

Significance Criteria
Impacts to cultural resources will be considered significant if:
- The project results in the disturbance of a significant prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group.
- Unique paleontological resources are present that could be disturbed by construction of the proposed project.
- The project would disturb human remains.

Discussion
V. a) There are existing laws in place that are designed to protect and mitigate potential impacts to cultural resources. Since construction-related activities associated with the implementation of the proposed project are expected to be confined within the existing footprint of the 12 affected facilities, no impacts to historical resources are expected to occur as a result of implementing the proposed project.

V. b), c), & d) Installing or modifying add-on controls and other associated equipment to comply with the proposed project will require disturbance of previously disturbed areas at 12 existing industrial facilities. However, since construction-related activities are expected to be confined within the existing footprint of these affected facilities, the proposed project is not expected to require physical changes to the environment, which may disturb paleontological or archaeological resources. Furthermore, it is envisioned that these areas are already either devoid of significant cultural resources or whose cultural resources have been previously disturbed. Therefore, the proposed project has no potential to cause a substantial adverse change to a historical or archaeological resource, directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, or disturb any human remains, including those interred outside a formal cemeteries. The proposed project is, therefore, not anticipated to result in any activities or promote any programs that could have a significant adverse impact on cultural resources in the district.

Based upon these considerations, significant cultural resources impacts are not expected from the implementation of the proposed project and will not be further analyzed in the Draft EA.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
VI.	**ENERGY.** Would the project:			
a)	Conflict with adopted energy conservation plans?	☐	☐	☑
b)	Result in the need for new or substantially altered power or natural gas utility systems?	☑	☐	☐
c)	Create any significant effects on local or regional energy supplies and on requirements for additional energy?	☑	☐	☐

		Potentially Significant Impact	Less Than Significant Impact	No Impact
d)	Create any significant effects on peak and base period demands for electricity and other forms of energy?	☑	☐	☐
e)	Comply with existing energy standards?	☐	☐	☑

Significance Criteria

Impacts to energy and mineral resources will be considered significant if any of the following criteria are met:

- The project conflicts with adopted energy conservation plans or standards.
- The project results in substantial depletion of existing energy resource supplies.
- An increase in demand for utilities impacts the current capacities of the electric and natural gas utilities.
- The project uses non-renewable resources in a wasteful and/or inefficient manner.

Discussion

The proposed project would reduce emissions of SOx from various stationary sources at 12 affected facilities. The expected options for compliance are either installing or modifying air pollution control equipment appropriate to the type of process unit. Further, it is expected that the installation and operation of any equipment used to comply with the proposed project will also comply with all applicable existing energy standards.

VI. a) & e) The proposed project is not subject to any existing energy conservation plans. If a facility that is subject to Regulation XX and the proposed project is also subject to energy conservation plans, it is not expected that the proposed project will affect in any way or interfere with that facility's ability to comply with its energy conservation plan or energy standards. Further, project construction and operation activities will not utilize non-renewable energy resources in a wasteful or inefficient manner.

VI. b), c) & d. Installation or modification of air pollution control equipment to comply with the proposed project is expected to increase demand for energy used for operating the primary equipment as well as support equipment such as pumps, fans, controllers, et cetera.

Any additional electricity required is typically either supplied by each affected facility's cogeneration units, for those that have them, or by the local electrical utility, as appropriate. It is possible that some facilities may need new or substantially altered power utility systems to be built to accommodate any additional electricity demands created by the proposed project. In some cases, an increase in natural gas use is also expected for operations subject to the proposed project.

Based upon these considerations, significant adverse impacts to energy are expected from implementation of the proposed project and will be evaluated further in the Draft EA.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
VII.	**GEOLOGY AND SOILS.** Would the project:			
a)	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:			
	• Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	☑
	• Strong seismic ground shaking?	☐	☐	☑
	• Seismic–related ground failure, including liquefaction?	☐	☐	☑
	• Landslides?	☐	☐	☑
b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☑
c)	Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☑
d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☑
e)	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☑

Significance Criteria

Impacts on the geological environment will be considered significant if any of the following criteria apply:

- Topographic alterations would result in significant changes, disruptions, displacement, excavation, compaction or over covering of large amounts of soil.
- Unique geological resources (paleontological resources or unique outcrops) are present that could be disturbed by the construction of the proposed project.
- Exposure of people or structures to major geologic hazards such as earthquake surface rupture, ground shaking, liquefaction or landslides.
- Secondary seismic effects could occur which could damage facility structures, e.g., liquefaction.

- Other geological hazards exist which could adversely affect the facility, e.g., landslides, mudslides.

Discussion

VII. a) Since the proposed project would result in construction activities at 12 industrial settings to install or modify SOx control equipment, little site preparation is anticipated that could adversely affect geophysical conditions in the jurisdiction of the SCAQMD. Southern California is an area of known seismic activity. Accordingly, the installation of add-on controls at existing affected facilities to comply with the proposed project is expected to conform to the Uniform Building Code and all other applicable state and local building codes. As part of the issuance of building permits, local jurisdictions are responsible for assuring that the Uniform Building Code is adhered to and can conduct inspections to ensure compliance. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represents the foundation condition at the site. The Uniform Building Code requirements also consider liquefaction potential and establish stringent requirements for building foundations in areas potentially subject to liquefaction. Thus, the proposed project would not alter the exposure of people or property to geological hazards such as earthquakes, landslides, mudslides, ground failure, or other natural hazards. As a result, substantial exposure of people or structures to the risk of loss, injury, or death involving the rupture of an earthquake fault, seismic ground shaking, ground failure or landslides is not anticipated and will not be further analyzed in the Draft EA.

VII. b) Since add-on controls will likely be installed at existing facilities, during construction of the proposed project, a slight possibility exists for temporary erosion resulting from excavating and grading activities, if required. These activities are expected to be minor since the existing facilities are generally flat and have previously been graded. Further, wind erosion is not expected to occur to any appreciable extent, because operators at dust generating sites would be required to comply with the best available control measure (BACM) requirements of SCAQMD Rule 403 – Fugitive Dust. In general, operators must control fugitive dust through a number of soil stabilizing measures such as watering the site, using chemical soil stabilizers, revegetating inactive sites, etc. The proposed project involves the installation or modification of add-on control equipment at 12 existing facilities, so that grading could be required to provide stable foundations. Potential air quality impacts related to grading are addressed elsewhere in this Initial Study (as part of construction air quality impacts). No unstable earth conditions or changes in geologic substructures are expected to result from implementing the proposed project.

VII. c) Since the proposed project will affect existing facilities, it is expected that the soil types present at the affected facilities will not be further susceptible to expansion or liquefaction. Furthermore, subsidence is not anticipated to be a problem since only minor excavation, grading, or filling activities are expected occur at affected facilities. Additionally, the affected areas are not envisioned to be prone to new landslide impacts or have unique geologic features since the affected equipment units are located at existing facilities in industrial areas.

VII. d) & e) Since the proposed project will affect equipment units at existing facilities located in industrial zones, it is expected that people or property will not be exposed to new impacts related to expansive soils or soils incapable of supporting water disposal. Further, typically each affected facility has some degree of existing wastewater treatment systems that will continue to

be used and are expected to be unaffected by the proposed project. Sewer systems are available to handle wastewater produced and treated by each affected facility. Each existing facility affected by the proposed project does not require installation of septic tanks or alternative wastewater disposal systems. As a result, the proposed project will not require facility operators to utilize septic systems or alternative wastewater disposal systems. Thus, implementation of the proposed project will not adversely affect soils associated with a septic system or alternative wastewater disposal system.

Based upon these considerations, significant geology and soils impacts are not expected from the implementation of the proposed project and will not be further analyzed in the Draft EA.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
VIII.	**HAZARDS AND HAZARDOUS MATERIALS.** Would the project:			
a)	Create a significant hazard to the public or the environment through the routine transport, use, and disposal of hazardous materials?	☑	☐	☐
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset conditions involving the release of hazardous materials into the environment?	☑	☐	☐
c)	Emit hazardous emissions, or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☑	☐	☐
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would create a significant hazard to the public or the environment?	☑	☐	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☑	☐
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☑	☐
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☑

		Potentially Significant Impact	Less Than Significant Impact	No Impact
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☑
i)	Significantly increased fire hazard in areas with flammable materials?	☐	☐	☑

Significance Criteria

Impacts associated with hazards will be considered significant if any of the following occur:

- Non-compliance with any applicable design code or regulation.
- Non-conformance to National Fire Protection Association standards.
- Non-conformance to regulations or generally accepted industry practices related to operating policy and procedures concerning the design, construction, security, leak detection, spill containment or fire protection.
- Exposure to hazardous chemicals in concentrations equal to or greater than the Emergency Response Planning Guideline (ERPG) 2 levels.

Discussion

VIII. a) & b) New or modified air pollution control equipment and related components are expected to be installed at most of the 12 affected facilities such that their operations may increase the quantity of hazardous materials (e.g., catalysts, scrubbing agents) used by the control equipment. In addition, the shipping, handling, storing, and disposing of hazardous materials inherently poses a certain risk of a release to the environment. Thus, the routine transport of hazardous materials, use, and disposal of hazardous materials may increase as a result of implementing the proposed project. Further, if the control option chosen by each affected facility operator is a wet gas scrubber, the proposed project may alter the transportation modes for catalyst and scrubbing agent feedstock and any other associated chemicals to/from the existing facilities.

For these reasons, implementation of the proposed project may alter the hazards associated with the existing affected facilities. At many of the affected facilities, a number of hazardous materials are currently in use. In general, the major types of public safety risks that need to be evaluated consist of impacts resulting from toxic substance releases, fires, and explosions.

Therefore, potential hazards impacts as a result of implementing the proposed project are potentially significant and will be addressed in the Draft EA.

VIII. c) Some affected facilities may be located within one-quarter mile of a sensitive receptor (e.g., a day care center). Therefore, a potential for significant impacts from hazardous emissions or the handling of acutely hazardous materials, substances and wastes near sensitive-receptors may occur and will be addressed in the Draft EA.

VIII. d) Government Code §65962.5 refers to hazardous waste handling practices at facilities subject to the Resources Conservation and Recovery Act (RCRA). Construction activities associated with implementing the proposed project will occur within the confines of the existing affected facilities. Some of the affected facilities may be included on the list of the hazardous materials sites compiled pursuant to Government Code §65962.5. Hazardous wastes from these existing facilities are managed in accordance with applicable federal, state, and local rules and regulations. The types of additional waste expected to be generated from implementing the proposed project will consist primarily of additional catalyst used by the new SOx control devices. For those affected facilities which already use catalyst for other operational activities on-site, the additional collected spent catalyst will continue to be handled in the same manner as currently handled such that it will be disposed and/or recycled at approved facilities. Further, if any of other affected facilities are new to handling catalyst waste, the same disposal/recycling procedures are expected to be followed. Accordingly, significant hazards impacts from the disposal and/or recycling of hazardous materials are not expected and will not be further analyzed in the Draft EA.

Construction activities at the affected facilities that may occur as part of implementation of the proposed project may require grading, excavating, and trenching which could potentially uncover contaminated soils. In the event that any excavated soils contain concentrations of certain substances, including heavy metals and hydrocarbons, the handling, processing, transportation and disposal of the contaminated soils will be subject to multiple hazardous waste regulations such as Title 22 of the California Code of Regulations and other local and federal rules. Title 22 has multiple requirements for hazardous waste handling, transport and disposal, such as requirements to used approved disposal and treatment facilities, to use certified hazardous waste transporters, and to have manifests for tracking the hazardous materials. If contaminated soils are encountered during grading, excavating, and trenching, the soils would need to be removed for proper decontamination and disposal in accordance with SCAQMD Rule 1166 – Volatile Organic Compound Emissions From Decontamination of Soil. Therefore, impacts related to soil contamination will be addressed in the Draft EA.

VIII. e) & f) Construction activities from implementing the proposed project are expected to occur within the existing confines of the affected facilities. However, some of these facilities may be located within two miles of an airport (either public or private) and are located within an airport land use plan. Nonetheless, the installation of the SOx control devices is expected to be constructed according to the all appropriate building, land use and fire codes and operated at a low enough height relative to existing flight patterns so that the structure would not interfere with plane flight paths consistent with Federal Aviation Regulation, Part 77. Such codes are designed to protect the public from hazards associated with normal operation. Therefore, the proposed project is not expected to result in a safety hazard for people residing or working in the area of the affected facilities even within the vicinity of an airport and as such, will not be further analyzed in the Draft EA.

VIII. g) Emergency response plans are typically prepared in coordination with the local city or county emergency plans to ensure the safety of not only the public (surrounding local communities), but the facility employees as well. The proposed project would not impair implementation of, or physically interfere with any adopted emergency response plan or emergency evacuation plan. The existing industrial facilities affected by the proposed project would typically already have their own emergency response plans in place. However, for those

operators of affected facilities who elect to install SOx control technology may need to update their emergency response plan. Thus, the proposed project is not expected to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan and as such, will not be further analyzed in the Draft EA.

VIII. h) & i) The Uniform Fire Code and Uniform Building Code set standards intended to minimize risks from flammable or otherwise hazardous materials. Local jurisdictions are required to adopt the uniform codes or comparable regulations. Local fire agencies require permits for the use or storage of hazardous materials and permit modifications for proposed increases in their use. Permit conditions depend on the type and quantity of the hazardous materials at the facility. Permit conditions may include, but are not limited to, specifications for sprinkler systems, electrical systems, ventilation, and containment. The fire departments make annual business inspections to ensure compliance with permit conditions and other appropriate regulations. Further, businesses are required to report increases in the storage or use of flammable and otherwise hazardous materials to local fire departments. Local fire departments ensure that adequate permit conditions are in place to protect against potential risk of upset.

The proposed project is not expected to increase the existing risk of fire hazards in areas with flammable brush, grass, or trees. Additional natural gas may be used during both construction and operation of the proposed project. Natural gas is currently used at all of the affected facilities. The hazards associated with natural gas would result in a torch fire in the event that a release occurred and caught fire. Because of the locations of each facility that would be affected by the proposed project, a torch fire would be expected to remain on-site so that there would be no public exposure to the fire hazards. No substantial or native vegetation typically exists on or near the affected facilities (specifically because they could be a fire hazard) so the proposed project is not expected to expose people or structures to wild fires. Therefore, no significant increase in fire hazards are expected any of the affected facilities associated with implementing the proposed project.

Based on these considerations, the potential hazards impacts related to the construction and operations at each affected facility and the transport of hazardous materials associated with the proposed project will be addressed in the Draft EA.

	Potentially Significant Impact	**Less Than Significant Impact**	**No Impact**
IX. HYDROLOGY AND WATER QUALITY. Would the project:			
a) Violate any water quality standards or waste discharge requirements?	☑	☐	☐

		Potentially Significant Impact	Less Than Significant Impact	No Impact
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☑	☐
c)	Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☑	☐
d)	Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☑	☐
e)	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☑	☐
f)	Otherwise substantially degrade water quality?	☑	☐	☐
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☑
h)	Place within a 100-year flood hazard area structures which would impede or redirect flood flaws?	☐	☐	☑
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☑
j)	Inundation by seiche, tsunami, or mudflow?	☐	☐	☑

		Potentially Significant Impact	Less Than Significant Impact	No Impact
k)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☑	☐	☐
l)	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☑	☐	☐
m)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☑	☐
n)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☑	☐	☐
o)	Require in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☑	☐	☐

Significance Criteria

Potential impacts on water resources will be considered significant if any of the following criteria apply:

Water Quality:

- The project will cause degradation or depletion of ground water resources substantially affecting current or future uses.
- The project will cause the degradation of surface water substantially affecting current or future uses.
- The project will result in a violation of National Pollutant Discharge Elimination System (NPDES) permit requirements.
- The capacities of existing or proposed wastewater treatment facilities and the sanitary sewer system are not sufficient to meet the needs of the project.
- The project results in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.
- The project results in alterations to the course or flow of floodwaters.

Water Demand:

- The existing water supply does not have the capacity to meet the increased demands of the project, or the project would use a substantial amount of potable water.
- The project increases demand for water by more than five million gallons per day.

Discussion

IX. a), f), k), l) & o) Operators of facilities affected by the proposed project are expected to install new air pollution control equipment, such as wet gas scrubbers, to reduce SOx emissions. Operational activities associated with wet gas scrubbers will increase the demand for water and subsequently, will increase the amount wastewater discharged at each affected facility. In addition, construction activities associated with the proposed project may require the use of water as a dust suppressant, if grading is required. The impacts of the proposed project on each affected facility's wastewater discharge and the Industrial Wastewater Discharge Permit are expected to be potentially significant. Thus, the potential impact of the increase in water demand and wastewater discharge will be evaluated in the Draft EA.

IX. b) Implementation of the proposed project is not expected to significantly adversely affect the quantity or quality of groundwater in the area of each affected facility. No significant adverse impacts are expected to ground water quality from the proposed project because: 1) wastewater will continue to be collected and treated in each of the affected facility's wastewater treatment systems or in compliance with the current wastewater discharge permits, as applicable; 2) no underground storage tanks are expected to be constructed as part of the proposed project; 3) containment berms will be required or may already exist around any new or modified units to minimize the potential for a spill to contaminate soil and groundwater; and, 4) any new storage tanks that may be proposed will be required to comply with BACT and other safety requirements such as double bottom and monitoring requirements.

IX. c), d), e) & m) Changes to each affected facility's storm water collection systems are expected to be less than significant since most of the changes associated with the proposed project will occur within existing units (i.e., by installing SOx control equipment). Further, typically most of the areas likely to be affected by the proposed project are currently paved and are expected to remain paved. Any new units constructed will be curbed and the existing units will remain curbed to contain any runoff. Any runoff occurring will continue to be handled by each affected facility's wastewater system and sent to an on-site wastewater treatment system prior to discharge. The surface water runoff is expected to be handled with each facility's current wastewater treatment system. Storm water runoff will be collected and discharged in accordance with each facility's discharge permit terms and conditions. Storm water Pollution Prevention Plans may need to be updated, as necessary to reflect operational modifications and included additional Best Management Practices, if required. Therefore, less than significant storm water quality impacts are expected to result from the operation of the proposed project.

IX. g), h), & i) The proposed project is expected to involve construction and modification activities located within the confines of existing facilities and does not include the construction of any new housing so it would not place new housing within a 100-year flood hazard area. It is likely that most affected facilities are not located within a 100-year flood hazard area. Any affected facilities that may be located in a 100-year flood area could impede or redirect 100-year flood flows, but this would be considered part of the existing setting and not an effect of the proposed project. Since the proposed project would not require locating new facilities within a flood zone, it is not expected that implementation of the proposed project would expose people or property to any known water-related flood hazards.

IX. j) The proposed project does not require construction of new facilities in areas that could be affected by tsunamis. Of the facilities affected by the proposed project, some are located near the Ports of Long Beach, Los Angeles, and San Pedro. The port areas are protected from tsunamis by the construction of breakwaters. Construction of breakwaters combined with the distance of each facility from the water is expected to minimize the potential impacts of a tsunami or seiche so that no significant impacts are expected. The proposed project does not require construction of facilities in areas that are susceptible to mudflows (e.g., hillside or slope areas). Existing affected facilities that are currently located on hillsides or slope areas may be susceptible to mudflow, but this would be considered part of the existing setting. As a result, the proposed project is not expected to generate significant adverse mudflow impacts.

IX. n) Each affected facility may not have sufficient water supplies available for implementing the proposed project since the type of air pollution control equipment that would be installed at the affected facilities (e.g., wet gas scrubbers) heavily rely on water as part of the control process. Also, limited water demand increases may occur for dust suppression during site preparation/grading activities. Thus, the need for new or expanded water supply entitlements may be necessary. While it is not possible to predict water availability in the future, existing entitlements and resources in the district are currently at drought levels. Thus, the water demand that would result from implementing the proposed project may result in significant adverse water impacts.

Based upon these considerations, the potential hydrology and water quality impacts, especially those associated with wastewater discharge and water demand are expected to be significant and will be evaluated in the Draft EA.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
X.	**LAND USE AND PLANNING.** Would the project:			
a)	Physically divide an established community?	☐	☐	☑
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☑
c)	Conflict with any applicable habitat conservation or natural community conservation plan?	☐	☐	☑

Significance Criteria
Land use and planning impacts will be considered significant if the project conflicts with the land use and zoning designations established by local jurisdictions.

Discussion

X. a) The proposed project does not require the construction of new facilities, but any physical effects that will result from the proposed project, will occur at existing industrial facilities. Thus, implementing the proposed project will not result in physically dividing any established communities.

X. b) & c) There are no provisions in the proposed project that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments and no land use or planning requirements will be altered by the proposed project. Further, the proposed project would be consistent with the typical industrial zoning of the affected facilities. Typically, all proposed construction activities are expected to occur within the confines of the existing facilities. The proposed project would not affect in any way habitat conservation or natural community conservation plans, agricultural resources or operations, and would not create divisions in any existing communities. Further, no new development or alterations to existing land designations will occur as a result of the implementation of the proposed project. Therefore, present or planned land uses in the region will not be affected as a result of implementing the proposed project.

Based upon these considerations, significant land use planning impacts are not expected from the implementation of the proposed project, and thus, will not be further analyzed in the Draft EA.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XI. MINERAL RESOURCES. Would the project:			
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☑
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☑

Significance Criteria

Project-related impacts on mineral resources will be considered significant if any of the following conditions are met:

- The project would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.
- The proposed project results in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Discussion

XI. a) & b) There are no provisions in the proposed project that would result in the loss of availability of a known mineral resource of value to the region and the residents of the state such

as aggregate, coal, clay, shale, et cetera, or of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Based upon these considerations, significant mineral resource impacts are not expected from the implementation of the proposed project, and thus, will not be further analyzed in the Draft EA.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
XII.	**NOISE.** Would the project result in:			
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☑	☐
b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☑	☐
c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☑	☐
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☑	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☑	☐
f)	For a project within the vicinity of a private airship, would the project expose people residing or working in the project area to excessive noise levels?	☐	☑	☐

Significance Criteria

Impacts on noise will be considered significant if:

- Construction noise levels exceed the local noise ordinances or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three decibels (dBA) at the site boundary. Construction noise levels will be considered significant if they exceed federal Occupational Safety and Health Administration (OSHA) noise standards for workers.

- The proposed project operational noise levels exceed any of the local noise ordinances at the site boundary or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three dBA at the site boundary.

Discussion

XII. a), b), c), & d) Modifications or changes associated with the implementation of the proposed project will take place at existing facilities that are located in industrial settings. The existing noise environment at each of the affected facilities is typically dominated by noise from existing equipment onsite, vehicular traffic around the facilities, and trucks entering and exiting facility premises. Construction activities associated with implementing the proposed project may generate some noise associated with the use of construction equipment and construction-related traffic. However, noise from the proposed project is not expected to produce noise in excess of current operations at each of the existing facilities. If SOx control devices are installed, the operations phase of the proposed project may add new sources of noise to each affected facility. However, it is expected that each facility affected will comply with all existing noise control laws or ordinances. Further, Occupational Safety and Health Administration (OSHA) and California-OSHA (Cal/OSHA) have established noise standards to protect worker health. These potential noise increases are expected within the allowable noise levels established by the local noise ordinances for industrial areas, and thus are expected to be less than significant. Therefore, potential noise impacts will not be further evaluated in the Draft EA.

XII. e) & f) Though some of the facilities affected by the proposed project are located at sites within an airport land use plan, or within two miles of a public airport, the addition of SOx control equipment would not expose people residing or working in the project area to the same degree of excessive noise levels associated with airplanes. All noise producing equipment must comply with local noise ordinances and applicable OSHA or Cal/OSHA workplace noise reduction requirements.

Based upon these considerations, significant noise impacts are not expected from the implementation of the proposed project and will not be further analyzed in the Draft EA.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XIII. POPULATION AND HOUSING. Would the project:			
a) Induce substantial growth in an area either directly (for example, by proposing new homes and businesses) or indirectly (e.g. through extension of roads or other infrastructure)?	☐	☐	☑
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☑

		Potentially Significant Impact	Less Than Significant Impact	No Impact
c)	Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☑

Significance Criteria

Impacts of the proposed project on population and housing will be considered significant if the following criteria are exceeded:

- The demand for temporary or permanent housing exceeds the existing supply.
- The proposed project produces additional population, housing or employment inconsistent with adopted plans either in terms of overall amount or location.

Discussion

XIII. a) The construction activities associated with the proposed project at each affected facility are not expected to involve the relocation of individuals, require new housing or commercial facilities, or change the distribution of the population. The reason for this conclusion is that operators of affected facilities who need to perform any construction activities to comply with the proposed project can draw from the existing labor pool in the local southern California area. Further, it is not expected that the installation of the SOx control equipment will require new employees during operation of the equipment. In the event that new employees are hired, it is expected that the number of new employees at any one facility would be small. Human population within the jurisdiction of the SCAQMD is anticipated to grow regardless of implementing the proposed project. As a result, the proposed project is not anticipated to generate any significant adverse effects, either direct or indirect, on population growth in the district or population distribution.

XIII. b) & c) Because the proposed project includes modifications and/or changes at existing facilities located in industrial settings, the proposed project is not expected to result in the creation of any industry that would affect population growth, directly or indirectly induce the construction of single- or multiple-family units, or require the displacement of people or housing elsewhere in the district.

Based upon these considerations, significant population and housing impacts are not expected from the implementation of the proposed project and will not be further evaluated in the Draft EA.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES. Would the proposal result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:			
a) Fire protection?	☐	☐	☑
b) Police protection?	☐	☐	☑
c) Schools?	☐	☐	☑
d) Parks?	☐	☐	☑
e) Other public facilities?	☐	☐	☑

Significance Criteria
Impacts on public services will be considered significant if the project results in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response time or other performance objectives.

Discussion
XIV. a) & b) Implementation of the proposed project is expected to cause facility operators to install SOx control devices, all the while continuing current operations at existing affected facilities. The proposed project may result in a greater demand for catalyst and scrubbing agents, which will need to be transported to the affected facilities that install SOx controls and stored onsite prior to use. In the event of an accidental release, fire departments are typically first responders for control and clean-up and police may be need to be available to maintain perimeter boundaries. Based on the low probability of accidental releases of catalysts and scrubbing agents occurring, the proposed project is not expected to increase the need or demand for additional public services (e.g., fire departments, police departments, schools, parks, government, et cetera) above current levels.

XIV. c) & d) As noted in the previous "Population and Housing" discussion, the proposed project is not expected to induce population growth in any way because the local labor pool (e.g., workforce) is expected to be sufficient to accommodate any construction activities that may be necessary at affected facilities and operation of new SOx control equipment is not expected to require additional employees. Therefore, there will be no increase in local population and thus no impacts are expected to local schools or parks.

XIV. e) The proposed project is expected to result in the use of new or modified add-on control equipment for SOx control. Besides permitting the equipment or altering permit conditions by the SCAQMD, there is no need for other types of government services. The proposed project would not result in the need for new or physically altered government facilities in order to maintain acceptable service ratios, response times, or other performance objectives. There will be no increase in population and, therefore, no need for physically altered government facilities.

Based upon these considerations, significant public services impacts are not expected from the implementation of the proposed project and will not be further evaluated in the Draft EA.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XV. RECREATION.			
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☑
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☑

Significance Criteria

Impacts to recreation will be considered significant if:

- The project results in an increased demand for neighborhood or regional parks or other recreational facilities.
- The project adversely affects existing recreational opportunities.

Discussion

XV. a) & b) As discussed previously under "Land Use," there are no provisions in the proposed project that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments; no land use or planning requirements will be altered by the proposed project. Further, the proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities or include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment because the proposed project is not expected to induce population growth.

Based upon these considerations, significant public services impacts are not expected from the implementation of the proposed project and will not be further evaluated in the Draft EA.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XVI. SOLID/HAZARDOUS WASTE. Would the project:			
a) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☑	☐
b) Comply with federal, state, and local statutes and regulations related to solid and hazardous waste?	☐	☑	☐

Significance Criteria

The proposed project impacts on solid/hazardous waste will be considered significant if the following occurs:

- The generation and disposal of hazardous and non-hazardous waste exceeds the capacity of designated landfills.

Discussion

XVI. a) Construction activities associated with installing SOx control equipment such as wet gas scrubbers, demolition and site preparation/grading/excavating could generate solid waste as result of implementing the proposed project. Demolition activities could generate demolition waste while site preparation, grading, and excavating could uncover contaminated soils since the facilities affected by the proposed project are located in existing industrial areas. Excavated soil, which may be contaminated, will need to be characterized, treated, and disposed of offsite in accordance with applicable regulations. Where appropriate, the soil will be recycled if it is considered or classified as non-hazardous waste or it can be disposed of at a landfill that accepts non-hazardous waste. Otherwise, the material will need to be disposed of at a hazardous waste facility. (Potential soil contamination is addressed in the Hazards/Hazardous Materials discussion in Section VIII. d.)

Solid or hazardous wastes generated from construction-related activities would consist primarily of materials from the demolition of existing air pollution control equipment and construction associated with new air pollution control equipment. Construction-related waste would be disposed of at a Class II (industrial) or Class III (municipal) landfill. There are 48 Class II/Class III landfills within the SCAQMD's jurisdiction. The estimated total capacity of these landfills is approximately 111,198 tons per day (SCAQMD, 2000). For these reasons, the construction impacts of the proposed project on waste treatment/disposal facilities are expected to be less than significant.

During operation of the SOx control equipment, the use of catalyst is expected to increase but the generation of catalyst fines is expected to be captured by the control equipment as wet solids. These wet catalyst solids can be collected for recycling for use in manufacturing cement. Therefore, less than significant adverse impacts to non-hazardous waste disposal facilities are expected from operational activities associated with the proposed project.

It is possible that some, if not all, of the affected facilities will address any increase in waste through their existing waste minimization plans. In addition, other affected facilities that have

existing catalyst-based operations currently regenerate, reclaim or recycle the catalysts, in lieu of disposal. Moreover, due to the heavy metal content and its relatively high cost, catalyst recycling can be a lucrative choice. Depending on operating conditions, it is expected that spent catalysts would be reclaimed and recycled, though it is possible that spent catalysts could be disposed of. The composition of the catalyst will determine in which type of landfill a catalyst would be disposed.

Based on the preceding discussion, it is likely that spent catalysts would be considered a "designated waste," which is characterized as a non-hazardous waste consisting of, or containing pollutants that, under ambient environmental conditions, could be released at concentrations in excess of applicable water objectives, or which could cause degradation of the waters of the state (California Code of Regulations, Title 23, Chapter 3 Subparagraph 2522(a)(1)). Depending on its actual waste designation, spent catalysts would likely be disposed of in a Class II landfill or a Class III landfill that is fitted with liners. According to the Program EIR for the 2007 AQMP (SCAQMD, 2007), total Class III landfill waste disposal capacity in the district is approximately 97,269 tons per day, many of which have liners and can handle Class II and Class III wastes.

Disposal of spent catalyst would typically involve crushing the material and encasing it in concrete prior to disposal. Since it is expected that most spent catalysts will be recycled and regenerated, it is anticipated that there will be sufficient landfill capacity in the district to accommodate disposal of any spent catalyst materials. Thus, the potential increase of solid waste generated by the air pollution control equipment operated at the 12 affected facilities that are expected to install SOx control equipment as a result implementing the proposed project may not necessarily be disposed of and, therefore, is not expected to exceed the capacity of designated landfills available to each affected facility.

XVI. b) Implementing the proposed project is not expected to hinder in any way any affected facility's ability to comply with existing federal, state, and local regulations related to solid and hazardous wastes.

Based upon these considerations, significant solid/hazardous waste impacts are not expected from the implementation of the proposed project and will not be further evaluated in the Draft EA.

	Potentially Significant Impact	**Less Than Significant Impact**	**No Impact**
XVII. TRANSPORTATION/TRAFFIC. Would the project:			
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☑	☐	☐

		Potentially Significant Impact	Less Than Significant Impact	No Impact
b)	Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☑	☐	☐
c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☑	☐
d)	Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☑
e)	Result in inadequate emergency access?	☐	☑	☐
f)	Result in inadequate parking capacity?	☐	☑	☐
g)	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks)?	☐	☑	☐

Significance Criteria

Impacts on transportation/traffic will be considered significant if any of the following criteria apply:

- Peak period levels on major arterials are disrupted to a point where level of service (LOS) is reduced to D, E or F for more than one month.
- An intersection's volume to capacity ratio increase by 0.02 (two percent) or more when the LOS is already D, E or F.
- A major roadway is closed to all through traffic, and no alternate route is available.
- There is an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system.
- The demand for parking facilities is substantially increased.
- Water borne, rail car or air traffic is substantially altered.
- Traffic hazards to motor vehicles, bicyclists or pedestrians are substantially increased.
- The need for more than 350 employees
- An increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round trips per day
- Increase customer traffic by more than 700 visits per day.

Discussion

XVII. a) & b) Construction activities resulting from implementing the proposed project may generate a temporary increase in traffic in the areas of each affected facility associated with construction workers, construction equipment, and the delivery of construction materials. Also, the proposed project may exceed, either individually or cumulatively, the current level of service of the areas surrounding the affected facilities. The impacts of the traffic load and capacity of the street system during construction will be analyzed in the Draft EA.

The work force at each affected facility is not expected to significantly increase during operations of the proposed project operations because few, if any, new employees are expected to be needed to operate potential SOx control equipment. As a result, operation-related traffic is expected to be limited more towards supply deliveries, but less than significant. Thus, the operational traffic impacts will not be evaluated further in the Draft EA.

XVII. c) Though some of the facilities that will be affected by the proposed project are located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, actions that would be taken to comply with the proposed project, such as installing SOx control equipment, are not expected to significantly influence or affect air traffic patterns. Further, the size and type of air pollution control devices that would be installed would not be expected to affect navigable air space. Thus, the proposed project would not result in a change in air traffic patterns including an increase in traffic levels or a change in location that results in substantial safety risks.

XVII. d) & e) The siting of each affected facility is consistent with surrounding land uses and traffic/circulation in the surrounding areas of the affected facilities. Thus, the proposed project is not expected to substantially increase traffic hazards or create incompatible uses at or adjacent to the affected facilities. Aside from the temporary effects due to a slight increase in truck traffic for those facilities that will undergo construction activities during installation of air pollution control equipment, the proposed project is not expected to alter the existing long-term circulation patterns. Further, the proposed project is not expected to require a modification to circulation, thus, no long-term impacts on the traffic circulation system are expected to occur. The proposed project is not expected to involve the construction of any roadways, so there would be no increase in roadway design feature that could increase traffic hazards. Emergency access at each affected facility is not expected to be impacted by the proposed project. Further, each affected facility is expected to continue to maintain their existing emergency access gates.

XVII. f) Each affected facility will be required to provide parking for the construction workers, as applicable, either on or within close proximity to each facility. No additional parking will be needed after completion of the construction phase because the work force at each facility is not expected to significantly increase as a result of implementing the proposed project.

XVII. g) Construction and operation activities resulting from implementing the proposed project are not expected to conflict with policies supporting alternative transportation since the proposed project does not involve or affect alternative transportation modes (e.g. bicycles or buses) because the construction and operation activities related to the proposed project will occur solely in existing industrial areas.

Based upon these considerations, significant transportation/traffic impacts are not expected from the implementation of the proposed project and will not be further evaluated in the Draft EA.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE.			
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☑
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	☑	☐	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☑	☐	☐

Discussion

XVIII. a) The proposed project is not expected to reduce or eliminate any plant or animal species or destroy prehistoric records of the past. As indicated in the biological resources discussion, each site affected by the proposed project is part of an existing facility, which has been previously graded, such that the proposed project is not expected to extend into environmentally sensitive areas.

XVIII. b) The Environmental Checklist indicates that the proposed project has potentially significant adverse impacts on aesthetics, air quality, energy, hydrology and water quality, hazards and hazardous materials, and transportation/traffic. The potential for cumulative impacts on these resources will be evaluated in the Draft EA.

XVIII. c) Even though the objective of the proposed project is to reduce SOx emissions from the top emitters in the RECLAIM program, the proposed project may result in secondary effects, emissions of regulated air pollutants, toxic air contaminants, GHGs and may also increase the hazards at some of the affected facilities. The potential for these impacts to have adverse impacts on human beings, either directly or indirectly, will be evaluated in the Draft EA.

A P P E N D I X A (of the Initial Study)

P R O P O S E D A M E N D E D R E G U L A T I O N X X:

Proposed Amended Rule 2002

In order to save space and avoid repetition, please refer to the latest version of proposed amended Rule 2002 located elsewhere in Appendix A of the Draft EA. The June 9, 2009 version of the proposed amended rule was circulated with the Notice of Preparation/Initial Study (NOP/IS) that was released on June 19, 2009 for a 30-day public review and comment period ending July 21, 2009.

Original hard copies of the NOP/IS, which include the version of the proposed amended rule listed above, can be obtained through the SCAQMD Public Information Center at the Diamond Bar headquarters or by calling (909) 396-2039.

APPENDIX D

COMMENT LETTERS ON THE NOP/INITIAL STUDY AND RESPONSES TO COMMENTS

Comment Letter #1

Chris Manzanares
Air Regulatory Specialist

Health, Environmental & Safety
Chevron Products Company
324 W. El Segundo Boulevard
El Segundo, CA 90245
Tel 310 615 4083
Fax 310 615 5153
cmanzanares@chevron.com

July 21, 2009

Barbara Radlein
Air Quality Specialist
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4182

Dear Ms. Radlein,

Chevron is pleased to have the opportunity to review and comment on the *Initial Study for Proposed Amended Regulation XX.* Chevron believes that the potential cumulative impact of the recommended SOx control measures is so great that the project should be reviewed in detail. Chevron recommends that the environmental review place significant emphasis on the issues listed below. 1-1

AESTHETICS:

1. The Environmental Assessment (EA) should address to aesthetic impact of multiple moisture plumes rising all over the south bay. Additionally the EA should recognize that there plumes will appear dark at night and cloudy days giving the appearance of massive amounts of emissions being emitted at night. 1-2
2. The EA should analyze cumulative aesthetic impacts from all potential projects resulting from the amendment of Regulation XX. 1-3

AIR QUALITY (AQ)

1. In order to employ some of the recommended technologies, it may be necessary to reheat certain exhaust to properly operate the SOx control equipment. This reheating will resulting additional construction activities and additional green house emissions as a result of fuel combustion for this reheating. These related AQ impacts should also be considered in the EA. 1-4
2. Consistent with point 2 above; all potential projects resulting from the adoption of this regulation should be analyzed together to determine individual and cumulative impacts of all pollutants. 1-5
3. All alternatives to stationary source reductions and mitigation measures must be analyzed for increases in other pollutants as a result of RECLAIM SOX shave. 1-6
4. Due to the above mentioned contributing issues and the complex and over lapping nature of this project, we recommend that the EA include the full PM2.5 and RECLAIM programs in order to capture all potential future projects. 1-7
5. Solid waste transportation from these proposed recommendations will create an ongoing source of vehicle emissions from trucks, including NOx, CO, VOC, TAC, PM and SOx. 1-8

Barbara Radlein
South Coast Air Quality Management District
July 21, 2009
Page 2

ENERGY.

1. The implementation of the recommended emission reduction technologies will impact all regulated facilities and may require significant electrical, natural gas and other infrastructure improvements to accommodate the energy demands of the new equipment. There appears to be a serious deficiency in the analysis of the full energy impacts of these technology recommendations in Part II of the draft Staff Report. 1-9
2. The energy requirements for these recommendations may require the facilities to install new transformer stations to supply the required power, adding to the construction activities. 1-10

HAZARDS AND HAZARDOUS MATERIAL

1. Installation of the proposed measures would result in an increase of hazardous material transported to and stored at the facility, as well as, hazardous waste stored at and transported from the facilities. 1-11
2. The increased transportation of hazardous materials and hazardous wastes greatly increases the risk accidental spills and releases at the facility and on public roadways. 1-12

HYDROLOGY AND WATER QUALITY

1. The third-party consultant reports which the SCAQMD staff has established as the primary resource for technology recommendations and establishing BARCT levels, outlines the tremendous potential water use impacts associated with employment of "gas scrubbing" technologies. It should be noted that these water consumption impacts are associated with all three scrubber technologies, not just the wet-gas scrubbers. 1-13
2. A review of the recommendations of wet gas scrubbers for the FCCUs and SRUs indicates a potential for excessive water usage, with fresh water demand estimated as high as 90 million gallons per year for each scrubber. 1-14
3. Due to the large size of scrubbers involved, it appears that they would represent the top end of the stated ranges – and this is almost certainly true for NWGSs on FCCUs. Thus, the total impact would be a potential new demand for fresh water as high as one billion gallons per year (90 million gallons and 12 installations) 1-15
4. Waste water is estimated at up to 40 million gallons per year for each installation, This increased wastewater load on Publicly Owned Treatment Plants (POTWs) could be as high as 440 million gallons per year (40 million gallons and an assumed eleven systems that would discharge to a POTW). This could result in substantial cost for upgrades at some POTWs. 1-16
5. The EA must consider that one facility would be required to re-open an existing NPDES permit to request an increase in discharge of wastewater flow to the Santa Monica bay, this revision is almost certain to be rejected. 1-17
6. It is expected that this project will increase the levels of sulfite, sulfate, COD, total suspended solids, pH, and DEA at the facility's wastewater treatment plant. Additionally the potential for wastewater to require pre-treatment prior to discharge, may require hazardous treatment permitting and additional construction and spill/contaminations potential due to these activities. 1-18
7. These are dramatic resource consumption and waste figures and these considerations have clearly not been adequately addressed in the District's BARCT recommendations. We strongly suggest 1-19

that the EA conduct a thorough and multi-faceted analysis of all potential multi-media impacts associated with the current technologies employment. 1-19 Cont'd

MANDATORY FINDINGS OF SIGNIFICANCE

1. Overall, implementation of the proposed measures will have significant impact to water and energy demands at the affected facilities. The increased level of hazardous materials being transported over local roads and through neighborhood may greatly increase the risk of accidental release and exposure. 1-20
2. The increased discharge of industrial wastewater may affect a POTW's ability to handle the additional flows and properly treat the water prior to release. 1-21
3. The aesthetic impact of multiple plumes arising from a facility will negatively impact the views and skyline in the adjoining areas. It should be noted that the refineries have multiple sulfur recovery trains that may each require a separate wet gas scrubber resulting in additional plumes. 1-22

Chevron appreciates this opportunity to provide you our perspective and we look forward to developing a comprehensive Environmental Assessment considering all the relevant issues. Should you have any questions please feel free to contact either myself, or Mr. Robert Orinion at (310) 615-4147.

Sincerely,

Chris Manzanares

bcc: Robert Orinion
Jason Donchin
Rod Spackman
Jeff Wilson
John Doyle

Responses to Comment Letter #1
(Chevron, July 21, 2009)

1-1 The CEQA analysis in the PEA will focus on the following environmental topics: aesthetics, air quality, energy, hazards and hazardous materials, hydrology and water quality, and transportation. For any topic that is shown to have significant adverse impacts, a cumulative impacts analysis will also be included in the PEA.

1-2 The Aesthetics discussion in Chapter 4 of the PEA contains an analysis for the installation and operation of 11 wet gas scrubbers (WGSs) with 11 corresponding steam plumes. While it is true that the appearance of the steam plumes from WGSs may vary, depending on atmospheric conditions such as temperature, pressure and humidity as well as time of day, the steam plume is primarily steam (water vapor), not emissions. See also the response to Comment 1-22.

1-3 Because the project-specific aesthetic impacts were shown to not exceed any applicable significance thresholds, they are not considered to be cumulatively considerable pursuant to CEQA Guidelines §15064 (h)(1) and therefore, do not generate significant adverse cumulative aesthetics impacts..

1-4 The commenter did not specify a particular technology that would require inlet gas to be reheated, but for refinery operations, WGSs, as the primary SOx control equipment under consideration for the proposed project, typically do not need a high temperature inlet gas stream. Thus, contrary to the comment, reheating would not be necessary and there will be no construction activities or GHG emissions associated with reheating activities.

1-5 The PEA contains a comprehensive analysis of the individual effects of the entire project and the cumulative effects for topics that are shown to have significant adverse impacts, both on a facility-by-facility basis, as well as on a source-category basis, for each of the following environmental topics: aesthetics, air quality, energy, hazards and hazardous materials, hydrology and water quality, and transportation.

1-6 An alternatives analysis for the proposed project has been prepared and can be found in Chapter 5 of the PEA.

1-7 Impacts from all criteria pollutants, including PM 2.5, and GHGs have been analyzed in the PEA for all affected facilities. Regarding the commenter's suggestion that all potential future projects be analyzed, the PEA takes into account the potential effects of the proposed project spanning to 2019 at which time all projects required to implement the rule are expected to be completed. To consider potential future projects beyond that timeframe would be considered too speculative to evaluate pursuant to CEQA Guidelines §15145.

1-8 The proposed project is expected to have air quality impacts from transportation activities associated with supply deliveries and disposal activities from increased truck trips. In addition, the proposed project is expected to have transportation impacts due to the increased number of trucks on the road to accommodate the additional delivery and disposal trips. Both of these circumstances have been analyzed; the commenter is referred to the Air Quality and Transportation/Traffic discussions in Chapter 4 of the PEA.

1-9 Chapter 4 of the PEA contains a comprehensive energy analysis of the effects of the entire project on an individual facility basis as well as on a source category basis. Contrary to the unsubstantiated assumption that the proposed project would require energy infrastructure improvements, the energy analysis shows that the proposed project will have less than significant impacts for energy, including the use of natural gas, electricity, and fuel (gasoline and diesel.) The energy analysis in both the PEA and the Draft Staff Report are based on data taken from the consultants' reports.

1-10 The consultant's report did not indicate a need to install new transformer stations to supply the required power to operate the new SOx controls. Further, in the energy discussion in Chapter 4 of the PEA, the analysis shows an overall modest, less than significant increase in electricity demand of approximately 204 MWh/day under Option 1 and 101 MWh/day under Option 2, with the highest demand of 48 MWh/day occurring at Facility B under Option 1 and 23 MWh/day occurring at Facility K under Option 2. Refer to Tables 4-19 to 4-22 for the summaries of the energy demand on a facility-by-facility and source category basis.

1-11 The hazards/hazardous materials discussion in Chapter 4 of the PEA analyzes the potential increase in transportation, storage and use of hazardous substances that may be needed as well as the generation, storage and transport of hazardous waste that may result from operating SOx control technologies.

1-12 Regarding transportation of hazardous materials and hazardous wastes, see the response to Comment 1-11.

1-13 Projected total water demand impacts were provided by the consultants for multiple technologies, not just wet gas scrubbers. While most of the total water demand impacts come from the WGSs, other technologies also contributed to the overall water demand impacts analysis in the Hydrology/Water Quality discussion in Chapter 4 of the Draft PEA.

1-14 Contrary to the comment, the total water demand was estimated to be 241,096 gallons per day (or 88 million gallons per year) for four WGSs installed at four FCCUs and 354,247 gallons per day (or 129 million gallons per year) for three WGSs installed at three SRUs, not 90 million gallons per year for <u>each</u> WGS. Because WGS technology does not require fresh or potable water for its operations, recycled or reclaimed water can be utilized to satisfy the total water demand. Further, facilities that currently obtain recycled or industrial-use water for their industrial processes will be required to continue to do so in accordance with the California Water Code if there is a need to increase water use as part of the proposed project. Based on this understanding, the analysis shows that 147,945 gallons per day (or 54 million gallons per year) can currently be supplied by recycled water for the FCCUS. Similarly, all 354,247 gallons per day (or 129 million gallons per year) for three WGSs installed at three SRUs can also be supplied by recycled water. Lastly, the remaining 93,151 gallons per day (34 million gallons per year) of recycled water may also be supplied to the WGSs for the FCCUs after completion of the LADWP's HRRWPP project in Summer 2013. Since construction of the proposed project is not expected to begin sooner than 2012, most of the recycled water is expected to be available and could be utilized for all four WGSs and for most if not all of the FCCUs. In other words, 100

percent of the water demand for WGSs for both FCCUs and SRUs could be supplied by recycled, not potable (fresh), water.

1-15 Contrary to the comment, only four WGSs are projected to be installed on four FCCUs, not 12. Regarding the water demand estimates for WGSs for FCCUs, see the response to Comment 1-14.

For the entire project (which includes the FCCUs), 11 WGSs and two DGSs are projected to be installed for multiple source categories. Contrary to the comment, the worst-case total water demand and potable water demand would occur under Option 1 of the proposed project and would be would be approximately 883,368 gallons per day (322 million gallons per year), not one billion gallons per year. Of this amount, only 201,587 gallons per day or 74 million gallons per year under Option 1 (23 percent) is expected to be supplied by potable (fresh) water with the remainder being supplied by recycled water (63 percent) and industrial-use groundwater (14 percent).

1-16 Contrary to the comment, the wastewater estimates for the proposed project is approximately 270,532 gallons per day or 99 million gallons per year under Option 1 and 158,203 gallons per day or 58 million gallons per year under Option 1), not 40 million gallons per year for each installation (or 480 million gallons per year for the entire project based on the commenter's assumption of 12 installations). Further, the analysis shows that on a facility-by-facility basis, the proposed wastewater increases will not trigger a revision to any facility's wastewater permit. Lastly, SCAQMD staff has shared this data with the various sanitation districts and their staff has indicated that their facilities are expected to be able to handle the proposed increase in wastewater discharge.

1-17 Regarding the comment about the necessity of re-opening of an existing wastewater discharge permit for one facility, see the response to Comment 1-16.

1-18 If a WGS is installed as a result of implementing the proposed project, a liquid discharge containing captured pollutants will be generated. To process this discharge, the wet gas scrubber is designed with a purge treatment system that typically consists of a clarifier, an oxidation tank, and a wet fines tank to handle the wastewater from the scrubber before being sent to the facility's wastewater treatment plant. The purge treatment has two effluents, a liquid composed of water and sodium sulfate, and earth moist solids comprised of catalyst fines that have been captured from the flue gas. A clarifier utilizes a coagulant to separate and thicken the solids in the discharge; the thickened solids stream is collected, sent to a wet fines tank, and, if necessary, further dewatered in a roll-off bin. The concentrated solids slurry collected in both the wet fines tank and the roll-off bin are then transported by truck for disposal or recycling. The liquid that flows out of the clarifier is sent to an oxidation tank where the clarified liquid is oxidized for pH control and for reduction of the chemical oxygen demand (COD). The treated clear liquid is then passed to the existing refinery wastewater treatment system where it is treated before being discharged to a local sewage treatment plant. After the purge treatment is complete, the discharged scrubber water should contain total suspended solids of 200 ppm or less and the chemical oxygen demand from sulfites should be reduced to below 100 ppm. None of the byproducts in the discharged scrubber water or collected solids contain hazardous materials. In fact, the wet sulfate salts that are collected

from the scrubber water can be dried and sold as a commodity. Lastly, wet gas scrubbers for FCCUs at refineries use caustic such as NaOH for the process and not DEA, an amine scrubbing agent, as was implied by the comment.

1-19 Recognizing that WGS technology is a resource-intensive technology, SCAQMD staff has prepared this PEA to fully disclose the potential impacts associated with the proposed project. In particular, after conducting an extensive analysis in the PEA for hydrology and water quality, the analysis and data demonstrate that the commenter's water demand and wastewater assertions are exaggerated by over 300 percent for WGS technology.

1-20 Contrary to the comment, the analysis in the PEA for water quality, energy demand, and for hazards/hazardous materials demonstrates that the potential adverse impacts for these topics will be less than significant for the proposed project. However, the analysis in the PEA for water demand shows that the impacts will be potentially significant for potential potable water demand.

1-21 With regard to a POTW's ability to handle additional wastewater discharge, see the response to Comment 1-16.

1-22 The aesthetics analysis in the PEA considers steam plumes emanating from 11 WGSs and takes into account having multiple plumes from multiple WGSs installed at one facility. Contrary to the comment, if any WGS is installed as part of the proposed project at any of the affected facilities, the steam plume, though visible, is not expected to significantly adversely affect the visual continuity of the surrounding area of each affected facility because no scenic highways or corridors exist within the areas of the refineries, the coke calciner, the sulfuric acid plants and the glass melting plant. Further, the visual continuity of the surrounding area is not expected to be adversely impacted because each WGS, if constructed, will be built within the confines of industrial areas and would be visually consistent with the profiles of the existing affected facilities. Thus, even if each WGS could be visible, depending on the location within each property boundary, the aesthetic significance criteria would not be exceeded.

Comment Letter #2

Western States Petroleum Association
Credible Solutions • Responsive Service • Since 1907

Jodie Muller
Manager, External Affairs and South Coast Region

July 21, 2009

Barbara Radlein
Air Quality Specialist
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, CA. 91765-4182

Dear Ms Radlein:

PRELIMINARY WSPA COMMENTS ON THE PROPOSED AMENDED REGULATION XX: REGIONAL CLEAN AIR INCENTIVES MARKET (RECLAIM) NOTICE OF PREPARATION/INITIAL STUDY

Thank you for the opportunity to comment on the Notice of Preparation and the Initial Study ("NOP/IS") for Proposed Amended Regulation XX. The Western States Petroleum Association ("WSPA") is a trade association that represents nearly thirty companies that conduct a substantial portion of the petroleum-related operations in California and the surrounding states. WSPA member companies own and operate facilities such as refineries in the South Coast Air Basin. As currently proposed, the amendments to Regulation XX rely heavily on the control of several refinery processes, and thus will have a substantial impact on WSPA member companies. WSPA offers the following comments for your consideration. WSPA will also prepare detailed comments to the draft environmental assessment when it is completed and available.

SCOPE OF THE ENIRONMENTAL ASSESSMENT

WSPA believes this major rule amendment will have widespread impacts to the residents, businesses, infrastructure and resources of the South Coast Air Basin. The NOP/IS identifies the topics of aesthetics, air quality, energy, hydrology and water quality, hazards and hazardous materials, and transportation/traffic as areas that may be adversely affected by the proposed project and will be further analyzed in the EA. WSPA concurs that these impacts should be further analyzed, and also agrees that the cumulative impacts on these environmental areas must be studied. 2-1

970 W. 190th Street, Suite 770, Torrance, California 90502
(310) 808-2143 • FAX: (310) 324-9063 • jodie@wspa.org • www.wspa.org

However, the District attempts to limit the scope of the EA by focusing merely on the examination of a few control options. In Chapter 2, ENVIRONMENTAL CHECKLIST AND DISCUSSION, the District states that "controlling emissions from equipment not operating at BARCT will be the most cost effective approach", and that therefore it will limit its analysis in the EA to those BARCT controls that it thinks are most likely to be implemented. WSPA contends that this assumption is flawed in nature and premature at best. At this point, the District is assuming a wide range of emission reductions, 3 to 8 tons of oxides of sulfur ("SO_x"), may be ultimately proposed in Regulation XX and has not determined over what time period the shave will be implemented. The amount of reductions targeted and the amount of time in which SO_x RECLAIM participants have to achieve the reductions will influence heavily the control options that will be implemented by industry to comply with the shave. Additionally, this assumption that a very few controls will be implemented ignores the fundamental premise of RECLAIM, that ultimately the market will determine the most cost-effective approaches to control. Instead, WSPA believes that the basis for determining which control options to analyze for purposes of an EA, should be those control options, or combinations thereof, that will have the greatest impact on the environment. The District should analyze the adverse impacts of all BARCT control options, as well as all other possible controls that may be implemented by SO_x RECLAIM participants to reduce SO_x emissions. The District should re-examine its NOP/IS to ensure that all adverse impacts have been identified for all possible control options. 2-2

Also, the impact of the current permit moratorium and the availability of emission offset credits for non-RECLAIM pollutants should be considered in determining cost-effectiveness, project start date and the overall environmental benefits the rule will achieve. The EA should analyze multimedia pollution impacts, project constraints imposed by existing environmental laws and regulations, and project impacts on new laws that will become effective in 2010 and beyond. The EA should also consider all alternatives to stationary source reductions and mitigation measures for increases in other pollutants as a result of RECLAIM SO_x shave. 2-3

WSPA recommends that a full Program Environmental Assessment be completed in order to capture all potential future projects that must be implemented as a result of this rule amendment. While a more simplified project EA may be desired, WSPA believes that, due to the complex and over lapping nature of these RECLAIM amendments, the full impacts of the amendments cannot be determined unless all future projects are examined. 2-4

WSPA offers these additional topic specific comments to be consideration in the EA:

AESTHETICS

WSPA concurs that the stacks that must be installed for the wet scrubber technology and the resultant plumes, both steam and SO_3, have the potential to create significant aesthetic impacts. WSPA believes that the District should conduct plume visibility analysis/modeling to adequately 2-5

address these impacts. "It should be noted that each refinery has multiple SRU trains that may each require separate wet gas scrubbers and stacks, resulting in multiple plumes for each facility." As previously stated, the District should insure that a thorough cumulative analysis should be conducted for this environmental area.

2-5 Cont'd

AIR QUALITY ("AQ")

WSPA believes that in order to employ some of the recommended technologies, it will be necessary to install additional NO_x emitting equipment to provide the heat and steam necessary for the operation of the SO_x control equipment. As such, the consideration of NO_x related AQ impacts should also be considered in the EA.

2-6

The EA should analyze whether the additional NO_x, PM_{10}, $PM_{2.5}$, CO, and GHG sources that must be installed for the purpose of implementing this project is consistent with the Basin's air quality goals. This project is heavily energy intensive and will result in large amounts of additional GHG emissions, possibly exceeding the District's significance threshold for industrial sources and conflicting with the goals of AB 32. Thus, this project may result in the diminishment of an existing air quality rule or future compliance requirement.

2-7

Additionally, in some instances the designated control equipment and the associated blowers can be maintenance intensive which could result in more shutdowns and start-ups at the facilities for the additional maintenance, resulting in additional flaring. This impact should be properly analyzed in the EA.

2-8

The Initial Study indicates that sensitive receptors may be exposed to substantial pollutant concentrations. WSPA encourages the District to conduct a Health Risk Assessment in order to adequately analyze these impacts.

2-9

HYDROLOGY AND WATER QUALITY

The third-party consultant reports upon which District staff primarily relies for technology recommendations and establishing BARCT levels outline the tremendous potential water use impacts associated with employment of "gas scrubbing" technologies. It should be noted that these water consumption impacts are associated with all three scrubber technologies, not just the wet-gas scrubbers.

2-10

Water Impacts Analysis

Table EX-3, module 3a includes the following water demand assumptions for wet/dry scrubbing technology for refinery fluid catalytic cracking units ("FCCUs"), refinery boilers/heaters, and refinery sulfur recovery units ("SRUs") and tail gas treatment processes :

> Fresh water – Between 1 and 90 million gallons per year for each scrubber.
> Waste water – Between 1 and 40 million gallons per year for each scrubber.

WSPA recommends that, due to the large size of scrubbers involved, the District should assume demand will be at the top end of the stated ranges. This is almost certainly true for NWGSs on FCCUs. Utilizing this assumption, the total impact would be a potential new demand for fresh water as high as one billion gallons per year (90 million gallons at 12 installations). Further, the Metropolitan Water District has implemented a Water Supply Allocation Plan which initiated mandatory conservation throughout Southern California, effective July 1, 2009. Thus, the District needs to carefully analyze whether enough raw water exists to meet these control equipment demands. 2-11

The increase in water usage can also result in an increased wastewater load on Publicly Owned Treatment Plants ("POTWs") as high as 440 million gallons per year (40 million gallons per each of an assumed eleven systems that would discharge to a POTW). Also, the implementation of this project may require additional paving at existing facilities thus creating more impervious surfaces, which can in turn result in additional storm water runoff that will require additional treatment. The potential for individual facility expansion or necessitated improvements to manage the significant increase in wastewater generation from the new emission reduction equipment may have a significant impact on local water treatment facilities that may not have the capacity to handle the additional demand. Additional wastewater capacity may need to be added as a result of this rule amendment. Also, the refineries currently have permitted discharge limits which may not be increased, unless and until treatment capacity is sufficient to handle wastewater demands. This should be closely analyzed in the EA. 2-12

These are dramatic resource consumption and waste figures and these considerations have clearly not been adequately addressed in the District's BARCT recommendations. WSPA strongly suggests that the EA conduct a thorough and multi-faceted analysis of all potential multi-media impacts associated with the current technologies employment. 2-13

Considering the water-intensive nature of some recommended technologies, WSPA suggests that great care be taken in conducting the environmental analysis and associated impacts to all recommended emission reduction technologies. 2-14

HAZARDS AND HAZARDOUS WASTE MATERIALS

The Initial Study identifies that there are potentially significant impacts in the area of hazards and hazardous waste materials. WSPA concurs and encourages the District to conduct a risk of upset analysis in order to adequately analyze the impacts in this environmental area. 2-15

ENERGY

The implementation of the recommended emission reduction technologies will impact all WSPA members and may require significant electrical and natural gas infrastructure improvements to accommodate the energy demands of the new equipment. WSPA has contended that a serious deficiency in the analysis of the full associated costs to employ these technology options exists in the consultant reports and now in the SCAQMD's staff reports. This should be corrected and fully analyzed in the EA. 2-16

TRANSPORTATION/TRAFFIC

While this resource area is identified as having potentially significant impacts, the Initial Study indicates that operation-related traffic is expected to be less than significant. WSPA believes that the District has not adequately assessed the number of supply delivery and waste disposal related truck trips that will occur as a result of this project. The EA should also consider a potential for significant cumulative impacts of construction projects at all SOx RECLAIM facilities and other projects. Construction activities may occur during the same time period as SOx RECLAIM facilities are facing the same compliance deadline. Total length of construction period may span over several years as several SOx sources within each facility are identified for reductions. Such long construction period may have some impact on aesthetics in the community. Given that much of this traffic increase will occur in the already heavily impacted port areas, WSPA believes the District should re-assess this area of potential environmental impact. 2-17

AREAS NOT IDENTIFIED AS SIGNIFICANT

The District has identified three additional environmental areas in which it has determined impacts will not reach significance: noise, land use and planning and solid/hazardous waste. WSPA believes that the potential exists for impacts in these areas to be significant and that the District needs to conduct a more robust analysis before making a determination of non-significance. 2-18

Noise

While the project will be introduced into industrialized areas that may already have high background levels, the District should more carefully examine the additional noise that will be 2-19

generated by the large blowers and other rotating equipment that are necessary to implement the control technologies identified.

2-19 Cont'd

Land Use and Planning

The equipment necessary to meet the proposed reductions will have to be installed in facilities that are already space constrained. The implementation of this rule may require refineries that don't have sufficient footprints to acquire additional property on a permanent or temporary basis, to accommodate the control equipment or to utilize as lay-down areas. The District should consider the additional permitting approvals, or land use decisions that may have to be undertaken to install this equipment.

2-20

Solid/Hazardous Waste

The installation of control equipment may require the demolition and removal of existing buildings or old equipment at the refineries in order to have sufficient room to accommodate the controls. Additionally, spent catalyst or scrubber cake will need to be disposed of appropriately. The Initial Study cites the District's own AQMP in determining landfill capacity, and fails to identify the current demand on landfill capacity and projected growth as baseline, nor does it estimate available landfill capacity. The statements are conclusionary and not based on any analysis. WSPA believes that the District should obtain the necessary data and assess the impacts on this resource quantitatively in order to determine whether any significant impact will result from the implementation of this project. Lastly, the EA should consider a potential for an increase in the fire hazard due to the use of chemicals in the SOx control process and the use of NH4 to control NOx.

2-21

ALTERNATIVES

Given the economic impacts that can result from this action, a complete alternatives analysis should be conducted. This analysis must address at least the following elements:

1)Examine as one of its project alternatives the implementation of Control Measure #2007CMB-02 as written in the 2007 AQMP, thus obtaining SO_x reductions of 2.9 tons per day by compliance year 2014.

2) Prepare incremental cost-effectiveness evaluations for alternative emission control levels of 5ppmv, 10ppmv, 25ppmv and 50ppmv BARCT levels for Sulfur Recovery Units/Tail gas Units.

3)For FCCUs, prepare incremental cost-effectiveness evaluations for alternative emission control levels of 10, 20, and 25 ppmv.

2-22

CONCLUSION

The situation in California and the South Coast Air Basin has changed greatly from when this initial analysis was started early last year. The economic health of the entire state of California has rapidly deteriorated over the last year, along with a continuing regional drought which has recently prompted the implementation of mandatory water management and conservation plans for the basin.

2-23

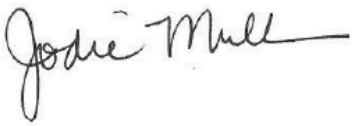
More now than ever a thorough and complete environmental analysis of projects within the basin with potential to have significant impacts to resources needs be conducted.

WSPA recommends that the District prepare an environmental document in the manner that will cover the worst case environmental analysis for all potential future projects resulting from this rule amendment. A Program EA should be prepared by the AQMD rather than a project EA. If the Program EA addresses the program's effects as specifically and as comprehensively as possible, many subsequent projects undertaken by refineries to comply with the rule could be found to be within the Program EA scope and additional environmental documents may not be required, or be required to a lesser degree (i.e. negative declaration vs. full EIR).

2-24

WSPA appreciates the District's consideration of these comments on the NOP/IS for Proposed Amended Regulation XX. Please feel free to call me or Steve Schuyler at (310) 408-2146 with any questions regarding these comments.

Sincerely,



Jodie Muller
Manager, External Affairs and South Coast Region
Western States Petroleum Association

Responses to Comment Letter #2
(Western States Petroleum Association, July 21, 2009)

2-1 The CEQA analysis in the PEA will focus on the following environmental topics: aesthetics, air quality, energy, hazards and hazardous materials, hydrology and water quality, and transportation. A cumulative impacts analysis for these environmental topics has also been included in the PEA.

2-2 The proposed project focuses on multiple source categories with varying SOx emission limits. The consultants prepared facility-specific reports to show all potential BARCT control options. As part of the rule development process, if a control option for a particular equipment/process at a facility was shown to exceed $50,000 per ton cost-effectiveness threshold, both costs and emission reductions anticipated by the installation of the control equipment was excluded from the analysis. For consistency with the proposed rule amendment and the BARCT analysis, the CEQA analysis in this PEA also excludes that equipment from the analysis. It is important to keep in mind, however, that the PEA not only analyzes the proposed project, but also analyzes alternatives. In any case, multiple control technologies are considered and evaluated and are not limited. Further, the control technologies with the worst-case environmental effects are included in the analysis.

2-3 Contrary to the comment, the permit moratorium[8] and availability of emission offset credits for non-RECLAIM pollutants have nothing to do with determining BARCT for sources covered under the proposed project, and overall environmental benefits and impacts of the proposed project. Only factors relevant to the proposed rule amendment should be included in the proposed project. As a reminder, Health and Safety Code §40406 defines BARCT as an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy and economic impacts by each class or category of source. The determination or establishment of BARCT does not need to take into account whether a not a permit can be issued pursuant to the permit moratorium. Lastly, because the proposed project calls for a reduction in SOx, a RECLAIM pollutant, emission offset credits for non-RECLAIM pollutants and their availability are not part of the proposed project and therefore, have not been included.

The PEA contains an elaborate analysis of all foreseeable environmental impacts that may result from implementing the proposed project and alternatives considered, but it is unclear what the commenter means by requesting the CEQA document to contain an analysis of "project constraints imposed by existing environmental laws and regulations, and project impacts on new laws that will become effective in 2010 and beyond." In accordance with CEQA Guidelines §15144 which requires an agency to use its best efforts to find out and disclose all that it reasonably can, if there is an existing environmental law or regulation that is germane to the proposed project, then a discussion is included in the PEA. However, to suggest that the PEA contain an analysis about how the proposed project will affect new laws that have not been promulgated yet is too speculative to evaluate since foreseeing the unforeseeable is not possible. Contrary to the comment, CEQA Guidelines §15145 allows an agency to terminate the discussion of an impact if the particular impact is determined to be too speculative for evaluation.

[8] Governor Schwarzenegger has signed Senate Bill 827 (Wright) which authorized the SCAQMD to begin issuing more than 1,200 air pollution permits frozen by a state court decision in November, 2008 (e.g., the permit moratorium) beginning January 1, 2010.

2-4 Pursuant to the SCAQMD's Certified Regulatory Program, an equivalent document called an Environmental Assessment is prepared in lieu of an EIR for rule projects. The Program EA (PEA) prepared for this proposed project is an amalgam of both a Project and Program EIR because the environmental effects of the project as a whole and on a detailed facility-specific basis are analyzed. Further, the PEA prepared for this proposed project can be relied upon for tiering purposes if future projects contain more detailed or varying facility-specific information when compared to the PEA prepared for this project.

2-5 SCAQMD staff disagrees with the commenter's suggestion that the District should conduct plume visibility analysis/modeling to address the aesthetics impacts from multiple WGS steam plumes because it is unnecessary. The available models for plume visibility analysis are applied when the composition of the plume is unknown. However, WGS technology has already been installed on one FCCU in the District and the unit produces a continuous plume that is made up of water vapor, and not SO3. An aesthetics analysis in the PEA has been prepared and it takes into account the potential installation of multiple scrubbers (and multiple plumes) at one facility. Refer to Chapter 4 of the PEA for this analysis.

2-6 The commenter does not elaborate as to what additional NOx emitting equipment would need to be installed or why it would be installed in order to provide heat and steam for operating SOx controls. However, the consultant reports take into account each individual facility's circumstances and have factored in the amount of energy and water (or steam), as well as other supplies such as caustic and catalyst, that may be necessary for operating each of the proposed SOx controls. This data was considered in the Air Quality analysis of the PEA.

2-7 The PEA takes into account the potential increases in criteria pollutants and GHGs that may result from implementing the proposed project and these increases are considered with the SCAQMD's air quality commitments in the AQMP.

While the proposed project may be perceived as energy intensive, as the commenter suggests, the analysis shows that the potential increased energy use does not exceed the CEQA significance thresholds for energy. Therefore, less than significant energy impacts are expected from the proposed project.

A GHG analysis was also conducted for the proposed project. On a facility-by-facility basis, the CEQA significance threshold of 10,000 MT per year for GHG emissions is not exceeded. However, when the GHG emissions from the entire project are considered together, the significance threshold is exceeded. However, the overall project will reduce SOx, a criteria air pollutant and a major precursor to PM10 and PM2.5, also criteria air pollutants. The residents of the South Coast Air Basin experience the worst PM2.5 exposure levels in the nation. As such, SCAQMD policy prioritizes the reduction in criteria pollutants in order to achieve the National and State Ambient Air Quality Standards.

The increase in GHG emissions that may result from installing SOx controls does not necessarily mean that there is a conflict with the goals of AB 32, because each affected facility will be required to reduce GHG emissions facility-wide in accordance with AB 32, regardless of whether or not the proposed project gets implemented. For facilities to

accomplish the goals of AB 32, older, less efficient equipment will likely need to be targeted in order to reduce their GHG emissions to 1990 levels.

2-8 The commenter's claim that flaring will increase if SOx control equipment will be installed because equipment such blowers are maintenance intensive is unsubstantiated. As a matter of conducting maintenance on support equipment such as blowers and pumps, engineering design typically builds in some redundancies (e.g., one main unit and one as a back-up) to maximize the time between turnarounds. In addition, turnarounds are a necessity of all equipment, not just control equipment. Further, paragraph (c)(3) of SCAQMD Rule 1118 – Control of Emissions From Refinery Flares, requires facility operators to submit to the Executive Officer an evaluation of options to reduce flaring during planned shutdowns, startups and turnarounds. Thus, for any SOx controls that are installed at any affected facility, this evaluation would need to be revised by each facility operator to accommodate the new equipment.

2-9 Chapter 4 of the PEA contains a health risk screening for NaOH. The analysis has demonstrated that the screening level of NaOH exposure to sensitive receptors will not be exceeded if WGSs using NaOH caustic are installed.

2-10 The water consumption estimates provided by the consultants, on which the PEA relies, show very conservative water demand estimates for various types of both wet and dry scrubbers.

2-11 Contrary to the suggestion, using the general ranges would grossly misrepresent the water demand and wastewater impacts, especially since a WGS has already been installed for a FCCU and the water use is far below the general ranges suggested. Instead, the consultants' reports identified the type of scrubber technologies that would be appropriate for each source at each facility and the reports include the corresponding, conservative water demand and wastewater generation estimates. These specific values, instead of the commenter's stated ranges, were relied upon to conduct the hydrology and water demand analysis in the PEA.

The PEA contains an extensive hydrology and water demand analysis as required by CEQA; it also takes into account the fact that California is in a State of Emergency for Drought and that water supply agencies, including the MWD, need to implement multi-layered potable water conservation efforts. A key factor as to whether there is enough water to supply the potential water demand for the proposed project is based on the type of water that would be needed. The commenter incorrectly implies that only raw (i.e., potable) water would be utilized to satisfy the potential total water demand of the proposed project, when, in actuality, WGS technology does not require potable water, and instead can function with recycled water or industrial use groundwater. Thus, the question that is addressed in the PEA is not only if there is enough total water for the proposed project, but what types of water can be supplied (i.e., such as the availability of recycled water to the affected facilities). SCAQMD staff has been working closely with staff from multiple water supply agencies to determine if there is sufficient total water supply (e.g., potable, recycled, and groundwater) available for the proposed project. All of the agencies contacted indicated that there will be enough water available to supply the potential water demand to all of the affected facilities, with the majority of the water supplied being recycled water, by the time the new WGSs come online. Only three facilities (Facilities G,

H and I) are expected to utilize potable water to implement the proposed project and one facility (Facility K) is expected to utilize industrial-use (non-potable) groundwater. For the full analysis, the commenter is referred to the Hydrology and Water Quality discussion in Chapter 4 of the PEA. See also the response to Comment 1-14.

2-12 As mentioned in Response to Comment 2-11, using the general wastewater ranges would grossly misrepresent the wastewater impacts. Instead, the consultants' reports identified the type of scrubber technologies that would be appropriate for each source at each facility and the reports include the corresponding, conservative wastewater generation estimates. These specific values, instead of the commenter's stated ranges, were relied upon to conduct the wastewater analysis in the PEA. Tables 4-41 and 4-42 in Chapter 4 of the Draft PEA summarize the potential wastewater impacts, and the estimated discharges for the entire proposed project is 270,532 gallons per day or 99 million gallons per year under Option 1 and 158,203 gallons per day or 58 million gallons per year under Option 2, not 440 million gallons per year as suggested by the commenter. Further, on a facility-by facility basis, the proposed increase in wastewater generation is not expected to exceed the wastewater CEQA significance threshold (a 25 percent increase in discharge from permitted levels) that would need to occur in order to trigger a wastewater permit revision. Therefore, because each facility has been shown to have the additional capacity to accommodate the proposed project, contrary to the comment, individual facility expansion or improvement of their existing wastewater treatment systems is not expected.

Regarding paving and stormwater runoff, contrary to the comment, typically most of the areas likely to be affected by the proposed project are currently paved and are expected to remain paved. Any new units constructed will be curbed and the existing units will remain curbed to contain any runoff. Any runoff occurring will continue to be handled by each affected facility's wastewater system and sent to an on-site wastewater treatment system prior to discharge. The surface water runoff is expected to be handled with each facility's current wastewater collection or treatment system. Storm water runoff will be collected and discharged in accordance with each facility's discharge permit terms and conditions.

2-13 The consultants and SCAQMD staff followed the BARCT selection process outlined in Part III of the Staff Report. The BARCT selection process includes five steps: 1) identify technology that can achieve maximum degree of reduction, 2) evaluate control effectiveness, 3) conduct a top-down cost analysis, 4) conduct an impact analysis for environment, energy and economic, and 5) select BARCT. Vendor guarantees are important information for Step 2. In evaluating the consultants' recommendation for BARCT and arriving at the SCAQMD's proposal for BARCT, in addition to vendor guarantees, SCAQMD staff relied on source test data, CEMS data, permitting data, and engineering evaluation. SCAQMD staff believes that adequate information has been provided to substantiate the proposed BARCT for all source categories. Recognizing that the proposed project involves resource-intensive control technologies, SCAQMD staff has prepared this PEA (as part of Step 4) to fully disclose the potential resource consumption and waste impacts associated with the proposed project.

2-14 See the response to Comment 1-19.

2-15 The hazards and hazardous materials analysis shows that there is only one substance that will have an increased in use and is considered a hazardous material subject to CalARP,

NaOH, as part of the proposed project. However, because NaOH has such a low vapor pressure (6.33 mm Hg at 40 ^{o}C or 104 ^{o}F) when compared to water (55.3 mm Hg at 40 ^{o}C 104 ^{o}F) at the same temperature, any spill of NaOH would not be expected to evaporate faster than water. Thus any spill of NaOH would be expected to stay in liquid form and would not likely exceed the ERPG-2 vapor concentration of five milligrams per cubic meter for NaOH. Further, operators at each affected facility who construct a new NaOH storage tank will need to build a containment berm large enough to hold 110 percent of the tank capacity in the event of an accidental release due to tank rupture. Thus, any spill of NaOH would not be expected to migrate beyond the boundaries of the berm on-site. Thus, any spill of NaOH is not expected to present a potential offsite public and sensitive receptor exposure. Lastly, since NaOH is not a flammable compound, other types of heat-related hazard impacts such as fires, explosions, boiling liquid – expanding vapor explosion (BLEVE) are not expected to occur. Thus, the hazards and hazardous materials impacts due to the use, tank rupture and the accidental release of NaOH will be less than significant for the proposed project.

2-16 Regarding the alleged necessity for infrastructure improvements, see the response to Comment 1-9. With regard to the alleged cost deficiencies, the commenter did not elaborate. Nonetheless, the consultants' reports contain an extensive facility- and unit-specific cost analysis. A contingency factor has been added to cover miscellaneous costs. This procedure is common to all cost estimates. Whether or not there is a dispute about the cost analysis in the consultant reports or staff report, the CEQA analysis in the PEA is not based on cost but instead is based on the consultants' energy demand estimates for electricity and natural gas, as well as the construction scenario estimates for gasoline and diesel fuel use. Refer to Appendix B of the PEA for the energy assumptions and calculations for both construction and operation activities.

2-17 In order to conduct the air quality analysis and estimate the amount of air emissions that would be generated from supply deliveries and waste disposal trips, supplies delivery and waste disposal data during operations was taken from the consultants' reports and applied to estimate not only the number of truck trips for the transportation analysis but the amount of diesel fuel needed for the energy analysis. The analysis in the PEA re-affirms the less-than-significant determination in the NOP/IS for operational-related traffic. Thus, there is no need to re-assess this portion of the PEA. Refer to Appendix B of the PEA for the assumptions and calculations.

As for cumulative impacts, the PEA considers the impacts of construction activities at all of the affected SOx RECLAIM facilities. The analysis takes into account overlapping construction activities at multiple facilities (the overlapping of four WGS installations) over a seven-year period and a lengthy (18-month) construction period per WGS installed. The PEA, does not, however, include the cumulative effects of other future construction projects outside of the SOx RECLAIM project because the construction of future projects is unknown at this time and inclusion in the PEA would be speculative at best.

With regard to construction activities and aesthetics impacts, Chapter 4 of the PEA includes an aesthetics analysis for both construction and operation of the SOx control technologies.

2-18 The analysis in the PEA confirms that there will be less than significant impacts for noise, land use and planning, and solid/hazardous waste. Detailed responses to this comment can

be found in the following responses: 1) response to Comment 2-19 addresses noise impacts; 2) response to Comment 2-20 addresses land use and planning impacts; and, 3) response to Comment 2-21 addresses solid/hazardous waste impacts.

2-19 The proposed project is expected to involve the installation of large, industrial equipment with the potential to generate noise. Nonetheless, the construction and operation activities associated with the proposed project will take place at existing facilities that are located in industrial, heavy manufacturing settings with an existing noise environment dominated by noise from existing equipment onsite, vehicular traffic around the facilities, and trucks entering and exiting each facility premises. Because of the existing noise setting, any additional noise from the proposed project is not expected to produce noise in excess of current operations at each of the existing facilities at the property line. So, if SOx control equipment is installed, the operations phase of the proposed project may add new permanent sources of noise to each affected facility. However, it is expected that each facility affected will comply with all existing noise control laws or ordinances. Further, OSHA and Cal/OSHA have established noise standards to protect worker health. These potential noise increases are expected within the allowable noise levels established by the local noise ordinances for industrial areas, and thus are expected to be less than significant.

2-20 Plot space concerns were addressed in the consultants' report, section H:

"Wet gas scrubber equipment footprints and space requirements for the FCCUs and the SRU/TGTUs are shown in the confidential appendices for each refinery where measures have been selected. These specifications have been compared with the plot plans provided by the respective refineries, and where applicable, are presented in the costing workbooks."

Further, Tables 4-36 and 4-37 in the Draft PEA contains a summary of these plot space estimates on a facility-by-facility basis. If all affected facilities conduct site preparation activities, the total amount of disturbed area for all of the facilities combined is estimated to be 48,126 square feet or 1.1 acre under Option 1 and 40,976 square feet or 0.94 acre under Option 2. The consultants' reports did not indicate a need for any facility to acquire additional property to accommodate the proposed project. Thus, there is no need to consider additional permitting approvals or land use decisions relative to plot space in the PEA.

2-21 The construction portion of the air quality analysis in the PEA accounts for the potential to demolish existing buildings and foundations and dismantle existing equipment and the construction equipment that would be used for these activities as part of site preparation for installing SOx control equipment. While the NOP/IS acknowledges that there may be demolition wastes associated with these site preparation activities, any metals that are part of demolished equipment, piping or wiring, would be considered a commodity and thus would be sold as scrap for reuse or recycling. The remainder of demolition waste that cannot be recycled would be disposed of in a landfill. Estimating the scope of demolition waste that could be generated and sent to a landfill can be qualitatively determined relative to plot space needed to install the new SOx controls. As mentioned in the response to Comment 2-20, the amount of plot place that would be needed to construct the new SOx control equipment (i.e., the amount of space that would have demolition activities occur) is relatively small on a facility-by-facility basis, and is approximately one acre for the total

project. This implies that whatever existing buildings or equipment that is on the each facility's plot space falls is also relatively small, when compared to the total landfill capacity as discussed in the NOP/IS.

With regard to solid waste generation such as spent catalyst or scrubber cake, the commenter implies that these byproducts require disposal. On the contrary, each facility was surveyed about how their current catalyst fines or other solid waste fines (e.g., ESP fines) are handled and because these byproducts are a commodity, the majority is recycled. Specifically, of the 11 facilities, nine facilities have their catalyst fines picked up by a transport company that in turn trucks the spent catalysts to a local cement manufacturer for recycling, two facilities (Facility B and Facility I) either truck their fines to a landfill or to a cement plant for recycling (depending on the silica, iron and other metals content in the spent catalyst), and one facility (Facility J) does not use catalyst or generate fines as part of its operations and is not expected to use any as part of implementing the proposed project. Based on the survey responses, even with a potential increase in solid waste of 11.75 tons per day that may result from the proposed project, the same facilities that currently recycle will be expected to continue to do so. For the two facilities that do not consistently recycle their catalyst fines (Facility B and Facility I), a maximum of 2.52 tons per day of solid waste may end up in a landfill from two of the 11 facilities provided that the composition is unsuitable for cement manufacturing. This amount is a conservative worst-case because the operator at Facility B has indicated that their catalyst fines are now being recycled because the composition has altered to be more suitable for cement manufacturing. If the composition of the spent catalyst from Facility B after implementing the proposed project remains suitable for cement manufacturing, then the additional 2.47 tons per day will also be recycled and only 0.05 tons per day or 100 pounds per day from Facility I would need to be trucked to a landfill as a result of the proposed project. For these reasons, the solid/hazardous waste generated from the proposed project are not are expected to exceed total landfill capacity.

For the hazards/hazardous materials analysis, a fire hazard analysis of the different materials being used (e.g. catalyst, caustic, et cetera) is included in Chapter 4 of the PEA. However, the fire hazard associated with the use of ammonium (NH4) to control NOx is not germane to the proposed project and as such, is not analyzed in the PEA.

2-22 As required by CEQA, the PEA includes an alternatives analysis and one of the alternatives (referred to herein as Alternative B) is the AQMP alternative, as suggested by the commenter. However, contrary to the comment, CEQA does not require an evaluation of cost-effectiveness. Thus, a cost-effectiveness analysis for varying BARCT levels for SRU/TGUs and FCCUs will not be included in the PEA. However, for the proposed project, facilities for which the cost-effectiveness of a particular control technology exceeded $50,000 per ton reduced were assumed not to use that control technology. Instead, the PEA contains alternatives that analyze varying compliance levels for the affected source categories. This analysis can be found in Chapter 5 of the PEA.

2-23 The purpose of CEQA is to: 1) inform governmental decision-makers and the public about potential environmental effects of a project; 2) identify ways to reduce adverse impacts; 3) offer alternatives to the project; and, 4) disclose to the public why a project was approved. In compliance with CEQA, this PEA has been prepared to thoroughly analyze the environmental effects (benefits and impacts) of the proposed project. As part of this

analysis, the PEA takes into account California's State of Emergency for Drought in the Hydrology and Water Quality existing setting discussion in Chapter 3 and analysis in Chapter 4.

The PEA does not consider the economic health of California, as that issue not part of the project. Further, by the time this project is implemented, the economic health of California could substantially change, making the point moot. The cost of the proposed project will be considered in the socioeconomic analysis. While CEQA Guidelines §15131 (a) allows, but does not require, the economic effects of a project to be included in the CEQA document, the economic effects shall not be treated as significant effects on the environment and the focus of the analysis shall be on the physical changes. This PEA shows that the proposed project contains significant adverse impacts as well as benefits and focuses on the physical effects of the proposed project.

2-24 See the response to Comment 2-4.

BINGHAM

Michael S. McDonough
Direct Phone: 213.680.6600
Direct Fax: 213.830.8710
michael.mcdonough@bingham.com

July 21, 2009

Trade Secret and/or Confidential Business Information

Via U.S. Mail and E-Mail

Ms. Barbara Radlein
Air Quality Specialist
South Coast Air Quality Management District
Planning, Rule Development and Area Sources
21865 East Copley Drive
Diamond Bar, CA 91765-4178

Re: Comments on Notice of Preparation of a Draft Environmental Assessment and Initial Study for Proposed Amended Regulation XX

Dear Ms. Radlein:

Rhodia Inc. appreciates the opportunity to provide comments on the South Coast Air Quality Management District's Notice of Preparation of a Draft Environmental Assessment and Initial Study for Proposed Amended Regulation XX (NOP/IS). Because these comments contain confidential business information, we request that the District treat the entirety of these comments as business confidential and protect them from public disclosure. These comments should be distributed only to those District personnel with a need to know this information in the context of the review and revision of the NOP/IS. 3-1

Rhodia previously has provided comments to the District on the proposed amendments to Regulation XX, most recently relating to the draft Staff Report for those proposed amendments. Rhodia incorporates those previous comments by reference here. 3-2

As you know, the District's proposed amendments to the SOx RECLAIM rules (Regulation XX) rely on a reassessment of the Best Available Retrofit Control Technology (BARCT) level for major SOx RECLAIM sources, as proposed in Control Measure CMB-02 in the District's 2007 Air Quality Management Plan (AQMP). Though Control Measure CMB-02 is a SOx control measure, the District has communicated that it seeks these additional SOx reductions as a strategy for meeting the National Ambient Air Quality Standards (NAAQS) for fine particulate matter (PM2.5) by 2015. 3-3

Both the California Environmental Quality Act (CEQA) and District Rule 110 require, among other things, that the District to identify all potential adverse environmental 3-4

Boston
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Bingham McCutchen LLP
Suite 4400
355 South Grand Avenue
Los Angeles, CA
90071-3106

T 213.680.6400
F 213.680.6499
bingham.com

impacts of the proposed rule amendments, and to identify and implement alternatives or mitigation measures to those amendments. In preparing the draft Environmental Assessment (EA) for the proposed rule amendments, District staff should ensure that it considers a number of impacts and alternatives: 3-4 Cont'd

- State law prohibits the District from setting BARCT levels without considering the relative environmental and economic impacts on each affected source category. To date, the District's proposed regulations (which the District estimates would cost all stakeholders over $1 billion to meet) do not reflect a full and fair consideration of lower cost SOx control alternatives that would still allow the District to accomplish its objectives of reducing PM10 and PM2.5 to meet the NAAQS. In preparing the EA, District Staff must consider and evaluate (1) the relative environmental and economic impacts of requiring the proposed SOx controls for sulfuric acid manufacturing instead of requiring greater reductions from different industrial sectors, and/or from direct sources of PM2.5 and/or PM10 throughout the Basin; (2) the relative environmental and economic impacts of obtaining SOx reductions through alternative, less expensive control measures (such as use of cesium catalyst) within the sulfuric acid manufacturing industry; (3) the prospect that the proposed regulations will result in crippling spikes in SOx RECLAIM credit prices and/or a general scarcity in credits, and the relative environmental and economic impacts likely to be associated with such a crippling of the SOx RECLAIM market. 3-5

- District Staff also must consider and evaluate the amount emissions produced from energy used to produce caustic required for wet scrubbers to be used in the sulfuric acid manufacturing industry, and the emissions from transporting caustic to the facility. 3-6

- Staff currently is using 2005 emissions inventories as the baseline against which to measure anticipated emissions reductions from the proposed amendments. Staff must take into account any SOx emissions reductions and control measures that have been put into place since that time, and discount the District's estimated emissions savings figures appropriately to determine the true cost-per-ton cost effectiveness of the proposed amendments and any feasible alternatives. 3-7

- Both the District and stakeholders have acknowledged that the proposed regulations would involve significant compliance costs for the refining industry, and could result in increases in the price of gasoline in Southern California. Staff must consider the full range of potential impacts Basinwide that could result from such higher gasoline prices. 3-8

- Despite optimistic estimates from District Staff to date, stakeholders have explained that installing actual emissions controls likely will take longer that the District anticipates. Emissions reductions from new control equipment may not be available to assist in PM2.5 attainment in the District until 2012 or later, 3-9

depending on when the District approves the BARCT revision. Accordingly, District Staff must consider and evaluate the impacts of requiring SO2 emissions reductions that would not yield PM2.5 reductions until 2012 or later, and whether less-costly alternatives may be available to achieve PM.5 and/or SOx reductions on a faster schedule.

3-9 Cont'd

These are only some of the additional factors District Staff should consider in preparing the draft EA. The proposed amendments would result in unprecedented compliance costs across a host of industries, during the most severe economic downturn the nation has seen in over 75 years, and during a time when the availability of capital funding is extremely limited. The District's EA must take into account all of the environmental and economic impacts that are likely to flow from the adoption of the proposed regulations during this unique confluence of events.

3-10

As always, please feel free to contact us if you have any questions

Very truly yours,

Michael S. McDonough

Responses to Comment Letter #3
(Bingham McCutchen LLP, July 21, 2009)

3-1 Contrary to the original comment, Bingham representative Michael S. McDonough has consented to have the comments and responses to their letter included in the Draft PEA per the following email:

-----Original Message-----
From: McDonough, Michael
Sent: Monday, August 10, 2009 10:17 AM
To: Ruby Fernandez
Cc: Barbara Radlein
Subject: Comments on Notice of Preparation of Environmental Assessment and Initial Study for SOx RECLAIM Amendments

Ms. Fernandez -

Thanks for your voice mail last week. This e-mail is to confirm that, notwithstanding the confidentiality label on Rhodia's July 21, 2009 comments on the SCAQMD's Notice of Preparation of Environmental Assessment and Initial Study for the proposed SOx RECLAIM amendments, we consent to have the comments and the SCAQMD response(s) published in the CEQA document appendix for the proposed amendments. If you have any questions, please feel free to call me. Thank you.

Mike

Michael S. McDonough
T 213.680.6600
F 213.680.6499
michael.mcdonough@bingham.com

B I N G H A M
Bingham McCutchen LLP
Suite 4400
355 South Grand Avenue
Los Angeles, CA 90071-3106

3-2 Two comment letters from Rhodia regarding the proposed amendments and staff report were received on April 29, 2008 and November 25, 2008. As none of the comments in these letters pertain to CEQA or the CEQA analysis for the proposed project, they are not repeated here. Instead, responses to these comments can be found in Part 1 of the SOx RECLAIM Draft Staff Report – BARCT Assessment & RTC Reductions Analysis, Chapter 14, December 2009.

3-3 In the *Clean Air Fine Particle Implementation Rule*, the USEPA specifically requires the non-attainment areas (which includes the SCAQMD) to evaluate all control measures to reduce direct PM2.5 emissions, as well as PM2.5 precursors, especially SOx. It should be noted that the 17 million residents of the South Coast Air Basin experience the worst PM2.5 exposure in the nation. While the 2007 AQMP lays out a multi-pollutant control strategy to demonstrate attainment with the federal PM2.5 standards, it identifies NOx and SOx reductions by far as the two most effective tools in reaching attainment with the PM2.5 standards. Because sulfur dioxide (SO2) is a PM2.5 precursor, SO2 reductions that may occur as a result of the proposed project will have the effect of indirectly reducing PM2.5 and contribute to the federal PM2.5 attainment demonstration.

3-4 The CEQA analysis in the PEA will focus on the following environmental topics: aesthetics, air quality, energy, hazards and hazardous materials, hydrology and water quality, and transportation. For any topics that have been shown to have significant impacts, a cumulative impacts analysis for these environmental topics and an alternatives analysis will also be included in the PEA.

3-5 As mentioned in the response to Comment 3-4, the PEA will contain an alternatives analysis and each alternative may have varying economic impacts. The alternatives analysis in the PEA will explore various configurations of SOx control options and each alternative's environmental impacts. As for cost, the cost-effectiveness of the rule and the alternatives can be found in can be found in Part 1 of the SOx RECLAIM Draft Staff Report – BARCT Assessment & RTC Reductions Analysis, Chapter 14, December 2009. In addition, the socioeconomic impacts of the rule and the alternatives will be analyzed in a separate report from the PEA.

3-6 As part of installing a WGS on a sulfuric acid plant, the consultants' reports show that sodium hydroxide (NaOH) caustic will be needed to operate the WGS. NaOH will also be needed to operate WGSs for other equipment source categories. The air quality discussion and the energy discussion in Chapter 4 of the PEA take into account the air emissions that may be generated and the fuel needed for multiple truck deliveries of the caustic solution to all of the affected facilities, including the sulfuric acid plant. With regard to the comment about the increased electricity needed to produce caustic, the PEA assumes that because caustic is produced locally, it is locally available for transport and it is likely that the existing local caustic manufacturers can handle the proposed increase in caustic for the entire project. The energy analysis in Chapter 4 of the PEA takes into account the additional energy that would be needed for local caustic manufacturers to make enough extra caustic to satisfy the total caustic demand of the proposed project (i.e., 13.24 tons per day under Option 1 and 8.79 tons per day under Option 2).

3-7 Very little SOx emission reductions were projected in the 2003 AQMP. The most substantial amount of SOx reductions resulted from the November 2005 amendments to SCAQMD Rule 1118 – Control of Emissions From Refinery Flares, which implemented stationary source control measure CMB-07: Emission Reductions from Petroleum Refinery Flares (2003 AQMP), to reduce SOx emissions by 2.1 tons per day. Subsequent to amending Rule 1118, the 2007 AQMP was adopted and it calls for significant reductions of SOx from both stationary and mobile sources by 2014. Regional modeling in the 2007 AQMP indicates that an overall emission reduction of 24 tons per day of SOx is needed to meet the particulate standard in 2014. Of the 24 tons per day reduction, mobile source control measures from CARB and the District can potentially reduce 21 tons per day. The remaining three tons per day of SOx reductions can come from the stationary source control measure for RECLAIM facilities. However, it should be noted that additional reductions of SOx and NOx emissions will be needed to meet the 24-hour federal PM2.5 standard. A BARCT reassessment for SOx is therefore essential to identify the potential sources that can generate three tons per day of SOx reductions required for 2014.

3-8 SCAQMD staff is in the process of conducting a socioeconomic analysis for the proposed amendments to the SOx RECLAIM program. This analysis will include annual costs of

compliance and the resulting macroeconomic impacts on the Basin's economy. The analysis will also include potential impacts on gasoline prices in the Basin.

3-9 Given the amount of lead time needed for engineering design, planning and financing, the anticipated construction date assumed in the PEA is 2012 at the earliest, spanning over a seven-year period, and with construction completed and units operational by January 1, 2019.

3-10 With regard to compliance costs, refer to the response to Comment 3-8. SCAQMD staff will also assess funding availability to the affected facilities regarding their compliance with the proposed amendments.

APPENDIX E

COMMENT LETTERS ON THE DRAFT PEA

AND RESPONSES TO COMMENTS

Comment Letter #1

From: Mike Wang [mailto:mwang@wspa.org]
Sent: Monday, September 13, 2010 4:02 PM
To: Shah Dabirian; Barbara Radlein
Cc: Joe Cassmassi; Laki Tisopulos
Subject: Re-submittal of Environ data: April 15

<<SOx RECLAIM April 15 trans note socioecon 09132010.doc>> <<SOx to SCAQMD 04152010A.ppt>>

All: This email and attachments are follow-up to your SOX RECLAIM Working Group meeting and Public Consultation meetings held on September 8. As you will recall, at those meetings, we discussed the need for the District to include, within the Socioeconomic Report, information on compliance costs resulting from the District's original proposal of a 64% reduction in RTCs. During those conversations, it became clear that some of you working on the RECLAIM project may not have been aware of the information we had provided to the District earlier this year. To address this omission, the Environ presentation that we originally submitted to the District on April 15 is again attached for your review and as input to the Socioeconomic Report.

Also, as my note to you suggests, we will soon provide you with additional information on impacts to the petroleum industry and the regional economy. This new information builds upon, and in some cases updates, data included in the April 15 presentation. I hope to schedule a meeting to brief you on this new information in the near future.

Thank you.

Manager, Legal and Cross-Regional Issues

Cell: 626-590-4905

Western States Petroleum Association
Credible Solutions ▪ Responsive Service ▪ Since 1907

Michael D. Wang
Manager, Legal and Cross Regional Issues

September 13, 2010

TO: Shah Dabirian, sdabirian@AQMD.gov
Barbara Radlein, bradlein@aqmd.gov

Cc: Laki Tisopulos, AQMD
Joe Casmassi, AQMD

Re: Transmittal of Costs to Refinery Operations: Input to Socioeconomic Report and Initial Response to Draft Programmatic Environmental Assessment

Dear Mr. Dabirian and Ms. Radlein,

In our conversations during the SOx Working Group meeting and the Public Consultation Meeting Regarding Proposed Regulation XX – SOx RECLAIM, you requested that we send you the cost data we already provided to the District on April 15.

We are pleased that the District remains interested in understanding the extraordinary costs to the refining industry to comply with the proposed shave, and the potential impacts on the region. However, we are disappointed to see that the data we provided on April 15 was not included in the DPEA. Apparently it also has not been included in the initial socioeconomic analysis. 1-1

To rectify this omission, and to ensure that data from the affected industry is included in the Final Programmatic Environmental Assessment and in the Socioeconomic Report, we have attached the April 15 presentation that was provided to the District.

We are also finalizing our analysis of the possible economic impact of these costs on the petroleum and the region. Upon completion of that work, we will share our findings with you.

If you have any questions, please contact me.

Sincerely,

970 W. 190th Street, Suite 770, Torrance, California 90502
(310) 808-2149 • Fax: (310) 324-9063 • Cell: (626) 590-4905 • mike@wspa.org • www.wspa.org

WSPA RECLAIM Cost Estimate

- Objective was to estimate, using confidential company data, costs to comply with 25% and 60% shave in RTC Allocations
- WSPA retained ENVIRON to collect data and perform analysis with the results aggregated and de-identified

1

Survey Methodology

- Companies submitted operating and capital cost estimates to ENVIRON
- Company data included, for example:
  - Modifications to FCCU, SRU/TGU
  - Facility/Process improvements including changes in facility operations that were not associated with FCCU or SRU/TGU such as improved monitoring equipment

2

Survey Methodology (Cont'd)

- Survey Time period: September 2009 – November, 2009.
  - ENVIRON followed up with companies, as appropriate, to verify that the data was submitted on a consistent basis
  - Follow up by ENVIRON and WSPA continues
  - Confidentiality of data continues to be protected

3

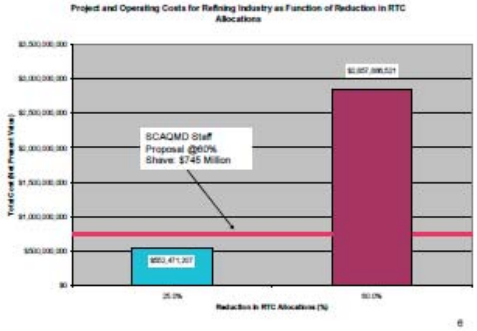
Example Cost Calculation

- Costs are Net Present Value of capital and operating costs at 4% for 25 years
  - Tried to emulate method used by the SCAQMD staff.
  - Cost Effectiveness is NPV/emissions reduced over project life.
  - Emissions based on 2005 year

4

Results

5



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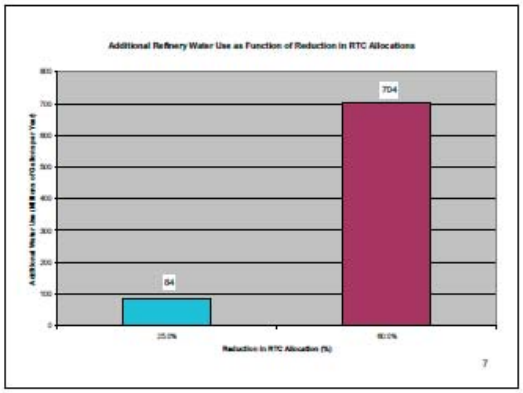
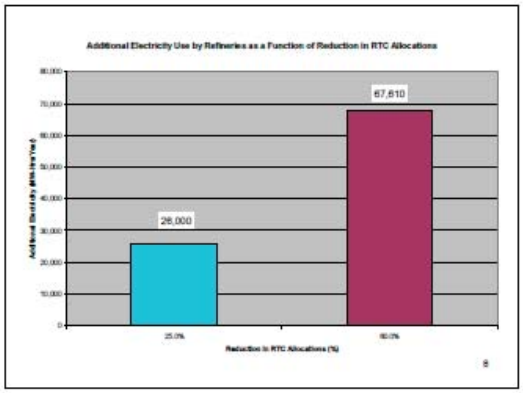




Project and Operating Costs at Refineries as a Function of Reduction in RTC Allocations

Total Cost to Reach % Shave

Contribution	25% Shave	60% Shave
FCCUs Contribution	$83,566,119	$1,454,514,152
SRUs Contribution	$341,790,016	$436,096,383
Other Contribution	$127,115,072	$960,203,487
Rounded Totals	**$550,000,000**	**$2,850,000,000**

Source: ENVIRON Survey prepared for WSPA

9

FCCU Costs @ 25% Shave

Project Type	Present Value - Capital Cost	Present Value - Operating Cost	Total Present Value
Use More $DeSO_x$ catalyst	$0	$83,566,119	$83,566,119
Rounded Total	$0	$84,000,000	$84,000,000

10

FCCU Costs @ 60% Shave

Project Type	Present Value - Capital Cost	Present Value - Operating Cost	Total Present Value
Wet Gas Scrubber	$265,000,000	$103,105,728	$368,105,728
Hydrotreating Modification	$350,000,000	$734,237,757	$1,084,237,757
Use More $DeSO_x$ catalyst	$0	$2,170,667	$2,170,667
Total	$615,000,000	$840,000,000	$1,455,000,000

11

SRU Costs @ 25% shave

Project Type	Present Value - Capital Cost	Present Value - Operating Cost	Total Present Value
Tail Gas Treatment	$210,500,000	$118,727,808	$329,227,808
Unspecified Project Type	$11,000,000	$1,562,208	$12,562,208
Rounded Total	$222,000,000	$120,000,000	$342,000,000

12

SRU Costs @ 60% shave

Project Type	Present Value - Capital Cost	Present Value - Operating Cost	Total Present Value
Tail Gas Treatment	$200,000,000	$109,354,560	$309,354,560
Process Optimization	$1,000,000	$7,811,040	$8,811,040
Wet Gas Scrubber	$82,000,000	$35,930,784	$117,930,784
Total	$283,000,000	$153,000,000	$436,000,000

13

Others Improvements @ 25% Shave

Project Type	Present Value - Capital Cost	Present Value - Operating Cost	Total Present Value
Unspecified Project Type	$28,000,000	$7,811,040	$35,811,040
Other Process Improvements	$13,000,000	$39,056,200	$52,056,200
Fuel Gas Treatment	$33,000,000	$6,248,832	$39,248,832
Rounded Total	$74,000,000	$53,000,000	$127,000,000

14

Other Improvements @ 60% Shave

Project Type	Present Value - Capital Cost	Present Value - Operating Cost	Total Present Value
Wet Gas Scrubber	$70,000,000	$35,930,784	$105,930,784
Unspecified Project Type	$95,000,000	$14,059,872	$109,059,872
Other Process Improvements	$13,000,000	$7,811,040	$20,811,040
Fuel Gas Treatment	$183,000,000	$240,580,031	$423,580,031
Fuel Gas Hydrotreating	$250,000,000	$46,866,240	$296,866,240
Other Facility Improvements	$50,000	$3,905,520	$3,955,520
Total	$611,000,000	$349,000,000	$960,000,000

15

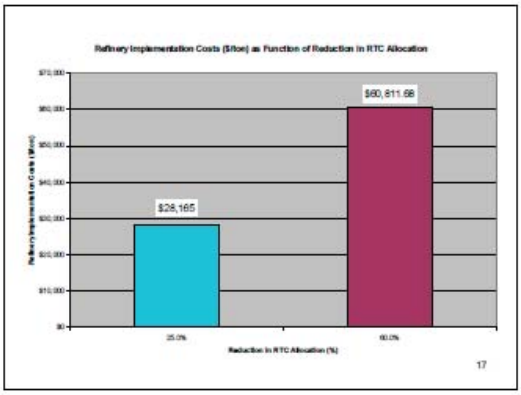
Another Look: Project and Operating Costs at Refineries as a Function of Reduction in RTC Allocations

Total Cost to Reach % Shave

Contribution	25% Shave	60% Shave
FCCUs Contribution	$83,566,119	$1,454,514,152
SRUs Contribution	$341,790,016	$436,096,383
Other Contribution	$127,115,072	$960,203,487
Rounded Totals	**$550,000,000**	**$2,850,000,000**

Source: ENVIRON Survey prepared for WSPA

16



17

Responses to Comment Letter #1
(Western States Petroleum Association, September 13, 2010)

1-1 The commenter has suggested that the PEA should include the submitted cost data as part of the CEQA analysis. However, the comment letter does not raise the potential for any physical changes to the environment which needs to be addressed through CEQA. Under CEQA Guidelines §15131(a), the economic effects of a project shall not be treated as significant effects on the environment. An environmental document may trace a chain of cause and effect from a proposed decision through economic effects to physical changes caused by economic effects. This comment does not contend that the purported economic effects will result in any physical changes. As a result, the focus of the analysis was on the physical changes caused by the proposed project.

CEQA does require public agencies to consider economic and social factors together with technological and environmental factors in deciding whether changes in a project are feasible to reduce or avoid the significant effects on the environment identified in the CEQA document. However, this information need not be presented in the CEQA document itself (CEQA Guidelines §15131(c)). Moreover, the comment does not contend that the project will result in significant adverse environmental impacts.

The SCAQMD presents information related to the economic impacts of the project in the socioeconomic analysis. As such, the Governing Board will be presented with both the PEA and the socioeconomic analysis to consider when reaching a decision on the proposed project.

Comment Letter #2

-----Original Message-----
From: Randolph Visser [mailto:RVisser@sheppardmullin.com]
Sent: Friday, October 01, 2010 2:56 PM
To: William Wong
Subject: FW: Draft Comment Letter PEA Reg XX 09292010(V2)

Bill,
Per our call, attached is another copy of Owens' comment letter on the Reg.XX Reclaim SOx "shave rule".
I understand Ev Ashworth earlier forwarded you a copy of this but his e-mail contained a boilerplate confidentiality provision(as mine probably does below as well) and there was concern at the District whether you could publish the comment letter. This will confirm that you can ignore that confidentiality paragraph on Ev's email(and mine here).
He submitted the letter on behalf of Owens to be published in the public record(as do I).
I also understand Ev messengered hard copies of the Owens letter out to the District for filing as well.
Owens will be setting up a mtg with District to discuss the shave very soon. Thanks fro calling me to clear away any confusion Electronics!
Thanks

Randolph Visser
333 South Hope Street
43rd Floor
Los Angeles, CA 90071-1448
RVisser@sheppardmullin.com
Direct: 213.617.4144
Fax: 213.443.2839

From: Ev Ashworth [mailto:EAshworth@algcorp.com]
Sent: Friday, October 01, 2010 9:31 AM
To: bradlein@aqmd.gov
Cc: Dean.Harris@o-i.com
Subject: FW: Draft Comment Letter PEA Reg XX 09292010(V2)

Ms. Radlein:

Attached, please find digital copies of the comments provided by the Owens Brockway Vernon California container glass manufacturing facility on the District's Draft Program Environmental Assessment regarding the proposed amendments to Regulation XX-RELCAIM (Rule 2002; the proposed SOx shave). A hard copy, which is addressed to you, will be hand delivered to the front desk later today (probably by mid-afternoon).

If you would, may I ask that you confirm receipt of these digital comments?

Thank you; I would welcome a call should you have questions, etc.

Regards, Ev Ashworth

_____

Everard Ashworth
Ashworth Leininger Group
601 E. Daily Drive, Suite 302
Camarillo, CA 93010
Tel: 805.764.6017
Fax: 805.764.6011
Cell: 805.432.9732
email: eashworth@algcorp.com

Owens-Brockway Glass Container Inc.
2901 Fruitland Avenue
Vernon, CA 90058
+1 323 586 4200 tel

www.o-i.com

October 1, 2010

Ms. Barbara Radlein
Office of Planning, Rule Development & Area Sources
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Proposed Amended Regulation XX –Comments on the Program Environmental Assessment - Owens-Brockway Glass Container Inc. Vernon Facility (SCAQMD ID 7427)

Dear Ms. Radlein:

By this letter, Owens-Brockway Glass Container Inc. Vernon, California facility (Owens Vernon facility) provides its comments on the August 2010 Draft Program Environmental Assessment (DPEA) that the District prepared to consider the impacts of the proposed amendments to Regulation XX, Rule 2002. Specifically, we provide to the District additional technical information that should be considered under the California Environmental Quality Act (CEQA) by the District's decision makers in setting Best Available Retrofit Control Technology (BARCT) for glass manufacturing. As summarized in correspondence previously submitted to the District, the Owens Vernon facility has already installed BARCT, which the District has recognized as Best Available Control Technology for the control of sulfur oxides[1]. Further, there is no example of a glass container manufacturing facility with a control configuration as suggested by the District to represent BARCT. Therefore, it is especially important for the District's CEQA to fully disclose the potential impacts of the proposed BARCT for container glass manufacturing – a technology that has not worked when previously applied by glass manufacturing operations here in Los Angeles

2-1

Background on Owens Vernon Facility

To put these technical issues in perspective, it is helpful to have an understanding of our plant's customers, employees, and our facility's role in sustainable manufacturing resources in the Los Angeles area. The Owens Vernon facility has been in business for over 70 years. Over the past 25 years, some six individual glass container manufacturing facilities have ceased to operate in

2-2

[1] See attached September 22, 2010 comments filed by the Owens Vernon facility with the District.

the Los Angeles basin, such that the Owens Vernon facility is the only remaining container glass manufacturing facility located within the District. We produce between 2 and 3 million glass bottles per day on five production lines pulling from two furnaces and purchase approximately 330 tons/day of recycled glass. We have 260 employees that represent 15 different countries and territories of origin, over one third of whom have worked at the Owens Vernon facility for over 20 years. The average salary for Owens Vernon staff is three times the minimum wage, with medical, dental and pension plan benefits. Our customers are here in Los Angeles; over 75% of our shipments are to customers within 25 miles of the of the Owens Vernon plant. Thus, the Owens Vernon Facility plays a vital role in maintaining sustainable container glass manufacturing in the Los Angeles area.

2-2 Cont'd

It is also important to put our environmental controls into proper perspective. Owens has been an innovator of emission controls on glass manufacturing. At significant cost, our company implemented oxygen-fuel fired glass manufacturing technology to reduce nitrogen oxide (NOx) emissions from high temperature furnace exhaust. This innovative process control technology was installed to comply with NOx RECLAIM allocations. To comply with SOx RECLAIM, Owens Vernon first employed a SOx control system that injected a water-based sorbent into the exhaust stream prior to the existing electrostatic precipitators (ESPs). However, our facility experienced numerous problems with this technology [*Petition for an Ex Parte, Emergency, and a Short Variance*, Case No. 4472-9, Facility ID 007427, May 15, 1997, paragraphs 6-10]. We also note that the Ball-Foster El Monte facility experienced significant operating problems with its wet scrubber technology, which resulted in the company's decision to replace the wet scrubber with a dry scrubber followed by an electrostatic precipitator [*Petition for Modification and Extension of a Variance*, Case No. 108-20, Facility ID 108701, April 9, 1997, paragraphs 6-14].

2-3

Therefore, with the District's approval, Owens Vernon selected dry scrubbing technology (Trona injection) to reduce sulfur dioxide to comply with RECLAIM. It is important to note that this dry scrubbing technology was identified by the District as Best Available Control Technology (BACT) for the control of sulfur oxides. The dry scrubber controls are followed by the existing three ESPs that operate in parallel to remove entrained Trona sorbent and particulate emissions from the exhaust of the two glass melting furnaces. These technologies reduce sulfur oxide emissions by up to 90%. It is critical to note that the Owens Vernon facility actual SOx emission rate (approximately 0.6 pounds/ton of glass pulled) is significantly lower than the permitted SOx emission rate established for the container glass manufacturing facility in Seattle, Washington that is controlled by the wet scrubber technology evaluated by the District in its BARCT determination.

2-4

Summary of Comments on DPEA

With this background, we now turn to consider technical issues that should be properly addressed by the District's DPEA and support the Rule 2002 revisions. In accordance with CEQA, and its Rule 110, the SCAQMD prepared a DPEA to analyze the environmental impacts of the proposed amended Regulation XX (the "Project"). As discussed below, the DPEA fails to comply with CEQA and the CEQA Guidelines (the "Guidelines") for several reasons.

As an overarching premise, an agency implementing a certified regulatory program must adhere to the basic policies and substantive obligations established by CEQA (see Guidelines §15250). Accordingly, an environmental document prepared pursuant to a certified regulatory program must include a description of the project, alternatives to the project, and mitigation measures to minimize any significant adverse environmental impacts (see Pub. Resource Code §21080.5(d)(3)(A)). In addition, public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available that would substantially lessen the significant environmental effects of the project (see Pub. Resource Code §21002). And, of course, the agency must support its analysis with substantial evidence. Here, the DPEA failed to meet several of these standards. 2-5

First, the DPEA's analysis of water supply is inadequate. The DPEA does not provide substantial evidence to factually demonstrate that adequate water supplies are available. The DPEA also acknowledges that there are no guarantees for substantial portions of the water supplies that it factored into the supply and demand analysis. In other words, the DPEA is not only relying on speculative water sources, but also relying on unsupported water supply claims. That is impermissible.

In addition, the DPEA's proposed water supply mitigation measures (i.e., HWQ-1 and HQW-2, use of recycle water) are inadequate because the measures do not minimize the water demand impacts of the Project. Also, the DPEA concludes that water demand impacts are significant, but then fails to propose all feasible mitigation measures. Worsening matters, the DPEA's cumulative impact analysis provides no meaningful assessment of the Project's cumulative water demand impacts. These are clear failures of CEQA requirements. 2-6

Second, the DPEA's analysis of greenhouse gas ("GHG") impacts is inadequate. The DPEA concedes that the Project will have a significant GHG impact. As noted above, that triggers the need to propose all feasible mitigation measures. The DPEA, however, only proposes GHG-1 and GHG-2 (i.e., use of recycle water, see p.4-31), which are inadequate from a CEQA perspective. 2-7

Third, the DPEA's analysis of alternatives is inadequate. Without the No Project Alternative, there are only two real alternatives, neither of which have a bearing on container glass 2-8

manufacturing. These two alternatives do not constitute a reasonable range under CEQA, especially considering the Project's wide-reaching effects on the industries subject to Regulation XX. SCAQMD must propose additional alternatives that are capable of reducing the Project's significant impacts.

2-8 Cont'd

Fourth, the DPEA improperly assumes that the Project will allow affected facilities to implement BARCT over a 9-year period, and that the peak construction emissions are expected to occur in 2012. This assumption is not supported with any technical analysis; rather the DPEA simply refers to the proposed compliance dates outlined in Rule 2002 (i.e., 2012-2019). Under CEQA, where specific data are not available, the responsible agency is to make reasonable worst case assumptions. Thus, absent any analysis, the peak construction should be assumed to occur in 2011, as facilities must comply with the SOx shave as of 2012. Further, in response to comments provided by the public, the DPEA assures decision makers that there is adequate production capacity to supply wet scrubber control technology to all affected sources within the seven year compliance period provided by Rule 2002 (See Comment 9, Table 1-1). We have been unable to find technical data in the DPEA to support this assumption. Therefore, consistent with CEQA guidelines, the analysis should be based on reasonable worst case assumptions, which would require that all affected facilities install controls within a two year period, not the seven year period suggested by the DPEA.

2-9

2-10

We provide additional technical data below indicating where impact analyses in the DPEA are deficient in the following areas:

- Aesthetics
- Air Quality
- Air Toxics
- Land Use
- Noise
- Water Demand
- Water Quality

Failure to remedy these deficiencies before approving the Project would be a prejudicial abuse of discretion. Therefore, we respectfully request that the SCAQMD resolve these and other CEQA deficiencies, so that the decision makers are properly informed before taking any action on the Project.

2-11

Aesthetics

In the analysis of Aesthetics impacts from project operation, the DPEA states on p. 4-8 the following:

2-12

- "If any WGS is installed as part of the proposed project ... at any of the affected facilities, the steam plume, though visible, is not expected to significantly adversely affect the visual continuity of the surrounding area of each affected facility because no scenic highways or corridors exist within the areas of the refineries, the coke calciner, the sulfuric acid plants and the glass melting plant."

- "Further, the visual continuity of the surrounding area is not expected to be adversely impacted because each WGS, if constructed, will be built within the confines of industrial areas and would be visually consistent with the profiles of the existing affected facilities."

The Owens Vernon glass plant is different from some of the other facilities affected by the proposed rule in that there currently are no visible steam plumes at the facility or nearby. Therefore, the addition of a visible plume is not visually consistent with the profile of the existing facility. We also disagree that a scenic highway or corridor within the area of the melting plant is a prerequisite for a significantly adverse affect on aesthetics. It is common practice to address aesthetics impacts for a facility in an industrial area by taking photographs of the facility from various vantage points and superimposing a mockup of the potentially offending visual element (in this case, a steam plume) on each photograph. It is not acceptable to draw broad conclusions regarding an impact that was previously determined to be potentially significant in the NOP/IS without providing the decision makers the means to form their own judgment. We therefore request that the aesthetics section be revised to properly describe the impact of the proposed BARCT on the container glass sector to properly inform the District's decision makers on the visual impacts of the proposed BARCT.

2-12 Cont'd

Air Quality

The DPEA did not address what the effect would be on the impact of NOx emissions from the furnaces due to installation of wet gas scrubbers. The exhaust streams from the furnaces currently pass through dry gas scrubbers and electrostatic precipitators (DGS-ESP). Further treating by wet scrubbers would result in evaporative cooling of the exhaust. The cooler resulting plumes would have substantially less buoyancy and plume rise, and the ground-level concentrations of pollutants not affected by the WGS (such as NOx) would be higher. To get a sense of this effect, the EPA SCREEN3 dispersion model was used to quantify the potential increase in maximum one-hour average NOx concentration. The assumed stack parameters with and without the WGS cooling effect are shown in the table below:

2-13

Parameter	Without WGS*	With WGS
Exhaust Temperature (°F)	650	150

Parameter	Without WGS*	With WGS
Flow Rate (acfm)	30,000	30,000
Stack Height (ft)	80	80
Stack Diameter (ft)	3.5	3.5
Building Height (ft)	40	40
Building Length (ft)	150	150
Building Height (ft)	100	100

*DGS-ESP case

The only difference in the modeled parameters is the exhaust temperature. The exhaust temperature for the DGS-ESP case was approximated from source test data. The temperature for the WGS case was approximated from manufacturer's data. The stack height and diameter are the values for the current ESP stacks at the Owens Vernon facility. The building dimensions, however, are a very simplified representation.

In both cases, the SCREEN3 model was run with a NOx emission rate of 2.0 g/s, which equates to 380 lb/day, the approximate average daily NOx emission rate for the Owens Vernon facility.

2-13
Cont'd

The SCREEN3 results, which are shown in the attached output files, indicate that there is the potential for a substantial difference in predicted maximum one-hour average ground level concentration. The DGS-ESP case yielded a maximum NOx concentration of 30 $\mu g/m^3$ at 120 meters downwind, whereas the WGS case yielded a maximum NOx concentration of 50 $\mu g/m^3$ at 187 meters downwind.

These results are interpreted as follows. The federal one-hour average NO_2 standard established in April of this year by the EPA is 189 $\mu g/m^3$. The background NO_2 concentration (i.e., design value) for the Vernon area, as represented by the central LA monitor, is 158 $\mu g/m^3$. If 75% of the modeled NOx is assumed to be in the form of NO_2, a common assumption for screening level modeling, then the total NO_2 impact (background plus stack impact) is 180 $\mu g/m^3$ for the DGS-ESP case. For the WGS case, however, the total concentration is 195 $\mu g/m^3$. Therefore, this simple screening analysis demonstrates that the cooler exhaust that would result from adding WGS technology has the potential to create an exceedance of the federal one-hour average NO_2 standard. Therefore, the DPEA should have evaluated this potentially significant air quality impact. We note that the DPEA does not even recognize this new standard as an applicable requirement. At a minimum, the District should evaluate the extent

to which the Rule 2002 amendments will cause or contribute to an exceedance of the new federal one hour nitrogen dioxide standard.

2-13 Cont'd

As discussed above, the DPEA concedes that the Project will have a significant GHG impact. As noted above, that triggers the need to propose all feasible mitigation measures. The DPEA, however, only proposes GHG-1 and GHG-2 (i.e., use of recycle water, see p. 4-31), which are inadequate from a CEQA perspective. At a minimum, the District should follow the outline of proposed GHG mitigation measures in the recently released California Air Pollution Control Officers Association's *Quantifying Greenhouse Gas Mitigation Measures* (see http://www.capcoa.org/). Absent this GHG mitigation analysis, a decision maker cannot reasonably conclude that all feasible GHG mitigation measures have been applied.

2-14

Air Toxics

The DPEA should not limit the evaluation of sodium hydroxide (NaOH) operational impacts to the calculation of emissions from storage tank filling and working losses (as identified in Tables 4-8 and 4-9). The potential for NaOH emissions from the proposed wet gas scrubber should also be considered. Any time a chemical solution is sprayed into a chamber through which a gaseous stream passes; there is the potential for the resulting small droplets to be carried along with the stream as drift or mist. Therefore, worse-case emission calculations should consider NaOH slip out the WGS stack into the ambient air. We realize that mist eliminators could be installed in the WGS units to reduce these emissions, but the uncontrolled emission rate(s) should be calculated and compared to the most stringent Rule 1401 Screening Emission Level for NaOH (i.e., 0.004 pounds per hour). The cost of these controls, if necessary, should be factored into the cost effectiveness analysis. Further, the impact of the pressure drop introduced by this supplemental control system on the integrity of the overall process, including the glass furnaces, dry scrubber, and ESP controls must be considered.

2-15

Land Use

The District's technical analysis does not consider what will happen should the Owens Vernon facility be unable to afford new, yet-to-be demonstrated control configurations, or secure adjusted RECLAIM Trading Credits in sufficient quantities to continue to operate. Should the Owens Vernon facility be forced to discontinue operations, over 100,000 tons/year of recycled glass will either have to be landfilled, or shipped out of the basin. Over two to three million glass containers per day will have to be shipped into the basin to our customers. Therefore, the DPEA should be revised to consider the following impacts:

2-16

- Loss of tax revenue from closure of the Vernon facility

- Loss of employment to 260 workers
- Loss of recycle capacity, and impact on neighboring landfills or from shipment of recycle glass to other locations
- Loss of container glass capacity, and the air emissions/impacts associated with shipment of container glass into Los Angeles via ship, truck and rail

These are reasonably anticipated to occur, given that the Vernon facility is now the last remaining container glass plant in Southern California.

2-16 Cont'd

Noise

The DPEA acknowledges that SOx control equipment proposed by BARCT may add new sources of noise at affected facilities, but the DPEA concludes without substantive analysis that this additional noise is not expected to be noticeable at the property line and will be within allowable noise levels set by OSHA and local noise ordinances. Notably, the DPEA provides no quantification to support this conclusion. Significantly, this conclusion is not consistent with the Ball Foster wet scrubber retrofit project, which resulted in a significant increase in noise complaints from residents and other businesses around their El Monte facility. To address these public complaints, Ball Foster installed, at considerable expense, noise attenuators and other technology to lessen the noise impact of the wet scrubber controls. As discussed elsewhere in our comments, technical problems associated with the wet scrubber technology could not be overcome, such that the wet scrubber was removed, and replaced with dry scrubber/ESP controls. The DPEA should be revised to properly summarize the direct experience at Ball Foster, quantify the incremental acoustic impact of wet scrubber technology on all affected units, and provide mitigation, as necessary, to comply with OSHA and local noise ordinances.

2-17

Water Demand

The DPEA concedes that the Project demands 52,272 gallons per day ("gpd") for construction activities and up to 883,368gpd for operation. DPEA, pp. 4-67, 4-83. To meet this significant demand, the DPEA states that SCAQMD staff has been coordinating with various water suppliers who claim that there will be sufficient water supplies for the Project. The DPEA, however, does not provide substantial evidence to support that assertion or factually demonstrate that adequate water supplies are available. The DPEA also acknowledges that there are no guarantees for substantial portions of the water supplies that it factored into the supply and demand analysis. In other words, the DPEA is not only relying on speculative water sources, but also relying on unsupported water supply claims. That is impermissible.

2-18

In addition, the DPEA's proposed water supply mitigation measures (i.e., HWQ-1 and HQW-2) are inadequate because the measures do not minimize the water demand impacts of the Project. Also, the DPEA concludes that water demand impacts are significant, but then fails to propose all feasible mitigation measures. Worsening matters, the DPEA's cumulative impact analysis provides no meaningful assessment of the Project's cumulative water demand impacts. These are clear failures of CEQA requirements. 2-19

Water Quality

The DPEA's conclusion regarding project operational water quality impacts is as follows: "Since all of the affected facilities have been shown under both options of the proposed project to have a potential wastewater increase less than 25 percent, no modifications to any existing wastewater discharge permits are anticipated as a result of the proposed project. Thus, the operational impacts of the proposed project on each affected facility's wastewater discharge and the Industrial Wastewater Discharge Permit are expected to be less than significant." (p. 4-79). What the DPEA did not address is that the installation and use of WGS at the existing glass plant would add a new and different stream to the wastewater. Therefore, the wastewater permit would need to be modified, and the conclusion that the operational impacts are expected to be less than significant is flawed. 2-20

As indicated in our attached September 22, 2010 technical comments, container glass manufacturing operations have experienced significant difficulties in treating the selenium content of wastewater from wet gas scrubbers to meet Regional Water Quality Control Board (RWQCB) industrial wastewater discharge standards. Selenium is used to refine flint (clear) glass container bottles to improve the clarity of the final product. Following the installation of wet gas scrubber technology at the Ball Foster El Monte facility, the facility was unable to comply with its selenium discharge limit. The Ball Foster facility was cited by the RWQCB, and paid substantial fines to settle these violations. Despite a concerted effort and the application of several chemical treatment technologies, the facility was unable to identify a wastewater treatment technology to address these exceedances. As indicated in our technical comments, the Ball Foster facility scrapped the wet scrubber technology, and with the approval of District engineering staff, installed dry scrubber/ESP controls to meet BACT. This effectively eliminated the high-selenium wastewater. The DPEA should therefore properly inform District decision makers of these significant technical challenges associated with treating container glass wet gas scrubber wastewater. In addition, the engineering assessment should not conclude that an expenditure of $225,000 will be sufficient to address high selenium loading in wet gas scrubber wastewater, absent a technical analysis to support this assumption. 2-21

Ms. Barbara Radlein
October 1, 2010
Page 10

Thank you for this opportunity to provide these comments on the Draft DPEA. Please contact Ms. Sandra Guzmàn, P.E. ((323) 586-4207) should you have any questions regarding these data. We look forward to working with the District to finalize Rule 2002 amendments.

Very truly yours,

Dean Harris

Dean Harris
Plant Manager

Attachments: September 22, 2010 Owens Vernon facility correspondence filed with SCAQMD regarding proposed amendments to Rule 2002
SCREEN3 Model outputs

cc: Mark Tussing
Susan Smith, Esq.
Randolph Visser, Esq.

Owens-Brockway Glass Container In
2901 Fruitland Avenue
Vernon, CA 90058
+1 323 586 4200 tel

www.o-i.com

September 22, 2010

Ms. Minh Pham, P.E.
Planning, Rule Development &Area Sources
SCAQMD
21865 Copley Drive
Diamond Bar, CA 91765

Re: Proposed Amended Regulation XX – Technical Comments - Owens-Brockway Glass Container Inc. Vernon Facility (SCAQMD ID 7427)

Dear Ms. Pham:

By this letter, Owens-Brockway Glass Container Inc. Vernon, California facility (Owens Vernon facility) provides its comments on the August 17, 2010 draft proposed amendments to Regulation XX as presented and discussed during the September 8, 2010 Public Consultation Meeting. Specifically, we provide to the District additional technical information that should be considered in setting Best Available Retrofit Control Technology (BARCT) for glass manufacturing. As summarized below, the Owens Vernon facility has already installed BARCT, which the District has recognized as Best Available Control Technology for the control of sulfur oxides. Our outside technical consultant has found no example of a glass container manufacturing facility with a control configuration as suggested by the December 2008 ETS, Inc. engineering evaluation and the December 2009 District draft staff report. In addition, we have identified numerous technical feasibility issues not considered in the District's analyses to date. Therefore, for the reasons outlined below, the Owens Vernon facility should be excluded from the facilities subject to the SOx shave proposed by the Rule 2002 revisions. 2-22

To put these technical issues in perspective, it is helpful to have an understanding of our plant's customers, employees, and our facility's role in sustainable manufacturing resources in the Los Angeles area. The Owens Vernon facility has been in business for over 70 years. Over the past 25 years, some six individual glass container manufacturing facilities have ceased to operate in the Los Angeles basin, such that the Owens Vernon facility is the only remaining container glass manufacturing facility located within the District. We produce between 2 and 3 million glass bottles per day on five production lines pulling from two furnaces and purchase approximately 330 tons/day of recycled glass. We have 260 employees that represent 15 different countries and territories of origin, over one third of whom have worked at the Owens Vernon facility for over 20 years. The average salary for Owens Vernon staff is three times the minimum wage, 2-23

with medical, dental and pension plan benefits. Our customers are here in Los Angeles; over 75% of our shipments are to customers within 25 miles of the of the Owens Vernon plant. Thus, the Owens Vernon Facility plays a vital role in maintaining sustainable container glass manufacturing in the Los Angeles area.

2-23 Cont'd

It is also important to put our environmental controls into proper perspective. Owens has been an innovator of emission controls on glass manufacturing. At significant cost, our company implemented oxygen-fuel fired glass manufacturing technology to reduce nitrogen oxide emissions from high temperature furnace exhaust. This innovative process control technology was installed to comply with NOx RECLAIM allocations. To comply with SOx RECLAIM, Owens Vernon first employed a SOx control system that injected a water-based sorbent into the exhaust stream prior to the existing electrostatic precipitators (ESPs). However, our facility experienced numerous problems with this technology [*Petition for an Ex Parte, Emergency, and a Short Variance*, Case No. 4472-9, Facility ID 007427, May 15, 1997, paragraphs 6-10]. We also note that the Ball-Foster El Monte facility experienced significant operating problems with its wet scrubber technology, which resulted in the company's decision to replace the wet scrubber with a dry scrubber followed by an electrostatic precipitator [*Petition for Modification and Extension of a Variance*, Case No. 108-20, Facility ID 108701, April 9, 1997, paragraphs 6-14].

2-24

Therefore, with the District's approval, Owens Vernon selected dry scrubbing technology (Trona injection) to reduce sulfur dioxide to comply with RECLAIM. It is important to note that this dry scrubbing technology was identified by the District as Best Available Control Technology (BACT) for the control of sulfur oxides. The dry scrubber controls are followed by the existing three ESPs that operate in parallel to remove entrained Trona sorbent and particulate emissions from the two glass melting furnaces. These technologies reduce sulfur oxide emissions by up to 90%. It is critical to note that the Owens Vernon facility actual SOx emission rate (approximately 0.6 pounds/ton of glass pulled) is significantly lower than the permitted SOx emission rate established for the container glass manufacturing facility in Seattle, Washington that is controlled by the wet scrubber technology evaluated by the District in its BARCT determination.

With this background, we now turn to consider technical issues raised by the District's BARCT analysis that supports the Rule 2002 revisions. As a threshold matter, we know of no container glass facility that currently operates the control configuration that is being proposed as BARCT:

- Dry scrubber/Trona injection, followed by
- Three separate electrostatic precipitators operating in parallel, followed by
- Two wet scrubber (50% NaOH) towers.

The December 2008 engineering evaluation suggests that this is technically feasible and cost effective for the Vernon facility. Owens retained Ashworth Leininger Group (ALG) to review this engineering evaluation, and the technical feasibility of installing retrofit wet scrubber technology at the Vernon facility. Their comments are attached for your review. We note the following:

2-25

- ALG is not aware of any glass manufacturing facility that currently operates with the BARCT control configuration recommended by staff for Owens Vernon: dry scrubbers followed by ESPs followed by wet scrubbers;
- To maintain the current redundancy of controls, which is essential as the glass melting operations cannot be temporarily shut down, it will be necessary to install three wet scrubbers instead of the two suggested in the ETS, Inc. report;
- The ETS, Inc. report does not consider/address how proper operating pressures will be maintained in both the oxy-fuel furnaces and existing ESP controls when the new wet scrubbers are added onto this system;
- The ETS, Inc. report does not address how the integrity of the wet scrubbers will be maintained should there be an upset condition in the ESPs, which will result in high particulate loadings directed to the wet scrubbers;
- The ETS, Inc. report does not properly consider site limitations associated with adding three wet scrubber towers that will be required to control the three existing ESP control systems;
- The ETS, Inc. report does not include all foreseeable costs associated with the wet scrubber retrofits;
- The ETS, Inc report provides no technical analysis of how wastewater discharges will meet RWQCB effluent limitations for selenium and other inorganic compounds;
- If retrofit with wet scrubber technology, the new exhaust gas will have a significantly lower temperature, and therefore significantly reduced plume buoyancy. No modeling analysis has been presented to demonstrate that ambient impacts from the Owens Vernon facility glass manufacturing operations will continue to comply with state and federal ambient air quality standards, including the new short term federal nitrogen dioxide standard; and

- The ETS, Inc. report and District draft staff report/evaluations do not properly consider the acute health risks posed by sodium hydroxide emissions from the wet scrubbers, as required by District Rule 1401.

2-25 Cont'd

Finally, the District's technical analysis does not consider what will happen should the Owens Vernon facility be unable to afford new, yet-to-be demonstrated control configurations, or secure adjusted RECLAIM Trading Credits in sufficient quantities to continue to operate. Should the Owens Vernon facility discontinue operations, over 100,000 tons/year of recycled glass will either have to be landfilled, or shipped out of the basin. Over two to three million glass containers per day will have to be shipped into the basin to our customers. We believe that this issue, along with the land use impacts associated with urban decay resulting from our plant's potential closure and adverse impact on environmental justice areas should be addressed in the District's Program Environmental Assessment for the proposed rule change. Our formal comments on that document will be provided by October 1, 2010.

2-26

We recognize that these comments are provided at the end of this public comment period for Rule 2002 modifications. If you think helpful, we would be willing to meet with you to clarify our comments. We look forward to working with the District to finalize Rule 2002 amendments.

Very truly yours,

Dean Harris

Dean Harris
Plant Manager

Attachment: Ashworth Leininger Group Comments on Proposed Amended Rule 2002 on Behalf of Owens-Brockway Glass Container Inc.

cc: Mark Tussing
Susan Smith, Esq.
Randolph Visser, Esq.

Dean A Harris
Plant Manager

2901 Fruitland Ave
Vernon, CA 90058
+1 323 586 4288 tel
+1 323 586 4209 fax
+1 323 514 8776 cell
Dean.Harris@o-i.com
www.o-i.com

Ashworth Leininger Group Comments on Proposed Amended Rule 2002
On Behalf of Owens-Brockway Glass Container Inc.

Ashworth Leininger Group (ALG) was retained by Owens-Brockway Glass Container Inc. (Owens) Vernon facility to review the August 17, 2010 draft Rule 2002 rule modifications, and data provided by the South Coast Air Quality Management District (District) staff at the September 8, 2010 Public Consultation meeting[1]. Comments 1-3 address proposed amended Rule 2002 revisions; comments 4-8 address technical issues associated with the Best Available Retrofit Control Technology (BARCT) analysis.

Specific Comments on Proposed Amended Rule 2002:

1. Owens-Brockway should be included in the list of SOx RECLAIM holders exempted from proposed "shave". As discussed further below, Owens Vernon has already installed dry scrubbing technology considered by the District to be Best Available Control Technology (BACT). Further, there are unique site conditions that have not been fully evaluated in the December 2008 ETS, Inc. engineering report, and make installation of additional retrofit controls infeasible. Since additional SOx controls are infeasible (as discussed below), it is inappropriate to subject Owens to the same SOx shave requirements as the other ten SOx RECLAIM participants impacted by section (f)(1)(J). For these reasons, the Owens Vernon facility should be added to Table 5 that lists the RECLAIM facilities that are exempted from the proposed SOx RTC adjustments ("shave") described in section (f)(1)(J). 2-27

2. Table 4 should be revised to remove the Best Available Retrofit Control Technology level for container glass melting furnaces. As discussed in more detail below, Owens has already installed dry scrubbing technology equivalent to what should be considered as Best Available Retrofit Control Technology (BARCT) to reduce container glass furnace SOx emissions. As discussed below, the District's evaluation of wet gas scrubber (WGS) controls with respect to the existing Owens facility process and control configuration did not properly consider the technical and operational issues associated with installing retrofit WGS controls in conjunction with existing dry scrubbers and electrostatic precipitators. The evaluation did not consider the need to install three, not two, WGS units, nor physical site limitations with respect to installing three new WGS units (in addition to the existing two dry scrubbers and three ESPs.) The District's evaluation also 2-28

[1] The rule development history for the proposed amended Rule 2002 is somewhat complex and lengthy. Briefly, Table 4 of Proposed Amended Rule 2002 indicates that BARCT for container glass melting furnaces is a SOx emission rate of 5 ppm, equivalent to 0.03 pound of SOx per ton of glass pulled. The District's December 2009 *Draft Staff Report for Proposed Amended Regulation XX* identifies this as representing 95% control from Owens' 2005 SOx emission rate of 0.62 pound per ton of glass pulled. As the final BARCT study report indicates, emissions at the Owens facility are already controlled with two dry scrubbers, followed by three electrostatic precipitators (ESPs). Based on information presented by the District at its September 8, 2010 SOx RECLAIM Public Consultation Meeting, Tier I BARCT had previously been determined to be the 1993 average Reported Value of 2.51 pounds SOx per ton of glass pulled; therefore the proposed BARCT level represents a 99% reduction in SOx emissions.

did not consider the severe operational difficulties encountered by another container glass manufacturer when it attempted to operate a WGS in conjunction with an oxy-fueled glass furnace. As described below, the engineering analysis did not fully calculate the cost of WGS retrofits and RECLAIM compliance modifications. Considering these issues, BARCT for container glass melting furnaces should not be established any lower than presently achieved at Owens with its dry scrubbers operated in conjunction with ESPs.

2-28 Cont'd

3. Section (f)(1)(Q) should be clarified to indicate that it applies only to new SOx RECLAIM program entrants. Rule 2002 section (f)(1)(Q) provides that:

> "SOx Allocations for compliance years 2012 and after, for facilities that enter RECLAIM after (date of adoption) and for basic equipment listed in Table 4 shall be determined according to the BARCT level listed in Table 4 or the permitted emission limits, which ever is lower."

2-29

Section (f)(1)(Q) should be clarified to indicate that SOx allocations for facilities entering RECLAIM after rule adoption (new facilities) with equipment listed in Table 4 will receive allocations for 2012 and later based on the BARCT limits in Table 4 or based on permitted levels (whichever is lower). As written, section (f)(1)(Q) could be interpreted as also requiring allocations for existing facilities with basic equipment listed in Table 4 be reduced to Table 4 BARCT levels effective 2012, which runs contrary to the provisions of proposed sections (f)(1)(I) and (f)(1)(J).

Specific Comments on Best Available Control Technology:

The Owens Vernon facility operates two oxy-fuel furnaces (Furnace B, rated at 60 MMBtu/hr, and Furnace C, rated at 100 MMBtu/hr). These two process units are controlled by dry scrubber sorbent (Trona) injection, followed by three 3-field electrostatic precipitators (ESPs) which remove the sorbent and particulate emissions associated with glass melting. The use of three ESPs is required to provide redundancy in controls, as the underlying equipment (glass melting furnaces) cannot be shut down. Furnace B has a permitted SOx emission rate of 3.15 pounds SOx/ton of glass pulled; Furnace C has a permitted SOx emission rate of 2.4 pounds SOx/ton of glass pulled.

2-30

Following the adoption of RECLAIM, the facility first installed a United McGill semi-dry SOx scrubber on Furnace B in 1994. This control configuration proved infeasible in the long term due to maintenance and operational issues, as agreed to by the District Hearing Board, and was subsequently replaced by a dry scrubber, which was optimized through the use of Trona sorbent materials. Testing on the unit demonstrated up to 90% control efficiency relative to SOx; however, the systems typically operate at a 75-85% control level. With this general background, we provide specific comments related to the District's BARCT evaluation and proposed control level:

4. The emission reductions associated with the specific combination of controls relied upon by the District to achieve its proposed BARCT level has not been achieved in practice. We know of no installation in which a facility relies upon dry scrubbing, dry ESPs, followed by wet scrubbing to achieve the emission reductions anticipated by the District. Further, we have talked to equipment vendors, engineering/environmental staff at glass manufacturing facilities, and independent consultants, and they are aware of no such control configurations. We anticipate such a combination of controls would encounter the following challenges:
    - There is no discussion as to why two wet scrubbers (with a combined capacity of 60,000 cfm) are to be applied to control emissions from three ESPs (with a combined capacity of 90,000 cfm). To maintain the quick dispatch, operating pressures (addressed further below) and current redundancy in the existing control configuration, a single wet scrubber is required to follow each ESP. Thus, three wet scrubbers will be required to support the Vernon facility, as opposed to the two units considered in the ETS, Inc. analysis.
    - Pressure drop over the dry scrubber and dry ESP stages could preclude the wet scrubber stage from achieving the anticipated SOx removal efficiencies, and unless properly managed, can adversely affect the operation of the oxy-fuel furnace itself. Management of the furnace operating pressures and pressure drop across all three controls (Trona injection, ESP, wet scrubber) would require use of variable fans/process controls that are not addressed in the December 2008 ETS, Inc. report. Failure to properly maintain pressures throughout the system will compromise the furnace operation (including potential catastrophic failure), particulate control and sulfur oxide control efficiencies. In addition to these technical issues, the costs for viable induction fan motors/drives and process controls do not appear to have been considered.
    - Injection of sodium sesquicarbonate (Trona) in the dry scrubber stage results in increased particulate loading that is removed by three ESPs operating in parallel. While there is redundancy in the use of three ESPs, the ESP control units break down and when this occurs, increased particle loading to be routed directly to the wet scrubbers would occur at an uncontrolled rate of 120-150 pounds/hour. No discussion is provided as to how the wet scrubber technology will be protected when there is an upset condition in the Trona injection/ESP operation. This is a significant issue as high particulate loading will foul and compromise the wet scrubber technology.
    - We note that the particulate loading design value provided by ETS to the various equipment vendors understated the particulate loading allowed by the permit by an order of magnitude (0.008 grains/dry standard cubic foot cited in the ETS report versus the permit limit of 0.08 grains/dry standard cubic foot). The ETS, Inc. analysis should be corrected, and vendors contacted to assure that increased particulate loading can be accommodated by the wet scrubber technology.
    - Selenium is present in Owens' exhaust gas. Large quantities of water will be required to cool the exhaust gas to the temperature range required for the wet scrubbers, as well as for operation of the wet scrubbers. This water will require

2-30 Cont'd

treatment to remove the selenium prior to off-site disposal. There is no detailed analysis of the technical feasibility to treat this stream; rather the ETS, Inc. report assumes that one of four options is feasible at a cost of $225,000, which in our view ignores technical issues and simply throws money at the problem without solving this issue. As an example, one of the options proposed in the ETS report for treating wastewater (Option 3 on page 6 of the ETS report) is to send blowdown from the scrubbers to a storage tank and then spray it into the duct ahead of the precipitators to evaporate the water and collect the dry particulate in the ESPs. This does not account for the PM loading to the ESPs associated with Trona injection, does not address whether the exhaust temperature will be sufficient to support evaporation of the water, nor does it account for the potential issues associated with adsorption/absorption of the water by the Trona and particulate matter.

Owens encountered a nearly identical situation in 1997, when it experienced moisture buildup in the ESPs resulting in short-circuits within the units, as a result of water injection prior to the ESPs and insufficient temperatures to evaporate the water. At the time, Owens was operating a semi-dry scrubber on Furnace B, in which soda ash and water were injected into the furnace exhaust prior to the ESP. Previously, Owens had been operating three furnaces, and the combined exhaust temperature was sufficient to support evaporation of the injected water. However, once Furnace A was shut down, exhaust temperature dropped, resulting in condensation buildup in the ESPs. The condensation buildup, combined with the ESP dust, became acidic and corroded wiring within the ESPs. Acidic water also began leaking outside the ESPs, necessitating additional abatement efforts. Owens attempted to prevent heat loss by adding insulation on the ducting, which proved insufficient. Owens also considered raising the scrubber exhaust temperature, but recognized that this was infeasible since it would require reducing the exhaust gas residence time and reduce the scrubber control efficiency [*Petition for an Ex Parte, Emergency, and a Short Variance*, Case No. 4472-9, Facility ID 007427, May 15, 1997, paragraphs 6-10].

2-30 Cont'd

- We note that the Ball Foster El Monte facility was unable to achieve compliance with its selenium discharge permit limits when operating a wet scrubber. Based on discussions with former company staff, high selenium concentrations in wastewater discharge resulted in non-compliance penalties and was a key consideration in the decision by the company to switch to dry scrubber control technology.
- No analysis is provided of the acute health risk posed by emissions of 50% NaOH scrubber mist that will be released from the operation of the three wet scrubbers, and whether this incremental acute health risk is within District Rule 1401 requirements. The District's CEQA analysis improperly focuses on storage of sodium hydroxide, and fully ignores emissions from the wet scrubber stack. As indicated below, this toxics analysis is especially important, as the wet scrubber controls require that exhaust temperatures be reduced to ~150

degrees F. This lower exhaust temperature will reduce the buoyancy of the plume, and increase ambient concentrations near the facility.

- No analysis has been performed to show compliance with the new federal ambient standard for nitrogen dioxide. The wet scrubber technology requires that the temperature of the exhaust gas has to be reduced from 650 degrees F to ~150 degrees F. This significant reduction in exhaust temperature will significantly reduce the buoyancy of the plume, and thus increase ambient concentrations of exhaust gases, including nitrogen dioxide, particulate, air toxics, and combustion gases. This refined analysis must be performed as it will be required by the District.
- As we will comment as part of the CEQA documentation, the District has not evaluated the ability to introduce a new hazardous material (50% sodium hydroxide solution) into a manufacturing process consistent with the California Legislature's directive under the new Green Chemistry Initiative, which will be in effect when SOx emission reduction process modifications will be made.

5. Adding a wet scrubber stage to the Owens SOx emissions control system is technically infeasible. Beyond the technical issues identified in the immediately preceding comment, Owens will encounter the following issues which preclude addition of a wet scrubber stage:
   - There is insufficient space next to the existing controls to install three wet scrubbers, stacks, and necessary support equipment adjacent to the existing facility. As explained to ETS at the time of their site visit, there is a single 14'x22' pad proximate to the existing three ESPs. In our experience, this is insufficient to locate three wet scrubber towers rated at 30,000 cfm each, and associated pumps/Continuous Emissions Monitoring Systems (CEMS) and related process equipment.
   - Owens would have only two options for installing the required wet scrubber controls: 1) installing the control systems in its parking lot located to the east of the existing ESPs and running ducting over the top of a building (which would pose unacceptable safety issues); or 2) tearing down a building. No cost/feasibility analysis was provided for these two options.

2-30
Cont'd

6. Costs associated with BARCT for container glass melting furnaces is understated. Costs are underestimated for the following reasons:
   - As previously stated, BARCT for container glass melting furnaces is currently established at a level of 2.51 pounds of SOx per ton of glass pulled. Based on the District's evaluation of BARCT, achieving the proposed BARCT level of 0.03 pound SOx per ton of glass pulled would require a combination of dry scrubbers, dry ESPs, and wet scrubbers. Therefore, at a minimum, the costs for all three technologies need to be incorporated into the cost-effectiveness analysis.
   - The BARCT cost estimates need to account for three wet scrubbers and associated ducting/support equipment as each ESP will require a dedicated wet scrubber to maintain needed control redundancy for the oxy-fuel furnaces.

- As indicated above, the ETS report provides no basis for the estimated $225,000 in capital costs associated with wastewater treatment, which can be significant as selenium is especially hard to treat to RWQCB discharge limits.
- No costs are provided for the construction of three new exhaust stacks, for relocation and installation of the CEMS on each of these three stacks, for permitting of the CEMS with the District's RECLAIM group, for the new Relative Accuracy Test Audits that must be performed, or for the costs of RTCs to cover the missing data that will be recorded by the new CEMS. Our prior experience on CEMS monitoring systems indicates that costs for three such systems can exceed $250,000 for each CEMS.
- No technical data are provided to support the estimated 25-year useful life of a caustic wet scrubber. Our experience with caustic wet scrubbers suggests a shorter useful life (10-15 years), which is also typical of useful life assumptions based on EPA and other local air district control technology analyses.

2-30
Cont'd

7. <u>The District did not consider the implementation challenges faced by Ball-Foster when attempting to utilize a wet scrubber to control SOx emissions from an oxy-fueled glass furnace in the mid-1990s</u>. In February 1995, Ball-Foster converted its regenerative glass furnace to oxy-fuels operation at its El Monte facility. Previously, the furnace had utilized a venturi wet scrubber to control PM emissions. After the conversion, Ball-Foster reconnected the furnace to the wet scrubber. Starting one month later, the scrubber began experiencing numerous equipment failures, including component overheating and damage, plugging, and excessive solids buildup – prompting numerous emergency breakdowns. After struggling with the scrubber operational problems for a year, Ball-Foster informed the District Hearing Board that it intended to replace the wet scrubber with an ESP to control particulate emissions, and a dry scrubber to control SOx emissions. By mid-1997, the wet scrubber had been removed and replaced by a dry scrubber and ESP [*Petition for Modification and Extension of a Variance*, Case No. 108-20, Facility ID 108701, April 9, 1997, paragraphs 6-14]. Like the Ball-Foster furnace, both of Owens' glass furnaces are oxy-fuel fired.

8. <u>BARCT for container glass meting furnace SOx emissions should be established as the emission rate achievable by Owens' current dry scrubber/ESP control system</u>. Based on information presented in the District's December 2009 Draft Staff Report, this would be a level of between 0.62 and 1.05 pounds SOx per ton of glass pulled, and represent the combination of process modifications and control technology. Notably, this SOx emissions limit is below the permitted SOx emission rate (1.6 pounds SOx/ton of glass pulled) established for the Seattle, Washington container glass plant that that is controlled by the wet scrubber technology evaluated by the District in its BARCT determination.

DGS.OUT

09/27/10
14:50:40

```
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

NOx via dry scrubber

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE             =         POINT
   EMISSION RATE (G/S)     =       2.00000
   STACK HEIGHT (M)        =       26.8000
   STK INSIDE DIAM (M)     =        1.0700
   STK EXIT VELOCITY (M/S)=        15.7455
   STK GAS EXIT TEMP (K)   =      616.4833
   AMBIENT AIR TEMP (K)    =      293.1500
   RECEPTOR HEIGHT (M)     =        0.0000
   URBAN/RURAL OPTION      =         URBAN
   BUILDING HEIGHT (M)     =       12.1920
   MIN HORIZ BLDG DIM (M) =       30.4800
   MAX HORIZ BLDG DIM (M) =       45.7200

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


BUOY. FLUX =   23.179 M**4/S**3;  MOM. FLUX =   33.743 M**4/S**2.

*** FULL METEOROLOGY ***

**********************************
*** SCREEN AUTOMATED DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***
```

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
50.	5.097	4	20.0	25.6	6400.0	27.33	7.95	9.46	HS
100.	28.07	3	8.0	9.7	2560.0	36.89	21.76	20.21	HS
200.	22.65	4	8.0	10.2	2560.0	42.04	31.10	27.54	HS
300.	17.26	4	8.0	10.2	2560.0	46.77	45.71	40.63	HS
400.	16.05	4	4.0	5.1	1280.0	71.02	60.75	54.40	NO
500.	14.63	4	3.5	4.5	1120.0	77.34	74.44	66.85	NO
600.	13.68	6	1.0	1.3	10000.0	90.53	62.00	39.30	NO
700.	17.24	6	1.0	1.3	10000.0	90.53	70.45	43.14	NO
800.	19.83	6	1.0	1.3	10000.0	90.53	78.73	46.83	NO
900.	21.54	6	1.0	1.3	10000.0	90.53	86.82	50.37	NO
1000.	22.54	6	1.0	1.3	10000.0	90.53	94.73	53.77	NO
1100.	23.00	6	1.0	1.3	10000.0	90.53	102.46	57.04	NO
1200.	23.08	6	1.0	1.3	10000.0	90.53	110.02	60.19	NO
1300.	22.89	6	1.0	1.3	10000.0	90.53	117.41	63.23	NO
1400.	22.52	6	1.0	1.3	10000.0	90.53	124.64	66.17	NO
1500.	22.04	6	1.0	1.3	10000.0	90.53	131.71	69.01	NO
1600.	21.48	6	1.0	1.3	10000.0	90.53	138.63	71.77	NO
1700.	20.89	6	1.0	1.3	10000.0	90.53	145.42	74.44	NO
1800.	20.27	6	1.0	1.3	10000.0	90.53	152.07	77.04	NO
1900.	19.65	6	1.0	1.3	10000.0	90.53	158.59	79.58	NO
2000.	19.03	6	1.0	1.3	10000.0	90.53	164.99	82.05	NO
2100.	18.43	6	1.0	1.3	10000.0	90.53	171.27	84.45	NO
2200.	17.85	6	1.0	1.3	10000.0	90.53	177.43	86.81	NO
2300.	17.29	6	1.0	1.3	10000.0	90.53	183.49	89.10	NO
2400.	16.75	6	1.0	1.3	10000.0	90.53	189.45	91.35	NO
2500.	16.23	6	1.0	1.3	10000.0	90.53	195.31	93.56	NO
2600.	15.73	6	1.0	1.3	10000.0	90.53	201.07	95.71	NO

Page 1

DGS.OUT

2700.	15.26	6	1.0	1.3	10000.0	90.53	206.74	97.83	NO
2800.	14.81	6	1.0	1.3	10000.0	90.53	212.32	99.90	NO
2900.	14.38	6	1.0	1.3	10000.0	90.53	217.81	101.94	NO
3000.	13.97	6	1.0	1.3	10000.0	90.53	223.23	103.94	NO
3500.	12.18	6	1.0	1.3	10000.0	90.53	249.18	113.47	NO
4000.	10.77	6	1.0	1.3	10000.0	90.53	273.48	122.31	NO
4500.	9.623	6	1.0	1.3	10000.0	90.53	296.38	130.59	NO
5000.	8.687	6	1.0	1.3	10000.0	90.53	318.06	138.40	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 50. M:

120.	29.94	3	8.0	9.7	2560.0	38.25	26.20	24.42	HS

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

```
*****************************************
     *** REGULATORY (Default) ***
    PERFORMING CAVITY CALCULATIONS
  WITH ORIGINAL SCREEN CAVITY MODEL
          (BRODE, 1988)
*****************************************
```

*** CAVITY CALCULATION - 1 ***			*** CAVITY CALCULATION - 2 ***		
CONC (UG/M**3)	=	0.000	CONC (UG/M**3)	=	0.000
CRIT WS @10M (M/S)	=	99.99	CRIT WS @10M (M/S)	=	99.99
CRIT WS @ HS (M/S)	=	99.99	CRIT WS @ HS (M/S)	=	99.99
DILUTION WS (M/S)	=	99.99	DILUTION WS (M/S)	=	99.99
CAVITY HT (M)	=	12.95	CAVITY HT (M)	=	12.34
CAVITY LENGTH (M)	=	41.30	CAVITY LENGTH (M)	=	32.82
ALONGWIND DIM (M)	=	30.48	ALONGWIND DIM (M)	=	45.72

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S. CONC SET = 0.0

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*****************************************
     END OF CAVITY CALCULATIONS
*****************************************
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     ****************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ****************************************
```

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	29.94	120.	0.

WGS.OUT

09/27/10
14:50:27

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

NOx via wet scrubber

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	2.00000
STACK HEIGHT (M)	=	26.8000
STK INSIDE DIAM (M)	=	1.0700
STK EXIT VELOCITY (M/S)	=	15.7455
STK GAS EXIT TEMP (K)	=	338.7056
AMBIENT AIR TEMP (K)	=	293.1500
RECEPTOR HEIGHT (M)	=	0.0000
URBAN/RURAL OPTION	=	URBAN
BUILDING HEIGHT (M)	=	12.1920
MIN HORIZ BLDG DIM (M)	=	30.4800
MAX HORIZ BLDG DIM (M)	=	45.7200

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = 5.944 M**4/S**3; MOM. FLUX = 61.417 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
50.	6.577	4	20.0	25.6	6400.0	26.45	7.93	9.44	HS
100.	37.71	2	4.5	5.2	1440.0	42.43	31.56	25.40	NO
200.	50.21	3	2.5	3.0	800.0	53.59	43.03	40.73	NO
300.	47.40	4	2.0	2.6	640.0	58.67	46.26	41.25	NO
400.	44.61	4	1.5	1.9	480.0	69.30	60.65	54.29	NO
500.	39.96	4	1.0	1.3	320.0	90.55	75.27	67.77	NO
600.	39.78	6	1.0	1.3	10000.0	67.29	60.39	36.69	NO
700.	43.13	6	1.0	1.3	10000.0	67.29	69.04	40.79	NO
800.	44.01	6	1.0	1.3	10000.0	67.29	77.46	44.67	NO
900.	43.43	6	1.0	1.3	10000.0	67.29	85.68	48.37	NO
1000.	42.03	6	1.0	1.3	10000.0	67.29	93.68	51.90	NO
1100.	40.24	6	1.0	1.3	10000.0	67.29	101.49	55.28	NO
1200.	38.29	6	1.0	1.3	10000.0	67.29	109.12	58.53	NO
1300.	36.33	6	1.0	1.3	10000.0	67.29	116.56	61.65	NO
1400.	34.42	6	1.0	1.3	10000.0	67.29	123.84	64.66	NO
1500.	32.60	6	1.0	1.3	10000.0	67.29	130.96	67.56	NO
1600.	30.89	6	1.0	1.3	10000.0	67.29	137.92	70.38	NO
1700.	29.30	6	1.0	1.3	10000.0	67.29	144.74	73.10	NO
1800.	27.83	6	1.0	1.3	10000.0	67.29	151.42	75.75	NO
1900.	26.47	6	1.0	1.3	10000.0	67.29	157.96	78.33	NO
2000.	25.21	6	1.0	1.3	10000.0	67.29	164.39	80.83	NO
2100.	24.04	6	1.0	1.3	10000.0	67.29	170.69	83.28	NO
2200.	22.96	6	1.0	1.3	10000.0	67.29	176.88	85.66	NO
2300.	21.96	6	1.0	1.3	10000.0	67.29	182.95	87.99	NO
2400.	21.04	6	1.0	1.3	10000.0	67.29	188.93	90.26	NO
2500.	20.17	6	1.0	1.3	10000.0	67.29	194.80	92.49	NO
2600.	19.37	6	1.0	1.3	10000.0	67.29	200.57	94.67	NO

Page 1

WGS.OUT

2700.	18.63	6	1.0	1.3	10000.0	67.29	206.26	96.81	NO
2800.	17.93	6	1.0	1.3	10000.0	67.29	211.85	98.91	NO
2900.	17.28	6	1.0	1.3	10000.0	67.29	217.36	100.97	NO
3000.	16.67	6	1.0	1.3	10000.0	67.29	222.79	102.99	NO
3500.	14.14	6	1.0	1.3	10000.0	67.29	248.79	112.60	NO
4000.	12.24	6	1.0	1.3	10000.0	67.29	273.12	121.50	NO
4500.	10.77	6	1.0	1.3	10000.0	67.29	296.05	129.83	NO
5000.	9.607	6	1.0	1.3	10000.0	67.29	317.75	137.69	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 50. M:

187.	50.60	3	2.5	3.0	800.0	53.59	40.62	38.37	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

```
*****************************************
     *** REGULATORY (Default) ***
    PERFORMING CAVITY CALCULATIONS
  WITH ORIGINAL SCREEN CAVITY MODEL
          (BRODE, 1988)
*****************************************
```

*** CAVITY CALCULATION - 1 ***			*** CAVITY CALCULATION - 2 ***		
CONC (UG/M**3)	=	0.000	CONC (UG/M**3)	=	0.000
CRIT WS @10M (M/S)	=	99.99	CRIT WS @10M (M/S)	=	99.99
CRIT WS @ HS (M/S)	=	99.99	CRIT WS @ HS (M/S)	=	99.99
DILUTION WS (M/S)	=	99.99	DILUTION WS (M/S)	=	99.99
CAVITY HT (M)	=	12.95	CAVITY HT (M)	=	12.34
CAVITY LENGTH (M)	=	41.30	CAVITY LENGTH (M)	=	32.82
ALONGWIND DIM (M)	=	30.48	ALONGWIND DIM (M)	=	45.72

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S. CONC SET = 0.0

```
*****************************************
      END OF CAVITY CALCULATIONS
*****************************************
```

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     ****************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ****************************************
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CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	50.60	187.	0.

Responses to Comment Letter #2
(Owens-Brockway Glass Container, October 1, 2010)

2-1 Individual responses to the technical issues and background comments submitted have been prepared and begin with Response to Comment 2-3. Regarding the claim that the facility is already at BARCT, see Response to Comment 2-4.

2-2 Owens-Brockway Glass Container Inc. (Vernon Branch) is a subsidiary of Owens-Illinois, Inc. According to the website for Owens-Illinois, the parent company of Owens-Brockway, in 2009 Owens-Illinois had 22,000 employees in 21 countries with net sales of $7.1 billion[1] and a gross profit margin of 21 percent. SCAQMD records confirm that Owens-Brockway is the only glass container facility in the district.

According to the proposed amendments, there is an adequate amount of RTCs in the current SOx RECLAIM market that affected facilities could use. Currently, the surplus of RTCs in 2005 is about 1.73 tons per day and the surplus of RTCs in 2008 is about 2.55 tons per day (out of total RTC holdings of 11.77 tons per day). The amount of RTCs converted from ERCs contributed to the size of the surplus. In addition, the amendments instituted several safety valves to prevent potential facility shutdowns: 1) gradual annual reductions with extended compliance schedule (2012-2019); 2) monitoring of RTC price trend (12 month rolling average), 3) hold Public Hearing if RTC price exceeds $50,000 per ton (discrete price), 4) ability for Governing Board to set aside (give back) up to 100 percent of RTC reductions for any year when RTC price exceeds $50,000 per ton.

Based on the Staff Report the cost-effectiveness for the glass plant is estimated to be $9,000 per ton of SOx reduced. The average annual cost of complying with the proposed requirements is estimated to be $0.52 million (socioeconomic report). Based on the above assumptions, Owens-Brockway Glass Container facility is not expected to shutdown due to the requirements of the proposed amendments.

2-3 The particulate buildup problems that Owens-Brockway and Ball-Foster Glass Container encountered between 1994 and 1997 are not expected to occur with the WGSs proposed by the consultant ETS Inc. (ETS) because ETS proposed to remove the two existing dry gas scrubbers located upstream of the ESPs and replace them with two WGSs located downstream of the ESPs. The ESPs located upstream of the wet gas scrubbers will collect particulate matter and prevent excessive particulate buildup in the wet gas scrubbers. In addition, fine powder Trona injection needed for the dry gas scrubbers would no longer be needed, and thus any Trona leakage to the ESPs would drop to zero, and the particulate loading to the ESPs would be reduced significantly. Detailed explanations on the problems occurred at Owens-Brockway and Ball-Foster Glass Container encountered between in 1994 and 1997 are presented in the following paragraphs.

Owens-Brockway

Owens-Brockway currently operates two oxy-fuel furnaces (Furnace B, 60 MMBtu/hr, and Furnace C, 100 MMBtu/hr). Previously, Owens-Brockway operated three furnaces

[1] O-I Announces Third Quarter Earnings Conference Calland Webcast, September 20, 2010. http://www.o-i.com/nth_us.aspx?id=400; http://www.o-i.com/about_oi.aspx?id=1348 and http://www.o-i.com/nth_us.aspx?id=400

(Furnace A, B and C). In 1974, Owens-Brockway installed a United McGill semi-wet scrubber using soda ash as the scrubbing agent to control SOx. The particulate matter emissions from the three furnaces are controlled by three ESPs located downstream of the semi-wet scrubber (any two ESPs are in operation at one time, while one ESP is stand-by.) As explained by Ashworth Leininger Group (ALG), Owens-Brockway experienced numerous problems with the semi-wet scrubber and ESPs because during a period when one of the furnaces (Furnace A, non-oxy fuel furnace) was shutdown in December 1996, the exhaust temperature dropped, resulting in condensation buildup in the ESPs. ALG further explained that the condensation buildup caused corrosion within the ESPs. For this reason, Owens-Brockway had to seek several variances from the SCAQMD Hearing Board in 1997 and finally decided to remove the semi-wet scrubber and replaced the semi-wet scrubber with the two dry gas scrubbers. Trona, a very fine powder, is currently used as sorbent in the dry gas scrubbers.

SCAQMD staff believes that the problems with the semi-wet scrubber and ESPs were not caused by equipment capability, but equipment operation. Condensation problems would not have occurred in the ESPs if Furnace A were not shut down and the temperature of the flue gas entering the ESPs was high enough to prevent moisture condensation in the ESPs. The following, excerpted from Owens-Brockway Glass Container Corp.'s May 14, 1997 Petition for an Ex Parte, Emergency, and a Short Variance (Case No. 4472-9) supports SCAQMD staff's position:

> *"Prior to discontinuing the operation of Furnace A, the temperature of the combined exhausts from Furnaces A and C, when mixed with Furnace B exhaust, was high enough to keep the exhaust moisture content as vapor in the ESP. Since Petitioner has only been operating Furnaces B and C, the volume of exhaust has been reduced and the combined exhaust temperature has not been high enough to keep exhaust mixture in the form of vapor as exhaust enters the ESPs. Consequently, moisture condenses in the ESPs."*

Ball-Foster Glass Container

The problem that occurred at Ball-Foster Glass Container (aka Saint-Gobain Containers) was very different in nature than the problem that occurred at Owens-Brockway. Ball-Foster Glass Container did not use ESPs to control particulate matter. They operated a wet venturi, variable throat scrubber using soda ash as absorbent to control both SOx and particulate matter. In 1993, they converted their existing glass furnace to an oxy-fuel furnace which was operated with significantly less combustion air, which subsequently resulted in reducing the volume of exhaust flue gas from the furnace to the venturi scrubber and increasing the particulate loading to the scrubber. SCAQMD staff believes that the excessive solids build-up in the scrubber system was due to failure to redesign the venturi wet scrubber to handle the excessive particulate loading after the conversion to the oxy-fuel furnace. In 1999, Ball-Foster Glass Container removed the venturi wet scrubber and replaced it with a dry gas scrubber to control SOx and an ESP to control particulate matter.

2-4 Control technology has improved over time. The dry gas scrubbers operating at 80 percent to 90 percent control efficiency were considered as BARCT for SOx in 1994. However, between 2008 and 2010, two consultants (ETS and NEC) expressed agreement that non-regenerative wet gas scrubbers can achieve a range from 1 ppmv to 5 ppmv SOx outlet concentration (95 percent control efficiency or more from the 2005 emissions baseline, 99 percent from the uncontrolled level assuming that the dry gas scrubbers operated at 80

percent control efficiency) and thus, should be considered as BARCT for SOx for glass melting furnaces. While these two consultants recommended different types of WGSs, however, they both concurred that WGSs would be cost-effective and SCAQMD staff concurs with the consultants' recommendations. The two consultants both recommended keeping the existing ESPs in place for particulate control and placing the wet gas scrubbers downstream of the ESPs.

In addition, the proposed BARCT level for glass melting furnaces has been achieved in practice. Specifically, the Puget Sound Clean Air Agency in Seattle, Washington provided SCAQMD staff with source test and CEMS data from Saint-Gobain, a glass container facility, that demonstrates compliance with 5 ppmv SOx levels (96 percent control) via Tri-Mer's Cloud Chamber scrubber. The furnace at Puget Sound has a permit limit of 1.6 pounds of SOx per ton of glass pulled but tested at 0.0062 pound of SOx per ton of glass pulled [2, 3]. SCAQMD staff had multiple conversations with Tri-Mer about their WGS technology, and Tri-Mer indicated to SCAQMD staff that they provided many types of WGS that can be used to achieve 5 ppmv SOx outlet concentration, either packed bed, open throat, venturi, or Cloud Chamber scrubber. The Cloud Chamber scrubber can also be used as a particulate control device.

The commenter has indicated that dry gas scrubbers can achieve up to 90 percent control. It is interesting to note that Owens-Brockway currently holds 0.31 ton per day of RTCs. With the proposed RTC shave of 55 percent, Owens-Brockway remaining allocations would be 0.14 ton per day. The 2005 emissions from Owens-Brockway were about 0.2 ton per day at 80 percent control[4]. Thus, if the control efficiency of dry gas scrubbers were improved to 90 percent as the commenter notes is achievable, then Owens-Brockway would already be in compliance with the shave at 0.1 ton per day of SOx emissions[5]. However, if Owens-Brockway operators choose to install wet gas scrubbers, surplus RTCs will be created that could be sold when needed.

2-5 Regarding the comment that the Draft PEA does not demonstrate that adequate water supplies are available, see Responses to Comments 3-14, 3-19, 3-29, 3-31, 3-43, 3-45, and 3-46.

2-6 The Draft PEA concludes that the water demand impacts are significant for potable water demand, not total water. Thus, mitigation measures HWQ-1 and HWQ-2 are designed to minimize the use of potable water by utilizing recycled water instead. The SCAQMD has identified no other feasible mitigation measures (or alternatives) that would mitigate to less than significance the need for potable water. While arguing that the SCAQMD has not required all feasible mitigation, the comment fails to identify any additional measures. With regard to the content of the cumulative water demand impacts discussion, CEQA Guidelines §15130(b) requires the discussion of cumulative impacts to reflect the severity of the impacts and the likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. SCAQMD staff

[2] Horizon Engineering, "Source Test Evaluation Report for Saint-Gobain, Seattle, Washington, Glass Melting Furnace No. 5 with Cloud Chamber Scrubber," September 18, 2009.

[3] CEMS Summary Report from Saint-Gobain to Puget Sound Clean Air Agency, for a period from October 1, 2009 to October 31, 2009.

[4] SCAQMD Engineering Evaluation, A/N 288744, March 1994.

[5] 80% control of 1 ton per day = 0.2 ton per day, and 90% control of 1 ton per day = 0.1 ton per day

believes the cumulative water demand impacts discussion in the Draft PEA adequately describes why they are considered to be cumulatively considerable. For additional information, refer to Chapter 5 of the PEA.

2-7 The commenter does not provide any information or other data demonstrating why the analysis of the GHG impacts and the corresponding mitigation measures are inadequate. The Draft PEA contains a detailed discussion of the GHG impacts which is supported by the extensive calculations in Appendix B. Because the GHG emissions estimates exceed the SCAQMD's CEQA significance threshold of 10,000 MTCO2eq/yr, the impacts were concluded to be significant and all feasible mitigation measures were identified. See also Responses to Comments 3-9, 3-39, and 3-40.

2-8 The range of alternatives evaluated in a CEQA document must be sufficient to permit a reasoned choice, but need not include every conceivable project alternative. CEQA Guidelines §15126.6(c) specifically notes that the range of alternatives required in a CEQA document is governed by a 'rule of reason' and only necessitates that the CEQA document set forth those alternatives necessary to permit a reasoned choice. The key issue is whether the selection and discussion of alternatives fosters informed decision making and meaningful public participation. A CEQA document need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. SCAQMD Rule 110 (the rule which implements the SCAQMD's certified regulatory program) does not impose any greater requirements for a discussion of project alternatives in an environmental assessment than is required for an EIR under CEQA. The commenter's suggestion that the alternatives analysis is inadequate because none, other than Alternative A, the 'no project' alternative, specifically addresses glass manufacturing, represents a misunderstanding of the RECLAIM program. Under RECLAIM, a facility may purchase RTCs in lieu of installing control equipment. Thus, the proposed project and each of the alternatives potentially affect the subject facility because it as an affected RECLAIM facility and are evaluated as part of an overall regulatory program, which is why a Program EA was prepared. As part of a regulatory program, a smaller shave, for example, would reduce compliance obligations for all facilities that would be subject to the proposed project. Moreover, Alternative A is a required alternative (CEQA Guidelines §15126.6(e)). Finally, CEQA requires a range of reasonable alternatives (CEQA Guidelines §16126.6(a)), which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. The alternatives identified and evaluated for the proposed project comply with this and all other applicable CEQA requirements.

The NOP/IS prepared for the proposed project solicited suggestions for alternatives for the proposed project. Owens-Brockway did not submit any comments on the NOP/IS. Similarly, the commenter did not provide any specific recommendations for any alternatives beyond those evaluated in the PEA.

2-9 The commenter has misunderstood the assumptions about the timing with regard to facility operators implementing the proposed project. Under the RECLAIM program, facilities have the flexibility to install air pollution control equipment, change method of operations, or purchase RTCs to meet BARCT levels. As such, the Draft PEA has been crafted to explore multiple scenarios that illustrate the worst-case effects of applying the various SOx

control technologies along with demonstrating the flexibility that is provided by the RECLAIM program to facility operators when it comes to choosing the methods for reducing SOx emissions. Because of the program's built-in flexibility, as a practical matter, there is no way to predict what each facility owner/operator will do. However, not all of the affected facilities will need to take immediate action to comply with the proposed project.

The survey conducted by the consultants identified likely technologies that could be used to comply with reducing SOx emissions in connection with amending SOx RECLAIM rules. The following SOx control technologies were identified and environmental impacts of constructing and operating these equipment were analyzed in the PEA: WGSs, dry gas scrubbers, fuel gas treatment, SOx-reducing additives, et cetera. The focus of the environmental analysis is on WGS because their size and operating characteristics typically generate a greater number of or more substantial impacts than the other technologies (e.g., construction air quality impacts, water and hydrology impacts, et cetera).

If a facility operator chooses to install air pollution control equipment such as a WGS, the consultants' reports estimate that 18 months would be needed for pre-construction/advance planning activities such as engineering analysis of the affected equipment, engineering design of the potential control equipment, contracting with a vendor, securing financing, ordering and purchasing the equipment, obtaining permits and clearances, and lining up contractors and workers. Further, to physically build a WGS, the consultants' reports indicated that an additional 18 months would be needed. The Draft PEA considers the overlapping construction of building four WGSs within the same 18-month period. This overlap could occur anytime between the date of adoption (scheduled for November 5, 2010) and full implementation (January 1, 2019). However, as a practical matter, even if a facility starts the planning and engineering process now (at the time of this writing October 2010) to design a WGS installation (and some are in the very early pre-planning stages), construction is not expected to occur sooner than 2012. For these reasons, the Draft PEA considers <u>any</u> 18-month window between January 1, 2012 and January 1, 2019 (a span of seven years) when facilities could undergo construction activities. These dates correspond to the final compliance date for the proposed project (January 1, 2019) and the first year when the RTC shave will occur (2012). Thus, the analysis in the Draft PEA has demonstrated that the peak daily construction could not reasonably occur in year 2011.

2-10 In response to the comment about the availability of wet gas scrubbers, the consultants' worked with multiple manufacturers of wet gas scrubber technology and none of the manufacturers indicated that there would be a problem with the supply chain. In response to the comment that the Draft PEA should analyze the possibility where facilities would install SOx controls within a two-year period and not a seven-year period, see Response to Comment 2-9. For a discussion about "reasonable worst case" assumptions consistent with the CEQA Guidelines, see Response to Comment 3-19.

2-11 Individual responses to the detailed comments submitted per environmental topic have been prepared and begin with Response to Comment 2-12.

2-12 While the comment states that there are no visible steam plumes at the glass melting plant or in the immediate area, SCAQMD records[6] show that there are at least three cooling towers, which are sources of steam plumes, at Owens-Brockway and at two neighboring facilities within one mile of Owens-Brockway (Henry Company located at 5731 Bickett in Huntington Park and the Seven-Up/Royal Crown Bottling Company located at 3220 East 26th Street in Los Angeles). Cooling towers, essential to industrial and commercial processes that require heat dissipation, utilize an open wet system that relies on the latent heat of water evaporation to exchange heat between the process and the air passing through the cooling tower. As the water evaporates, a stream of saturated exhaust air, a steam plume, leaves the tower. The plume is visible when the water vapor it contains condenses in contact with cooler ambient air. Depending on a cooling tower's location and the surrounding atmospheric conditions such as temperature and humidity, i.e., in an area of typically high humidity and low temperatures (near the coast) versus an area of typically low humidity and high temperatures (inland desert areas), this water-saturated air can create a visible plume.

In addition to the aforementioned facilities, there is another facility, as shown in the following satellite photo, located near the corner of 50th Street and Seville Avenue in Vernon, approximately one block away from the glass melting plant, that currently has three visible steam plumes (as identified by the ellipse) emanating from three cooling towers[7]. These plumes are also part of the existing aesthetics setting of the area surrounding the Owens-Brockway facility. This means that if all of the cooling towers are operating, depending on the ambient temperature and humidity, visible steam plumes may be present at or throughout the area near the Owens-Brockway facility. However, as noted in the Final PEA and as illustrated in the following satellite photo, because of the existing plumes, one additional plume from each WGS installed is not expected to significantly adversely affect the visual continuity of the surrounding area of each affected facility because no scenic highways or corridors exist within the areas of the refineries, the coke calciner, the sulfuric acid plants and the glass melting plant. Further, because the plume from a new WGS is located in an industrial area and would likely be located approximately the same distance from residences, approximately ¼- mile away, compared to the existing plumes from the cooling towers, it would be no more noticeable to the closest residents than the existing plumes. Therefore, the conclusion that aesthetics impacts from implementing the proposed project would be less than significant continues to be valid.

[6] SCAQMD Cooling Tower Survey, 1988.

[7] http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=2901+fruitland+ave,+vernon,+ca&sll=37.0625,-95.677068&sspn=25.010803,50.625&ie=UTF8&hq=&hnear=2901+Fruitland+Ave,+Vernon,+Los+Angeles,+California+90058&ll=33.998928,-118.221114&spn=0.000796,0.002567&t=h&z=19

A = Owens-Brockway, located at 2901 Fruitland Avenue, Vernon, CA

2-13 The air quality impact analysis provided by the commenter relied on USEPA's SCREEN3 model using standardized operating conditions with the primary adjustment for exhaust temperature due to the installation of WGSs. SCREEN3 is a very conservative tool used to calculate the "worst case" one-hour maximum ground level concentration from an emissions source. The impact predicted from SCREEN3 is the 100th percentile concentration. While the analysis uses the recommended 75 percent conversion rate from NOx to NO2, the predicted NO2 continues to represent the 100th percentile concentration and is not consistent with the form of the standard. The current NAAQS for NO2 is based on the three-year average of the 98th percentile of NO2. As a consequence, the predicted SCREEN3 modeled concentrations do not conform to the standard and are expected to overestimate the ground level impact.

The analysis used the three-year average 98th percentile NO2 concentration measured at Central Los Angeles (158 µg/m^3, 2006-2008) as the background to be added to the ground level impact. While the selection of Central Los Angeles NO2 as background was correctly assumed, it is important to note that construction and operation of the WGSs are not expected to occur before 2011. The analysis in the Draft PEA assumes the earliest that installation of WGSs could occur would be in 2012, but installations may occur anytime between 2012 and 2019. Ambient averages of NO2 have decreased since 2000 in the Basin and at Central Los Angeles. Three-year averages of the annual average and one-hour maximum NO2 concentrations from 2000-2002 through 2006-2008 have been reduced by 22 and 25 percent, respectively. Regional NOx emissions were reduced by 22 percent for the same period. Implementing the 2007 AQMP together with ongoing NOx emission reductions from mobile sources is projected to continue the trend of lower NOx emissions

reductions in future years. This trend will result in lower ambient NO2 concentrations throughout the Basin. Implementing the 2007 AQMP together with ongoing reductions in mobile source NOx is projected to continue the trend of lower NOx emissions in future years. This will result in lower ambient NO2 throughout the Basin. Using the 2007 AQMP NOx emissions inventory, an emissions-weighted projection of NO2 at Central Los Angeles is estimated to be reduced by approximately 17 percent from 2008 to 2012. Furthermore, the projection to 2019 estimates that the NO2 concentration should be lowered by 34 percent compared with the 2008 values.

When a 2012 estimated background is applied to the "worst-case" SCREEN3 modeling analysis provided, the impacts from the exhaust streams from the furnaces (153 $\mu g/m^3$ without WGSs and 168 $\mu g/m^3$ with WGSs) would not exceed the NO2 standard. If construction of the WGSs is delayed until after 2012, the impacts would be even lower and the NO2 standard would continue to be met.

2-14 The PEA did not include information from CAPCOA's GHG mitigation measure document because it was approved by the CAPCOA Board in August, the same month the PEA was released. It should, however, be noted that use of recycled water is consistent with water-related mitigation measures in the CAPCOA document because less energy is required to collect, treat, and redistribute to the point of use. Indeed, this is the one of only three water supply impact mitigation measures. Further, many of the mitigation measures are more applicable to regional or subregional planning agencies, e.g., increase diversity of urban/suburban developments, traffic calming measures, transit system improvements, incorporate bike lane street design, et cetera.

Because GHG impacts would occur at industrial facilities, AB 32 is mentioned in the Draft PEA as part of the mitigation measure discussion because it is an ongoing process under development by CARB. While there is nothing in CARB's adopted "early action measures" or CARB's GHG reduction measures that specifically apply to the proposed project at this time, as of this writing, CARB has not yet adopted its GHG reduction cap and trade program. When adopted, it is expected to apply to projects that will need to receive permits, including any projects that may occur as a result of amending the SOx RECLAIM program. The purpose of the discussion of AB 32 is to indicate that there are no additional feasible GHG reduction measures that the SCAQMD could adopt that could mitigate impacts from the proposed project and that would be able to go beyond AB 32 requirements. With regard to the adequacy of the GHG mitigation measures, GHG-1 and GHG-2, see Responses to Comments 3-39 and 3-40.

2-15 There is no evidence for the potential of NaOH slip from a WGS. The application of the Rule 1401 screening emission level would be justified if there were any indication of NaOH emissions. In fact, with the exhaust stream entering a WGS, the NaOH would effectively disassociate to sodium and hydroxide ions, not remain as NaOH. On this basis, there is no reason to believe that here would be NaOH slip into the atmosphere.

Regarding the commenter's claim that there will be an impact due to pressure drop, refer to Response to Comment 2-25. It is important to note that both sets of consultants in their final reports included contingencies to address equipment-specific, unforeseen circumstances such as pressure drop.

2-16 Evaluation of the SOx RECLAIM inventory indicates that the amount of unused RTCs in the SOx RECLAIM market in 2005 was 1.73 tons per day and by 2008 the amount of unused RTCs in the SOx RECLAIM market had risen to 2.55 tons per day, which would be available for use by the affected facilities. In addition, the proposed amendments include several safety valves to prevent potential facility shutdowns: 1) gradual annual reductions with extended compliance schedule (from 2012 to 2019); 2) monitoring of RTC price trend over a 12-month rolling average; 3) hold public hearing if RTC price exceeds $50,000 per ton (discrete price); and 4) ability for the Governing Board to set aside (give back) up to 100 percent of RTC reductions for any year when RTC price exceeds $50,000 per ton.

Further, the cost-effectiveness of the glass plant complying with the proposed project is estimated to be $9,000 per ton of SOx reduced. The average annual cost for Owens-Brockway to comply with the proposed project is estimated to be $0.52 million (socioeconomic report). Moreover, as discussed in Response to Comment 2-4, Owens-Brockway may be able to comply with the proposed RTC shave with its current control equipment. For these reasons plus the fact that in 2009 Owens-Brockway had net sales of $7.1 billion (see Response to Comment 2-2), Owens-Brockway is not expected to shutdown their operations due to the requirements of the proposed amendments. See also Response to Comment 2-26.

2-17 The commenter implies that the noise impacts from installing a WGS at the Ball-Foster facility in El Monte should be applicable to the Owens-Brockway facility located in Vernon. Further, the commenter asserts that installing a wet gas scrubber, "…resulted in a significant increase in noise complaints from residents and other businesses." The comparison with regard to residences is not applicable to the Owens-Brockway facility because the Ball-Foster facility is located adjacent to residences while the Owens-Brockway facility is located in an industrial area approximately ¼-mile away from the nearest residences, which is consistent with Vernon's Noise Element Policy, N-2.3: Prohibit the establishment of any new noise-sensitive land uses in Vernon, including but not limited to residences, schools, day-care facilities, and community facilities.

Vernon's Noise Element Policy states, "…In general, industrial noise within the City is not considered excessive because Vernon is a predominantly industrial city with few noise-sensitive properties." The Owens-Brockway facility currently operates scrubbers and has not received reports of any noise problems or complaints from neighboring industrial/commercial facilities. The conclusions in the NOP/IS for noise impacts were based on the potential replacement of two existing dry gas scrubbers with two new WGSs at the Owens-Brockway facility. Since the noise from the existing scrubbers would be replaced with equipment rated at a similar noise profile, any change in the noise level is expected to be minimal relative to the current noise baseline of the facility. A previous installation of WGS technology within the district was rated about 85 decibels (dBA)[8].

When a distance is doubled from a point source, the sound level decreases by six dBA[9]. By applying an estimated six dBA reduction for every doubling distance, for a WGS sound level of 85 dBA at 50 feet, the sound level will be 79 dBA at 100 feet, 73 dBA at 200 feet,

[8] Final Environmental Impact Report for: ConocoPhillips Los Angeles RefineryPM10 and NOx Reduction Projects: http://www.aqmd.gov/ceqa/documents/2007/nonaqmd/cp/cp_feir.html.

[9] A Guide to Noise Control in Minnesota, Minnesota Pollution Control Agency, Distance Attenuation Estimations, March, 1999. http://www.nonoise.org/library/sndbasic/sndbasic.htm

67 dBA at 400 feet, 61 dBA at 800 feet, and 55 dBA at 1,600 feet. As a point of comparison, according to the City of Vernon's Noise Element background noise levels in residential areas are generally within the range of 60 dBA to 70 dBA, however, noise levels can be as high as 85 dBA near the Burlington Northern Santa Fe Railroad tracks to the northeast of the Owens-Brockway facility (See Figure N-4, City of Vernon Noise Element[10]). It is important to note that there are no residences within ¼-mile (i.e., 1,320 feet) of the Owens-Brockway facility as the nearest residence is located at approximately 1,420 feet of the facility. Similarly, it is not reasonably foreseeable that the replacement of two dry gas scrubbers with two wet gas scrubbers with similar noise profiles at the Owens-Brockway facility would create an increase in noise that would be discernable from the existing background noise in the area.

2-18 Regarding the adequacy of water supplies for the proposed project and specific to water supplies in the City of Vernon, see Response to Comment 3-29.

2-19 Regarding the feasibility of mitigation measures, HWQ-1 and HWQ-2, and the cumulative water demand analysis in the Draft PEA, see Response to Comment 2-6.

2-20 When the consultants conducted a site visit of the glass plant, analyzed potential BARCT for the facility, and identified the potential environmental impacts that may occur as a result of installing BACT, the consultants also provided a copy of the report for Owens-Brockway personnel for review and comment. During that process, the Owens-Brockway representatives did not provide any indication that there would be a new and different wastewater stream resulting from the new WGSs. Further, when SCAQMD staff surveyed the Owens-Brockway facility regarding their water and wastewater streams, facility operators did not provide a copy of the requested wastewater permit. The commenter, in raising the issue now, has not provided any substantiating evidence to support the claim that there would be a new wastewater stream. SCAQMD staff has limited information on Owens-Brockway's current wastewater setting and permit specifications because this information was not provided by the operators. Consequently, SCAQMD staff used a surrogate analysis based on the available wastewater data on an existing WGS installation in the District. Further, based on the potential increase in wastewater that may occur at the Owens-Brockway facility, SCAQMD staff does not believe that if WGSs are installed at the glass melting plant that there will be a need to revise the wastewater permit because facilities typically operate at less than maximum capacity to ensure no violations. Further, the commenter did not provide additional information demonstrating that the anticipated increase in wastewater stream as a result of installing a WGS would require modifications to any existing wastewater limitations. Therefore, based on the available information, the comment does not provide evidence refuting SCAQMD staff's conclusion that wastewater impacts from the proposed project would require modifications to existing waster limitations or otherwise create significant adverse wastewater impacts. See also Response to Comment 2-21.

2-21 The proposed project for Owens-Brockway, as confirmed by both sets of consultants, requires the decommissioning of the two existing dry gas scrubbers and the installation of two new wet gas scrubbers (WGSs) downstream from (after) the existing ESPs. The

[10] The City of Vernon General Plan and Noise Element can be found at the following link: http://www.cityofvernon.org/assets/docs/General_plan.pdf.

selenium that is added to the glass manufacturing process is in the vapor phase as it exits the furnaces and enters and exits the ESPs as selenium oxide (SeO_2) due to the high temperature. Any gaseous phase selenium that is currently exiting the ESPs is being discharged into the atmosphere. At the very minimum, the WGSs installed after the ESPs will cool the gaseous phase selenium oxide into a solid state, which could then be scrubbed out of the flue gas to be retained in the scrubber effluent solution, and thus, preventing the selenium compound from being discharged into the ambient air. ETS provided several different options for the facility to consider for treatment of the WGS waste stream. Options 1 through 3 involve processing the liquid blowdown from the scrubbers and reintroducing the solids into the process before the ESPs. In particular, Option 3 will not introduce excessive particulate loading to the ESPs since Trona will no longer be utilized as a result of the removal of the dry gas scrubbers from the process (also refer to Response to Comment 2-30). ETS believed that the budgetary allotment was sufficient to address these waste stream considerations. The District recognizes that there are engineering design challenges (e.g., waste stream handling, pressure drop, plugging, et cetera) associated with the installation and operation of WGS technology, but these challenges are not insurmountable within the budgetary framework of the consultants' recommendations.

2-22 This comment is a summary of some of the main points made in subsequent comments in this letter. Therefore, for specific responses to each point refer to Responses to Comments 2-23 through 2-30.

2-23 See Response to Comment 2-2.

2-24 See Responses to Comments 2-3 and 2-4.

2-25 Two sets of consultants, ETS and NEC, visited the Owens-Brockway facility, collected data, interviewed facility representatives and then independently ascertained that WGSs are technically and economically feasible for this facility's furnaces. Both ETS and NEC have direct experience in DGS and WGS technologies, as well as ESPs, as applied to furnace operations at Owens-Brockway facility. SCAQMD staff sent Owens-Brockway's comment letter and SCAQMD staff responses to the consultants for their input, and their input is incorporated into this response[11].

The consultant's (ETS) analysis of the Owens-Brockway facility was finalized in December 2008, nearly two years ago. During this time, representatives from Owens-Brockway rarely participated in the SOx RECLAIM Working Group meetings or provided SCAQMD staff with any questions or feedback on the consultant's report. Only recently, SCAQMD staff received two comment letters from Owens-Brockway submitted on September 22, 2010, and on October 1, 2010. The letters contain several incorrect assumptions and technical errors relative to ETS's analysis as follows:

- The commenter incorrectly assumes that the proposed BARCT configuration relies on the continued operation of the two existing dry gas scrubbers. In actuality, ETS

[11] SCAQMD staff sent Owens-Brockway comment letter and SCAQMD staff's responses to the consultants for review, and received confirmation back that they were in agreement with SCAQMD staff's assessment. The consultants' feedback is included in this response. Emails from James Norton of NEC to Minh Pham on October 12, 2010, and Marshall Bell of NEXIDEA to Minh Pham on October 12, 2010.

proposed to remove the two dry gas scrubbers upstream of the ESPs and replace them with two new WGSs downstream of the ESPs.

- The current configuration at Owens-Brockway requires redundancy for controlling particulate emissions (via the ESPs) but not for controlling SOx emissions. Owens-Brockway currently operates two dry gas scrubbers with three ESPs connected by piping/valves, but only two ESPs are in operation at any one time while one ESP remains in stand-by mode. ETS recommended removing the two dry gas scrubbers and discontinuing the use of Trona, a very fine powder, in the two dry gas scrubbers. Doing so would be expected to reduce the particulate loading and Trona entrainment to the ESPs. Further, ETS's recommendation may substantially improve the reliability of the two on-line ESPs to the extent that the stand-by ESP may no longer be needed.

- Additional pressure drop is a concern for ALG since ALG incorrectly assumed that the BARCT control configuration recommended by ETS included both the continued operation of the two existing dry gas scrubbers and the installation and operation of two new wet gas scrubbers. Under ALG's incorrect assumption, the configuration of two dry gas scrubbers with two wet gas scrubbers would cause an additional pressure drop across the wet gas scrubbers. However, ETS recommended the removal of the two existing dry gas scrubbers upstream of the ESPs, and their replacement with two new wet gas scrubbers downstream of the ESPs so that there would be no substantial increase in pressure drop. In addition, in ETS analysis, ETS had included the costs for a system fan in the vendor's budgetary quote:

  > *"Each system comes complete with all necessary pumps, reagent storage tanks,* ***system fan*** [emphasis added]*, and stack."*

  ETS made a determination, based on their extensive knowledge and experiences with ESPs, wet gas scrubbers, and dry gas scrubbers, that the pressure drop would not be a concern in this situation. An additional fan or blower to push or pull the flue gas through the WGS would not make the control system recommended by ETS cost-ineffective.

- The three ESPs (two in operation and one in stand-by mode) were designed to ensure that if one ESP experiences operational difficulties, the stand-by ESP will take its place. ETS recommended removing the dry gas scrubbers and eliminating Trona injection. Based on this recommendation, particulate loading to the two ESPs is expected to be reduced substantially and will improve the reliability of the ESPs. ETS recommended that Owens-Brockway keep one stand-by ESP to handle upset conditions, and thus maintain the integrity of the two wet gas scrubbers downstream of the ESPs. ETS's analysis did not determine that redundancy for SOx control by adding a third scrubber would be necessary because monitoring the pH level and increasing the use of caustic may work efficiently to remove enough SOx.

- As explained above, only two WGSs would be needed. Two consultants, ETS and NEC, both identified suitable, separate locations for placement of the WGSs, Owens-Brockway is not expected to have site limitations associated with the placement of two WGSs within their facility[12].

[12] SO_x RECLAIM Study Final Report, Module 3-D: Wet/Dry Scrubbing Technology For Container Glass Manufacturing Plant, December 16, 2008, page 2.

- The commenter failed to specifically identify the foreseeable additional costs that the consultants might not have included in their analyses. ETS estimated a cost effectiveness of about $5,000 per ton SOx reduced and both ETS and NEC concurred that WGS technology is cost-effective.
- Owens-Brockway did not release any information to ETS at the site visit that could lead to a reasonably foreseeable situation that the wastewater discharge would fail the discharge limit because of selenium. Technology for treating selenium is available. The facility can treat selenium on site or can send the additional wastewater stream (10 gallons per minute) to be treated by LACSD/City of Vernon. Note that ETS budgeted $225,000 to cover the cost of wastewater treatment and this cost is included in the cost-effective calculation. ETS also provides four options to treat the wastewater stream as follows:
    1. The liquid blowdown from the scrubbers could be sent to a storage tank and recycled back to the furnaces for the batch wetting process.
    2. The blowdown could be sent to a storage tank and then to an energy efficient dryer for liquid evaporation. The solid waste could then be placed in a hopper and recycled back to the furnaces.
    3. The blowdown could be sent to a storage tank and then sprayed into the duct ahead of the precipitators to evaporate the water and collect the dry particulate in the ESPs.
    4. The blowdown could be sent to a storage tank and ran through a small skid-mounted filtration system (approximately 6 feet by 6 feet) prior to discharging to the local sanitary sewer system.
- One WGS for a FCCU has been installed and is currently operating at a refinery in the District. The exhaust gas stream from this existing WGS is expected to have similar characteristics (i.e., lower temperature, reduced plume buoyancy, caustic mist) as the proposed WGSs for Owens-Brockway. The WGS at the aforementioned refinery was evaluated to assure that it complies with all state and federal ambient air quality standards and a Permit to Operate was issued by the SCAQMD. If applications for the proposed WGSs are submitted by Owens-Brockway, the WGSs scrubbers will undergo an equivalent or similar evaluation. Moreover, with the exhaust stream entering a WGS, the NaOH would effectively disassociate to sodium and hydroxide ions, not remain as NaOH. On this basis, there is no reason to believe that here would be NaOH slip into the atmosphere.

2-26 Owens-Brockway currently holds 0.31 ton per day of RTCs and the remaining RTCs would be 0.14 ton per day after the proposed 55 percent shave. Owens-Brockway's SOx emissions in 2005 were approximately 0.2 ton per day. Owens-Brockway indicated that the control efficiency of their dry gas scrubbers was demonstrated at 90 percent, but that they are operated at 75 percent to 80 percent. If Owens-Brockway can operate their dry gas scrubbers at 90 percent, then the facility will be in compliance with the 55 percent shave since their emissions at 90 percent control would be 0.1 ton per day, below the 0.14 ton per day allocation after the shave. Under this scenario, Owens-Brockway will have surplus credits of 0.04 ton per day, which can be made available in the open market and could generate a substantial revenue stream to the company. This revenue stream could be even larger if Owens-Brockway elects to install higher efficiency WGSs.

However, if Owens-Brockway elects not to operate their dry gas scrubbers at 90 percent control, then the facility operators can purchase 0.06 ton per day (0.2 ton per day 2005 baseline – 0.14 ton per day = 0.06 ton per day) to be in compliance with 55 percent shave. The RTCs can be purchased from investors or from other SOx RECLAIM facilities that have surplus RTCs. The surplus pool has approximately 1.73 tons per day of unused RTCs in 2005, and 2.55 tons per day of unused RTCs in 2008. For these reasons, SCAQMD staff did not assume that Owens-Brockway would shut down their facility because of the proposed 55 percent shave for SOx RECLAIM.

For the above reasons, and the fact that the annual cost of compliance is estimated to be $0.52 million (Socioeconomic Report) for a facility whose parent company had net sales of $7.1 billion[13] in 2009 and a gross profit margin of 21 percent (see Response to Comment 2-2), SCAQMD staff concluded that it was not reasonably foreseeable that Owens-Brockway would shut down its facility because of the proposed 55 percent shave for SOx RECLAIM. Consequently, environmental impacts such as those mentioned in the comment are also not reasonably foreseeable, so further analysis is not required.

2-27 BARCT technology is improving over time. For example, dry gas scrubbers operating at 80 percent control efficiency were considered as BARCT in 1994. Current control technologies routinely demonstrate 95+ percent control efficiencies and can achieve control levels of 5 ppmv or better. Owens-Brockway can achieve these reductions cost-effectively. Therefore, Owens-Brockway should not be included in the list of exempt facilities in Table 5 of the PAR 2002.

2-28 SCAQMD staff and the consultants[14] disagree with ALG's technical assessment in a number of areas as explained in the following paragraphs.

- As explained in Response to Comment 2-25, the assumed configuration of the proposed BARCT to include dry gas scrubbers is incorrect. The combination of monitoring pH levels, using a sufficient amount of caustic solvent for controlling SOx emissions, and having ESPs located upstream for controlling particulate emissions would prevent excessive particulate loading and catastrophic failure to the WGSs located downstream of the ESPs.

- Since three WGSs are not required for redundancy as each can be sized to handle the entire flue gas flow from the ESPs, plot space limitations are not expected. Both consultants visited the site, evaluated the situation, and concurred that there is available plot space to located two new WGSs.

- Operational problems are site- and equipment-specific, particularly in cases where process changes are made upstream of existing systems such as in the case of the Ball-Foster facility experiencing excessive loading of particulate emissions to their

[13] O-I Announces Third Quarter Earnings Conference Calland Webcast, September 20, 2010. http://www.o-i.com/nth_us.aspx?id=400; http://www.o-i.com/about_oi.aspx?id=1348 and http://www.o-i.com/nth_us.aspx?id=400

[14] SCAQMD staff sent Owens-Brockway comment letter and staff's responses to the consultants for review, and received confirmation back that they were in agreement with staff's assessment. The consultants' feedback is included in this response. E-mails from James Norton of NEC to Minh Pham on October 12, 2010, and Marshall Bell of NEXIDEA to Minh Pham on October 12, 2010.

venturi scrubber converting their furnace to an oxy-fuel furnace. The venturi scrubber should be redesigned to handle a lower flow with higher particulate loading from the oxy-fuel furnace. As any new equipment would need to be designed for a specific installation, the design would need to take into account all operating modes and upstream conditions. Therefore, SCAQMD staff finds that the problems occurring at the Ball-Foster facility were due to the re-use of existing control equipment instead of redesigning the controls, and these problems would not be expected to apply to the Owens-Brockway facility. In addition, Owens-Brockway has three ESPs located upstream of the scrubbers to control particulate matter which will help prevent excessive buildup of particulate emissions in the WGSs.

- Dry gas scrubbers operating at 80 percent control efficiency are no longer considered BARCT because current state-of-the-art systems can reliably achieve 95 percent or more SOx reductions and achieve SOx emission levels of 5 ppmv or lower. SCAQMD staff, therefore, recommends the BARCT level for glass melting furnaces to be 5 ppmv. However, if the dry scrubbers are operated at 90 percent efficiency, then Owens-Brockway should be able to comply with the proposed RTC shave.

2-29 Regarding the suggestion to clarify the language in subparagraph (f)(1)(Q) of Rule 2002, SCAQMD staff disagrees with the commenter's proposed interpretation. The intent of this subparagraph is that any facility entering the RECLAIM program after the date of adoption and that operates the basic equipment in Table 4 shall have its SOx allocations determined according to the BARCT level listed in Table 4 or the permitted emission limits, whichever is lower. Existing facilities that operate the basic equipment listed in Table 4 will have their allocations adjusted in accordance with Rule 2002, subparagraphs (f)(1)(I) and (f)(1)(J) at the Table 4 BARCT levels, effective 2012. It should be noted that all Table 4 equipment in existing non-RECLAIM facilities have achieved the proposed BARCT standards (e.g., diesel combustion). This clarification will be made in the proposed amended rule and Staff Report.

2-30 SCAQMD staff's responses to the individual comments are summarized as follows, but because of overlapping concepts in several bulleted items, the order of the responses does not necessarily directly correspond to the order of each bulleted item in the comment letter:

- The 2005 reported emissions for Owens-Brockway's glass furnaces were approximately 0.2 ton per day with their dry gas scrubbers typically operating in the range of 75 percent to 85 percent control efficiency, but occasionally achieving a control efficiency as high as 90 percent. The background on Owens-Brockway's furnaces and control equipment provided in the comment is consistent with this 2005 emissions data and the information documented by ETS (i.e., testing on the dry gas scrubbers demonstrated up to 90 percent control efficiency). If the dry gas scrubbers were operated consistently at a 90 percent control efficiency level, then Owens-Brockway would emit approximately 0.1 ton per day and as such, would be in compliance with the proposed 55 percent shave without additional control.

- SCAQMD staff knows of no installation in which a facility relies upon using dry gas scrubbers, dry ESPs, followed by wet gas scrubbers to achieve the emission reductions recommended by the consultants. However, based on the consultants' reports, SCAQMD staff believes that the level of 5 ppmv SOx (which represents a 95

percent control efficiency or more) can be achieved in practice, is cost-effective and is not expected to create the severe problems alleged by the commenter's technical assessment.

The proposed BARCT level for glass melting furnaces has been achieved in practice. Specifically, the Puget Sound Clean Air Agency in Seattle, Washington, provided SCAQMD staff with source test and CEMS data that demonstrates compliance with 5 ppmv SOx levels at 96 percent control efficiency via Tri-Mer's Cloud Chamber scrubber for a furnace with a permit limit of 1.6 pound of SOx per ton of glass pulled but tested at 0.0062 pounds of SOx per ton of glass pulled[15, 16]. SCAQMD staff was provided with supporting documentation from Tri-Mer and other WGS vendors that demonstrated that the Cloud Chamber scrubber as well a packed bed scrubber, venturi scrubber, or open throat type of scrubber can be used to achieve 5 ppmv SOx level when appropriately designed and operated.

There are several types of WGSs that can be considered for the Owens-Brockway facility: 1) quench, vertical packed bed scrubbers as recommended by Manufacturer A; 2) simple open-throat scrubbers as recommended by Manufacturer D; or, 3) fluidized rotating scrubber as offered by Manufacturer B. NEC recommended Manufacturer D's open-throat type and ETS recommended Manufacturer A's packed bed scrubber. Manufacturer A indicated that the packed bed scrubber can tolerate up to 20 micrograms per cubic nanometer (µg/nm3) of insoluble particulate without clogging; and if the particulate is soluble (e.g., sodium sulfate), then the packed bed scrubber would not have a problem with plugging[17]. The SOx RECLAIM program does not require Owens-Brockway's operators to install any particular type of scrubber. In fact, Owens-Brockway's operators are encouraged to study their options further and research the type of WGSs and solvents that best fits their operation and emission profiles.

- The control configuration recommended by ETS (which was proposed by Manufacturer A) consists of three existing ESPs followed by two new WGSs. Manufacturer A and ETS recommended the removal and replacement of the two existing dry gas scrubbers with two WGSs downstream of the three existing ESPs. Further, the commenter incorrectly assumes that three WGSs would be needed to correspond with the three ESPs units. Even though the three ESPs are connected by piping/valves, only two are in operation at any one time and the one remains in standby mode. Thus, there is no need to install three WGSs when there are only two operational ESPs at any one time. For these reasons, ETS recommended replacing the two existing dry gas scrubbers with two new WGSs. Further, because the analysis is based on the replacement of the two existing dry gas scrubbers with two new WGSs, and not three WGSs as suggested by the commenter, the cost-effectiveness analysis only includes the costs associated with the installation and operation of two new WGSs downstream of two existing ESPs. Also, because ETS recommended the removal of the two existing dry gas scrubbers, the cost-effectiveness analysis does not

[15] Horizon Engineering, "Source Test Evaluation Report for Saint-Gobain, Seattle, Washington, Glass Melting Furnace No. 5 with Cloud Chamber Scrubber," September 18, 2009.
[16] CEMS Summary Report from Saint-Gobain to Puget Sound Clean Air Agency, for a period from October 1, 2009 to October 31, 2009.
[17] Email from Manufacturer A to Minh Pham – Solution Based Absorbents for Scrubbers, January 29, 2010.

and should not be based on the continued operation of the dry gas scrubbers in addition to the two WGSs.

- Regarding the sizing of the two WGSs, since each of Owens-Brockway's ESPs operates at a capacity of 30,000 acfm, or at combined capacity of 60,000 acfm with one ESP in stand-by mode, then the combined capacity of the two WGSs would also need to be sized at 60,000 acfm, not 90,000 acfm as suggested by the commenter. However, Owens-Brockway operators may choose to build a larger system for redundancy (e.g. 90,000 acfm instead of 60,000 acfm). A larger system will cost more but it will not make the BARCT recommended by the consultants become cost-ineffective (i.e. larger than $50,000 per ton) since the cost-effectiveness for the 60,000 cfm system was estimated to be $5,000 per ton, and the capital costs are proportional to the $(90{,}000/60{,}000)^{\exp 0.6} = 1.28$ factor.
- As explained in Response to Comment 2-25, additional pressure drop was a concern for ALG since ALG incorrectly assumed that the BARCT control configuration recommended by ETS included both the two dry gas scrubbers and the two wet gas scrubbers. However, ETS recommended the removal of two dry gas scrubbers upstream of the ESPs, and replace those with two WGSs downstream of the ESPs. Also, Manufacturer A included a fan in their proposal. Therefore, the manner in which the equipment could be configured should remedy any concerns of pressure drop across the system.
- The commenter incorrectly assumes that Trona will still be needed even though ETS recommended stopping the use of Trona and replacing the two existing dry gas scrubbers upstream of the ESPs with two new WGSs downstream of the ESPs. Removing the dry gas scrubbers and eliminating the use of Trona would substantially reduce the particulate loading to the ESPs. Further, as is the case with current operations at Owens-Brockway, if an ESP goes offline, the stand-by ESP would become operational so that only two ESPs would be operational at any time. Thus, there would be no extra loading to the WGSs in the event an ESP goes off-line. Overall, this configuration would reduce the loading to the WGSs downstream of the ESPs.
- The suggestion that the WGS proposed by ETS is under-sized because the particulate loading allowed by the permit (0.08 grains/dry standard cubic feet) is an order of magnitude higher than the amount assumed by ETS (0.008 grains/dry standard cubic feet) represents a misunderstanding about what data is considered when sizing a WGS. The capacity or size of a WGS is dependent upon several factors. ETS provided the vendors with flue gas flow rates, inlet concentrations, and other necessary parameters so that the manufacturers could estimate the size and associated costs of the WGS. Because flue gas flow rate, not particulate loading, is the critical parameter that was used to determine the equipment costs and the size of the WGS, the WGS recommended by ETS would be able to handle the permitted particulate loading (0.08 grains/dry standard cubic feet).
- Owens-Brockway reported that the facility is currently sending wastewater to the LACSD and the City of Vernon to be treated at a rate of 41.89 million gallons per year which equates to approximately 80 gallons per minute (gpm). Owens-Brockway has a maximum discharge limit of 131.4 million gallons per year or 250 gpm. The increase in discharge due to the two WGSs is 10 gpm which is expected to mainly contain soluble sodium sulfate that would result from using caustic solvent as the

scrubbing agent. With an additional discharge of 10 gpm, Owens-Brockway is far below their permitted threshold of 250 gpm. In addition, on October 26, 2010, following SCAQMD staff's request, Owens-Brockway provided SCAQMD staff with their facility's industrial wastewater discharge permit issued by the LACSD which shows that currently LACSD has effluent concentration limits for arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, zinc, cyanide, and total dissolved sulfides. There is no effluent discharge concentration limit for selenium on Owens-Brockway's industrial discharge permit. Furthermore, SCAQMD staff estimated the concentration of selenium that could potentially be present in Owens-Brockway's wastewater stream based on their annual emission reports from 2002 to 2009. Selenium concentrations in their wastewater stream was estimated to be around 0.022 mg/L[18], much less than the thresholds set in the Code of Federal Regulations(CFR), Part 268 – Land Disposal Restrictions for wastewater and non-wastewater. For these reasons, SCAQMD staff believes that both the LACSD and the City of Vernon will be able to receive and treat an additional 10 gpm waste stream that contains trace amounts of selenium and other inorganic compounds.

The consultant (ETS) also allocated $225,000 into the scrubber equipment cost estimate for handling the waste stream from the scrubbers (e.g., selenium). The $225,000 estimate was based on information provided by Manufacturer D which has expert knowledge of WGS technology and WGS effluent waste treatment. The estimate was also based on relevant experience with the waste stream from a glass manufacturing facility located in Seattle, Washington[19]. In addition, ETS, in their final report, provided four options for Owens-Brockway to treat the waste stream onsite:

1. The liquid blowdown from the scrubbers could be sent to a storage tank and recycled back to the furnaces for the batch wetting process.
2. The blowdown could be sent to a storage tank and then to an energy efficient dryer for liquid evaporation. The solid waste could then be placed in a hopper and recycled back to the furnaces.
3. The blowdown could be sent to a storage tank and then sprayed into the duct ahead of the precipitators to evaporate the water and collect the dry particulate in the ESPs.
4. The blowdown could be sent to a storage tank and ran through a small skid-mounted filtration system (approximately 6 feet by 6 feet) prior to discharging to the local sanitary sewer system.

Lastly, since technology for selenium treatment is available, SCAQMD staff recommends that Owens-Brockway operators conduct their own evaluation of these recommended options to find an appropriate method to treat any selenium in the WGS wastewater. There are no significant environmental impacts expected with the options quoted above. While the commenter criticized Option 3 (the comments were based on the incorrect assumption about the continued use of dry gas scrubbers and Trona injection), no comments were submitted relative to Options 1, 2 and 4.

[18] Email from Kevin Orellana to Minh Pham on October 26, 2010.
[19] Email from ETS, Inc. to Minh Pham on October 27, 2010.

- Regarding the comment about moisture build-up/clogging in the ESPs, see Responses to Comments 2-3 and 2-28.
- There are hundreds of scrubbers operating across the nation that currently utilize caustic solution (NaOH, 50 percent by weight) as a scrubbing agent. The commenter has failed to provide evidence to support the claim that the use of caustic solution will create additional environmental impacts, other than what was already identified and analyzed in the Draft PEA. Further, as mentioned in Response to Comment 2-15, there is no evidence for the potential of NaOH slip from a WGS. The application of the Rule 1401 screening emission level would be justified if there were any indication of NaOH emissions. In fact, with the exhaust stream entering a WGS, the NaOH would effectively disassociate to sodium and hydroxide ions, not remain as NaOH. Thus, there is no reason to believe that the use of caustic in a WGS would emit NaOH slip into the atmosphere.
- Regarding compliance with the new federal NO2 standard, see Response to Comment 2-13.
- The commenter refers to the Green Chemistry Initiative and suggests that the use of NaOH may be inconsistent with its requirements. The "Green Chemistry Draft Regulation for Safer Consumer Products[20]" is a draft regulation prepared by California Department of Toxic Substances Control (DTSC) that specifies the processes for DTSC to scientifically and systematically identify and prioritize chemicals and consumer products, for manufacturers to conduct alternatives assessments, and for DTSC to impose regulatory responses for alternatives selected by manufacturers.

  According to the draft regulation, the term "Green Chemistry Principles" means: 1) prevention of waste rather than treating it or cleaning it up; 2) incorporation of all materials used in the manufacturing process in the final product; 3) use of synthetic methods that generate substances with little or no toxicity to people or the environment; 4) design of chemical products to be effective, but reduce toxicity; 5) phase-out of solvents and auxiliary substances when possible; 6) use of energy efficient processes, at ambient temperature and pressure, to reduce costs and environmental impacts; 7) use of renewable raw materials for feedstocks; 8) reuse of chemical intermediates and blocking agents to reduce or eliminate waste; 9) selection of catalysts that carry out a single reaction many times instead of less efficient reagents; 10) use of chemicals that readily break down into innocuous substances in the environment; 11) development of better analytical techniques for real-time monitoring to reduce hazardous substances; and, 12) use of chemicals with low risk for accidents, explosions and fires.

  While NaOH, a toxic air contaminant (TAC) that is a non-cancerous but acutely hazardous substance, is a very common scrubbing agent, it is not the only solvent that can be used in Manufacturer A's scrubber. However, for a worst-case analysis in the Draft PEA, the use of NaOH was assumed. Thus, if Owens-Brockway operators choose to install WGSs and apply the draft Green Chemistry Principles to their choice of solvent for the WGSs, soda ash, a non-toxic, non-cancerous, and non-hazardous substance, could be utilized instead as an alternative scrubbing agent.

[20] http://www.dtsc.ca.gov/PollutionPrevention/GreenChemistryInitiative/upload/Safer-Product-Alternative-Regulations-6-23-10.pdf

- While there may not be sufficient space for three WGSs, only two scrubbers were recommended by the consultants (ETS and NEC) with input from Owens-Brockway's operators as explained in Response to Comment 2-25. Both ETC and NEC were in agreement that three WGSs are not needed to handle the entire flue gas flow (60,000 acfm) from the two ESPs and that the facility had sufficient space for siting two WGSs. Thus, there is no need to find space for a third WGS.

- Regarding the comment relative to siting the control equipment, the consultants identified two different potential locations at the site for the WGSs. While the specifics of the potential locations are confidential at the request of the facility operators and cannot be disclosed in this response, the confidential details have been provided to Owens-Brockway personnel. What can be disclosed in this document, however, is ETS's general description of the plot space availability at the Owens-Brockway facility:

  > *"The plant has limited space available for additional equipment, approximately a 14' x 20' footprint between two existing scrubbers. In addition O-I personnel indicated that the height of any new equipment could not exceed 30 feet above the top of the existing scrubbing vessels. A request was made of O-I to provide us with dimensional information pertaining to available space for the Manufacturer A equipment footprint.* ***They stated that there is space available*** [emphasis added]. *Horizontal distance is 63' depending on the location of the ducting out of the pieces of equipment. This does not take into account the vertical distance which will depend on location of entry to the stream*[21]*."*

  In addition, NEC's general description of the plot space availability is as follows:

  > *"We located an elevated area just to the west of the ESP's* [sic] *and adjacent to the existing ammonia storage tank where Facility D felt the unit could potentially be located. This new area is located above an existing truck turnaround area*[22]*."*

  Neither ETC's nor NEC's reports reflect any suggestions from Owens-Brockway's representatives that the WGSs would need to be sited in a parking lot or that an existing structure would need to be torn down. In the context of the comment, it seems that the commenter is suggesting these circumstances based on the misunderstanding that a third WGS would need to be installed. SCAQMD staff continues to assert that two WGSs sufficiently sized can provide the necessary capacity to ensure compliance with the proposed BARCT for glass melting furnaces. See also Responses to Comments 2-25 and 2-28.

  For these reasons, SCAQMD staff continues to believe that there is sufficient space at the Owens-Brockway facility to site two WGSs. Further, the costs associated with the siting options proposed by the consultants have already been included in the cost-effective and socioeconomic analyses. See also Response to Comment 2-2.

- The ETS analysis included all of necessary costs. However, NEC recommended raising ETS's costs to include contingencies, costs for additional ducting and valves

[21] SO_x RECLAIM Study Final Report, Module 3-D: Wet/Dry Scrubbing Technology For Container Glass Manufacturing Plant, ETS Inc., December 16, 2008, page 2.

[22] SOx RECLAIM BARCT Capital & Operating Cost Review – Final Report – Non-Confidential, NEC Inc., May 28, 2010, page 12.

for an alternative location. The commenter indicated that additional costs for CEMS upgrade were also needed. This additional cost would be covered by NEC's recommended cost adjustment for contingencies. By including all of the additional costs suggested by NEC, which would cover the cost for the CEMS upgrade, the BARCT recommended by ETS would remain cost-effective. Even with the adjustments made to ETS's initial cost estimates, NEC concurred that the control costs for WGSs would be cost-effective for glass melting furnaces.

- With regard to the comment about the technical data that was relied upon to support a 25-year useful life of a WGS, a leading manufacturer of WGSs provided the SCAQMD staff with a confidential list of all its wet scrubbing systems installed worldwide. In this list, there were 20 wet gas scrubber installations that are 25 years or older and still operating. For this reason, SCAQMD staff applied a 25-year useful life assumption for WGSs.
- Regarding the implementation challenges face by the Ball-Foster facility, see Response to Comment 2-3.
- Regarding the proposed BARCT level and how it relate to the emissions at glass plant located in Seattle, Washington, see Response to Comment 2-4.

Comment Letter #3

From: Joey Martinelli [mailto:jmartinelli@wspa.org]
Sent: Friday, October 01, 2010 3:02 PM
To: Barbara Radlein
Cc: Steve Smith; Barry Wallerstein; Elaine Chang; Laki Tisopulos; Joe Cassmassi; Cathy Reheis-Boyd; Joe Sparano; sschuyler wspa.org; Patty Senecal
Subject: WSPA Comments on SCAQMD SOx RECLAIM Draft Program Environmental Assessment (DPEA)

Sent on behalf of Catherine Reheis-Boyd.

Dear Ms. Radlein:

Please see attached Western States Petroleum Comments on the SCAQMD SOx RECLAIM Draft Program Environmental Assessment (DPEA). If you have any questions, please call Cathy at (916)498-7752 or email: cathy@wspa.org.
Thank you.

Joey Martinelli
Executive Assistant, President
Western States Petroleum Association
(916)498-7750
joey@wspa.org

Western States Petroleum Association
Credible Solutions • Responsive Service • Since 1907

Catherine H. Reheis-Boyd
President

October 1, 2010

Barbara Radlein
Air Quality Specialist
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, CA. 91765-4182

Dear Ms. Radlein:

SCAQMD SOx RECLAIM Draft Program Environmental Assessment (DPEA)

Attached are the Western States Petroleum Association's (WSPA's) comments related to the Draft Program Environmental Assessment (DPEA) for proposed amendments to Regulation XX, the RECLAIM SOx shave. WSPA is a non-profit trade association representing twenty-eight companies that explore for, produce, refine, transport and market petroleum, petroleum products natural gas and other energy products in California and five other western states.

WSPA member companies operate petroleum refineries, distribution terminals and other facilities in the South Coast Air Basin. WSPA has been involved in air quality issues in California and the South Coast for 40 years. We pioneered the use of computerized modeling, and sponsored some of the first regional air quality monitoring programs that documented ambient air quality and the impacts of atmospheric emissions. 3-1

The RECLAIM Work Plan that was initiated in January 2010 identified environmental impacts and substantial cost factors associated with this regulatory proposal. WSPA made a commitment to follow the Work Plan in January 2010. We continue to be responsive and transparent in working with the District staff.

As an outgrowth of the work plan, and in an effort to understand the basis for our differing views concerning the costs and environmental benefits of various reductions in RTC allocations, staff from WSPA and the District have recently begun development of a clear and concise cost summary. That cost summary identifies the policy choices facing industry and the District. 3-2

If this effort is successful, we see development of the summary as an important first step in informing the SCAQMD Board in preparation of the upcoming adoption hearing. We will keep you informed of our collective progress.

1415 L Street, Suite 600, Sacramento, California 95814
(916) 498-7752 • Fax: (916) 444-5745 • Cell: (916) 835-0450
cathy@wspa.org • www.wspa.org

As part of our ongoing effort to work with the District and balance environmental impacts with costs, WSPA first proposed a 25% shave. Then, using alternative methodology we presented a 33% shave proposal. WSPA recently increased our proposal to a 40% shave.

The estimated costs to the refining industry for the 40% proposal are still over half a billion dollars. This represents a huge commitment from the refining industry to support the District's efforts to reduce emissions. Despite our proposal the District's position remains unchanged at a 55% shave with an estimated cost to the refining industry of over $1.5 billion.

WSPA's proposal exceeds all applicable local, state, and federal regulatory requirements for this proposed rule making. WSPA believes the District should accept our proposal or bring forth a more realistic and reasonable proposal than the current 55% shave – one that balances the clean air obligations of the District with the economic health of the region and the refining industry.

3-2 Cont'd

Background

As currently proposed, the amendments to Regulation XX rely heavily on the control of industrial facilities including several refinery source categories. WSPA has reviewed all the SCAQMD reports by consultants and District staff, and provided feed back to the District staff.

Detailed comments for the District's 55% proposal are provided in the attachment; however, the DPEA only partially addresses some of the impacts and cost issues. Our attached comments note deficiencies in areas where additional critical analyses should be done. We would like to highlight the following:

3-3

1. RTC Market Analysis

   The DPEA concludes that the current shave proposal will not result in constraints to the RECLAIM market and states: "there will be sufficient SOx RTC's available to maintain trading within the SOx RECLAIM program." This statement has not been substantiated by any analysis conducted as a part of the DPEA or any other document available for review to date.

   The SCAQMD arrived at this conclusion before the socio-economic or market impacts studies have been concluded. District Staff needs to conduct an analysis and make it available to the public for review and comment so that it may inform the Board's decision.

3-4

2. Cost to Comply

   WSPA has repeatedly informed the District that the estimated compliance costs are underestimated substantially. The District's consultants' estimates failed to consider the project scope including, but not limited to space limitations, additional utility infrastructure and the practical limitations placed on working refineries. The depth of the proposed shave will drive compliance costs far beyond any reasonable level and exceeds acceptable cost effectiveness thresholds.

3-5

1415 L Street, Suite 600, Sacramento, California 95814
(916) 498-7752 • Fax: (916) 444-5745 • Cell: (916) 835-0450
cathy@wspa.org • www.wspa.org

WSPA agrees with the conclusion of the District's consultant Norton Engineering that the cost effectiveness analysis needs improvement. The Norton Engineering Report documented various deficiencies in the analysis of five out of six source categories.

The Report encourages the District to re-calculate the cost effectiveness analysis for the affected source categories; however, the District has refused to follow the recommendation of its consultant and recalculate the cost effectiveness.

The District's overly aggressive proposal incorporates the seizure of "unused" RTC's in a manner that doubles the compliance cost. The costs to achieve emission reductions required by the proposed shave are nearly double the costs required to achieve emission reductions equivalent to installation of BARCT controls on refinery sources.

The DPEA should expressly evaluate the costs of achieving BARCT levels of emission reductions. We note that this approach was partially discussed as Alternative C; however, that did not expressly discuss the implications for not confiscating an additional 1.75 TPD in RTC's.

3-5 Cont'd

3. The DPEA concludes the cumulative mitigation measures for water supply and green house gas (GHG) emissions are insufficient to mitigate impacts below the level of significance. This finding requires the District to adopt a statement of over-riding consideration in order to certify the DPEA findings. Because of this fact, it seems appropriate that the District consider an alternative that is less environmentally adverse.

3-6

4. The District's DPEA notes that Alternative C poses fewer environmental impacts and may not require a statement of over-riding consideration for either water or GHG mitigation. The District should specifically address why Alternative C was not selected as this would satisfy all current local, state and federal regulatory requirements.

3-7

5. The District's Norton Report notes that technologies identified as BARCT for cement plants and acid plants are neither typical installations nor appropriate for identification of BARCT. The DPEA should revisit the identification of BARCT and correct errors associated with the Staff Report, and should document the resulting consequent changes in the environmental impacts.

3-8

6. The DPEA is insufficient in scope to support the permitting of required equipment and related processes as companies prepare to meet compliance objectives. Key issues such as New Source Review (NSR), Prevention of Significant Deterioration (PSD) and offsets, are not addressed. Mitigation measures have not been documented sufficiently and the analysis of these impacts may not be sufficient to support applications submitted in support of projects proposed to achieve the required shave levels.

3-9

WSPA is committed to working with the SCAQMD to facilitate a constructive SOx rule making that will result in meeting the necessary environmental objectives at a cost that will not economically damage the region or the refining industry. We have negotiated in good faith, moving from an initial position of a 25% shave to our current 40% shave position, which results in 4.7 TPD of actual reductions.

3-10

1415 L Street, Suite 600, Sacramento, California 95814
(916) 498-7752 • Fax: (916) 444-5745 • Cell: (916) 835-0450
cathy@wspa.org • www.wspa.org

Since this DPEA will be used to support permitting and actual project implementation, it is vital that the environmental impacts and mitigation measures adopted are based on an accurate and complete body of evidence.

WSPA supports the 2007 AQMP analysis and related emission reduction targets, but with a BARCT adjustment that is based on a complete and accurate technological and cost effective determination. This in-turn requires a sound environmental impacts analysis, based on realistic compliance assumptions.

3-11

Please contact me at this office or Mike Wang at (310) 808-2149 to answer any questions associated with our comments.

Sincerely

cc: Steve Smith
Barry Wallerstein
Elaine Chang
Laki Tisopulos
Joe Cassmassi

1415 L Street, Suite 600, Sacramento, California 95814
(916) 498-7752 • Fax: (916) 444-5745 • Cell: (916) 835-0450
cathy@wspa.org • www.wspa.org

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ATTACHMENT A: GENERAL COMMENTS

Overall

Comment: The District should have analyzed environmental impacts of seizing the "unused" RTCs. These are NOT unused, but are necessary for the facilities to ensure compliance with the existing rule and avoid having to purchase RTCs in an adverse market. In addition, a market for RTCs gives facilities flexibility when implementing compliance options and at the end of each cycle. WSPA requests that the District analyze the impact of a highly constrained market on key environmental factors such as air emissions, GHG emissions and water use. 3-12

Comment: The District should have re-calculated the cost-effectiveness for all technologies because of the Norton Report's findings. The District should, in particular, recognize that there were major edits in 5 of the 6 source categories reviewed by Norton Engineering. WSPA requests that the updated cost-effectiveness calculations be included in the Programmatic Environmental Assessment (PEA). This evaluation is critical to understanding the environmental impacts of the proposed project and identified alternatives. 3-13

Comment: The DPEA did not adequately address the possible need for additional water supplies or the costs for and reliability of the supply of the additional water needed. For example, given the current restrictions in the supply of potable water, the DPEA makes reference to the substitution of recycled water.

However, the expanded use of recycled water was not carefully evaluated. For example, costs associated with building the needed infrastructure to the facility, infrastructure within the facility, expansion and operation of the process water treatment plant, cost of the recycled water itself, and cost of waste water handling were not discussed in any detail. Another critical issue not addressed is the reliability of the recycled water source and delivery infrastructure. Refinery process units are 24/7 operations, requiring the same level of dependability from any utility required to operate related emission control equipment.

In order to prepare a complete PEA, the District should expand its analysis of water and wastewater use and handling (see Attachment B, Comments 1-3 and 1-5). 3-14

BARCT Technology

Comment: A comprehensive discussion of De-SOx technology feasibility and control effectiveness – which are highly unit-specific – is necessary. In addition, De-SOx additives have the effect of diluting the circulating cracking catalyst and potentially adversely impacting conversion within the FCCU. Such a reduction of cracking effectiveness would have a significant adverse economic impact on a refinery. 3-15

Comment: No "dry alternative" is considered. The District, in order to evaluate the full range of options, should consider Alternatives that do not include use of a Wet Gas Scrubber. We note, for example, that even Alternative C features use of four scrubbers. 3-16

Comment: The District claims (page 2-6) that there are "three main strategies that can be employed" to reduce SOx emissions from SRU/TGUs - 1) increase the efficiency of the SRU, 2) improve the efficiency of the TGU, and 3) install a wet gas scrubber. WSPA notes that so-called strategies 1 and 2 are not strategies at all but, rather are 3-17

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general and non-specific objectives. The District goes on (Table 2-2, page 2-10) to suggest that a candidate BARCT technology for SRUs would be the use of a selective oxidation catalyst. Such catalysts, to WSPA's knowledge, have never been used in an SRU and, consequently, cannot be deemed a viable option. Further, if staff is going to consider this technology, the possible impacts to air emissions, energy use and water consumption as well as an updated cost analysis also need to be considered. 3-17 Cont'd

Comment: To consider a WGS for the calciner, the District must recalculate the cost effectiveness with Norton's updated numbers. This recalculation will help inform the decision on the comparative impacts of various control strategies on water, electricity use and air emissions. 3-18

Comment: The District failed to consider the reasonable worst-case scenario of no additional recycled water supplies dedicated to the RECLAIM facilities. As noted in Comment 1-3 and 1-5 in Attachment B, it is quite possible that the facilities will have no access to new supplies or future increases in the supply of recycled water. The current analysis is insufficient for both the "most likely" and "mitigated" scenarios. Thus the conclusions on P 5-83 are unsupported by the analysis. 3-19

Comment: Table 4-1 indicates that a 5 ppm SOx level can be achieved on FCCUs by using De-SOx catalyst. Yet, no underlying data are provided to show this to be the case. If the District is now asserting that 5 PPM SOx level can be achieved by De-SOx catalyst, then this data should be presented as part of the Final PEA because this option may have significant implications on energy use, water use and emissions compared to other alternatives. 3-20

Comment: The District Staff states (pages 2-5 and 6) that their consultant determined that utilizing a wet gas scrubber for process heaters or boilers would not be cost-effective, but that refineries can "opt" to use lower sulfur-containing fuels in order to reduce SOx emissions from these combustion sources. This assertion is inaccurate.

Fuel gas sulfur content can only be reduced to the extent allowed by the capacity of a facility's fuel gas treating system. Further, the refinery's sulfur plant has to have the capacity to process the additional sulfur that would be removed from the fuel gas. A detailed analysis of the effort required to reduce sulfur emission is essential for a complete PEA. WSPA encourages an expanded review of the costs, environmental impacts and resource commitments associated with various sulfur control technologies. 3-21

Comment: The District claims (page 2-13) that the sulfur content of refinery fuel gas may be further reduced to a range between 25 ppmv and 35 ppmv and the outlet SO_x concentrations from refinery boilers and process heaters may also be limited to less than 20 ppmv by implementing "efficiency improvements" to fuel gas treatment systems. However, the District does not provide any data to support this contention or any analysis to support their conclusions.

There is no information provided about cost effectiveness of such "efficiency improvements." Some refineries included fuel gas treatment options in the WSPA cost survey and the District is aware of this. But, any such treatment enhancements are not necessarily applicable or cost effective for every refinery. While not a part of the BARCT adjustment, if the District wishes to include this approach within the PEA, it would seem appropriate to conduct more site-specific analyses. 3-22

BARCT Definition

Comment: The Health and Safety Code specifically defines BARCT as "…best available retrofit technology means an emission limitation that is based on the maximum degree of reduction achievable taking into account environmental, energy and economic impacts by each class or category of source." Because of the significant water demand impacts of the proposed rule, a "dry" technology alternative should be included in the DPEA. Currently, Alternative C contemplates a reduction in the number of categories subject to wet gas scrubber technology. 3-23

Draft Rule and Calculated Emission Reductions

Comment: Regarding paragraphs (f)(1)(N) and (M) of the rule, the $50,000/ton threshold should be based on perpetuity credits, not single year credits, because perpetuity credits are more reflective of long-term compliance costs. The price of single year credits would just depend on whether a facility had excess credits during that particular year due to, for example, a turnaround. 3-24

The single year credit cost is not directly related to the true cost of controls. This aspect of the rule should be addressed as part of the PEA and the Socioeconomic Report that must be prepared to inform the Board in its deliberations.

Draft Rule Emission Reductions

Comment: The emission reductions shown in the table below are still too aggressive, particularly in terms of feasibility concerns and significant environmental impacts. Tonnage in the table is based on the schedule for emission reductions in the Proposed Project. The tonnage and emission reduction schedule should be provided for all Alternatives.

For example, the DPEA should consider the environmental impacts of a less aggressive reduction such as 1 TPD each year for the first 3 years and then 0.4 TPD from 2015 - 2019 for a total of 5 tons by the end of 2019. 3-25

Year	Pounds/yr	Tons/yr	Cumulative Tons/Day	Incremental Yearly Ton/Day Reduction
2012	1,095,000	547.5	1.5	1.5
2013	2,190,000	1095	3	1.5
2014	3,285,000	1642.5	4.5	1.5
2015	3,518,600	1759.3	4.82	0.32
2016	3,752,200	1876.1	5.14	0.32
2017	3,985,800	1992.9	5.46	0.32
2018	4,219,400	2109.7	5.78	0.32
2019 and after	4,453,000	2226.5	6.1	0.32

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ATTACHMENT B: MAJOR COMMENTS

EXECUTIVE SUMMARY (CHAPTER 1)

SCAQMD's response to the controversy in the amount of the SOx shave as indicated in Table 11 on page 1-11 of the DPEA is as follows: "…the rule analysis shows that after the shave is imposed, there will be sufficient SOx RTCs available to maintain trading within the SOx RECLAIM program."

> **Comment 1-1**: The District has not provided any analysis in its DPEA to support this statement. This is especially important because the current SOx market is very "thinly traded" with a limited number of participants. Hence it seems important that the District assess the environmental impacts if, as has occurred in other emission trading programs, SOx market trading is distorted or impaired due to the proposed shave and seizure of currently "unused" RTCs.
>
> Moreover, the assertion that there will be sufficient RTCs available to maintain trading within the program after an aggressive shave in RTCs has not been substantiated by fact. In fact, there is no way for the District to predict, with any certainty, future market response to reductions in the RTC market consistent with the proposal, nor has the possibility for significant environmental impacts associated with an aggressive shave in RTC reductions been analyzed. The District must more fully evaluate the range of possible impacts to the RECLAIM market resulting from various shave levels.
>
> The SOx market is much more constrained in terms of market participants and trading, so any "lessons learned" from the NOx market may not be applicable. Thus, the PEA should consider and evaluate impacts due to market instabilities that are more likely in a constrained credit situation such as the current proposed rule.

3-26

In the DPEA, SCAQMD states (Table 1-1; P. 1-12), "According to both of the consultants' reports, a facility-by-facility evaluation was conducted which included an analysis of plot space availability. The analysis does not support the claim that there is not adequate plot space available to install SOx controls." While we understand that the District's consultants were instructed to look at control technology, it seems clear that key issues such as plot space and the requirements of a functioning refinery were not given adequate weight.

Design and layout of control technology including construction and installation needs are important constraints that must be considered. If the District's assumptions on layout are incorrect, it could mean that a lot more construction must be done which will have greater impacts. The District Staff should revisit their assumptions and environmental requirements associated with their proposed control technologies.

3-27

Comment 1-2: While companies will answer individually, it is clear that plot space limitations and related infrastructure requirements documented by company operators are both real and unaddressed. The PEA should analyze the impacts of actual plot space needs.

> We disagree with the Staff assertion that "the contractor analysis does not support the claim that there is not adequate plot space available to install SO_x controls." For example, the Norton Engineering Report (NE) cites examples where the location of proposed equipment needs to be modified due to operations needs [see p. 8-9]. Moreover, the collective experience of the refineries and their respective engineering contractors to design, construct, and operate refinery equipment is greater than that

3-28

associated with consultants retained to simply look at feasibility. Again, flawed assumptions relating to space requirements can adversely impact the analysis of construction costs and operating requirements.

3-28 Cont'd

"With regard to water demand impacts, SCAQMD staff recognizes that wet gas scrubber technology is water intensive. However, recycled water can be used in lieu of potable water. Specifically, up to 75 percent of the estimated increase in water demand due to the wet gas scrubbers under Option 1 of the proposed project can be satisfied with recycled water." [p. 1-13]

Comment 1-3: These statements are misleading. Although it is true that recycled water could likely be used in lieu of potable water, this can occur only if there is sufficient supply and infrastructure to supply the water to the affected facilities. The district must also consider whether building the additional infrastructure is feasible, both physically and economically.

Specific issues that need to be considered are: 1) the existence of a reliable supply of recycled water available to each facility 2) the existence of infrastructure, internal to each facility, to provide recycled water to the processes that would use the water 3) the capital cost to build the necessary infrastructure if it does not already exist and 4) to have a supply of recycled water available for use within the timeframe required for compliance.

3-29

Currently 8 out of 11 affected facilities "do not have access to recycled water" (see p. 3-67 in DPEA). While water purveyors are looking into the possibility of providing additional recycled water (i.e., the Harbor Refineries Recycled Water Pipeline Project (HRRWPP)), this does not necessarily mean that the specific RECLAIM facilities will have access and/or rights to it, or that water can be supplied in sufficient volumes.

The Staff should also analyze this issue on the basis that 8 of the 11 affected facilities have no current access to recycled water (see also comment 1-5 below).

"Implementation of the proposed project is expected to span over seven years, which should be adequate time for purchasing and installing wet gas scrubbers." [p. 1-14]

Comment 1-4: This assumption is speculative and leads to the underestimation of environmental impacts. While it is true that companies would tend to defer the more costly investments to the future, it is not clear that it would be the case for most companies. In fact, given the very aggressive reductions required in the first 3 years, and the uncertainty in the market, companies may need to reduce emissions in the short term – leading to high capital investments early in the compliance period rather than later as the District expects.

3-30

The District should evaluate a range of construction and installation schedules that vary from installation within 3 years to installation through the end of 2019.

"For water demand, there are three significance thresholds based on whether: 1) the total water demand of the proposed project is less than five million gallons per day 2) the existing water supply has the capacity to meet the increased demands of the proposed project and, 3) the potable water demand is a substantial use of water. The analysis shows that the increased potential demand for total water that may result from implementing the proposed project is not expected to exceed the significance threshold of five million gallons of total water demand per day.

3-31

Further, based on discussions with the local water suppliers, the existing water supply is expected to have the capacity to meet the increased demands of the proposed project. However, because the entire state of California is in the midst of a severe drought, a water supply analysis relative to the current and future availability of potable water and the use of recycled water and industrial-use groundwater to satisfy some of the water demand needs of the proposed project was conducted." [p. 1-24]

Comment 1-5: In analyzing the impact for CEQA, the district should analyze the worst-case scenario, which is that the demand would be on the potable water supply. While such an analysis could mean that the technology would become infeasible, the District must conduct a realistic environmental assessment and should not attempt to choose assumptions simply to justify its rule options.

Although the District does conclude by determining that potable water demand impacts are significant, the District Staff's summary of environmental impacts is inadequate given their review of the current water shortage in the State as described below: "However, back-to-back dry years and low reservoir levels have put California in a statewide drought. In late 2008, the state's major reservoirs were at about one-third of capacity, at a time when they would typically be at about two-thirds.

As a result, the DWR has allocated only 15 percent of requested amounts of water to be delivered to the SWP in 2009. This allocation is the second lowest in the history of the project. [1-18]… The [Governor's] proclamation further requested that all urban water users immediately increase their water conservation activities in an effort to reduce their individual water use by 20 percent [emphasis added].

3-31
Cont'd

In response to the Governor's proclamation, the California legislature has proposed Assembly Bill (AB) 49 – Water Efficiency[9] and Senate Bill (SB) 261 – Urban Water Efficiency[10]. These proposed bills will require a 10 percent reduction of urban water use by 2015 and 20 percent by 2020. However, these proposed bills will allow the use of non-potable or recycled water to count towards the progress in meeting these targets.

Water districts, in response to the drought, have also taken actions throughout the state such as: 1) asking for voluntary reductions 2) imposing mandatory restrictions or declaring a local emergency 3) imposing agricultural rationing 4) imposing drought rates, surcharges and fines 5) limiting new development and requiring water efficient landscaping and, 6) implementing a conservation campaign. [1-19][emphasis added]

Finally, the District's assertion that reclaimed water use can feasibly and cost-effectively displace an INCREASE in water use requirements in the face of mandated reductions of 20% in potable water can only be substantiated by a thorough analysis --- an analysis that was not conducted. The PEA should acknowledge the cross-media impacts and potential regulatory conflict of the proposed rule. The decision to determine that the impacts are significant does not release the District from analyzing the impacts fully.

Also, the conclusion that potable water impacts could be less than significant with mitigation implies incorrectly that 1) additional recycled water will be available for the specific facilities and 2) the facility has the ability to obtain written declarations from water purveyors that recycled water is not available [see mitigation measures GHG-2 (page 4-31) and HWQ-2 (page 4-84)].

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In Tables 1-3 and 1-4, Options 1 and 2 of the preferred project show identical emission reductions for different FCCU control technologies. [p. 1-27 and 1-28]

> **Comment 1-6**: We do not understand why the District identified two options for FCCU SOx control with vastly different costs but equal emission reductions. We agree that De-SOx catalyst is less costly than installation of new Wet Gas Scrubbers (WGS); what is unclear is if the level of emission reductions achieved with De-SOx catalyst is equivalent to WGS. The equivalent emission reduction potential should be demonstrated and/or Option 2 analysis should be revised. This analysis should be revised to more clearly define the emission reductions and substantiating documentation. The current analysis is either incomplete or inaccurate.

3-32

Footnote 17 of Table 1-3 indicates the following regarding the potential 0.85 tpd reduction from refinery boilers/heaters: "… the environmental impacts from such controls are evaluated in this analysis but the potential emission reductions are excluded from the proposed RTC shave." (emphasis added).

> **Comment 1-7**: It is not clear how the proposed RTC shave values were calculated. In addition, because the refinery heaters and boilers are not part of the proposed project, it should be clarified and justified why the "environmental impacts from such controls" are included as part of the project evaluation.
>
> What are the environmental benefits of including refinery heaters and boilers? What emission reductions could they displace? Under RECLAIM, substitution of more cost-effective controls on a site-by-site basis is encouraged, so what benefit is derived from including this specific choice within the Draft PEA?

3-33

EXISTING SETTING (CHAPTER 3)

Table 3-10 (p. 3-67) shows the existing water demand for the facilities that will be affected by the SOx shave.

> **Comment 3-1**: 8 out of 11 facilities have no access to recycled water (see our comments 1-3 and 1-5). In addition, we do not believe that the District's assumption that additional recycled water will be available for those specific facilities from the HRRWPP is correct – thus leading to an incorrect analysis of the impacts to this resource. Yet, the District proposes to offset the increase in use of potable water by expanded use of recycled water.
>
> The analysis should be based on the worst case scenario that none of the facilities specifically will have access to more recycled water, even if the HRRWPP is completed. At the very least, CEQA requires that the District assess the impacts of having to use potable water at those facilities.

3-34

ENVIRONMENTAL IMPACTS (CHAPTER 4)

Table 4-1 (p. 4-2) shows 0.85 tons per day (TPD) emission reduction for Refinery Heaters and Boilers.

> **Comment 4-1**: Refinery heaters and boilers were not included in the proposed rule because no new BARCT is being proposed for this source category. Inclusion of this class of sources within the DPEA is misleading and inappropriate. The CEQA mandates the evaluation of alternatives to the project, not alternatives to technology (i.e., wet gas

3-35

scrubbers) that may be evaluated (but ultimately rejected) as part of the project.

This option comes "out of left field" and there appears to be no documented basis within the context of the proposed rule and DPEA. Inclusion of this "alternative' weakens the DPEA by suggesting alternatives that are not covered by the proposed action.

3-35 Cont'd

Table 4-2 (p. 4-4) summarizes the options for control of the FCCU.

Comment 4-2: The District should document the basis for determining that De-SOx and Wet Gas Scrubbing can produce equivalent emission reductions. Such an analysis, using data from existing facilities (i.e., achieved in practice), is essential if the District is to assess adequately the environmental impacts associated with those technologies.

3-36

Under Option 1, 11 units may be retrofitted with one WGS each at eight facilities by December 31, 2018. Under Option 2, seven units may be retrofitted with one WGS each at five facilities by December 31, 2018. [p. 4-14]

Comment 4-3: It is not clear that these dates match the requirements in the Rule nor that this schedule has any relationship to how companies plan to comply with the final rule requirements. There is no basis for evaluating the potential construction impacts associated with installation of equipment on this schedule.

3-37

Cumulative Air Quality Impacts

"In general, the preceding analysis concluded that air quality impacts from any construction activities would be significant from implementing the proposed project because the SCAQMD's significance thresholds for construction will be exceeded for VOC, NO_x, and PM_{10}. Thus, the air quality impacts due to construction are considered to be cumulatively considerable pursuant to CEQA Guidelines §15064 (h)(1) and therefore, generate significant adverse cumulative air quality impacts." [4-24]

Comment 4-4: We concur that the proposed regulation (i.e., reduce RTCs by 55%) will cause significant environmental impacts. We believe that the district should consider Alternatives B and C that have much smaller impacts overall. It should be noted that those alternatives would cause significantly fewer environmental impacts (see p. 5-13 through 5-14) – particularly associated with water use and GHG impacts, while still achieving SOx emission reductions called for in the 2007 AQMP (Alternative B) or greater reductions similar to the proposed project (Alternative C).

3-38

Global Climate Change/GHG Impacts

The DPEA lists the following GHG mitigation measures:

"GHG-1 When SOx control equipment is installed and water is required for its operation, the facility operator is required to use recycled water, if available, to satisfy the water demand for the SOx control equipment.

GHG-2 In the event that recycled water cannot be delivered to the affected facility, the facility operator is required to submit a written declaration with the application for a Permit to Construct for the SOx control equipment, to be signed by an official of the water purveyor indicating the reason(s) why recycled water cannot be supplied to the project." [P. 4-31]

3-39

Comment 4-5: GHG-2 mitigation does not have any mitigating effect on GHG emission. Moreover, it mandates that the source gain a "written declaration" from the water purveyor that is inherently out of the control of the operator. Thus, this condition cannot be imposed on the facility operators (see also ES-4, ES-6, C 1). 3-39 Cont'd

"While there may be additional measures that could eventually be imposed on sources with potential increases in GHG emissions, CARB is adopting measures pursuant to AB 32 that would require the maximum technically feasible and cost-effective GHG emission reductions from most of the industry categories affected by the proposed project. CEQA Guidelines §15364 defines 'feasible' as 'capable of being accomplished in a successful manner within a reasonable period of time…' Specifically, CARB's adopted 'early action measures' include a measure to limit methane emissions from landfills, which SCAQMD staff will enforce." [pp. 4-33 to 4-34]

Comment 4-6: The District's assertion that AB 32 projects will serve as mitigation to the GHG emissions that could be caused by the project makes no sense. Notwithstanding the current uncertainty concerning the ultimate levels of emission reductions, the timing of the reductions, or even how those emission reductions will be achieved, it is unclear how GHG emissions achieved under AB 32 would qualify as mitigation.

The District's approach is incomplete and not helpful in developing approaches that can be used in the subsequent permitting required by projects in order to comply. Issues such as the applicability of BACT, NSR, PSD as well as the effect of EPA's Tailoring Rule (p. 4-33 ff) are unresolved and cannot be resolved before permitting begins.

Hence, projects that are required to comply with the proposed action, and the District as well, would be faced with a Gordian Knot. Again, this issue argues for Alternative B or C that will have many fewer environmental impacts while still resulting in SOx emission reductions called for in the 2007 AQMD (Alternative B) or greater reductions similar to the proposed project (Alternative C). The DPEA is inadequate because it has not identified feasible and reasonable mitigation measures to address GHG impacts. 3-40

"Therefore, GHG BACT is at least as stringent as CEQA's definition of feasible mitigation, which similarly allows consideration of economic, technological and environmental factors. Thus, application of BACT will require the maximum feasible reductions of GHGs at new or modified sources." [p. 4-35]

Comment 4-7: How has the District determined the relationship of GHG BACT to CEQA? No one in USEPA, CARB, or the District has documented the findings, requirements, conditions, emission control efficiencies or technology associated with BACT for GHGs. Even if this is true, it is speculative to assert that BACT for GHGs is as stringent as CEQA mitigation requirements. 3-41

Energy Impacts

"In summary, the energy impacts from both Option 1 and Option 2 of the proposed project are concluded to be less than significant." [p. 4-42]

Comment 4-9: The District did not include in its analysis the additional energy needed to pump potable water (rather than recycled water) to 8 of the 11 facilities that likely will not be able to utilize recycled water to meet the requirements of the rule. This should be included in the PEA. 3-42

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Hydrology – Water Impacts

"Level of Significance After Mitigation: The analysis shows that proposed increase in total water use under both Option 1 and Option 2 cannot be fully supplied with recycled water (either currently or in the future) and non-potable groundwater and that some potable water may still be required for certain facilities. While the potentially adverse water impacts can be reduced to below significance if facility operators are required to use current and future supplies of recycled water, if available, there is no absolute guarantee at the time of this writing that future supplies of recycled water will be available to the affected facilities included in the HRRWPP Project.

While the use of recycled water can help reduce the water demand impacts substantially, the overall water demand will not be completely mitigated. Therefore, the proposed project will remain significant after mitigation for water demand." [p. 4-84] 3-43

Comment 4-10: Here the District acknowledges that Options 1 and 2 cannot be fully supplied with recycled water. Even if the District Staff concludes the impact will be significant, it does not relieve them of the responsibility to analyze the most likely scenario. The PEA should also analyze the impacts if existing and/or foreseeable water use regulations significantly impede the facilities' use of potable water.

Comment 4-11: As in mitigation measure GHG-2, mitigation measure HWQ-2 mandates that the source gain a "written declaration" from the water purveyor that is inherently out of the control of the operator. Thus, this condition cannot be imposed on the facility operators (see also Comments ES-4, ES-6, C 1). The PEA should identify feasible and reasonable mitigation measures. 3-44

Cumulative Hydrology and Water Quality Impacts: Because the project-specific water demand impacts under Option 1 have been concluded to be significant due to the 500DU potable water demand criteria and in consideration of California's on-going drought and that 100 percent of the potential increase in water use cannot be supplied by recycled water, it could be argued that the proposed project is cumulatively considerable pursuant to CEQA Guidelines §15064 (h)(1). Therefore, the proposed project is expected to generate significant adverse cumulative water demand impacts.

However, because the project-specific water quality impacts do not exceed any applicable significance thresholds, they are not considered to be cumulatively considerable pursuant to CEQA Guidelines §15064 (h)(1) and therefore, do not generate significant adverse cumulative water quality impacts." [pp. 4-84 to 4-85] 3-45

Comment 4-12: WSPA agrees that with the water demand impacts of the project will be cumulatively significant. Even if the District concludes the impacts will be significant, it does not relieve them of the responsibility to analyze the most likely scenario – no additional supplies of recycled water for the RECLAIM facilities. The PEA should also analyze the impacts if existing and/or foreseeable water use regulations significantly impede the facilities' use of potable water. (See also comment 1-3, 1-5)

"Cumulative Mitigation Measures: The potentially adverse water impacts can be reduced further than initial estimates if recycled water is employed for WGS installations. Even with the use of recycled water as part of the implementing the proposed project, the analysis shows that 100 percent of the proposed increase in total water demand cannot be fully offset by the use of recycled water. While the use of recycled water can help reduce the water demand impacts substantially, the overall total water demand will not be completely mitigated. Therefore, the 3-46

10

proposed project will remain cumulatively significant after mitigation for water demand." [p. 4-85]

Comment 4-13: WSPA agrees with the significance determination but believes the impact analysis should be done assuming no future increases in recycled water. GHG-2 mitigation condition mandates that the source gain a "written declaration" from the water purveyor that is inherently out of the control of the operator.

Thus, this condition cannot be imposed on the facility operators (See also comments 1-3, 1-5, C-1), because its assumption that all the facilities would have access to increased supplies of recycled water is not the likely worst-case scenario as RECLAIM facilities will not have certain access to any new supplies.

3-46 Cont'd

ALTERNATIVES (CHAPTER 5)

Alternatives and BARCT Determination

Please note that Options 1 and 2 of the preferred project are not fully specified in Table 5-1. [p. 5-2]

Comment 5-1: Options 1 and 2 need to be more clearly defined in Table 5-1 because Option 2 is not sufficiently defined to indicate exactly how it (if it in fact can) achieve the same emission reductions. It is not clear how the two Options result in the same emission reductions for different projects and costs. More description of Option 2 and how equivalent emissions reductions can be achieved is needed.

3-47

Footnote 91 of Table 5-1 indicates the following regarding the potential 0.85 tpd reduction from refinery heaters and boilers: "… the environmental impacts from such controls are evaluated in this analysis but the potential emission reductions are excluded from the proposed RTC shave." (emphasis added)

Comment 5-2: It is not clear how the proposed RTC shave values were calculated. In addition, the refinery heaters and boilers are not even included as part of the proposed project. See Comment 4-1[1].

3-48

In Table 5-2, Options 1 and 2 for Alternative C list SOx emission reductions for Refinery heaters and boilers of 0.85 tpd under "Decreases total operational SOx emissions by 5.48 tpd as follows…"[p. 5-3]

Comment 5-3: The project description for Alternative C on page 5-13 does not include these units as part of the project. Emission reductions associated with these units should not be included as part of the reduction scenario. (See comment 5-2 and 4-1 above)

3-49

[1] *Comment 4-1 Refinery heaters and boilers were not included in the proposed rule because no new BARCT is being proposed. Inclusion of this class of sources within the DPEA is misleading and inappropriate. The CEQA mandates the evaluation of alternatives to the project, not alternatives to technology (i.e., wet gas scrubbers) that may be evaluated (but ultimately rejected) as part of the project. This option comes "out of left field" and there appears to be no documented basis within the context of the proposed rule and DPEA. Inclusion of this "alternative' weakens the DPEA by suggesting alternatives that are not covered by the proposed action.*

Under "Energy Impacts Significant" for the proposed project Option 1 states "the reduction in the use of natural gas is not as much as the proposed project – Option 2" and for proposed project Option 2 states "the reduction in the use of natural gas is more than the proposed project – Option 1". [p. 5-7]

Comment 5-4: These statements are inconsistent with the numbers shown in the Table 2 under "Energy" on page 5-6 which states for both proposed project options "overall reduction in the use of natural gas by 4.1 MMBTU/day." Natural gas reductions for Alternative C (both options) were listed as 34.25 MMBTU/day, eight times greater than the proposed project.

3-50

"…the operation GHG emissions would be less than both Options 1 and 2 of the proposed project. In addition, less than significant adverse secondary impacts for aesthetics, energy, hazards and hazardous materials, hydrology and water quality, and transportation and traffic are expected to result from implementing Alternative C, but these impacts would be less than both Options 1 and 2 of the proposed project." [p. 5-14]

Comment 5-5: Given that less impacts result from implementation of Alternative C while still reducing SOx emissions, it is not clear why Alternative C is not the proposed project, since the SOx reductions are similar (5.48 vs. 6.21 tpd) and the proposed project reductions are far more uncertain.

3-51

"In summary, if Alternative C were implemented, less SO_x reductions would be achieved and less health benefits from reducing SOx overall will be realized." [p. 5-20]

Comment 5-6: An assessment of the difference in health benefits between the proposed project and Alternative C has not been conducted. A linear relationship between increased reductions in SOx and health benefits cannot be assumed for reductions beyond those included in the 2007 AQMP without further multi-pollutant, photochemical modeling analysis. Therefore, to state that there will be additional health benefits from the proposed project versus Alternative C, which provides less significant impacts than the proposed project, is unsubstantiated.

3-52

"However, for Alternative C - Option 2, the adjusted estimate for increased potable water demand would be 108,436 gallons per day, which is below the minimum amount of potable water needed to qualify for as a water demand project per the 500 DU calculations (e.g., 133,911 gallons per day). Thus, for this reason, Option 2 of Alternative C is expected to contribute to less than significant adverse water demand impacts." [p. 5-65]

Comment 5-7: As WSPA stated earlier, we still believe that the District should analyze potable water demand without assuming the facilities will be able to access new and/or greater amounts of potable water.

3-53

"Further, even though Alternative C would require less WGSs to be installed and would require less total water overall, both Option 1 and Option 2 of Alternative C are estimated to have equivalent demands of potable water when compared to Option 1 and Option 2 of the proposed project. With regard to water quality, both Option 1 and Option 2 of Alternative C would generate less wastewater than Option 1 and Option 2 of the proposed project, respectively. Overall, Alternative C has less environmental impacts than the proposed project." (emphasis added) [p. 5-83]

3-54

Comment 5-8: We agree that Alternative C, particularly without inclusion of the unused RTCs, has less environmental impact than the proposed project. We do not believe that the impacts of the District's seizure of "unused" RTCs have been adequately assessed. Aggressive shave reductions will force facilities to alter operations (i.e., over-control) leading to the installation of additional emissions control equipment with attendant costs and environmental impacts.

3-54 Cont'd

"… but it does not achieve the additional SOx reductions and health benefits expected from the proposed project." [p. 5-83 emphasis added]

Comment 5-9: This statement is misleading. Aerosol particulate formation is a highly non-linear process, dependent on a complex location and aerometric conditions. NO additional air quality or health benefits beyond the AQMP have been documented because the analysis has not been done (see Comment 5-6 above). The District should note that even Alternative C, without inclusion of the unused RTCs, results in greater emission reductions than the AQMP.

What the District must do if it wishes to document the need for, and benefit of additional emissions reduction beyond what has been specified in the AQMP, is to conduct an appropriate modeling analysis of the air quality and health impacts associated with more aggressive emission reductions. Without such information, the DPEA is incomplete.

Without the proper analysis, the district's conclusion, that emissions beyond those required by the AQMP can lead to measurable improvements in air quality at the desired monitoring stations is speculative.

3-55

Barbara Radlein
October 1, 2010
Page C-1

ATTACHMENT C: MINOR COMMENTS

WSPA offers the following minor comments on the DPEA, which do not affect the overall assessment of the proposed project or the alternatives, but which are editorial or typographical in nature.

Comment: The air quality and hazardous materials impacts related to sodium hydroxide (NaOH) usage for Alternative B (Table 5-2, p. 5-5, 3rd bullet and p. 5-7) indicate that the impact from increased NaOH usage is "less than the proposed project – Option 1, but equivalent to the proposed project – Option 2" (emphasis added). However, the increase in NaOH usage listed in the table on the previous page (5.45 tpd) is less than the NaOH increases for both options of the proposed project (13.24 tpd and 8.79 tpd for Options 1 and 2, respectively). This apparent inconsistency needs to be corrected. 3-56

Comment: The GHG impacts for Alternative C – Option 1 column (Table 5-2, p. 5-5, 2nd bullet) indicates that the GHG emissions increase is "significant for GHGs, but less than proposed project for both Options 1 and 2." However, although the emissions for Alternative C are less than those for proposed project Option 1, the GHG emissions increase for Alternative C – Option 1 (34,159 MT/yr without mitigation; 33,911 MT/yr with mitigation) is actually greater than proposed project – Option 2 (19,662 MT/yr without mitigation; 19,580 MT/yr with mitigation). Please make this update to Table 5-2, Alternative C - Option 1. 3-57

Comment: The impacts due to traffic for the proposed project (both Options 1 and 2) listed in Table 5.2 (p. 5-9) indicate that the impacts are different under both the construction and operation scenarios; however, the number of construction trips listed in the table (700 trips) is the same for both options of the proposed project, and therefore, this comment is inconsistent with the numbers shown in the table. 3-58

Comment: There also appears to be a typographical error on p. 5-20 of the DPEA, where it references the number of wet gas scrubbers that would be installed under Alternative C – Option 1. The last paragraph on p. 5-20 indicates that this alternative has a total of eight add-on controls, of which six are wet gas scrubbers; however, other references in this chapter of the DPEA indicate that there would be eight wet gas scrubbers installed under this alternative, for a total of ten add-on controls. 3-59

Comment: On the top of page 5-34, the increase in diesel and gasoline is stated as follows: "For Alternative C – Option 1, the analysis shows an overall increase in diesel and gasoline use of approximately 2,410 gallons per day and 1,384 gallons per day, respectively. Similarly for Alternative C – Option 2, the analysis shows an overall increase in diesel and gasoline use of approximately 2,180 gallons per day and 1,384 gallons per day, respectively."

However, the numbers listed in Table 5-25 at the bottom of the same page indicate that the total diesel and gasoline uses for Alternative C – Option 1 are 3,063 gallons per day and 1,354 gallons per day, respectively, and for Alternative C – Option 2 are 2,690 gallons per day and 1,354 gallons per day, respectively. The numbers should be updated as appropriate. 3-60

Comment: For the Alternative C, peak daily water use during construction listed in Table 5-1 appears to be a typo. It should not be the same as the proposed project (52,272 gal/day, p 4-67) but rather 66,000 gal/day (p-5-57). 3-61

Comment: Footnote 12 is missing from Table 1-3. Please add it to the table as it is critical information. 3-62

14

Responses to Comment Letter #3
(Western States Petroleum Association, October 1, 2010)

3-1 SCAQMD staff appreciates the effort made by WSPA in their commitment to follow the January 2010 Work Plan. The collaborative working relationship is also greatly appreciated.

3-2 SCAQMD staff has evaluated the proposals submitted by WSPA regarding the SOx shaves ranging from 25 to 40 percent. However, based on SCAQMD staff's assessment of available control technologies, the WSPA proposals do not appear to qualify as Best Available Retrofit Control Technology (BARCT) in accordance with California Health and Safety (H&S) Code §40440 as well as equivalency to command-and-control regulations, as required under H&S Code § 39616(c)(1). In addition, the SCAQMD's proposal for a 55 percent shave reflects the modifications to the SCAQMD's original proposal of a 67 percent shave made in response to discussions with industry with regard to determining BARCT. SCAQMD seeks the maximum achievable SOx reductions from the proposed project to ensure attainment of the annual PM2.5 standard, since SOx reductions are 15 times more effective than NOx reductions in reducing PM2.5 concentrations. Moreover, future attainment of the 24-hour PM2.5 and revised annual PM2.5 standards will require even greater SOx emissions reductions for attainment. Without sufficient SOx reductions from the proposed project, which is a control measure in the 2007 AQMP, the SCAQMD may have difficulty attaining the revised annual PM2.5 standard. With regard to economic impacts of the proposed project, refer to Response to Comment 3-5. See also the Socioeconomic Impact Report for the proposed project.

3-3 Individual responses to the detailed comments submitted have been prepared and begin with Response to Comment 3-4.

3-4 If the proposed project is adopted, SCAQMD staff has concluded that there would be sufficient SOx RTCs available to maintain trading within the SOx RECLAIM program. This conclusion is based on a 25 percent difference between facility holdings and emissions. In addition, the proposed shave incorporates a 10 percent compliance margin and a safety valve where RTCs are released back to the market in case the RTC price exceeds a $50,000/ton threshold. All of these rule components will assist in maintaining trading within the SOx RECLAIM program.

3-5 The independent consultants, ETS and NEXIDEA, were selected by a four member panel including representatives from the SCAQMD as well as from WSPA. WSPA's member refineries were in agreement with the selected consultants and they were fully paid for by the refineries. The consultants started their project in September 2008. After considerable amount of time spent at the site visits to all six refineries discussing technical issues such as space limitations, utility infrastructure, control technologies, BARCT levels, and time needed for the refineries to install control technologies considering equipment downtime, the consultants finalized their independent studies in April 2009. During this nine-month period working closely with the refineries, the consultants sent their draft analyses to the refineries at least four times for input and comments, and the consultants addressed all the comments received before the reports were finalized. The consultants' team of engineers

carefully listened to all comments and input from the refineries, and incorporated the refineries' input, if technically sound and correct, in their final feasibility and cost analyses.

In March 2010, as part of the Work Plan developed by SCAQMD staff in concert with WSPA representatives, SCAQMD staff hired Norton Engineering Consultants (NEC) to review ETS's and NEXIDEA's analyses. (It should be noted that NEC applied for this project in 2008 together with ETS and NEXIDEA. NEC received the highest score from WSPA in 2008 but was not selected because their bid was higher than the budget allowable in 2008. NEC has also done work for several refineries.) Generally, NEC estimates for capital costs and annual maintenance costs were higher than ETS and NEXIDEA. However, for the FCCU's WGSs, NEC was in close agreement with ETS. Because NEC's estimates for costs were higher than ETS and NEXIDEA, NEC recommended SCAQMD staff to re-estimate the cost-effectiveness values for the project. SCAQMD staff did so and their re-estimated cost-effectiveness values based on NEC's recommendations are presented in Chapter 12, Section 12.2 of the Staff Report. The table below provides a comparison between ETS, NEXIDEA and NEC's estimates:

	ETS/AEC, NEXIDEA	**NEC**
Present Value for 25 Years	$630 million	$738 million
Emission Reductions	4.36 tons per day*	4.21 tons per day*
Cost Effectiveness	15,845 $/ton	19,199 $/ton

*Early reduction was 1 ton per day, applicable to a refinery that installed and operated a WGS for their FCCU since 2008, and a refinery that conducted process modification to their SRU/TGU to reduce emissions pursuant to EPA consent decree. The emission reductions from this FCCU and this SRU/TGU accounted for from 2005 baseline were 1 ton per day. The total emission reductions estimated from 2005 baseline are about (4.36+1=5.36 tons per day) for ETS/NEXIDEA and 5.21 tons per day for NEC.

ETS/AEC and NEC estimated that the actual emission reductions estimated from the 2005 baseline that could be cost-effectively achieved for this project are approximately 5.21 tons per day to 5.36 tons per day. However, to achieve these actual reductions, excess RTCs or "unused" RTCs must be removed to prevent avoidance of installing controls. Thus, SCAQMD staff has estimated that 6.1 tons per day of RTC reductions must be made in order to achieve these actual reductions. The amount of excess or "unused" RTCs estimated for the 2005 baseline was 1.73 tons per day (i.e., the difference between the RTC holdings of 11.77 tons per day and the 2005 audited emissions of 10.04 tons per day) can be counted towards the goal of 6.1 tons per day RTC reductions at no cost to the facilities. In other words, if RECLAIM facilities agree to reduce all "unused" RTCs, the "real" compliance costs to achieve a programmatic 6.1 tons per day RTC reductions could be less than $630 to $738 million estimated by the consultants. WSPA's assessment that the "*The District's overly aggressive proposal incorporates the seizure of "unused" RTC's in a manner that doubles the compliance cost. The costs to achieve emission reductions required by the proposed shave are nearly double the costs required to achieve emission reductions equivalent to installation of BARCT controls on refinery sources*" does not make sense.

With regard to the comment that the Draft PEA should evaluate the costs of achieving BARCT levels, see Response to Comment 1-1.

3-6 The proposed project and Alternative C have identical, significant adverse water demand impacts. With regard to GHG emissions, the analysis for the proposed project indicates the

quantity of GHG emissions would be greater than those analyzed for Alternative C (i.e., by approximately 5,000 MT CO2eq/year), but both the proposed project and Alternative C are shown to have significant adverse impacts for GHG emissions. While there are mitigation measures to help minimize the impacts for water demand and GHGs, the mitigation will not bring the impacts below the applicable significance thresholds (using recycled water can reduce GHG emission impacts up 40 percent in northern California to as much as 81 percent in southern California[23] because less energy is required to collect, treat, and redistribute to the point of use). For these reasons, SCAQMD staff has prepared a Statement of Findings, a Statement of Overriding Considerations, and a Mitigation Monitoring Plan. This document, referred to as "Attachment 1 to the Resolution," will be included in the Governing Board package.

In addition to Alternative C, SCAQMD staff considered two other alternatives: Alternative A (the "no project" alternative) and Alternative B (the AQMP alternative). While both Alternative A and Alternative B were shown to have less environmental impacts than the proposed project and Alternative C, neither was shown to achieve the goals of the proposed project. Specifically, Alternative A, the 'no project' alternative, does not achieve the goals of the proposed project because it does not implement the AQMP control measure. While no significant adverse secondary environmental impacts would result from the 'no project' alternative, it is not necessarily the environmentally superior alternative in accordance with CEQA Guidelines §15126.6(e)(2) because SOx emissions would continue to be emitted at current levels, thus, not improving air quality in the District.

While less add-on control equipment would be installed overall under Alternative B when compared to the proposed project, the environmental impacts would be less than significant and substantially less than the proposed project but the potential SOx emission reductions would also be less. Because Alternative B is limited to fewer source categories, fewer WGSs would be installed. Of the adverse environmental impacts that would be generated under Alternative B, the impacts would be less than the proposed project and less than significant, except for air quality construction emissions which are identical to the proposed project and are concluded to be significant. Alternative B, with a potential SOx emissions reduction of 1.50 tons per day, only partially achieves the SOx emission reductions identified in the AQMP, which are necessary to demonstrate attainment with state and federal air quality standards. When compared to the proposed project, Alternative B provides fewer benefits to air quality and public health.

Alternative C, with a potential SOx emissions reduction of 5.48 tons per day, achieves slightly less potential SOx emission reductions than the proposed project. When compared to the proposed project, the GHG emissions projected for both options of Alternative C are significant, but less than the proposed project. Because Alternative C employs the same amount of NaOH for Option 1 and Option 2, respectively as the proposed project, it has equivalent toxic impacts when compared to the proposed project. Further, even though Alternative C would require less WGSs to be installed and would require less <u>total</u> water overall, both Option 1 and Option 2 of Alternative C are estimated to have equivalent demands of potable water when compared to Option 1 and Option 2 of the proposed project. Thus, Alternative C has equivalent potable water demand impacts as the proposed

[23] California Air Pollution Control Officers Association (CAPCOA), Quantifying Greenhouse Gas Mitigation Measures, August 2010.

project. With regard to water quality, both Option 1 and Option 2 of Alternative C would generate less wastewater than Option 1 and Option 2 of the proposed project, respectively. Overall, Alternative C has less environmental impacts than the proposed project but it does not achieve the additional SOx reductions and health benefits expected from the proposed project.

3-7 The comment states that if Alternative C was selected in lieu of the proposed project, a Statement of Findings, a Statement of Overriding Considerations, and a Mitigation Monitoring Plan may not be necessary. The analysis for Alternative C was shown to also have significant adverse impacts for air quality during construction, GHGs, and water demand, even after mitigation measures are employed. Further, the air quality and water demand impacts for Alternative C are identical to the proposed project. For these reasons, if Alternative C was selected, a Statement of Findings, a Statement of Overriding Considerations, and a Mitigation Monitoring Plan would also be required. However, Alternative C was not selected because even though it has less environmental impacts than the proposed project it does not achieve the additional SOx reductions and corresponding health benefits expected from the proposed project and does not achieve what the SCAQMD staff's analysis concludes to be BARCT.

3-8 WSPA's assessment related to NEC's report, for cement kilns and sulfuric acid plants, which was incorporated into the analysis, is addressed below.

Cement Kilns

NEC review on cement plants on page 7 of NEC's report states, "*The control technology selection [ETS]… for the cement manufacturing plant kiln is not yet commercially proven… NEC expects the cost for wet scrubbing technology to be more cost effective…….*"

On page 10, NEC states, "…*The original estimate did not add any project scope contingency. NEC revised the estimate by adding the required additional ductwork for the new plot location and the project contingency……The original cost (without project scope contingency) was $19.6M and it would rise to $32.7M if project scope contingency equivalent to that used for the FCC scrubbers …is added.*"

SCAQMD staff's estimates of cost effectiveness for cement kilns based on NEC's recommendation are shown in Section 12.2, Chapter 12 of Part 1 of the Staff Report. The following table shows a comparison between the numbers developed based on ETS's and NEC's recommendation:

	ETS	**NEC**
Capital Costs	$19.6 million	$32.7 million
Present Values	$43.7 million	$62 million
Cost Effectiveness	$19,300 per ton	$26,824 per ton

The costs estimated by NEC were higher than those of ETS. However, the control technology selection of ETS, estimated by NEC, was still cost-effective.

SCAQMD staff acknowledges that the control equipment selection made by ETS (i.e., hybrid limestone scrubber) has not yet been installed at a cement manufacturing facility,

however the technology is feasible and cost-effective, and therefore, ETS's recommendation satisfies the BARCT requirements of the H&S Code. Furthermore, NEC recommended wet gas scrubbing as an alternative control technology. NEC indicated that WGS is even more cost-effective than the technology recommended by ETS. Under the RECLAIM program, the cement manufacturing facility is not required to use the technology recommended by ETS, and may select to use WGS, or any other technologies to reduce their emissions so that they can be in compliance with the shave.

Sulfuric Acid Plants

NEC review on sulfuric acid plant on page 7 of NEC's report states, *"The original costs for installation of scrubbers on the sulfuric acid plant .....appear to be underestimated by a factor of 2.5 to 3.*"

Adjusting the costs upward as recommended by NEC, the costs and cost-effectiveness for the sulfuric acid plants were shown in the following table and are compared to NEXIDEA's estimates:

	NEXIDEA	**NEC**
Capital Costs	$ 7 million	$20 million
Present Values	$19 million	$32 million
Cost Effectiveness	$2,016 per ton	$3,431 per ton

Thus, both consultants believe that WGS technology is a feasible method of SOx control for sulfuric acid plants, and cost-effective even using NEC assumptions.

3-9 The Draft PEA concluded that air quality impacts during construction would be significant, while air quality impacts related to the operation of necessary control equipment and related processes would be less than significant. However, the analysis in the Draft PEA showed an increase in criteria pollutants during both construction and operation activities, and these increases can be attributed to construction equipment, worker vehicle trips and on-road truck trips associated with delivery and hauling activities, and not stationary sources. Emissions from construction activities are not subject to offset requirements pursuant to Regulation XIII – New Source Review. Further, the construction worker vehicle trips and operational truck trips do not qualify under the mobile source criteria that would require the emissions to be accumulated and offset pursuant subdivision (g) of Rule 1306 – Emission Calculations. Thus, no offsets would be required for these activities.

When making findings as required by Public Resources Code §21081 and CEQA Guidelines §15091, the lead agency must adopt a reporting or monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment (Public Resources Code §21081.6 and CEQA Guidelines §15097(a)). To fulfill the requirements of Public Resources Code §21081.6 and CEQA Guidelines §15097, the SCAQMD has developed a mitigation monitoring plan for anticipated impacts resulting from implementing the proposed project. The mitigation measures developed to mitigate the air quality impacts of the proposed project contain standard requirements that have been consistently applied for both SCAQMD rule projects and projects where the SCAQMD is the lead agency. In addition, because of the significant adverse water demand impacts, two additional

mitigation measures were included to require the use of recycled water to mitigate the use of potable water, and the GHGs that may otherwise be generated from utilizing potable water.

Lastly, regarding the applicability of Regulation XVII – Prevention of Significant Deterioration (PSD), based on the quantity of estimated emissions, no component of the proposed project is expected to meet or exceed the annual emissions thresholds outlined in subdivision (s) of Rule 1702 – Definitions. This conclusion is based on the fact that operational criteria pollutant emissions from all affected facilities (Final PEA, Chapter 4, Table 4-7) would be less than the significant increase levels for major sources Rule 1702(s) and shown in the table below. Therefore, PSD would not apply to the proposed project.

	Rule 1702(s) Significant Increase Level	
Pollutant	Tons per Year	Pounds per Day
Carbon Monoxide	100	548
Sulfur Dioxide	40	219
Nitrogen Oxides	100	548
Particulate Matter	25	137
PM10	15	82
Volatile Organic Compounds	40	219

Any permit application submitted by an owner or operator of a facility to install new equipment or modify existing equipment in response to the proposed modifications to the SOx RECLAIM program will be individually evaluated by SCAQMD staff to determine, what, if any, emission increases or decreases would occur, and what applicable SCAQMD rules and regulations would apply as part of the engineering review and permitting process. Permit applications will also be evaluated to determine whether or not the SOx reduction strategies listed in the permits are identified in the PEA for the proposed project and environmental impacts have been analyzed. To the extent that no new control strategies or unique facility characteristics are identified in the permit applications, further environmental analysis would likely not be required. If new SOx control strategies or unique facility characteristics are identified that were not evaluated in the PEA, further environmental analyses may be required. Finally, at the time an application is issued a permit to construct, the mitigation measures outlined in the Mitigation Monitoring Plan would be included as part of the permit conditions. The analysis in the PEA should be able to support permit applications within the scope of the project. Pursuant to current standard practice, SCAQMD staff would evaluate the individual permit applications to determine if any additional CEQA analysis would be required.

3-10 SCAQMD staff has evaluated the proposals by WSPA to increase the amount of the proposed SOx RTC shave, but does not believe that the newly proposed RTC shave would achieve the required BARCT reductions. As a result, SCAQMD staff continues to support the proposed project, which reflects BARCT in accordance with H&S Code §40440 as well as equivalency to command-and-control regulations, as required under H&S Code

§39616(c)(1). Also, the SCAQMD has reduced its initial shave proposal in response to industry concerns regarding costs.

3-11 Under the RECLAIM program, affected facilities have the flexibility to install air pollution control equipment, change method of operations, or purchase RTCs to meet BARCT levels. As such, the Draft PEA analyzes multiple scenarios that illustrate the worst-case effects of applying the various SOx control technologies along with demonstrating the flexibility that is provided by the RECLAIM program to facility operators when it comes to choosing the methods for reducing SOx emissions. Because of the program's built-in flexibility, as a practical matter, there is no way to predict what each facility owner/operator will do. The various alternatives, including the 2007 AQMP analysis (referred to as Alternative B in the Draft PEA), were designed to evaluate the worst-case options available based on the consultants' reports.

3-12 The environmental impacts of the proposed RTC shave are impacts that would occur as a result of facility operators making physical modifications to reduce SOx emissions overall or using unused RTCs (see Response to Comment 3-5). These impacts to air quality (including GHG emissions) and water use, as well as several other environmental topics identified in the NOP/IS, have already been analyzed in the Draft PEA for the proposed project and the alternatives. Further, the socioeconomic effects of the proposed project and the alternatives have also been analyzed and can be found in the socioeconomic report. Moreover, SCAQMD staff has provided a 10 percent margin to help facilities ensure compliance. In addition, the proposed amendments include several safety valves to prevent potential facility shutdowns: 1) gradual annual reductions with extended compliance schedule (from 2012 to 2019); 2) monitoring RTC price trends over a 12-month rolling average; 3) hold public hearing if RTC price exceeds $50,000 per ton (discrete price); and 4) ability for the Governing Board to set aside (give back) up to 100 percent of RTC reductions for any year when RTC price exceeds $50,000 per ton.

ETS/AEC and NEC estimated that the actual emission reductions estimated from the 2005 baseline that could be cost-effectively achieved for this project are approximately 5.21 tons per day – 5.36 tons per day. However, to achieve these actual reductions, excess RTCs or "unused" RTCs must be removed to prevent avoidance of installing controls. Thus, SCAQMD staff has estimated 6.1 tons per day of RTC reductions must be made to achieve these actual reductions. The amount of excess or "unused" RTCs estimated for the 2005 baseline was 1.73 tons per day (i.e., the difference between the RTC holdings of 11.77 tons per day and the 2005 audited emissions of 10.04 tons per day) can be counted towards the goal of 6.1 tons per day RTC reductions at no cost to the facilities. In other words, if RECLAIM facilities agree to reduce all "unused" RTCs, the "real" compliance costs to achieve a programmatic 6.1 tons per day RTC reductions could be less than $630 to $738 million estimated by the consultants.

3-13 SCAQMD staff's estimates of cost-effectiveness based on NEC's recommendations are in Chapter 12, Section 12.2 of the Staff Report, and a comparison of the cost-effectiveness based on NEC/AEC, NEXIDEA and NEC is also Chapter 12, Section 12.3 of the Staff Report. With regard to the comment suggesting that the costs and cost-effectiveness analyses should be included in the Draft PEA, see Response to Comment 1-1.

3-14 The comment states that the need for additional water supplies was not adequately analyzed in the Draft PEA. The total water demand for each source category and each facility for the proposed project and alternatives was quantified and compared to the CEQA significance criteria for water demand. There is a comprehensive analysis of water demand impacts in Chapters 4 and 5 of the PEA and the impacts are summarized in several tables throughout the Draft PEA (e.g., Tables 4-41, 4-42, 4-43, 4-44, 5-38, 5-45, 5-46, 5-47 and 5-48). Detailed calculations supporting the analysis of water demand impacts are included in Appendix B. Further, the quantities and availability of potable water, industrial use water (groundwater) and recycled water that may be needed to implement the proposed project were carefully analyzed facility-by-facility and in cooperation with each facility's water supplier. In addition, water supply data were provided by each of the individual facility operators as a part of a survey and relied upon in the hydrology/water quality analysis in the Draft PEA. A comprehensive analysis of the availability of the various types of water identified here was also prepared in Chapters 4 and 5 of the PEA and the analysis is summarized in several tables throughout the Draft PEA that define the type and amount of water that may be needed to implement the proposed project (e.g., Tables 4-45, 4-46, 4-47, 4-48, 5-39, 5-40, 5-41, 5-49, 5-50, 5-51, and 5-52). The amount of potable water that may be required is within the range of what was considered to be a substantial use of potable water.

The Draft PEA includes a comprehensive evaluation of the use of recycled water as a viable substitute for potable water. Based on input from the various recycled water purveyors, the Draft PEA makes a distinction between the facilities that currently have access to recycled water and those that do not. The Draft PEA also identifies those facilities that currently do not have access to recycled water, but are earmarked to receive future access to recycled water as a result of the anticipated 2013 completion of the Harbor Refineries Recycled Water Pipeline Project (HRRWPP)[24]. Representatives from both the Los Angeles Department of Water and Power (LADWP) and West Basin Municipal Water District (WBMWD) have provided detailed information about the availability of future access to recycled water to specific facilities that may also be affected by the SOx RECLAIM project. Further, these representatives have assured SCAQMD staff that there is an over-abundance of reliable recycled water ready for use. The EIR prepared for the HRRWPP project contains a detailed analysis of the environmental impacts and costs associated with building the pipeline extensions to the existing recycled water infrastructure. Because these impacts are already accounted for in the EIR for the HRRWPP, SCAQMD staff has incorporated by reference the environmental and cost impacts of the Final EIR for the HRRWPP project into the PEA prepared for the proposed project pursuant to CEQA Guidelines §15150. While the PEA for the proposed project incorporates by reference the impacts of building the HRRWPP infrastructure, the PEA includes an analysis of potentially significant adverse impacts from tying in to the HRRWPP infrastructure. Therefore, between the Final EIR for the HRRWPP and the PEA for the proposed project adverse cost and environmental impacts from constructing the HRRWPP and each facility tying in to the HRRWPP have been comprehensively analyzed.

Finally, it should be emphasized here the Draft PEA also considers what the potable water demand would be in the event that future recycled water will not be available, despite the fact that the HRRWPP project is currently under construction and it is reasonably

[24] Final EIR available online at: http://www.ladwp.com/ladwp/cms/ladwp012729.pdf.

foreseeable that at completion of construction, future recycled water will be made available to certain facilities. Even though the HRRWPP is under construction, it has not yet been fully completed and as such, the affected facilities have not yet tied into the system. For this reason, the PEA does not assume that recycled water will be available and the conclusion of significance in the Draft PEA for potable water demand is based on the more conservative approach that future supplies of recycled water may not be available. For these reasons, potable water demand was found to be significant, so a Statement of Findings (CEQA Guidelines §15091) and a Statement of Overriding Considerations (CEQA Guidelines §15093) will be prepared for the Governing Board's consideration.

For further information on the costs associated with the increased water demand, see Response to Comment 1-1. With regard to the comment that the SCAQMD should expand its analysis of water and wastewater use and handling, see also Responses to Comments 3-19, 3-29 and 3-31.

3-15 The comment does not include any information or data indicating that the use of SOx-reducing additives such as De-SOx at rates to meet the proposed BARCT levels would dilute the circulating cracking catalyst and adversely impact gasoline conversion (yield) within the FCCU[25]. The SCAQMD's own analysis also did not find that this would occur.

In 2008, the SCAQMD, WSPA and the refineries worked together and developed a testing protocol for SOx-reducing additives. The protocol was designed to demonstrate the performance and effectiveness of SOx-reducing additives to achieve a level of 10 ppmv or below. Only one out of six refineries elected to participate in the protocol. The participating refinery conducted short-term testing with SOx-reducing catalysts from September 2008 to November 2008. The SOx-reducing catalyst addition was approximately six percent to seven percent of the total catalyst addition, which was approximately 300 to 400 pounds per day. During this short term testing, the FCCU achieved a level of SOx below 10 ppmv without any negative effects on the yield of gasoline conversion. During the testing, in addition to the catalyst addition rate, the refinery carefully monitored numerous operating parameters (e.g., regenerator operating data such as burn mode, temperature, pressure, total air rate, coke burn rate; riser/reactor operating data such as feed preheat and riser temperature, pressure, FCCU feed rate, feed composition, conversion; and many other operating parameters) and no substantial problems with using the SOx-reducing additives were reported. Further, the refinery also conducted a source test for PM10 emissions and demonstrated that the FCCU continually met the requirements of Rule 1105.1, even with the increased use of SOx-reducing additives. Lastly, while the results of this study are confidential and cannot be disclosed in this response, the refinery reported to SCAQMD staff that they did not experience any substantial increase in loading to their SRU/TGU system during the three months of testing.

3-16 SCAQMD staff analyzed the likely SOx control technologies identified by the consultants as well as the refineries to meet BARCT and none suggested a "dry alternative." Dry gas scrubbers operating at 80 percent to 90 percent control efficiency were considered as BARCT for SOx in 1994. However, between 2008 and 2010, two consultants (ETS and NEC) expressed agreement that non-regenerative wet gas scrubbers can achieve from 1

[25] Letter from INTERCAT to SCAQMD, from Guido Aru, Director of Sales of INTERCAT to Dr. Laki Tisopulos, Assistant DEO of SCAQMD, October 10, 2010.

ppmv to 5 ppmv SOx outlet concentration (95 percent control efficiency or more from the 2005 emissions baseline) and thus, should be considered as BARCT. Based upon SCAQMD staff's and the consultants' evaluation of the dry gas scrubber technology, it is unlikely that it would achieve sufficient emission reductions to qualify as BARCT. While these two consultants recommended different types of WGSs, however, they both concurred that WGSs would be cost-effective and SCAQMD staff concurs with the consultants' recommendations. The two consultants both recommended keeping existing ESPs in place for particulate control and placing the wet gas scrubbers downstream of the ESPs. In addition, SCAQMD staff has worked with the refiners to demonstrate the effectiveness of enhanced usage of SOx-reducing additives, a dry technology, as a compliance option.

3-17 While SCAQMD staff acknowledges that the SOx oxidation catalysts have not yet been used at any of the refineries to reduce SOx from SRU/TGUs, the consultants (ETS/AEC) indicated that the catalysts have been used to capture SOx, destroy CO, VOC and PM10 from incinerators, heaters, turbines, and boilers. Therefore, the technology is transferrable to the SRU/TGU application. The consultants provided costs, cost-effectiveness and other parameters such as water usage and energy usage in Module 2. This information was incorporated in SCAQMD's costs and cost-effectiveness analyses for the SOx RECLAIM program and analyzed in the socioeconomic analysis.

In particular, the consultants have identified one facility (Facility A) that may consider employing the use of a proprietary catalytic gas treatment for their SRU/TGU called selective oxidation catalyst marketed by EmeraChem Power LLC as "ESx." The consultants also identified data relative to natural gas, electricity and catalyst consumption and this data was relied upon to determine air, energy and transportation impacts in the Draft PEA. As the ESx process does not utilize water, no water or wastewater impacts were identified. Thus, socioeconomic analysis has already considered costs of this type of control technology. Similarly, in addition to the information above on water and wastewater impacts, the Draft PEA already has analyzed impacts of these technologies on air quality, energy, and solid waste. For a summary of the environmental impacts for the SRU/TGU and ESx at Facility A, refer to Appendix B, Worksheet B-20.

3-18 Both consultants were in agreement that WGS is BARCT for coke calciner and it is cost-effective. NEC concurred with NEXIDEA on the BARCT selection stating, "*NEC concurs with the consultant's recommendation to use a Vendor D scrubber for emission control*."

NEC however thought that the contingency (35 percent) estimated by NEXIDEA was low. NEC suggested a 50 percent contingency instead. In addition, the facility had an issue with the location proposed by NEXIDEA. The facility operators indicated that this location is needed for truck access for coke loading/unloading. NEC reviewed the area and suggested to raise the WGS above the road. For this reason, the costs estimated by NEC were higher than those estimated by NEXIDEA. SCAQMD staff's calculation of cost-effectiveness for the coke calciner are based on NEC's recommendation as shown in Section 12.2, and 12.3 of Chapter 12 of Part 1 of the Staff Report, and is summarized in the following table:

	NEXIDEA	NEC
Capital Costs	$13.3 - $14.8 million	$45.7 million
Present Values	$21 - $23.4 million	$58.8 million
Cost Effectiveness	$9,902 per ton	$23,036 per ton

3-19 The comment states that the Draft PEA should consider a "reasonable, worst-case scenario" which would assume that no additional recycled water would be supplied to the RECLAIM facilities. California Public Resources Code §21159(a)(1) requires an analysis of *reasonably foreseeable* environmental impacts of the methods of compliance [emphasis added]. Further, CEQA Guidelines §15064(d) requires the lead agency to consider direct physical changes in the environment and *reasonably foreseeable* indirect physical changes in the environment which may be caused by the proposed project [emphasis added].

One reasonably foreseeable environmental impact to be expected from the proposed project is that some SOx control equipment such as WGSs could be installed and these devices are water-intensive. However, WGSs do not require the use of potable water in order to function. SCAQMD staff recognizes that the use of water-intensive equipment is a sensitive issue because California is in the midst of a drought. On February 27, 2009, Governor Schwarzenegger proclaimed a state of emergency regarding the drought and the availability and future sustainability of California's water resources. The proclamation directed all state government agencies to utilize their resources, implement a state emergency plan and provide assistance for people, communities and businesses impacted by the drought. The proclamation further requested that all urban water users immediately increase their water conservation activities in an effort to reduce their individual water use by 20 percent and the use of recycled water can be counted towards the progress in meeting this target.

Recognizing that there is a state goal for a 20 percent reduction in potable water consumption on a per capita basis, it is reasonable that any facility that currently has access to recycled water will choose to tie into their existing recycled water pipeline to operate their WGS (or any other water-intensive SOx controls that do not require potable water) instead of only installing a connection to their potable water supply and increasing their use of potable water at the facility. This is especially true because, according to LADWP (see next paragraph), LADWP is providing competitive pricing to its customers to incentivize the use of recycled water. For these reasons, the hydrology analysis in the Draft PEA considers the use of recycled water for those facilities that currently have access to it.

In addition, representatives from both the LADWP and WBMWD have provided detailed information about the availability of future access to recycled water to specific facilities that may also be affected by the SOx RECLAIM project, but do not have access at present. Further, these representatives have assured SCAQMD staff that there is currently an over-abundance of reliable recycled water ready for use. The Draft PEA considers what the potable water demand would be if future recycled water will be available to these facilities. However, the Draft PEA also considers what the potable water demand would be in the event that future recycled water will not be available, despite the fact that the HRRWPP project is currently under construction and it is reasonably foreseeable that at completion of construction, future recycled water will be made available to certain facilities. The

conclusion of significance in the Draft PEA for potable water demand is based on the more conservative approach that future supplies of recycled water may not be available.

3-20 Subsequent to the release of the January 2010 Staff Report, manufacturers of SOx-reducing additives such as De-SOx catalyst provided SCAQMD staff with data indicating that 5 ppmv SOx level is achievable for FCCUs. On this basis, BARCT at 5 ppmv may be met by using SOx-reducing additives or WGSs. The potential environmental effects of using SOx-reducing additives in lieu of WGSs for FCCUs have been analyzed in the Draft PEA and have been shown to have less impacts than WGSs. The analysis specific to the use of SOx reducing additives can be found in Appendix B, Worksheet B-31.

3-21 The first set of consultants explored several measures that were specific to fuel gas treatment. Their purpose was to find controls that would lower the fuel gas sulfur that is fed to the refinery boilers and heaters. A 40 ppmv sulfur concentration in the refinery fuel gas has been justified as technologically and economically feasible with SCAQMD Rule 431.1. SCAQMD's proposal does not assume a new BARCT standard for refinery boilers and heaters. In fact, the 40 ppmv fuel sulfur concentration is an existing BARCT standard that was adopted in the May 4, 1990 amendments to SCAQMD Rule 431.1 – Sulfur Content of Gaseous Fuels, and became effective on May 4, 1992; it is still applicable today. However, with the adoption of the RECLAIM program in April 1993, the command-and-control rules, like Rule 431.1, were subsumed, giving the refineries flexibility in complying with this BARCT standard. Over the past 18 years since going into effect, several refineries have avoided meeting the 40 ppmv fuel sulfur concentration BARCT standard under RECLAIM. To the extent that these refineries have avoided meeting that limit because of costs, SCAQMD staff has determined that the proposed shave can be readily met without complying with the 40 ppmv fuel sulfur concentration limit. WSPA's proposal listing various control strategies supports SCAQMD staff's position. As a result, it is not reasonably foreseeable that refiners who avoided complying with the 40 ppmv fuel sulfur concentration limit due to costs would be required to do so now as a result of the proposed shave. Nevertheless, SCAQMD staff has analyzed the potential environmental impacts of complying with the 40 ppmv fuel sulfur concentration limit in the Draft PEA.

3-22 Although not part of SCAQMD's proposal for new BARCT because it is existing BARCT pursuant to Rule 431.1 as explained in Response to Comment 3-21, the consultant ETS/AEC conducted site-specific analyses for fuel gas treatment, and found several possible measures that were cost effective. These are summarized in Module 2 of the consultant's analyses. For this reason, an analysis of the environmental effects associated with fuel gas treatment in the Draft PEA has been included because the consultants' reports indicated that some of the affected facilities may choose to focus on improving SOx emissions from their refinery boilers and heaters in lieu of other equipment. The analysis specific to the refinery boilers and heaters source category identifies the specific facilities that may benefit from SOx reductions. This analysis can be found in Appendix B, Worksheet B-19.

3-23 Nothing in the proposed amended rule would prohibit the use of a "dry" alternative. However, as the commenter pointed out, the CEQA analysis looked at a worst-case scenario of using WGSs, which have a greater water impact. See also Response to Comment 3-16.

3-24 SCAQMD staff would be interested in obtaining more information on the basis for selecting perpetuity credits instead of single-year credits. It should be noted that in a given year, the perpetuity credits would tend to be less expensive than single-year credits because even though the value of perpetuity credits represent an infinite block of emission reductions, on an annualized basis, the value is discounted when compared to a single-year credit. Consequently, the single-year credit would be more a conservative criterion with respect to a RTC trading threshold. Nevertheless, as suggested by the SCAQMD's Executive Officer at the October 14, 2010 Refinery Committee meeting, SCAQMD staff is open to proposals for other trigger thresholds for subparagraphs (f)(1)(M) and (f)(1)(N) in Rule 2002.

3-25 The analysis of the proposed project, which takes into consideration the compliance schedule, demonstrates that the emission reductions as listed in the schedule in the proposed amended rule are achievable while providing a means for giving the affected facilities sufficient time to install the required SOx reducing control equipment. Because facilities will have the flexibility under the RECLAIM program to install air pollution control equipment, change method of operations, and/or purchase RTCs to meet BARCT levels, the analysis in the Draft PEA for the proposed project and each of the alternatives is based on the conservative assumption that multiple projects could be under construction at any one time, regardless of the amount and the year when the RTC reductions would occur. So even if a less aggressive RTC reduction was employed or if more facilities wait until later to implement physical changes to reduce their SOx emissions, the worst-case environmental impacts on a peak daily basis will likely remain unchanged.

3-26 Although the current SOx RTC market may be "thinly traded" as asserted by the commenter, this is not the result of unavailability of SOx RTCs. As noted in Response to Comment 2-26, the surplus SOx RTC pool had approximately 1.73 tons per day of unused RTCs in 2005, and 2.55 tons per day of unused RTCs in 2008. Based on currently available information, SCAQMD staff has concluded that with its proposed shave there should be an adequate supply of RTCs to ensure market stability. The actual availability in the future cannot be substantiated by fact. CEQA recognizes this by stating that a CEQA document "…necessarily involves some degree of forecasting. While foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can." [CEQA Guidelines §15144] Consistent with CEQA, SCAQMD staff has used the best information currently available to project future RTC availability and market responses to project RTC availability (see the Socioeconomic Report for the proposed project). In the event RTC prices spike to a level of concern, a "safety valve," similar to a component in the NOx RECLAIM program, has been added to the SOx RECLAIM program. This "safety valve" sets aside a portion of the RTCs called non-tradable/non-usable RTCs from 2015 to 2019. In a scenario where SOx RTC prices exceed $50,000 per ton, SCAQMD staff will be required to report to the Governing Board at a public hearing. The Governing Board will decide whether to convert any portion of the non-tradable/non-usable RTCs to tradable/usable RTCs, and how much to convert. This approach is expected to help the market regain its balance should the price of RTCs increase above $50,000 per ton because it would increase the RTCs in the market. The "safety valve" provision added to the NOx RECLAIM rules helped stabilize the NOx trading market and there is no reason to believe that it would not have the same effect on the SOx market in the event of price spikes.

3-27 SCAQMD staff recognizes the fact that the design and layout of equipment during construction and installation are key parameters that rely on the appropriate and available plot space. Two sets of consultants were hired specifically to address this issue and made assessments of the available plot space for each control technology measure, so it is incorrect to say that the consultants did "not give adequate weight" to plot space considerations. The consultants based their findings on site visits; their collective experience in refinery technology design, construction, and installation; and on input that was elicited from the affected facilities on several occasions. The consultants' final recommendations identify BARCT that can be installed within the plot space of each individual affected facility based on an analysis of all of the above factors. The consultant reports can be found online at the following URL: http://www.aqmd.gov/rules/proposed.html#RegulationXX.

The commenter notes also, "If the District's assumptions on layout are incorrect, it could mean that a lot more construction must be done which will have greater impacts." First, the comment does not identify which assumptions may be inappropriate. Second, the assumptions with regard to constructing and analyzing impacts from installation of control technologies are clearly laid out in Chapter 4 of the PEA, but the commenter does not provide suggestions for different assumptions. Third, information on construction activities was solicited from affected facility representatives. Finally, the assumptions used in the PEA are considered to be "worst-case" assumptions based on a number of factors including engineering time, time to obtain control equipment and associated materials, availability of appropriately trained construction crews that are able to install the necessary control equipment, etc.

3-28 As discussed in Response to Comment 3-27, the consultants reached their conclusions regarding the availability of plot space and assumptions used in the analysis, the consultants reached their conclusions after visits to the affected facilities and soliciting and receiving input from the affected facility operators. This is why the PEA analyzed different control technologies for each facility. In addition, the comment does not provide any information with regard to why the consultant analysis regarding plot space is inaccurate nor does it provide any recommendations for alternative assumptions or analyses.

3-29 As noted in the PEA, one of the SCAQMD's significance criteria for hydrology/water quality is whether or not the existing water supply has the capacity to meet the increased demands of the proposed project. SCAQMD staff contacted the water purveyors for each of the affected facilities and they have confirmed that that they would be able to supply the needed amount of potable water for the proposed project[26]. In addition, for those facilities that currently have access to recycled water (i.e., Facilities A, B, and D), the applicable water purveyor indicated that it would also be able to supply additional recycled water to accommodate the water demand for the proposed project. Lastly, for those facilities that may have access to future supplies of recycled water (i.e., Facilities C, E, and F), the

[26] Facilities A, B, C, D, E and F: West Basin Municipal Water District, email from Uzi Daniel, February 17, 2010.
Facilities C, E, and F: LADWP, letter from James McDaniel, August 16, 2010.
Facility H: Long Beach Water Department, conversation with Chris Pincherli, August 13, 2010.
Facility I: City of Vernon, email from Scott Rigg, July 28, 2010.
Facility J: No water purveyor; all water is supplied from on-site wells and this facility has unlimited pumping rights.

applicable water purveyor indicated that it would also be able to supply either potable water or recycled water for the proposed project.

The Draft PEA also considers what the potable water demand would be in the event that future recycled water will not be available, despite the fact that the HRRWPP project is currently under construction and it is reasonably foreseeable that at completion of construction, future recycled water will be made available to certain facilities. Since the HRRWPP has not yet been constructed and the affected facilities have not tied into the system, the PEA does not assume that recycled water will be available. For that reason, the conclusion of significance in the Draft PEA for potable water demand is based on the more conservative approach that future supplies of recycled water may not be available. For these reasons, potable water demand was found to be significant, so a Statement of Findings (CEQA Guidelines §15091) and a Statement of Overriding Considerations (CEQA Guidelines §15093) will be prepared for the Governing Board's consideration.

Regarding the infrastructure to increase current supplies of recycled water to Facilities A, B and D as well as to provide future supplies of recycled water to Facilities C, E, and F, representatives from both the LADWP and the WBMWD have assured SCAQMD staff of the following:

1) The existing infrastructure that currently provides recycled water to Facilities A, B and D can handle the proposed increase of additional recycled water to supply the proposed project.
2) The new infrastructure that is currently under construction pursuant to the HRRWPP will provide Facilities C, E, and F with new access to recycled water. The HRRWPP is expected to be completed by Summer 2013. Should any of these facilities install water-based SOx control equipment prior to completion of the HRRWPP, potable water will be supplied. When the HRRWPP is completed, each facility can tie-in to the recycled water pipeline.

The physical and economic feasibility of recycled water pipeline infrastructure has already been evaluated in the Final EIR for the HRRWPP. The HRRWPP would occur regardless of the SCAQMD's proposed project to amend the SOx RECLAIM program. Thus, the Draft PEA need not evaluate the impacts that would occur pursuant to the HRRWPP. See also Response to Comment 3-19.

3-30 From a construction point of view, the installation of a WGS, for example, is a complex process. If a facility operator chooses to install a WGS, the consultants' reports estimate that 18 months would be needed for pre-construction/advance planning activities such as engineering analysis of the affected equipment, engineering design of the potential control equipment, contracting with a vendor, securing financing, ordering and purchasing the equipment, obtaining permits and clearances, and lining up contractors and workers. Further, to physically build a WGS, the consultants' reports indicated that an additional 18 months would be needed. The Draft PEA considers the overlapping construction of building four WGSs within the same 18-month period as a worst-case scenario. This overlap could occur anytime between the date of adoption (scheduled for November 5, 2010) and full implementation (January 1, 2019). However, as a practical matter, even if a facility starts the planning and engineering process immediately if the proposed project is adopted in November 2010 (the currently scheduled public hearing date) to design a WGS installation (and some are in the very early pre-planning stages), construction is not

expected to occur sooner than 2012. For these reasons, the Draft PEA considers any 18-month window between January 1, 2012 and January 1, 2019 (a span of seven years) when facilities could undergo construction activities. Further, based on the practicalities of engineering and constructing applicable control equipment a shorter installation period, such as three years as suggested in the comment, is unrealistic.

3-31 As previously mentioned in Response to Comment 3-19, the Draft PEA analyzes the worst-case potable water demand for the proposed project which was based on data provided by the consultants, the operators of the affected facilities, and the water purveyors. The analysis also takes into account the drought in California, the water conservation measures and the use of recycled water to help meet the water conservation measures. The conclusion of the analysis is that the estimated amounts do not make the proposed project infeasible. As mentioned in Response to Comment 3-29, the water purveyors for each of the affected facilities have confirmed that both potable and recycled water is available and will be supplied to any affected facility that requests it, in amounts necessary to carry out the project.

While it is true that the California legislature has proposed Assembly Bill (AB) 49 – Water Efficiency and Senate Bill (SB) 261 – Urban Water Efficiency, which will require a 10 percent reduction of urban water use by 2015 and 20 percent by 2020, neither of these bills has been adopted by the full legislature. On January 27, 2010, AB 49 was moved to the inactive file[27]. On August 27, 2009, a hearing was set for SB 261 and then canceled[28]. These are the last times any actions were taken on these bills.

In any case, these proposed bills and the water conservation measures share a common concept, which is to allow the use of recycled water to count towards the progress in meeting these targets. Thus, if an affected facility proposes to increase its water use as a result of the proposed project by installing water-based SOx controls, and uses recycled water to satisfy the water demand, the increased use of recycled water would not cause the facility to incur: 1) voluntary reductions; 2) mandatory restrictions during a local emergency; 3) drought rates, surcharges and fines; 4) limits on the new construction subject to water efficient landscaping; or, 5) mandatory conservation. Further, the HRRWPP project is one mechanism designed specifically to convert all of the refineries from potable water to recycled water and the feasibility and cost-effectiveness of this goal was analyzed in the Final EIR for the HRRWPP.

While the preparation of the Draft PEA and in particular, the hydrology analysis, is dependent upon information from the certified Final EIR for the HRRWPP project as it relates to the affected facilities for the SOx RECLAIM project, CEQA Guidelines §15148 requires the document to be cited, but not included in the Draft PEA. Thus, there is no requirement to incorporate or re-analyze in the Draft PEA what was already analyzed and concluded in the Final EIR for the HRRWPP as being cost-effective and feasible with regard to the use of recycled water. The Final EIR for the HRRWPP clearly states and representatives from the LADWP and WBMWD (the project's sponsors) agree that recycled water will be available to the specified facilities (see also Response to Comment 3-29).

[27] http://www.leginfo.ca.gov/pub/09-10/bill/asm/ab_0001-0050/ab_49_bill_20101006_status.html
[28] http://www.leginfo.ca.gov/pub/09-10/bill/sen/sb_0251-0300/sb_261_bill_20090831_status.html

The commenter's statement that the potable water impacts could be less than significant with mitigation is not complete, and is taken out of context. The conclusion states that the overall water demand will not be completely mitigated, even with the use of recycled water. The conclusion can be found on page 4-84 of the Draft PEA. It is important to note that even if mitigation measures cannot fully reduce the impacts to below significance, not being able to fully mitigate the impact would not make the mitigation measure infeasible or unreasonable.

With regard to the remark that the SCAQMD has incorrectly implied that each facility has the ability to obtain written declarations that recycled water is not available pursuant to mitigation measures GHG-2 and HWQ-2, the commenter does not explain why the facilities would not be able to obtain such a declaration. This remark is inconsistent with discussions SCAQMD staff has had with representatives from both the LADWP and WBMWD. Both of these water purveyors have indicated that their staff has met with each facility operator (i.e., those with current supplies of recycled water as well as those with future access to recycled water) as part of a series of on-going negotiations and discussions about their plans to convert from potable water to recycled water. Based on this understanding, there should be no barrier to facility operators obtaining a written declaration from their water purveyor about the status of their current or potential future recycled water supplies. Even if the commenter were correct that the facilities could not obtain such a declaration, this would not change the conclusion that water demand impacts remain significant even after mitigation, but that overriding considerations, nevertheless justify adoption of the proposed project.

It is important to note, however, that the Draft PEA also considers what the potable water demand would be in the event that future recycled water will not be available, despite the fact that the HRRWPP project is currently under construction and it is reasonably foreseeable that at completion of construction, future recycled water will be made available to certain facilities. Since the HRRWPP has not yet been constructed and the affected facilities have not tied into the system, the PEA does not assume that recycled water will be available. For that reason, the conclusion of significance in the Draft PEA for potable water demand is based on the more conservative approach that future supplies of recycled water may not be available. For these reasons, potable water demand was found to be significant, so Findings (CEQA Guidelines §15091) and a Statement of Overriding Considerations (CEQA Guidelines §15093) will be prepared for the Governing Board's approval.

3-32 Two potential control options have been identified for FCCUs: WGSs and SOx-reducing additives. SCAQMD staff believes that 5 ppmv should be the BARCT level for FCCUs based on the performance of an existing WGS installed and operated in the District since 2008. Therefore, the actual emission reductions from the 2005 baseline should be estimated based on a BARCT level of 5 ppmv, and the emission reductions for the two options analyzed in the Draft PEA should both be equal to 2.88 tons per day for FCCUs. SCAQMD staff acknowledges that the 5 ppmv has not yet been fully demonstrated in practice for the SOx-reducing additives. However, short-term testing with a local refinery and multiple discussions with the manufacturers of SOx-reducing additives who have presented SCAQMD staff with actual testing results indicated that the use of SOx-reducing additives can potentially achieve 5 ppmv SOx on a long-term basis. Further, the use of

SOx-reducing additives is not expected to incur any upfront additional capital costs like WGSs. While the annual operating costs are likely to be high for SOx-reducing additives when compared to WGSs, the water demand will be less with SOx-reducing additives. Other environmental impacts and differences between the two technologies are analyzed in the Draft PEA. See also Response to Comment 3-20.

In addition to the fact that both WGSs and SOx-reducing additives may be considered BARCT, the analysis of these technologies also relies on the concept of analyzing maximum impacts that could be created by the technologies to ensure that all potential adverse impacts that may be generated by the proposed project are identified and disclosed to the public. Further, it is important to remember that the PEA is a program level analysis that shows the options a facility may choose to comply with the proposed requirements. The RECLAIM program does not mandate that any particular technology be adopted by facility. For this reason, the analysis is based on those technologies that would allow the facility to comply with the proposed project, while generating the maximum adverse impacts as indicated above.

3-33 The proposed RTC shave values are from Table 13-1 of the Staff Report. They are the RTC reductions in Year 2019 with a 10 percent compliance margin. Although refinery heaters and boilers are not part of the proposed project, they are a potential source of cost-effective SOx reductions. A facility operator may seek additional reductions from this source category if it chooses to. The benefit of analyzing the potential environmental impacts from this source category is that if a facility operator chooses to install controls for refinery heaters and boilers in the future, this PEA may be used for those projects. The SCAQMD encourages the substitution of more cost-effective controls on a site-by-site basis. A facility operator may choose to install cost-effective controls for refinery boilers and heaters and, if those controls achieve further reductions that those specified as Tier 1, then those reductions can be used to displace the reductions from other equipment.

3-34 With regard to the assumptions and analysis associated with the current and future use recycled water as part of implementing the proposed project, see Responses to Comments 3-19, 3-29, and 3-31.

3-35 While it is true that no new BARCT is being proposed for the refinery boilers and heaters source category, the 40 ppm SOx limit was not explicitly included in the previous versions of the SOx RECLAIM rules and as such, is now included in the proposal (see Table 4 in PAR 2002). As explained in Response to Comment 3-22, an analysis of the environmental effects associated with fuel gas treatment in the Draft PEA has been included because the consultants' reports indicated that some of the affected facilities may choose to focus on improving SOx emissions from their refinery boilers and heaters in lieu of other equipment and that choice may have direct and indirect environmental impacts.

3-36 See Responses to Comments 3-20 and 3-32.

3-37 For a discussion about the assumptions associated with timing of construction, see Response to Comment 3-30.

3-38 The analysis in the Draft PEA considers the proposed project and three alternatives. A summary of the environmental impacts can be found in Table 5-60 and shows a side-by-

side comparison of each environmental topic. The comment states that Alternatives B and C "would cause significantly fewer environmental impacts… particularly associated with water use and GHG impacts" than the proposed project. Although the analysis of GHG impacts estimated for Alternative B in Chapter 5 of the PEA are less than significant, the GHG impacts for Alternative C exceed the 10,000 MTCOeq/yr significance threshold.

Similarly for total water demand, neither the proposed project nor any of the alternatives exceed the total water significance threshold. Further, the proposed project and Alternative C have identical, significant potable water demand impacts and only Alternative B has less than significant potable water demand impacts. The comment that there are significantly less impacts from Alternative C compared to the proposed project is inconsistent with analysis of impacts from the project alternatives in Chapter 5 of the PEA. While it is true that Alternative B has less impacts overall when compared to the proposed project, it also achieves the least amount of SOx emission reductions. As a result, the proposed project was preferred over the project alternatives because, even though the proposed project has the potential generate more or more significant adverse environmental impacts, it is more effective at achieving the project objectives than all alternatives evaluated.

3-39 Because there are SOx controls that need water for operation and because the HRRWPP project has identified several facilities that have current or may have future access to recycled water, mitigation measure GHG-2 was designed to work in cooperation with mitigation measure GHG-1 as a backstop to make sure that the water purveyor vouches for the recycled water status at a given facility. In the event that recycled water cannot be delivered to a given facility and potable water needs to be used instead, there will be no reductions in GHG emissions. However, if recycled water is used, there will be less GHGs generated than if potable water was used due to less energy needs for transport. All affected water purveyors have participated in the CEQA process for the proposed project, all have received copies of the PEA and none has expressed concern about this mitigation measure.

3-40 Currently there are two feasible GHG mitigation measures identified in the Draft PEA that are designed to work together to reduce GHG emissions by utilizing recycled water in lieu of potable water, if available. These mitigation measures do not rely on AB 32 projects serving as GHG mitigation measures. AB 32 is mentioned in the Draft PEA as part of the mitigation measure discussion because it is an ongoing process under development by CARB that may result in further GHG emission reductions. While there is nothing in CARB's adopted "early action measures" or CARB's GHG reduction measures that specifically apply to the proposed project as of this writing, CARB has not yet adopted its GHG reduction cap and trade program. When adopted, it is expected to apply to projects that will need to receive permits, including any projects that may occur as a result of amending the SOx RECLAIM program. The purpose of the discussion of AB 32 is to indicate that there are no additional feasible GHG reduction measures that the SCAQMD could adopt that could mitigate impacts from the proposed project, able to go beyond AB 32 requirements.

With regard to applicability of GHG BACT via EPA's Tailoring Rule, the SCAQMD would begin to require GHG BACT for sources already subject to PSD and having a GHG increase of 75,000 MTCO2eq/yr or more, effective January 2, 2011. However, the analysis in the Draft PEA has demonstrated that on an individual facility basis, no facility exceeds

the 10,000 MTCO2eq/yr threshold and for the project as a whole, let alone individual modifications, the GHG emissions do not exceed 75,000 MTCO2eq/yr. Thus, GHG BACT would not apply to the proposed project or any permit action thereafter.

With regard to applicability of NSR and PSD, see Response to Comment 3-9. Lastly, with regard to the comparison of environmental impacts between the proposed project and Alternatives B and C, see Responses to Comments 3-6, 3-7 and 3-38.

3-41 There is a direct relationship between CEQA and GHG BACT as CEQA requires all feasible measures, and GHG BACT is based on what is achievable in practice. Therefore, if GHG BACT can be achieved in practice, then it may also be considered as feasible under CEQA. The purpose of this discussion was to indicate that no additional GHG reduction measures beyond GHG BACT could feasibly be imposed to mitigate impacts from the proposed project.

3-42 The comment states that the Draft PEA did not account for the energy needed to pump potable water to the affected facilities. The analysis in the Draft PEA is based on energy demand from using potable water and does not take any credit for any energy reductions that may occur from using recycled water instead.

3-43 The water purveyors for each affected facility have indicated that, from their perspectives, the proposed increases in water are relatively small. Further, as mentioned in Responses to Comments 3-14, 3-29 and 3-31, the water purveyors have indicated that they can supply the water demand, whether it is for potable water, recycled water or a combination of the two. None of the water purveyor representatives have indicated that there are any regulations in place that would be impediments for them to supply the affected facilities with potable water, if requested, by the facility operators.

3-44 With regard to the appropriateness and feasibility of mitigation measure GHG-2, see Response to Comment 3-39. With regard to the Draft PEA identifying feasible mitigation measures, see Responses to Comments 3-9 and 3-31.

3-45 The comment states that the most likely scenario to analyze would be that there will be no additional supplies of recycled water available to the refineries. This position is not supported by the conclusions in the HRRWPP project and the water purveyor's affirmations, as discussed in Responses to Comments 3-14, 3-29, and 3-31, that both potable water and recycled water will be fully available to the affected facilities. Also, as mentioned in Response to Comment 3-43, none of the water purveyor representatives have indicated that there are any regulations in place that would be impediments for them to supply the affected facilities with potable water, if requested, by the facility operators.

The Draft PEA also considers what the potable water demand would be in the event that future recycled water will not be available, despite the fact that the HRRWPP project is currently under construction and it is reasonably foreseeable that at completion of construction, future recycled water will be made available to certain facilities. Since the HRRWPP has not yet been constructed and the affected facilities have not tied into the system, the PEA does not assume that recycled water will be available. For that reason, the conclusion of significance in the Draft PEA for potable water demand is based on the more conservative approach that future supplies of recycled water may not be available. For

these reasons, potable water demand was found to be significant, so a Statement of Findings (CEQA Guidelines §15091) and a Statement of Overriding Considerations (CEQA Guidelines §15093) will be prepared for the Governing Board's consideration.

3-46 With regard to the Draft PEA analyzing the circumstance of no future increases in recycled water, see Response to Comment 3-19. With regard to the comment that compliance with mitigation measure GHG-2 is out of control of the facility operator and as such it cannot be imposed on a facility, see Response to Comment 3-31.

3-47 While all of the details associated with the proposed project and each of the alternatives are not fully specified in Table 5-1 because it is intended as tool to provide a brief overview or summary, a very detailed description of each component of the proposed project and each alternative is fully described throughout Chapter 5. With regard to how the same emission reductions are expected to be achieved for both options of Alternative C, see Responses to Comments 3-20 and 3-32.

3-48 See Response to Comment 3-33.

3-49 The project description for Alternative C on page 5-13 does not include the refinery boilers/heaters source category because the proposed project does not establish a new BARCT level for refinery boilers/heaters. However, cost-effective emission reductions in the amount of 0.85 ton per day are potentially available from future retrofits in this source category and the environmental impacts from such controls are evaluated in this analysis but the potential emission reductions are excluded from the proposed RTC shave.

3-50 The commenter has identified an inconsistency in the Table 5-2, which is also in Table 1-4. Review of the text in the body of the document and the calculations in Appendix B confirms that both options of the proposed project are equivalent for natural gas reductions. As such, both Table 1-4 and Table 5-2 have been corrected to state the following in the "Energy Impacts Significant?" row: 1) in the "Proposed Project - Option 1" column: *The reduction in the use of natural gas is equivalent to the proposed project – Option 2*; and, b) in the "Proposed Project - Option 2" column: *The reduction in the use of natural gas is equivalent to the proposed project – Option 1*.

The commenter is correct that the natural gas reductions under both options of Alternative C are approximately eight times greater than the proposed project.

3-51 With regard to why Alternative C is not preferred when compared to the proposed project, see Response to Comment 3-7.

3-52 SCAQMD staff has conducted a sensitivity analysis to assess the future health impacts associated with meeting the PM 2.5 standard in 2020. A health impacts model was run to assess the incremental changes in PM levels as a function of SOx emissions. The analysis showed that reducing PM levels resulted in reductions in premature deaths and chronic bronchitis resulting from reductions in annual average PM2.5 concentrations; and reductions in respiratory and cardiovascular hospital admissions, emergency room visits, asthma symptom days, acute respiratory symptom days, and non-fatal heart attacks. The report on the 2007 AQMP Socioeconomic Analysis can be extrapolated to reflect the health impacts associated with PM as a result of SOx emissions. This was an emissions-based

linear model to estimate the air quality and health impacts in 2020. The studies found that there are health benefits with SOx emission reductions beyond what is specified in the AQMP in the effort to meet the future PM 2.5 standards. Thus, the statement on page 5-20 of the Draft PEA correctly characterizes the potential emission reductions and health benefits of Alternative C relative to those of the proposed project.

3-53 .Regarding analyzing the project without assuming new or increased access to potable water, see Responses to Comments 3-29 and 3-31.

3-54 In order to achieve the air quality benefits reflected by the proposed BARCT standards, it is important that surplus unused RTCs are reduced. The shave methodology used by SCAQMD staff does account for anticipated future growth and provides a compliance range that is within 10 percent of the shave methodologies analyzed prior to RECLAIM amendments. Thus, the shave reductions of the proposed project are designed to meet the 2007 AQMP targets as well as future attainment standards for PM 2.5. The Draft PEA analyzes the potential effects of what facility operators may do to implement the proposed project.

3-55 See Response to Comment 3-52.

3-56 The commenter has identified an inconsistency in the Table 5-2, which is also in Table 1-4. Review of the text in the body of the document and the calculations in Appendix B confirms that the use of NaOH for Alternative B is less than both options of the proposed project. As such, both Table 1-4 and Table 5-2 have been corrected to state the following in the "Air Quality Impacts Significant?" row in the "Alternative B: AQMP" column, third bullet: *Less than significant for TACS use (NaOH) during operations, and less than the proposed project for both Options 1 and 2*.

3-57 The commenter has identified an inconsistency in the Table 5-2, which is also in Table 1-4. Review of the text in the body of the document and the calculations in Appendix B confirms that GHG emissions for Alternative C – Option 1 are less than the proposed project – Option 1 but greater than the proposed project – Option 2. As such, both Table 1-4 and Table 5-2 have been corrected to state the following in the "Air Quality Impacts Significant?" row in the "Alternative C - Option 1" column, second bullet: *Significant for GHGs but less than the proposed project -Option 1 and more greater than the proposed project - Option 2.*

3-58 The commenter has identified an inconsistency in the Table 5-2, which is also in Table 1-4. Review of the text in the body of the document and the calculations in Appendix B confirms that the number of daily truck trips for construction is the same for both options of the proposed project (e.g., 700) and the number of daily truck trips for operation are slightly more for the proposed project – Option 1. As such, both Table 1-4 and Table 5-2 have been corrected to state the following in the "Transportation & Traffic Impacts Significant?" row: 1) in the "Proposed Project - Option 1" column: *Less than significant, but equivalent to the proposed project – Option 2 for construction and more than the proposed project – Option 2 for operation*; and, 2) in the "Proposed Project - Option 2" column: *Less than significant, but equivalent to the proposed project – Option 1 for construction and less than the proposed project – Option 2 for operation.*

3-59 The commenter has identified a typo in the last paragraph on page 5-20. The typo has been corrected to reflect that eight WGSs plus two DGSs for a total of 10 add-on controls were analyzed Alternative C – Option 1.

3-60 The commenter has identified some typos on page 5-34 and Table 5-25. The numbers have been updated and are now consistent with each other.

3-61 The commenter has identified a typo relative to the amount of water needed for construction for both options of Alternative C. The amount of plot space that would be affected by Alternative C is less than the proposed project. This means that the amount of water needed to control the fugitive dust should be about the same or less for Alternative C than the proposed project because the amount of soil that can be disturbed in one day, is physically limited by the amount that construction equipment such as a backhoe can do. For these reasons, the amount of water that may be applied to minimize fugitive dust for Alternative C has been adjusted to be the same as the proposed project during construction (i.e., 52,272 gal/day).

3-62 The commenter has identified a typo relative to Footnote 12 in Table 1-3. The reference has been corrected to reflect Footnote 14 instead.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Socioeconomic Report For PROPOSED AMENDED REGULATION XX–REGIONAL CLEAN AIR INCENTIVES MARKET (RECLAIM)

November 2010

Deputy Executive Officer
Planning, Rule Development and Area Sources
Elaine Chang, DrPH

Assistant Deputy Executive Officer
Planning, Rule Development and Area Sources
Laki T. Tisopulos, Ph.D., P.E.

Planning and Rules Manager
Planning, Rule Development and Area Sources
Joe Cassmassi

Author: Shah Dabirian, Air Quality Specialist

Contributor: Kevin Orellana

Reviewed By: Sue Lieu, Program Supervisor
Gary Quinn, P.E, Program Supervisor
Jill Whynot, Director, Strategic Initiatives
William Wong, Senior Deputy District Counsel

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

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Councilmember, Ninth District
City of Los Angeles

MIGUEL A. PULIDO
Mayor, Santa Ana
Cities of Orange County

EXECUTIVE OFFICER:

BARRY R. WALLERSTEIN, D.Env.

PREFACE

Since the release of the Draft Socioeconomic Report, a revision has been made to the location of an affected facility. This revision does not affect cost estimates. However, the job impacts have been slightly revised. The total job impacts of the proposed amendments are still within the noise of the economic model used for this assessment.

EXECUTIVE SUMMARY

The proposed amendments to Regulation XX—Regional Clean Air Incentives Market (RECLAIM)—would reduce the allowable SOx emission limits based on current Best Available Retrofit Control Technology (BARCT) for several industrial equipment and processes. A socioeconomic assessment was conducted for the proposed amendments and a summary of the assessment and findings is presented below.

Elements of the Proposed Amendments	The proposed amendments to REgional Clean Air Incentives Market (RECLAIM) would reduce allowable SOx emissions at 11 SOx RECLAIM facilities by reducing their RECLAIM Trading Credits (RTCs). These facilities hold 90 percent of SOx RTCs and generate 95 percent of SOx emissions. In order to ensure that their emissions not exceed the allowable RTCs, these facilities would be required to install or modify SOx emission controls on the following types of equipment and processes: 1) refinery fluid catalytic cracking units (FCCU), 2) refinery sulfur recovery units (SRU), 3) sulfuric acid manufacturing processes, 4) container glass melting furnace, 5) Portland cement manufacturing, and 6) petroleum coke calciner. The proposed amendments would result in a reduction of 4.5 tons and 6.14 tons per day of SOx RTCs in 2014 and 2019, respectively.
Affected Facilities	The proposed amendments will affect 11 SOx RECLAIM facilities. The six affected refineries, one coke calciner unit, and one sulfuric acid plant belong to the sector of petroleum product manufacturing. The refinery FCCU units, refinery sulfur recovery units, refinery boilers/heaters, coke calciner plant, and one sulfuric acid plant operate in this sector. The affected cement and the glass plants belong to the non-metallic mineral product manufacturing sector, and one out of two affected sulfur acid plants belongs to the chemical manufacturing sector. Of these 11 facilities, 10 are located in Los Angeles County and the remaining one is located in San Bernardino County.
Assumptions of Analysis	To meet the proposed SOx reduction, it is expected that the affected facilities would use a variety of SOx control technologies, including wet gas scrubbers (WGSs), dry gas scrubbers (DGSs), EmeraChem ESx catalyst, Cansolv upgrade, and SOx reducing additives. It is further assumed that four WGSs would be installed on the FCCU units at four refineries. It is also assumed that three refineries would install three WGSs and one EmeraChem ESx catalyst on their three affected SRU units. One refinery is expected to install two WGSs on its SRU unit. It is assumed that

Assumptions of Analysis	one of the two affected sulfuric acid manufacturing facilities would use a WGS and the other would use Cansolv upgrade to comply with the proposed amendments. It is assumed that the one affected glass melting facility would install two WGSs, one affected cement plant would install two dry gas scrubbers, and one affected petroleum coke calcining facility would install one WGS scrubber to further control SOx emissions. Control costs vary by equipment type and size. The total compliance cost of the proposed amendments includes one-time cost and recurring costs. The one-time cost includes the capital costs of WGSs, DGSs, EmeraChem ESx catalyst, Cansolv upgrade, and their installations (demolition, concrete, structural, piping, electrical, contractors, contingencies), and major maintenance services at five-year intervals. The one-time costs are annualized assuming a 25-year life for equipment and installation, and a real interest rate of four percent. The annual operating costs include utilities (natural gas, electricity, water, waste water, cooling water, and compressed air), solid waste from catalyst fines, and additional chemicals used. The annual maintenance costs include general maintenance of SOx control equipment, which include both labor and materials, including catalyst replacement.
Compliance Costs	In 2009, ETS Inc. and NEXIDEA Inc. provided cost estimates of SOx emission controls to the District, which was evaluated by Norton Engineering Consultants (NEC) in March 2010. The cost analysis herein is based on the cost estimates provided by these two consultants. The average annual compliance costs are estimated from $32 million to 42 million. Based on the ETS/NEXIDEA estimates, the average annual cost of the proposed amendments is estimated at $32.2 million between 2011 and 2030. The majority of the compliance cost ($28 million or 87 percent) is expected to be incurred by the petroleum product manufacturing sector where the six affected refineries belong. Of the three processes, refinery FCCU units would face the highest annual compliance cost of $17.7 million. The sectors of non-metallic mineral product (affected cement and glass plants) and the chemical manufacturing (one affected sulfur acid plant) are expected to incur lower shares of the total annual compliance cost ($3.14 and $1.03 million, respectively). NEC provided input in calculating capital and maintenance costs estimates for the individual facilities across the six source

	categories and provided cost adjustment factors where applicable. Except for one FCCU in a refinery and a glass plant, NEC's input were higher values than those from the ETS/NEXIDEA. Based on the NEC's cost estimates, the average annual cost of the proposed amendments is estimated at $42 million between 2011 and 2030. The majority of the compliance cost ($36 million or 86 percent) is expected to incur in the sector of petroleum product manufacturing where the six affected refineries belong. Refinery FCCU units would face the highest compliance cost of $18.8 million (43 percent of the total cost).
Employment Impacts	Based on the above assumptions, the compliance cost of proposed amendments provided by ETS/NEXIDEA and inputs from NEC consultants, and the application of the Regional Economic Models, Inc. (REMI) model, it is projected that an average of three to five jobs could be created annually from 2011 and 2030. Equipment installation would start in the year 2011 and through 2019. In earlier years, the positive job impact from the expenditures made by refineries, glass, cement and sulfur acid plants would more than offset the jobs forgone from the additional cost of doing business. The positive job impact would trickle down to the sectors of construction, miscellaneous professional services, retail, wholesale, and business services. However, as refineries, glass, cement, and sulfur acid plants continue to amortize their capital expenditures in earlier years, reductions in job growth would set in, resulting in fewer jobs created in later years. Despite its high compliance costs, the refinery industry is projected to have only four to five jobs forgone annually, on average.
Competitiveness	Affected sectors would experience minor increases in the relative cost of production and relative delivered price with respect to their counterparts in the rest of the U.S. Based on the ETS/NEXIDEA cost estimates, it is projected that the refinery industry would experience a rise in its relative cost of production of 0.18 percent and a rise in its delivered price of 0.12 percent in 2019. Based on the cost estimates derived based on NEC's input, it is projected that the refinery industry would experience a rise in its relative cost of production by 0.21 percent and a rise in its delivered price by 0.15 percent in 2019.
CEQA Alternatives	There are three CEQA alternatives associated with the proposed amendments. Alternative A is the No Project Alternative, which is the existing SOx RECLAIM program. Alternative B is Control Measure CMB-02 (Further SOx Reduction for RECLAIM SOx) in the 2007 AQMP which has lower emission reductions than the proposed amendments. Alternative C would exclude the sulfur

	recovery category from the proposed amendments. There is no Impact from Alternative A. Average annual compliance costs for Alternative B and Alternative C are estimated to be $3.1 and $23.4 million between 2011 and 2030, respectively. Jobs forgone for Alternatives B and Alternative C are estimated to be 29 each between 2011 and 2030, respectively.
WSPA Scenario	Western States Petroleum Association (WSPA) requested that staff analyze a scenario with three times higher costs than staff's estimates for FCCU and sulfur recovery units. The average annual cost of the proposed amendments under this scenario is estimated at $85.2 million between 2011 and 2030. The majority of the compliance cost ($81 million or 95 percent) is expected to be incurred by the petroleum product manufacturing sector where the six refineries belong. Refinery FCCU units would face the highest compliance cost of $53 million (62 percent of total cost). It is projected that an average of 207 jobs could be created annually between 2011 and 2030. In earlier years, the positive job impact from the expenditures made by refineries, glass, cement and sulfur acid plants would more than offset the jobs forgone from the additional cost of doing business. The positive job impact would trickle down to the sectors of construction miscellaneous professional services, retail, wholesale, and business services. It is projected that the refinery industry would experience a rise in its relative cost of production by 0.51 percent and a rise in its delivered price by 0.36 percent in 2019.

INTRODUCTION

The proposed amendments to Regional Clean Air Incentives Market (RECLAIM) would reduce allowable SOx emissions at 11 SOx RECLAIM facilities by reducing their RECLAIM Trading Credits (RTCs). These facilities hold 90 percent of SOx RTCs and generate 95 percent of SOx emissions. In order to ensure that their emissions not exceed the allowable RTCs, these facilities would require to install or modify SOx emission controls on the following types of equipment and processes: 1) refinery fluid catalytic cracking units (FCCU); 2) refinery sulfur recovery units (SRU), 3) sulfuric acid manufacturing processes, 4) container glass melting furnace, 5) Portland cement manufacturing, and 6) petroleum coke calciner. RTCs would be reduced by 4.5 tons and 6.14 tons per day in 2014 and 2019, respectively.

LEGISLATIVE MANDATES

The socioeconomic assessments at the South Coast Air Quality Management District (AQMD) have evolved over time to reflect the benefits and costs of regulations. The legal mandates directly related to the assessment of the proposed rules and amendments include the AQMD Governing Board resolutions and various sections of the California Health & Safety Code (H&SC).

AQMD Governing Board Resolutions

On March 17, 1989 the AQMD Governing Board adopted a resolution that calls for preparing an economic analysis of each proposed rule or amendment for the following elements:

- Affected Industries
- Range of Control Costs
- Cost Effectiveness
- Public Health Benefits

On October 14, 1994, the Board passed a resolution which directed staff to address whether the proposed rules or amendments brought to the Board for adoption are in the order of cost effectiveness as defined in the AQMP. The intent was to bring forth those rules that are cost-effective first.

Health & Safety Code Requirements

The state legislature adopted legislation that reinforces and expands the Governing Board resolutions for socioeconomic assessments. H&SC Sections 40440.8(a) and (b), which became effective on January 1, 1991, require that a socioeconomic analysis be prepared for any proposed rule or rule amendment that *"will significantly affect air quality or emissions limitations."* Specifically, the scope of the analysis should include:

- Type of Affected Industries
- Impact on Employment and the Economy of the Basin

- Range of Probable Costs, Including Those to Industries
- Emission Reduction Potential
- Necessity of Adopting, Amending or Repealing the Rule in Order to Attain State and Federal Ambient Air Quality Standards
- Availability and Cost Effectiveness of Alternatives to the Rule

For the items 1, 4, 5, and 6 above, please refer to Staff Report of Proposed Amended SOx RECLAIM. Additionally, the AQMD is required to actively consider the socioeconomic impacts of regulations and make a good faith effort to minimize adverse socioeconomic impacts. H&SC Section 40728.5, which became effective on January 1, 1992, requires the AQMD to:

- Examine Business and Small Business Impacts; and
- Consider Socioeconomic Impacts in Rule Adoption

H&SC Section 40920.6, which became effective on January 1, 1996, requires that incremental cost effectiveness be performed for a proposed rule or amendment relating to ozone, carbon monoxide (CO), oxides of sulfur (SO_x), oxides of nitrogen (NO_x), and their precursors. Incremental cost effectiveness is defined as the difference in costs divided by the difference in emission reductions between one level of control and the next more stringent control. Incremental cost effectiveness analysis is presented in the staff report prepared for the proposed amendments.

AFFECTED FACILITIES

The proposed amendments will affect 11 SOx RECLAIM facilities that have the following types of equipment or processes: 1) refinery fluid catalytic cracking units (FCCU), 2) refinery sulfur recovery units, 3) sulfuric acid manufacturing processes, 4) container glass melting furnaces, 5) Portland cement manufacturing, and 6) petroleum coke calciner. In addition, the proposed amendments may affect certain existing refinery boilers/heaters that are not meeting the current BARCT limit.

The six affected refineries belong to the sector of petroleum product manufacturing. This sector operates the refinery FCCU units, refinery sulfur recovery units, refinery boilers /heaters, one sulfuric acid plant, and coke calciner units. The affected cement and the glass plants belong to the non-metallic mineral product manufacturing sector, and one out of the two affected sulfur acid plants belong to the chemical manufacturing sector. Of these 11 facilities, 10 are located in Los Angeles County and the remaining one is located in San Bernardino County.

Small Businesses

The AQMD defines a "small business" in Rule 102 as one which employs 10 or fewer persons and which earns less than $500,000 in gross annual receipts. In addition to the AQMD's definition of a small business, the federal Small Business Administration (SBA), the federal Clean Air Act Amendments (CAAA) of 1990, and the California

Department of Health Services (DHS) also provide their own definitions of a small business.

The SBA's definition of a small business uses the criterion of gross annual receipts (ranging from $0.75 million to $35.5 million), number of employees (ranging from 50 to 1,500), megawatt hours generated (4 million), or assets ($175 million), depending on the industry type (US SBA, 2008). The SBA definitions of small businesses vary by 6-digit North American Industrial Classification System (NAICS) code. For instance, the sector of petroleum refineries (NAICS 324110) has 1,500 employees as the threshold below which a business is considered small. For the sector of non-metallic mineral products (NAICS 327310 and NAICS 327213) which includes cement and glass plants, fewer than 750 employees is the criterion below which a business is considered small.

The CAAA classifies a facility as a "small business stationary source" if it: (1) employs 100 or fewer employees, (2) does not emit more than 10 tons per year of either VOC or NOx, and (3) is a small business as defined by SBA.

None of the affected facilities are considered small businesses under any of the small business definitions discussed above. Based on the 2009 annual financial report, the total gross annual revenue of the corporations where the six affected refineries belong (ranging from $16 to $285 billion) was about $945.5 billion. The remaining affected facilities include California Portland Cement Company (CPCC), Rhodia Sulfur Acid Plant, and Owens-Brockway Glass plant. The CCCP is a subsidiary of Taiheiyo Cement Company in Japan with gross annual sales of over $4.3 billion in 2009. The Rhodia and Owens-Brockway companies reported gross annual sales of about $5.2 and $7.1 billion in 2009, respectively.

COMPLIANCE COST

The proposed amendments would require 11 SOx RECLAIM facilities to install or modify SOx emission controls on the following types of equipment and processes: : 1) refinery fluid catalytic cracking units (FCCU), 2) refinery sulfur recovery units, 3) sulfuric acid manufacturing process, 4) container glass melting furnaces, 5) Portland cement manufacturing, and 6) petroleum coke calciner.

In 2009, ETS Inc. and NEXIDEA Inc. provided cost estimates of SOx emission controls to the District, which was evaluated by Norton Engineering Consultants (NEC) in March 2010. The cost analysis herein is based on the cost estimates provided by these two consultants.

Cost Based on ETS/NEXIDEA Estimates

Under the proposed amendments, the SOx RTCs would be reduced to 7.3 tons per day by 2014, and 5.7 tons per day by 2019 from a total of 11.7 tons per day. The affected sources would reduce their emissions to meet the proposed allowable SOx RTCs. Based on the required construction time (Table 1) and cost-effectiveness of control equipment (Table 2), a construction schedule (Table 2) was developed to ensure the projected

emission reductions in 2014 and 2019 would be achieved. It was assumed that the most cost-effective SOx control equipment would be installed or modified first.

Table 1
Construction Time by Source Category and Control Equipment

Source Category	Control Equipment	Required Time
FCCU	Wet Gas Scrubber	3 years
SRU	Wet Gas Scrubber	3 years
Coke Calciner	Wet Gas Scrubber	2 years
Sulfuric Acid	Wet Gas Scrubber	2 years
SRU	Emerachem ESx	2 years
Cement	Dry Gas Scrubbers	2 years
Sulfuric Acid	Cansolv Upgrade	1 year
Glass	Wet Gas Scrubbers	1 year

As shown in Table 2, more expensive controls would not be installed until 2016 to 2019. Based on this schedule and facility-specific estimates, the average annualized cost of the proposed amendments is estimated to be $32.2 million between 2011 to 2030. The refinery FCCU units are estimated to have the highest average annual compliance cost of $17.6 million (55 percent) among all the affected source categories. Table 3 presents the estimated average annual cost of the proposed amendments by equipment

Table 2
Distribution of Control Equipment by Equipment Category and by Cost-Effectiveness (2011-2019)

Equipment Category	2011-12		2013		2014		2015		2016		2017		2018		2019	
	# of Eq	C-E $	# of Eq	C-E $	# of Eq	C-E $	# of Eq	C-E $	# of Eq	C-E $	# of Eq	C-E $	# of Eq	C-E $	# of Eq	C-E $
Refinery FCCU Units					1	12,849	1	14,437			1	36,636			1	42,103
Refinery SRU Units					1	12,880			1	36,359			1	39,000		
Cement Plant[1]			1	19,300												
Glass Plants			1	5,198												
Sulfur Acid Plants	1	1,896	1	5,556												
Coke Calciner			1	9,902												
Total	**1**		**4**		**2**		**1**		**1**		**1**		**1**		**1**	

[1]In late 2009, CPCC announced the shutdown of two cement kilns, which may or may not be permanent, depending on the state of the economy. Table 2 assumes that CPCC would either sell its unused RTCs in 2013 or install control equipment to achieve emission reductions.

Table 3
Average Annual Cost Based on ETS/NEXIDEA Estimates
by Equipment Category
(millions of 2010 dollars)

Equipment Category	2011	2014	2019	2030	Average Annual (2011-2030)
Refinery FCCU Units	$1.93	$11.95	$21.29	$21.29	$17.65
Refinery Sulfur Recovery Units	$0.00	$3.30	$11.30	$11.30	$8.83
Coke Calciner	$0.43	$1.59	$1.59	$1.59	$1.49
Sulfur Acid Plant at Refinery	$0.03	$0.10	$0.10	$0.10	$0.10
Cement Plant	$0.61	$2.81	$2.81	$2.81	$2.62
Glass Plant	$0.00	$0.57	$0.57	$0.57	$0.52
Sulfur Acid Plant	$0.21	$1.11	$1.11	$1.11	$1.03
Total	**$3.21**	**$21.43**	**$38.77**	**$38.77**	**$32.24**

The majority of the compliance cost ($28.07 million or 87 percent) is expected to occur in the petroleum product manufacturing sector where the six affected refineries belong. The refinery FCCU units, refinery sulfur recovery units, coke calciner units, and one of the sulfuric acid plants operate in this sector. The non-metallic mineral product manufacturing sector operates cement and the glass plants. The other affected sulfur acid plant belongs to the chemical manufacturing sector.

Based on the 2009 annual financial report, the total gross annual revenue of the corporations where the six affected refineries belong was about $945.5 billion. Based on this estimate, the refineries total annualized cost ($28 million) represents approximately 0.003 percent of their estimated corporate gross annual sales.

According to the 2009 California State Board of Equalization, the total gasoline sales in California was 14.8 billion gallons, of which the South Coast's share is estimated to be 46 percent. The compliance cost of the proposed amendments, if fully passed on to gasoline consumers, would result in a gasoline price increase of 0.5 cents per gallon in the four-county area.

The detailed compliance cost assumptions for each source category based on consultant's (ETS/NEXIDEA) information on each facility are discussed below.

Refinery FCCUs

The FCCUs are classified as major sources of SOx emissions in RECLAIM, and, as such, the emissions from FCCUs are required to be monitored with continuous emission monitoring system, and reported on a daily basis electronically to the District. There are six refineries that operate six fluid catalytic cracking units (FCCU) in the District. Currently, these refineries are processing low sulfur feed stocks with feed hydro-treating. The proposed amendments would require a BARCT level of 5 ppmv for SOx emissions at these six affected refineries. It is assumed that installation of WGSs could achieve a level of limit of 5 ppmv at these refineries. Out of these six refineries, one has installed a WGS to reduce SOx and PM and is thus already in compliance with the proposed

BARCT limit. As a result, no additional cost was attributed to this facility. Another refinery has heavily treated its FCCU feed to the low 10 ppmv level; therefore, installing a WGS to get to a level of 5 ppmv is not cost-effective. This company may seek additional reductions from other source categories that are affected by the proposed amendments. Therefore, no additional cost was ascribed to this refinery.

The four remaining refineries are assumed to install one WGS each to achieve the proposed SOx emission limit. The total compliance cost of the proposed amendments for refinery FCCUs includes one-time cost and recurring cost. The one-time cost includes the capital cost of WGSs and their installations (demolition, concrete, structural, piping, electrical, contractors, contingencies), and major maintenance services at five-year interval. The analysis herein does not include the equipment salvage values mainly due to the fact that these values will not be realized until after the end of the useful life of the equipment (25 years), which is outside of the model simulation period.[2] The annual costs are additional operating and maintenance costs of those new WGSs.

The capital costs of four new WGSs range from $19.06 million to $39.47 million depending on the characteristics of each refinery. Installation costs of these WGSs range from 27.50 to $51 million. Assuming a 25-year life for equipment and installation, and a real interest rate of four percent, the total one-time annualized cost of compliance for the refinery FCCUs is estimated at $17.06 million. The annualized cost of major maintenance, occurring once every five years, is assumed to be $0.25 million for each refinery.

The annual operating costs include utilities (natural gas, electricity, water, waste water, cooling water, and compressed air), solid waste from catalyst fines, and caustic used. Costs of utilities range from $0.61 to $0.96 million, and the solid waste disposal cost is estimated to be from $0.01 to $0.06 million. The additional caustic usage is estimated at $0.04 to $0.18 million among the four affected refineries. In addition, the total annual maintenance cost at the four refineries is estimated to be $0.62 million. The total recurring cost of compliance for the refinery FCCUs is estimated at $4.24 million.

The total annualized cost of compliance, including capital, operating, and maintenance, is estimated to be $21.3 million.

Refinery Sulfur Recovery Units

Refineries use a sulfur recovery system to maximize sulfur removal from the crude oil. WGSs and EmeraChem Power LLC (selective oxidation catalyst) are assumed as main control strategies to further reduce SO2 emissions from all the sulfur recovery/tail gas treatment (SRU/TG) units at refineries. WGSs are used to control both SOx and particulate emissions and can be installed on sulfur recovery units/tail gas units. EmeraChem ESx catalyst can capture multiple sulfur species, including SO_2, SO_3, and H_2S. In addition to sulfur capture, the catalyst will destroy CO, VOC, and Particulate

[2] The consultants accounted for salvage values of the control equipment and deducted these values upfront from the values of the control equipment.

matter (PM_{10}). It is assumed that two out of the three affected refineries would install three WGSs and the remaining refinery would install an EmeraChem ESx catalyst.

The total compliance cost of the proposed amendments for refinery SRU/TG units includes one-time cost and recurring cost. The one-time cost includes the capital cost of WGSs and EmeraChem ESx catalyst, and their installations (demolition, concrete, structural, piping electrical, contractors, contingencies), and major maintenance services at the five-year interval. The annual costs are additional operating and maintenance costs of those new WGSs and EmeraChem ESx catalyst.

It is assumed that the refineries would install three WGSs and one EmeraChem ESx catalyst on their three affected SRU units. One refinery is expected to install two WGSs. The capital cost of two new WGSs at one refinery is estimated to be $23.2million. The capital cost of one new WGS for the other refinery is estimated to be $14.63 million. The installation cost of those scrubbers is estimated to be $28.10 and 23.18 million, respectively. The capital and installation cost of one EmeraChem ESx catalyst for the third affected refinery is estimated to be $5.14 and $7.53 million, respectively. Assuming a 25-year life for equipment and installation, and a real interest rate of four percent, the total one-time annualized cost of compliance for the refinery SRU units is estimated at $6.66 million. The annualized cost of major maintenance, occurring once every five years, is estimated to be $0.17 to $0.32 million among the affected refineries.

The annual operating costs include utilities (natural gas, electricity, water, waste water, cooling water, and compressed air), solid waste disposal, and soda ash or sorbent used. The cost of utilities is estimated to be $1.36 and $2.84 million for the two new scrubbers, and $0.18 million for the EmeraChem catalyst. The solid waste disposal cost is estimated at $0.03 to $0.05 for the two new scrubbers. The soda ash or sorbent used by these affected refineries is estimated to be $0.02 million. In addition, the total annual maintenance cost of the three refineries is estimated at $0.14 million. The total recurring cost of compliance for the refinery SRUs is estimated at $4.54 million.

The total annualized cost of compliance, including capital, operating, and maintenance is estimated to be $11.20 million.

Sulfuric Acid Plants

Sulfuric acid is a chemical product that is used in manufacturing phosphate and nitrogen fertilizers, detergents, paper, and rust removers. It is also used extensively in automobile manufacturing, metal smelting, water treatment and oil refining processes. There are two facilities in the Basin that manufacture sulfuric acid. It is assumed that one of the two sulfuric acid manufacturing facilities would install a WGS and the other would install a Cansolv upgrade to comply with the proposed amendments.

The total compliance cost of the proposed amendments for sulfuric acid plants includes one-time cost and recurring cost. The one-time cost includes the capital cost of a WGS and capital cost of a Cansolv upgrade, and one-time cost of their installations (demolition, concrete, structural, piping, electrical, contractors, and contingencies). The

annual costs are additional operating and maintenance costs of a new WGS and a Cansolv upgrade.

The capital cost of a new WGS and a Cansolv upgrade is estimated to be $2.4, and $0.35 million, respectively. The installation cost of a new WGS and Cansolv upgrade is estimated to be $3.69 and $0.15 million, respectively. Assuming a 25-year life for equipment and installation, and a real interest rate of four percent, the total one-time annualized cost of compliance for the sulfur acid plants is estimated to be 0.43 million.

The annual operating costs include utilities (electric power, makeup water, makeup caustic, steam usage, waste water treatment), and caustic used. The cost of utilities is estimated to be $0.29 and $0.07 million, for the WGS and Cansolv upgrade, respectively. The caustic usage would cost $0.15 million. In addition, the total annual maintenance cost at the two sulfuric acid plants is estimated to be $0.24 million. The total recurring cost of compliance for the two sulfuric acid plants is estimated at $0.75 million.

The total annualized cost of compliance, including capital, operating, and maintenance is estimated to be $1.18 million.

Glass Plants

SOx emissions from a container glass melting furnace are typically controlled by a dry scrubber followed by a dry electrostatic precipitator (ESP) to control particulates. Two glass melting facilities are in the SOx RECLAIM program, but only one of these facilities is currently operating. It is assumed that the glass melting facility would use two WGSs to further control SOx emissions.

The total compliance cost of the proposed amendments for the one affected glass plant includes one-time cost and recurring cost. The one-time cost includes the capital cost of the two new WGSs and their installations (demolition, concrete, structural, piping, electrical, contractors, contingencies), and major maintenance services at the five-year interval. The annual costs are additional operating and maintenance costs of those new scrubbers.

The capital cost of the two new WGSs is estimated to be $0.93 million. The installation cost of those WGSs is estimated to be $0.96 million. Assuming a 25-year life for equipment and installation, and a real interest rate of four percent, the total one-time annualized cost of compliance for the glass plant is estimated at $0.13 million. The annualized cost of major maintenance, occurring once every five years, is assumed to be $0.01 million.

The annual operating costs include utilities (natural gas, electricity, water, waste water, cooling water, compressed air, solid waste disposal), and caustic used. The cost of utilities is estimated to be $0.18 million, and caustic would cost $0.11 million. The total recurring cost for the one affected glass plant is estimated to be $0.29 million. In addition, the total annual maintenance costs is estimated to be 0.14 million. The total recurring cost of compliance for the affected glass plant is estimated at $0.43 million.

The total annualized cost of compliance, including capital, operating, and maintenance is estimated to be $0.56 million.

Cement Kilns

SOx emissions from cement kilns and coal-fired boilers are generated from combustion of sulfur in the fuel and oxidation of sulfides (e.g., pyrites) in the raw materials when entering the cement kiln. Fuel switching, process alteration, dry and wet scrubbers are commercially available control technologies for reducing SOx emissions. It is assumed that the operator of the cement plant would install two dry gas scrubbers to further control SOx emissions.

The total compliance cost of the proposed amendments for the one affected cement plant includes one-time cost and recurring cost. The one-time cost includes the capital cost of the two DGSs and their installations (demolition, concrete, structural, piping, electrical, contractors, contingencies), and major maintenance services at the five-year interval. The annual costs are additional operating and maintenance costs of those new scrubbers.

The capital cost of the two new DGSs is estimated to be $13.72 million. The installation cost of those DGSs is estimated to be $5.91 million. Assuming a 25-year life for equipment and installation, and a real interest rate of four percent, the total one-time annualized cost of compliance for the cement plant is estimated at $1.72 million. The annualized cost of major maintenance, occurring once every five years, is assumed to be $0.5 million.

The annual operating costs include of utilities (natural gas, electricity, water, waste water, cooling water, compressed air), solid waste disposal, and limestone used. The cost of utilities is estimated to be $1.15 million, and the limestone usage would cost $0.06 million. In addition, the total annual maintenance cost is estimated to be $0.32 million. The total recurring cost of compliance for the affected cement plant is estimated at $1.53 million.

The total annualized cost of compliance, including capital, operating, and maintenance is estimated to be $3.25 million.

Coke Calciners

Petroleum coke, the heaviest portion of crude oil, cannot be recovered in the normal oil refinining process. Instead, it is processed in a delayed coker unit to generate a carbonaceous solid referred to as “green coke.” Green coke with low metals content can be sent to a calciner to make calcined petroleum coke. Calcined petroleum coke can be used to make anodes for the aluminum, steel, and titanium smelting industry.

There is only one petroleum coke calciner in the District and the SOx emissions from the unit are controlled by a dry scrubber. It is assumed that operators of the petroleum coke calcining facility would install a WGS to further control SOx emissions in order to comply with the proposed requirements.

The total compliance cost of the proposed amendments for the one affected coke calciner plant includes one-time cost and recurring cost. The one-time cost includes the capital cost of a WGS and its installations (demolition, concrete, structural, piping, electrical, contractors, and contingencies). The recurring costs are additional operating and maintenance costs of the new scrubber.

The capital cost of a new WGS is estimated to be $5.54 million. The installation cost of a new WGS is estimated to be $7.75 million. Assuming a 25-year life for equipment and installation, and a real interest rate of four percent, the total one-time annualized cost of compliance for the coke calciner plant is estimated at $0.85 million.

The annual operating costs include utilities (natural gas, electricity, water, waste water), and caustic usage. The cost of utilities is estimated to be $0.39 million, and the caustic usage would cost $0.1 million. In addition, the total maintenance cost is estimated to be $0.24 million. The total recurring cost of compliance for the affected coke calciner plant is estimated at $ 0.73 million.

The total annualized cost of compliance, including capital, operating, and maintenance is estimated to be $1.58 million.

Refinery Boilers and Heaters

Some of the existing boilers/heaters at the refineries currently meet the proposed BARCT limit of 40 ppmv, and as such do not need to install additional SOx control equipment. The affected sources in this category may elect to install SOx control equipment as an opportunity to further reduce emissions which are not due to new BARCT. Staff did not develop cost estimates for this category.

Cost Based on Input from NEC

NEC provided capital and maintenance costs estimates for each individual facility across the six source categories. Except for one FCCU in a refinery and a glass plant, NEC's estimates were higher values than those from the ETS/NEXIDEA. Table 4 presents cost adjustment factors by equipment by facility relative to the ETS/NEXIDEA cost estimates.

Table 4
Cost Adjustment Factors
by Equipment Category

Equipment Category	Costs Adjustment Ratio
FCCU (Refinery One)	1.06
FCCU (Refinery Three)	1.21
FCCU (Refinery Four)	1.07
FCCU (Refinery Six)	0.99
SRU (Refinery Two)	1.27
SRU (Refinery Three)	4.29
SRU (Refinery Six)	1.14
Glass (Glass Plant)	1.00
Cement Plant	1.42
Sulfuric Acid Plant (at the Refinery)	1.63
Sulfuric Acid Plant	1.72
Coke Calciner Plant	2.38

Table 5 shows the average annual cost of the proposed amendments by equipment. The total average annual cost of the proposed amendments is estimated at $42 million between 2011 and 2030. The majority of the compliance cost ($36 million or 86 percent) is expected to incur in the sector of petroleum product manufacturing where the six affected refineries belong. Refinery FCCU units would face the highest compliance cost of $18.8 million (43 percent of the total cost).

Table 5
Average Annual Cost Based on NEC's input
by Equipment Category (millions of 2010 dollars)

Equipment Category	2011	2014	2019	2030	Average Annual (2011-2030)
Refinery FCCU Units	$1.92	$12.37	$22.80	$22.80	$18.80
Refinery Sulfur Recovery Units	$0.00	$7.30	$16.94	$16.94	$13.64
Coke Calciner	$1.01	$3.77	$3.77	$3.77	$3.54
Sulfur Acid Plant (at Refinery)	$0.05	$0.17	$0.17	$0.17	$0.16
Cement Plant	$0.87	$4.00	$4.00	$4.00	$3.73
Glass Plant	$0.00	$0.57	$0.57	$0.57	$0.52
Sulfur Acid Plant	$0.36	$1.90	$1.90	$1.90	$1.77
Total	**$4.21**	**$30.08**	**$50.15**	**$50.15**	**$42.16**

EMPLOYMENT AND REGIONAL ECONOMIC IMPACTS

The REMI model (Policy Insight version V.1.1.6) is used to assess the total socioeconomic impacts of a policy change. The model links the economic activities in

the counties of Los Angeles, Orange, Riverside, and San Bernardino. The REMI model for each county is comprised of a five block structure that includes (1) output and demand, (2) labor and capital, (3) population and labor force, (4) wages, prices and costs, and (5) market shares. These five blocks are interrelated. Within each county, producers are made up of 66 private non-farm industries, three government sectors, and a farm sector. Trade flows are captured between sectors and borders as well as across counties and the rest of U.S. Market shares of industries are dependent upon their product prices, access to production inputs, and local infrastructure. The demographic/migration component has 160 ages/gender/race/ethnicity cohorts and captures population changes in births, deaths, and migration.

The assessment herein is performed relative to a baseline without the proposed amendments. Direct effects of the policy change (proposed amendments and CEQA alternatives) have to be estimated and used as inputs to the REMI model in order for the model to assess secondary and induced impacts for all the actors in the four-county economy on an annual basis and across a user-defined horizon (2011-2030). Direct effects of the proposed amendments and CEQA alternatives include additional costs of the proposed requirements to the affected industries and additional goods and services provided by local vendors at the county (or finer) level and by industry. Indirect effects are changes in inter-industry transactions as local suppliers (e.g., construction and miscellaneous professional services) respond to increased demands from directly affected industries (refineries, sulfur acid plans, cement kilns, glass plants). Induced effects reflect changes in local spending that result from personal income changes due to direct and indirect effects.

Refineries, sulfur acid plants, glass plants, and cement plants will face an additional cost of doing business from purchasing new WGSs, DGS, EmeraChem ESx catalyst, and Cansolv upgrade. All the equipment is produced outside of the District and the local economy would thus only benefit from the additional spending on demolition, installation, and operating and maintenance of the new SOx control equipment. The major beneficiaries are the sectors of construction (NAICS 23), miscellaneous professional services (NAICS 54), and utilities (NAICS 22).

Additional costs of doing business to the affected facilities include the annualized capital cost and annual operating and maintenance costs of WGSs, DGSs, EmeraChem ESx catalyst, and Cansolv upgrade. Expenditures on labor are treated as a reduction in labor productivity because more labor will now be required to produce the same amount of output in an industry affected by the proposed amendments.

Employment Impact Based on ETS/NEXIDEA Cost Estimates

The total employment impact of the proposed amendments across industries in key years is shown in Table 6. It is projected that an average of five jobs could be created annually from 2011 to 2030 in the local economy. The minor jobs forgone would fall within the noise of the REMI Model.

Equipment installation to ensure compliance with the proposed amendments is assumed to start in the year 2011 and continue through 2019. In earlier years, the positive job

impact from the expenditures made by refineries, glass, cement and sulfur acid plants would more than offset the jobs forgone from the additional cost of doing business (Table 6). In 2011, 495 additional jobs could be created in the overall economy. The positive job impact would trickle down to the sectors of construction, miscellaneous professional services, retail, wholesale, and business services. However, as refineries, glass, cement, and sulfur acid plants continue to amortize their capital expenditures in earlier years, reductions in job growth would set in, resulting in jobs forgone in later years. Please refer to Appendix A for more details.

The three affected industries where refineries, glass, cement, and sulfur acid plants belong are projected to have one to 11 jobs forgone per year, on average, from 2011 to 2030. Despite having a large share of the total compliance cost, the refinery industry is projected to have fewer jobs forgone relative to other industries with similar magnitude of cost impact due to the fact that the industry is the most capital-intensive. As such, fewer labor would be required to produce the same amount of products or services.

The reduction in disposable income from the overall jobs forgone dampens the demand for goods and services in the local economy, thus resulting in jobs forgone in other sectors such as the rest of manufacturing, retail trade, wholesale, and accommodation and food services.

Table 6
Job Impacts of ETS/NEXIDEA cost Estimates by Industry by Year

Industry	NAICS	Year				Average Annual (2011-2030)
		2011	2014	2019	2030	
Oil and gas extraction	211	0	-1	-5	-5	-4
Utilities	22	1	3	8	6	6
Construction	23	228	251	-30	-13	75
Nonmetallic mineral product mfg.	327	2	-5	-14	-15	-11
Fabricated metal product mfg.	332	5	4	-2	-1	0
Petroleum and coal product mfg.	324	0	-2	-5	-5	-4
Chemical mfg.	325	1	0	-2	-2	-1
Rest of Manufacturing	31-33	10	3	-12	-5	-4
Wholesale trade	42	12	6	-13	-8	-4
Retail trade	44-45	34	19	-35	-27	-12
Truck transportation and couriers	484,492	5	3	-6	-5	-2
Monetary authorities	521,522,525	8	4	-7	-3	-2
Securities, and commodity contracts	523	7	3	-7	-2	-1
Insurance carriers and related activities	524	3	1	-3	-2	-1
Real estate	531	11	5	-15	-13	-7
Professional and technical services	54	31	34	-14	-13	3
Management of companies and enterprises	55	2	1	-4	-2	-2
Administrative and support services	561	24	19	-19	-14	-4
Waste management and remediation services	562	1	1	0	1	1
Educational services	61	4	5	-3	-5	-1
Ambulatory health care services	621	19	10	-16	-7	-3
Hospitals	622	3	4	-1	-3	0
Nursing and residential care facilities	623	2	3	-1	-3	0
Social assistance	624	4	5	-1	-5	0
Performing arts and spectator sports	711	2	0	-3	-1	-1
Amusement, gambling, and recreation	713	2	2	-1	-3	0
Accommodation	721	2	1	-2	-1	-1
Food services and drinking places	722	11	12	-5	-10	-1
Repair and maintenance	811	5	4	-3	-3	-1
Personal and laundry services	812	7	3	-7	-2	-1
Membership associations and organization	813	3	3	-2	-3	-1
Private households	814	7	3	-5	-2	-1
Other Industries		8	4	-10	-6	-3
Government		33	27	-23	-26	-6
Total		**495**	**435**	**-270**	**-205**	**5**

The job impacts include all the companies (affected and unaffected by the proposed amendments) in the respective industries.

Employment Impact Based on NEC Input

The total employment impact of the proposed amendments across industries in key years is shown in Table 7. It is projected that an average of three jobs could be created annually from 2011 to 2030 in the local economy.

Compliance with the proposed amendments is assumed to start in the year 2011 and continue through 2019. In earlier years, the positive job impact from the expenditures

made by refineries, glass, cement and sulfur acid plants would more than offset the jobs forgone from the additional cost of doing business (Table 7). In 2011, 644 additional jobs could be created in the overall economy. The positive job impact would trickle down to the sectors of construction, miscellaneous professional services, retail, wholesale, and business services. However, as refineries, glass, cement, and sulfur acid plants continue to amortize their capital expenditures in earlier years, reductions in job growth would set in, resulting in fewer jobs created in later years.

The three affected industries where refineries, glass, cement, and sulfur acid plants belong are projected to have two to 15 jobs forgone per year from 2011 to 2030. Despite having a large share of the total compliance cost, the refinery industry would have fewer jobs forgone relative to other industries with similar magnitude of cost impact due to the fact that the industry is the most capital-intensive. As such, fewer labor would be required to produce the same amount of products or services.

Table 7
Job Impacts from NEC Input by Industry by Year

Industry	NAICS	Year				Average Annual (2011-2030)
		2011	2014	2019	2030	
Oil and gas extraction	211	0	-2	-6	-6	-5
Utilities	22	1	5	9	8	7
Construction	23	298	287	-33	-14	90
Nonmetallic mineral product mfg.	327	2	-7	-19	-21	-15
Fabricated metal product mfg.	332	7	4	-3	-1	0
Petroleum and coal product mfg.	324	0	-3	-6	-6	-5
Chemical mfg.	325	1	0	-3	-3	-2
Rest of Manufacturing	31-33	13	3	-15	-7	-5
Wholesale trade	42	16	6	-16	-10	-6
Retail trade	44-45	44	20	-43	-34	-16
Truck transportation and couriers	484,492	7	4	-7	-6	-3
Monetary authorities	521,522,525	10	4	-9	-4	-2
Securities, and commodity contracts	523	9	4	-9	-2	-2
Insurance carriers and related activities	524	4	1	-4	-2	-1
Real estate	531	14	5	-19	-17	-9
Professional and technical services	54	40	48	-9	-9	11
Management of companies and enterprises	55	3	1	-5	-3	-2
Administrative and support services	561	32	22	-22	-16	-4
Waste management and remediation services	562	1	1	1	1	1
Educational services	61	6	5	-3	-6	-1
Ambulatory health care services	621	24	12	-20	-9	-4
Hospitals	622	4	4	-1	-4	0
Nursing and residential care facilities	623	3	3	-1	-3	0
Social assistance	624	5	6	-2	-6	-1
Performing arts and spectator sports	711	2	0	-3	-1	-1
Amusement, gambling, and recreation	713	3	3	-2	-4	-1
Accommodation	721	2	1	-2	-2	-1
Food services and drinking places	722	15	14	-6	-13	-1
Repair and maintenance	811	6	5	-4	-4	-1
Personal and laundry services	812	9	4	-8	-3	-2
Membership associations and organization	813	4	3	-2	-4	-1
Private households	814	8	4	-6	-3	-1
Other Industries		11	5	-13	-7	-4
Government		43	31	-28	-32	-9
Total		**644**	**502**	**-318**	**-251**	**3**

The job impacts include all the companies (affected and unaffected by the proposed amendments) in the respective industries.

Competitiveness Based on ETS/NEXIDEA Cost Estimates

The additional cost brought on by the proposed amendments would increase the cost of production of the affected industries relative to their national counterparts. Changes in relative production costs would thus be a good indicator of changes in relative competitiveness. The magnitude of the impact depends on the size and diversification of, and infrastructure in a local economy as well as interactions among industries. A large,

diversified, and resourceful economy would absorb the impact with relative ease. Implementation of the proposed amendments would increase the cost of doing business for affected industries.

An index of 0 indicates that there is no change in the cost of production relative to the rest of the United States. An index of above or below 0 means that the cost of production in the four-county areas resulting from the proposed amendments is higher or lower, respectively, than that in the rest of the United States.

Table 8 shows the impact of the proposed amendments on the cost of production by the affected industries and for selected years. The sector of petroleum and coal product manufacturing would experience the largest increase in the relative cost of production (e.g., 0.09 percent in 2014). In 2019, the relative cost of production in this sector would increase to 0.18 percent.

Changes in production costs will affect prices of goods produced locally. The relative delivered price of a good is based on its production cost and the transportation cost of delivering the good to where it is consumed or used. The average price of a good at the place of use reflects prices of the good produced locally and imported elsewhere.

Based on the measurement of relative delivered prices in the REMI model, the proposed amended rule is projected to result in higher delivered prices. These impacts are similar to those on the relative cost of production. For example, the sector of petroleum and coal product manufacturing would experience an increase in relative delivered prices of 0.12 percent in 2019 (Table 8), while other industries will experience minimal increases in relative delivered prices after 2014.

Table 8
Impacts on Relative Cost of Production and Delivered Prices Based on ETS/NEXIDEA Estimates (Relative to the U.S.)

Industry	Relative Cost of Production			Relative Delivered Price		
	2014	2019	2030	2014	2019	2030
Utilities	0.002%	0.002%	0.000%	0.002%	0.001%	0.000%
Construction	0.003%	0.002%	0.001%	0.003%	0.002%	0.001%
Petroleum and Coal Product Manufacturing	0.090%	0.178%	0.166%	0.063%	0.124%	0.114%
Non-Metallic Mineral Product Manufacturing	0.074%	0.068%	0.055%	0.039%	0.036%	0.029%
Chemical Manufacturing	0.006%	0.005%	0.004%	0.004%	0.003%	0.002%

Competitiveness Based on NEC Input

Table 9 shows the impact of the proposed amendments on the cost of production by the affected industries and for selected years. The sector of petroleum and coal product manufacturing would experience the largest increase in the relative cost of production (e.g., 0.11 percent in 2014). In 2019, the relative cost of production in this sector would increase to 0.21 percent.

Based on the measurement of relative delivered prices in the REMI model, the proposed amended rule is projected to result in higher delivered prices. These impacts are similar to those on the relative cost of production. For example, the petroleum and coal product manufacturing sector would experience an increase (0.15 percent) in relative delivered prices in 2019 (Table 9), while other industries will experience minimal increase in relative delivered prices.

Table 9
Impacts of Relative Cost of Production and Delivered Prices Based on NEC's Input (Relative to the U.S.)

Industry	Relative Cost of Production			Relative Delivered Price		
	2014	2019	2030	2014	2019	2030
Utilities	0.003%	0.002%	0.000%	0.003%	0.002%	0.000%
Construction	0.003%	0.002%	0.002%	0.003%	0.002%	0.002%
Petroleum and Coal Product Manufacturing	0.113%	0.214%	0.197%	0.079%	0.149%	0.136%
Non-Metallic Mineral Product Manufacturing	0.100%	0.093%	0.074%	0.052%	0.048%	0.039%
Chemical Manufacturing	0.010%	0.009%	0.007%	0.006%	0.005%	0.004%

CEQA ALTERNATIVES

Staff has identified three alternatives to the proposed amendments, as outlined in the Environmental Assessment prepared pursuant to the California Environmental Quality Act (CEQA). Alternative A, the No Project Alternative, is the existing SOx RECLAIM program. Alternative B is Control Measure CMB-02 (Further SOx Reduction for RECLAIM SOx) in the 2007 AQMP. This alternative seeks SOx emission reductions from the top three most cost-effective controls on equipment/source categories, i.e., sulfuric acid manufacturing, coke calciner, and glass melting furnaces. Alternative C would impose the same SOx limits on fewer equipment/source categories when compared to the proposed project. Specifically, this alternative would exclude the sulfur recovery category.

Table 10 presents a comparison of the alternatives in terms of annual average cost and jobs forgone. Alternative A serves as a benchmark against which other alternatives were evaluated. Of the three remaining alternatives, the proposed project has the highest cost and the lowest jobs impact. Alternative B has the lowest cost ($3.14 million) because fewest source categories would be regulated. This alternative would result in an average of 29 jobs forgone annually. This alternative excludes controls on FCCU and SRU units at refineries and hence would exclude potential jobs that could have been created due to additional expenditure on these controls. Alternative C ($23.40 million) would cost less than the proposed amendments and yet has the same jobs forgone annually as the Alternative B. Both Alternatives B and C would have more jobs forgone than the proposed amendments.

Table 10
Average Annual Impacts of CEQA Alternatives

Alternative	Cost (in millions)	Job Impact
Proposed Amendments*	$32.24	+5
Alternative A	0	0
Alternative B	$3.14	-29
Alternative C	$23.40	-29

*Based on ETS/NEXIDEA Cost Estimates

RULE ADOPTION RELATIVE TO THE COST-EFFECTIVENESS

On October 14, 1994, the Governing Board adopted a resolution that requires staff to address whether rules being proposed for adoption are considered in the order of cost-effectiveness. The 2007 Air Quality Management Plan (AQMP) ranked, in the order of cost-effectiveness, all of the proposed control measures for which costs were quantified. It is generally recommended that the most cost-effective actions be taken first.

The proposed amendments are part of Control Measure CMB-02 (Further SOx Reduction for RECLAIM SOx). It was indicated in the 2007 AQMP that implementation of this control measure would require consideration of facility modernization, as described under Control Measure MCS-01 (Facility Modernization).

Control Measure CMB-02 was ranked 8th with cost-effectiveness from $10,100 to $16,000 per ton of SOx reduced, and Control Measure MSC-01 was ranked 9th with cost-effectiveness of $19,000 per ton of PM2.5 reduced. Cost-effectiveness of the proposed amendments is estimated at $16,000 to $19,000 per ton of SOx (equivalent to $10,700 to $12,700 per ton of PM2.5) reduced and is within the ranking order of cost-effectiveness in the 2007 AQMP.

IMPACTS OF WSPA SCENARIO

Western States Petroleum Association (WSPA) requested an analysis of its scenario, which includes additional costs of compliance in the FCCU and sulfur recovery units (SRU). Based on the WSPA estimates, the compliance costs of WGSs for FCCU and SRU units are three times higher than what the ETS, Inc. and NEXIDEA Inc. had provided to the District staff. The costs of the proposed amendments for other categories of equipment are unchanged.

Cost Impact

Table 11 presents the estimated average annual cost of the proposed amendments by equipment. Under the WSPA scenario, the average annual cost of the proposed amendments is estimated at $85.2 million between 2011 and 2030. The majority of the compliance cost ($81 million or 95 percent) is expected to incur in the sector of

petroleum product manufacturing where the six affected refineries belong. Refinery FCCU units would face the highest compliance cost of $52.9 million (62 percent of the total cost).

Table 11
Average Annual Cost of WSPA Scenario
by Equipment Category (millions of 2010 dollars)

Equipment Category	2011	2014	2019	2030	Average Annual (2011-2030)
Refinery FCCU Units	$5.79	$35.86	$63.89	$63.89	$52.94
Refinery Sulfur Recovery Units	$0.00	$9.92	$33.91	$33.91	$26.49
Coke Calciner	$0.43	$1.59	$1.59	$1.59	$1.49
Sulfur Acid Plant (at Refinery)	$0.03	$0.10	$0.10	$0.10	$0.10
Cement Plant	$0.61	$2.81	$2.81	$2.81	$2.62
Glass Plant	$0.00	$0.57	$0.57	$0.57	$0.52
Sulfur Acid Plant	$0.21	$1.11	$1.11	$1.11	$1.03
Total	**$7.07**	**$51.96**	**$103.98**	**$103.98**	**$85.19**

Employment Impact

The total employment impact of the proposed amendments across industries in key years is shown in Table 12. It is projected that an average of 207 jobs could be created annually from 2011 to 2030 in the local economy.

Compliance with the proposed amendments is assumed to start in the year 2011 and continue through 2019. In earlier years, the positive job impact from the expenditures made by refineries, glass, cement and sulfur acid plants would more than offset the jobs forgone from the additional cost of doing business (Table 12). In 2011, 1,160 additional jobs could be created in the overall economy. The positive job impact would trickle down to the sectors of construction, miscellaneous professional services, retail, wholesale, and business services. However, as refineries, glass, cement, and sulfur acid plants continue to amortize their capital expenditures in earlier years, reductions in job growth would set in, resulting in fewer jobs created in later years.

The three affected industries where refineries, glass, cement, and sulfur acid plants belong are projected to have one to 11 jobs forgone per year from 2011 to 2030. Despite having a large share of the total compliance cost, the refinery industry would have fewer jobs forgone relative to other industries with similar magnitude of cost impact due to the fact that the industry is the most capital-intensive. As such, fewer labor would be required to produce the same amount of products or services.

The reduction in disposable income from the overall jobs forgone dampens the demand for goods and services in the local economy, thus resulting in jobs forgone in other sectors such as the rest of manufacturing, retail trade, wholesale, and accommodation and food services.

Table 12
Job Impacts of WSPA by Industry by Year

Industry	NAICS	Year				Average Annual (2011-2030)
		2011	2014	2019	2030	
Oil and gas extraction	211	0	-4	-15	-13	-11
Utilities	22	1	6	19	16	14
Construction	23	528	770	-66	-27	226
Nonmetallic mineral product mfg.	327	4	0	-15	-16	-10
Fabricated metal product mfg.	332	12	14	-5	-2	3
Petroleum and coal product mfg.	324	0	-4	-13	-13	-11
Chemical mfg.	325	2	2	-3	-2	-1
Rest of Manufacturing	31-33	24	18	-25	-7	-3
Wholesale trade	42	29	26	-30	-15	-6
Retail trade	44-45	81	82	-77	-54	-15
Truck transportation and couriers	484,492	12	14	-12	-9	-2
Monetary authorities	521,522,525	18	16	-16	-5	-1
Securities, and commodity contracts	523	16	14	-18	-3	-1
Insurance carriers and related activities	524	6	5	-8	-3	-1
Real estate	531	26	27	-26	-19	-5
Professional and technical services	54	73	112	-23	-17	21
Management of companies and enterprises	55	6	4	-9	-4	-3
Administrative and support services	561	57	69	-40	-24	2
Waste management and remediation services	562	1	2	1	1	2
Educational services	61	10	16	-4	-8	1
Ambulatory health care services	621	44	42	-37	-11	0
Hospitals	622	7	12	0	-5	2
Nursing and residential care facilities	623	5	9	-1	-4	1
Social assistance	624	9	16	-1	-8	2
Performing arts and spectator sports	711	4	2	-6	-1	-1
Amusement, gambling, and recreation	713	5	8	-2	-4	1
Accommodation	721	4	4	-3	-2	0
Food services and drinking places	722	27	42	-4	-17	6
Repair and maintenance	811	12	15	-6	-6	1
Personal and laundry services	812	17	15	-15	-3	0
Membership associations and organization	813	7	10	-2	-5	1
Private households	814	15	13	-13	-5	0
Other Industries		20	18	-24	-11	-5
Government		77	97	-41	-48	2
Total		**1,160**	**1,490**	**-536**	**-355**	**207**

The job impacts include all the companies (affected and unaffected by the proposed amendments) in the respective industries.

Competitiveness Impact

Table 13 shows the impact of the proposed amendments on the cost of production by the affected industries and for selected years. The sector of petroleum and coal product manufacturing would experience the largest increase in the relative cost of production (e.g., 0.25 percent in 2014). In 2019, the relative cost of production in this sector would increase to 0.51 percent.

Based on the measurement of relative delivered prices in the REMI model, the proposed amended rule is projected to result in higher delivered prices. These impacts are similar to those on the relative cost of production. For example, the petroleum and coal product manufacturing sector would experience an increase (0.36 percent) in relative delivered prices in 2019 (Table 13), while other industries will experience minimal increase in relative delivered prices.

Table 13
Impacts of WSPA Relative Cost of Production and Delivered Prices
(Relative to the U.S.)

Industry	Relative Cost of Production			Relative Delivered Price		
	2014	2019	2030	2014	2019	2030
Utilities	0.006%	0.004%	0.000%	0.005%	0.003%	0.000%
Construction	0.004%	0.003%	0.001%	0.005%	0.003%	0.001%
Petroleum and Coal Product Manufacturing	0.251%	0.517%	0.482%	0.175%	0.360%	0.332%
Non-Metallic Mineral Product Manufacturing	0.075%	0.069%	0.055%	0.039%	0.036%	0.029%
Chemical Manufacturing	0.008%	0.006%	0.004%	0.004%	0.003%	0.002%

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APPENDIX A
Job Impacts by Scenario

Table A-1: Annual Job Impacts Based on of ETS/NEXIDEA

Category	NAICS	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Avg
Oil and gas extraction	211	0	0	-1	-1	-2	-3	-4	-5	-5	-5	-6	-6	-6	-6	-6	-5	-5	-5	-5	-5	-4
Utilities	22	1	1	3	3	4	6	7	7	8	7	7	7	7	7	7	7	7	7	6	6	6
0Construction	23	228	334	325	251	209	224	141	72	-30	-32	-32	-30	-28	-25	-23	-20	-18	-16	-14	-13	75
Nonmetallic mineral product manufacturing	327	2	1	-1	-5	-7	-9	-11	-12	-14	-15	-15	-15	-15	-15	-16	-16	-15	-15	-15	-15	-11
Fabricated metal product manufacturing	332	5	7	6	4	3	3	1	-1	-2	-2	-2	-2	-2	-2	-2	-1	-1	-1	-1	-1	0
Petroleum and coal product manufacturing	324	0	0	-1	-2	-2	-3	-4	-4	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-4
Chemical manufacturing	325	1	1	0	0	-1	-1	-1	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-1
Rest of manufacturing	31-33	10	13	9	3	-1	-2	-6	-9	-12	-12	-10	-9	-8	-8	-7	-7	-6	-5	-5	-5	-4
Wholesale trade	42	12	16	12	6	2	1	-4	-8	-13	-13	-13	-12	-11	-11	-10	-9	-9	-8	-8	-8	-4
Retail trade	44-45	34	46	36	19	9	8	-7	-19	-35	-35	-35	-34	-32	-31	-30	-29	-28	-27	-27	-27	-12
Truck transportation	484,492	5	7	6	3	2	1	-1	-3	-6	-6	-6	-6	-6	-6	-5	-5	-5	-5	-5	-5	-2
Monetary authorities	521,522-525	8	10	8	4	2	1	-2	-4	-7	-7	-6	-6	-5	-5	-4	-4	-3	-3	-3	-3	-2
Securities and investments	523	7	9	7	3	1	1	-2	-5	-7	-7	-6	-5	-4	-4	-3	-3	-2	-2	-2	-2	-1
Insurance carriers and related activities	524	3	3	2	1	0	0	-2	-2	-3	-3	-3	-3	-2	-2	-2	-2	-2	-2	-2	-2	-1
Real estate	531	11	14	10	5	1	0	-5	-9	-15	-15	-15	-15	-14	-14	-14	-13	-13	-13	-13	-13	-7
Professional and technical services	54	31	47	49	34	26	25	12	4	-14	-17	-18	-17	-13	-14	-15	-15	-14	-10	-11	-13	3
Management of companies and enterprises	55	2	3	2	1	0	-1	-2	-3	-4	-4	-4	-4	-3	-3	-3	-3	-3	-3	-2	-2	-2
Administrative and support services	561	24	34	30	19	12	12	1	-7	-19	-20	-20	-19	-17	-17	-16	-16	-15	-14	-14	-14	-4
Waste management	562	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1
Educational services	61	4	6	6	5	4	4	2	0	-3	-3	-4	-4	-4	-4	-4	-5	-5	-5	-5	-5	-1
Ambulatory health care services	621	19	24	19	10	5	6	-3	-8	-16	-16	-14	-13	-12	-11	-10	-9	-8	-8	-7	-7	-3
Hospitals	622	3	5	5	4	3	3	2	1	-1	-2	-2	-2	-2	-2	-2	-3	-3	-3	-3	-3	0
Nursing and residential care facilities	623	2	3	3	3	2	2	1	0	-1	-1	-2	-2	-2	-2	-2	-2	-2	-2	-2	-3	0
Social assistance	624	4	6	6	5	4	4	3	1	-1	-2	-2	-3	-3	-3	-3	-4	-4	-4	-5	-5	0
Performing arts and spectator sports	711	2	2	1	0	-1	-1	-2	-2	-3	-2	-2	-2	-2	-1	-1	-1	-1	-1	-1	-1	-1
Amusement, gambling, and recreation	713	2	3	3	2	2	2	1	0	-1	-2	-2	-2	-2	-2	-2	-2	-2	-2	-3	-3	0
Accommodation	721	2	2	2	1	1	1	0	-1	-2	-2	-2	-2	-2	-1	-1	-1	-1	-1	-1	-1	-1
Food services and drinking places	722	11	17	16	12	10	10	5	1	-5	-6	-7	-8	-8	-9	-9	-9	-9	-9	-10	-10	-1
Repair and maintenance	811	5	7	6	4	3	3	1	-1	-3	-4	-4	-4	-4	-4	-4	-4	-4	-3	-3	-3	-1
Personal and laundry services	812	7	9	7	3	2	2	-2	-4	-7	-6	-6	-5	-4	-4	-4	-3	-3	-3	-2	-2	-1
Membership associations and organizations	813	3	4	4	3	2	2	1	0	-2	-2	-2	-2	-2	-3	-3	-3	-3	-3	-3	-3	-1
Private households	814	7	8	7	3	2	2	-1	-3	-5	-5	-4	-4	-3	-3	-3	-3	-2	-2	-2	-2	-1
Other Industries		8	11	9	4	1	1	-4	-6	-10	-10	-10	-9	-8	-8	-7	-7	-6	-6	-6	-6	-3
State and Local		33	46	41	27	18	18	4	-7	-23	-25	-26	-26	-26	-26	-26	-26	-26	-26	-26	-26	-6
Total		495	701	639	435	313	321	119	-37	-270	-279	-277	-268	-250	-242	-237	-229	-219	-207	-203	-205	5

Table A-2: Annual Job Impacts Based on NEC Input

Category	NAICS	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Avg
Oil and gas extraction	211	0	0	-1	-2	-3	-4	-5	-6	-6	-7	-7	-7	-7	-7	-7	-7	-6	-6	-6	-6	-5
Utilities	22	1	1	4	5	5	8	8	9	9	9	9	9	9	9	8	8	8	8	8	8	7
Construction	23	298	410	341	287	255	264	164	77	-33	-35	-35	-33	-30	-27	-24	-22	-19	-17	-15	-14	90
Nonmetallic mineral product manufacturing	327	2	1	-3	-7	-10	-12	-15	-17	-19	-20	-20	-21	-21	-21	-21	-21	-21	-21	-21	-21	-15
Fabricated metal product manufacturing	332	7	9	6	4	3	3	1	-1	-3	-3	-3	-3	-2	-2	-2	-2	-2	-2	-1	-1	0
Petroleum and coal product manufacturing	324	0	0	-1	-3	-3	-4	-5	-6	-6	-6	-7	-7	-7	-7	-7	-6	-6	-6	-6	-6	-5
Chemical manufacturing	325	1	1	0	0	-1	-2	-2	-3	-3	-4	-4	-4	-3	-3	-3	-3	-3	-3	-3	-3	-2
Rest of manufacturing	31-33	13	15	8	3	-2	-3	-8	-12	-15	-14	-13	-12	-11	-10	-9	-8	-8	-8	-7	-7	-5
Wholesale trade	42	16	20	12	6	2	0	-6	-11	-16	-16	-16	-15	-14	-13	-13	-12	-11	-11	-10	-10	-6
Retail trade	44-45	44	57	34	20	10	7	-11	-26	-43	-43	-43	-41	-40	-38	-38	-36	-35	-34	-33	-34	-16
Truck transportation	484,492	7	9	6	4	2	1	-2	-4	-7	-8	-8	-7	-7	-7	-7	-7	-7	-6	-6	-6	-3
Monetary authorities	521,522-525	10	12	7	4	2	1	-3	-5	-9	-8	-8	-7	-6	-6	-5	-5	-4	-4	-4	-4	-2
Securities and investments	523	9	11	7	4	2	1	-3	-6	-9	-8	-7	-6	-5	-5	-4	-3	-3	-3	-2	-2	-2
Insurance carriers and related activities	524	4	4	2	1	0	0	-2	-3	-4	-4	-4	-3	-3	-3	-2	-2	-2	-2	-2	-2	-1
Real estate	531	14	18	10	5	1	0	-7	-12	-19	-19	-19	-19	-18	-18	-17	-17	-17	-16	-16	-17	-9
Professional and technical services	54	40	68	63	48	40	38	22	13	-9	-13	-14	-13	-6	-10	-11	-11	-9	-4	-7	-9	11
Management of companies and enterprises	55	3	4	2	1	-1	-1	-3	-4	-5	-5	-5	-5	-4	-4	-4	-4	-3	-3	-3	-3	-2
Administrative and support services	561	32	43	32	22	15	14	1	-9	-22	-23	-23	-22	-20	-20	-19	-19	-18	-17	-16	-16	-4
Waste management	562	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1
Educational services	61	6	8	7	5	4	4	2	-1	-3	-4	-5	-5	-5	-5	-5	-6	-6	-6	-6	-6	-1
Ambulatory health care services	621	24	30	19	12	7	6	-4	-11	-20	-19	-18	-16	-14	-13	-12	-11	-10	-10	-9	-9	-4
Hospitals	622	4	6	5	4	3	3	2	1	-1	-2	-2	-3	-3	-3	-3	-3	-4	-4	-4	-4	0
Nursing and residential care facilities	623	3	4	4	3	3	3	1	0	-1	-2	-2	-2	-2	-2	-2	-3	-3	-3	-3	-3	0
Social assistance	624	5	7	6	6	5	5	3	1	-2	-2	-3	-3	-4	-4	-4	-5	-5	-5	-6	-6	-1
Performing arts and spectator sports	711	2	3	1	0	-1	-1	-2	-3	-3	-3	-3	-2	-2	-2	-1	-1	-1	-1	-1	-1	-1
Amusement, gambling, and recreation	713	3	4	3	3	2	2	1	0	-2	-2	-2	-2	-2	-3	-3	-3	-3	-3	-3	-4	-1
Accommodation	721	2	3	2	1	1	1	0	-1	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-1
Food services and drinking places	722	15	21	18	14	12	11	6	0	-6	-8	-9	-10	-10	-11	-11	-12	-12	-12	-12	-13	-1
Repair and maintenance	811	6	9	6	5	4	3	1	-1	-4	-4	-5	-5	-5	-4	-5	-4	-4	-4	-4	-4	-1
Personal and laundry services	812	9	11	7	4	2	2	-2	-5	-8	-7	-7	-6	-5	-5	-4	-4	-4	-3	-3	-3	-2
Membership associations and organizations	813	4	5	4	3	3	3	1	0	-2	-2	-3	-3	-3	-3	-3	-3	-4	-4	-4	-4	-1
Private households	814	8	10	7	4	2	2	-1	-3	-6	-6	-5	-5	-4	-4	-4	-3	-3	-3	-3	-3	-1
Other Industries		11	14	9	5	1	0	-5	-8	-13	-12	-12	-11	-10	-10	-9	-9	-8	-8	-7	-7	-4
State and Local		43	58	43	31	22	20	3	-11	-28	-31	-32	-33	-33	-32	-33	-33	-33	-32	-32	-32	-9
Total		644	875	671	502	387	377	130	-66	-318	-331	-332	-322	-298	-290	-286	-276	-266	-251	-247	-251	3

Table A-3: Annual Job Impacts of WSPA

Category	NAICS	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	AVG
Oil and gas extraction	211	0	-1	-2	-4	-6	-8	-11	-13	-15	-16	-16	-16	-16	-16	-16	-16	-15	-15	-14	-13	-11
Utilities	22	1	2	4	6	8	15	16	19	19	19	19	18	18	18	17	17	17	17	16	16	14
Construction	23	528	835	983	770	650	696	447	240	-66	-73	-74	-70	-64	-57	-51	-45	-40	-35	-30	-27	226
Nonmetallic mineral product manufacturing	327	4	6	5	0	-4	-5	-9	-11	-15	-15	-16	-16	-16	-16	-16	-16	-16	-16	-16	-16	-10
Fabricated metal product manufacturing	332	12	18	20	14	10	10	5	1	-5	-5	-5	-4	-4	-3	-3	-3	-2	-2	-2	-2	3
Petroleum and coal product manufacturing	324	0	-1	-2	-4	-6	-8	-10	-12	-13	-14	-15	-15	-15	-15	-15	-15	-14	-14	-14	-13	-11
Chemical manufacturing	325	2	3	3	2	0	0	-1	-2	-3	-3	-3	-3	-3	-2	-2	-2	-2	-2	-2	-2	-1
Rest of manufacturing	31-33	24	34	34	18	8	7	-6	-14	-25	-23	-21	-18	-15	-13	-12	-10	-9	-8	-7	-7	-3
Wholesale trade	42	29	42	43	26	15	13	-3	-15	-30	-29	-28	-27	-25	-23	-21	-20	-18	-17	-16	-15	-6
Retail trade	44-45	81	120	127	82	55	52	6	-30	-77	-77	-75	-73	-70	-65	-64	-61	-59	-57	-54	-54	-15
Truck transportation	484,492	12	19	20	14	9	9	2	-4	-12	-12	-12	-12	-11	-11	-10	-10	-10	-9	-9	-9	-2
Monetary authorities	521,522-525	18	26	27	16	10	10	0	-7	-16	-15	-14	-12	-11	-9	-8	-7	-6	-6	-5	-5	-1
Securities and investments	523	16	24	25	14	8	7	-3	-10	-18	-16	-14	-12	-10	-8	-7	-6	-5	-4	-4	-3	-1
Insurance carriers and related activities	524	6	9	9	5	2	2	-2	-5	-8	-7	-6	-6	-5	-4	-4	-3	-3	-3	-2	-3	-1
Real estate	531	26	39	41	27	18	18	2	-10	-26	-26	-26	-25	-24	-22	-21	-20	-19	-19	-18	-19	-5
Professional and technical services	54	73	122	144	112	91	91	53	21	-23	-32	-34	-31	-27	-21	-25	-24	-21	-17	-13	-17	21
Management of companies and enterprises	55	6	8	8	4	2	1	-3	-5	-9	-8	-8	-8	-7	-6	-6	-6	-5	-5	-5	-4	-3
Administrative and support services	561	57	88	97	69	50	51	19	-6	-40	-41	-41	-39	-36	-33	-31	-30	-28	-26	-24	-24	2
Waste management	562	1	2	3	2	3	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2
Educational services	61	10	17	20	16	14	15	9	4	-4	-5	-6	-7	-7	-7	-7	-7	-7	-8	-8	-8	1
Ambulatory health care services	621	44	64	67	42	28	30	5	-13	-37	-34	-32	-28	-24	-21	-19	-17	-14	-13	-11	-11	0
Hospitals	622	7	12	15	12	11	11	8	5	0	-1	-2	-2	-3	-3	-3	-3	-4	-4	-4	-5	2
Nursing and residential care facilities	623	5	9	11	9	8	8	5	3	-1	-1	-2	-2	-2	-2	-3	-3	-3	-3	-3	-4	1
Social assistance	624	9	15	18	16	14	15	11	6	-1	-2	-3	-4	-4	-4	-5	-6	-6	-7	-7	-8	2
Performing arts and spectator sports	711	4	5	5	2	0	-1	-3	-5	-6	-6	-5	-4	-3	-3	-2	-2	-1	-1	-1	-1	-1
Amusement, gambling, and recreation	713	5	8	10	8	7	7	5	2	-2	-2	-2	-3	-3	-3	-3	-3	-3	-4	-4	-4	1
Accommodation	721	4	6	7	4	3	3	1	-1	-3	-3	-3	-3	-3	-2	-2	-2	-2	-2	-2	-2	0
Food services and drinking places	722	27	43	52	42	36	38	24	13	-4	-8	-11	-12	-13	-14	-15	-16	-16	-16	-16	-17	6
Repair and maintenance	811	12	18	20	15	12	12	6	1	-6	-7	-7	-7	-7	-7	-7	-7	-6	-6	-6	-6	1
Personal and laundry services	812	17	24	25	15	10	10	0	-6	-15	-14	-12	-11	-9	-8	-7	-6	-5	-4	-4	-3	0
Membership associations and organizations	813	7	11	13	10	9	9	6	3	-2	-3	-3	-4	-4	-4	-4	-4	-4	-5	-5	-5	1
Private households	814	15	22	22	13	8	8	0	-5	-13	-11	-11	-9	-8	-7	-7	-6	-5	-5	-5	-5	0
Other Industries		20	29	31	18	10	9	-4	-13	-24	-23	-22	-20	-19	-17	-15	-15	-13	-12	-11	-11	-5
State and Local		77	118	132	97	74	76	36	4	-41	-46	-50	-51	-51	-50	-50	-50	-49	-49	-47	-48	2
Total		1160	1794	2035	1490	1161	1213	613	137	-536	-559	-558	-531	-497	-455	-443	-420	-394	-374	-348	-355	207

ERRATA
Agenda Item #37
Amend Regulation XX – RECLAIM Program
November 5, 2010 Board Meeting

Please replace the entire Appendix E with the attached revised Appendix E, which includes updated information for some of the responses.

APPENDIX E

COMMENT LETTERS ON THE DRAFT PEA

AND RESPONSES TO COMMENTS

Comment Letter #1

From: Mike Wang [mailto:mwang@wspa.org]
Sent: Monday, September 13, 2010 4:02 PM
To: Shah Dabirian; Barbara Radlein
Cc: Joe Cassmassi; Laki Tisopulos
Subject: Re-submittal of Environ data: April 15

<<SOx RECLAIM April 15 trans note socioecon 09132010.doc>> <<SOx to SCAQMD 04152010A.ppt>>

All: This email and attachments are follow-up to your SOX RECLAIM Working Group meeting and Public Consultation meetings held on September 8. As you will recall, at those meetings, we discussed the need for the District to include, within the Socioeconomic Report, information on compliance costs resulting from the District's original proposal of a 64% reduction in RTCs. During those conversations, it became clear that some of you working on the RECLAIM project may not have been aware of the information we had provided to the District earlier this year. To address this omission, the Environ presentation that we originally submitted to the District on April 15 is again attached for your review and as input to the Socioeconomic Report.

Also, as my note to you suggests, we will soon provide you with additional information on impacts to the petroleum industry and the regional economy. This new information builds upon, and in some cases updates, data included in the April 15 presentation. I hope to schedule a meeting to brief you on this new information in the near future.

Thank you.

Manager, Legal and Cross-Regional Issues

Cell: 626-590-4905

Western States Petroleum Association
Credible Solutions ▪ Responsive Service ▪ Since 1907

Michael D. Wang
Manager, Legal and Cross Regional Issues

September 13, 2010

TO: Shah Dabirian, sdabirian@AQMD.gov
Barbara Radlein, bradlein@aqmd.gov

Cc: Laki Tisopulos, AQMD
Joe Casmassi, AQMD

Re: Transmittal of Costs to Refinery Operations: Input to Socioeconomic Report and Initial Response to Draft Programmatic Environmental Assessment

Dear Mr. Dabirian and Ms. Radlein,

In our conversations during the SOx Working Group meeting and the Public Consultation Meeting Regarding Proposed Regulation XX – SOx RECLAIM, you requested that we send you the cost data we already provided to the District on April 15.

We are pleased that the District remains interested in understanding the extraordinary costs to the refining industry to comply with the proposed shave, and the potential impacts on the region. However, we are disappointed to see that the data we provided on April 15 was not included in the DPEA. Apparently it also has not been included in the initial socioeconomic analysis. 1-1

To rectify this omission, and to ensure that data from the affected industry is included in the Final Programmatic Environmental Assessment and in the Socioeconomic Report, we have attached the April 15 presentation that was provided to the District.

We are also finalizing our analysis of the possible economic impact of these costs on the petroleum and the region. Upon completion of that work, we will share our findings with you.

If you have any questions, please contact me.

Sincerely,

970 W. 190th Street, Suite 770, Torrance, California 90502
(310) 808-2149 • Fax: (310) 324-9063 • Cell: (626) 590-4905 • mike@wspa.org • www.wspa.org

WSPA RECLAIM Cost Estimate

- Objective was to estimate, using confidential company data, costs to comply with 25% and 60% shave in RTC Allocations
- WSPA retained ENVIRON to collect data and perform analysis with the results aggregated and de-identified

1

Survey Methodology

- Companies submitted operating and capital cost estimates to ENVIRON
- Company data included, for example:
  - Modifications to FCCU, SRU/TGU
  - Facility/Process improvements including changes in facility operations that were not associated with FCCU or SRU/TGU such as improved monitoring equipment

2

Survey Methodology (Cont'd)

- Survey Time period: September 2009 – November, 2009.
  - ENVIRON followed up with companies, as appropriate, to verify that the data was submitted on a consistent basis
  - Follow up by ENVIRON and WSPA continues
  - Confidentiality of data continues to be protected

3

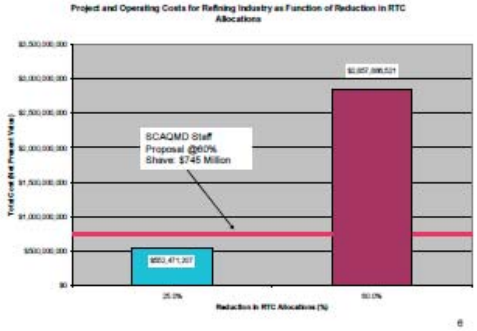
Example Cost Calculation

- Costs are Net Present Value of capital and operating costs at 4% for 25 years
  - Tried to emulate method used by the SCAQMD staff.
  - Cost Effectiveness is NPV/emissions reduced over project life.
  - Emissions based on 2005 year

4

Results

5



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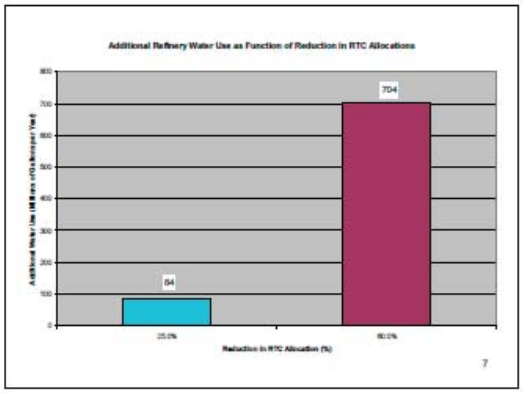
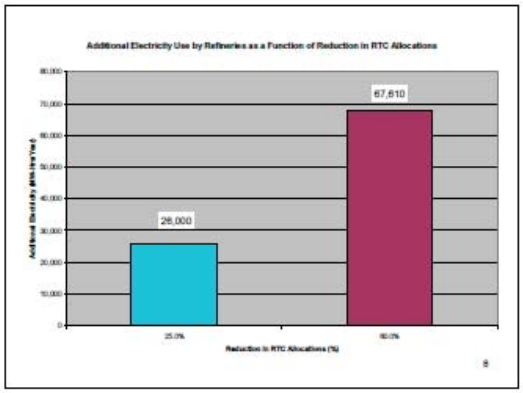




Project and Operating Costs at Refineries as a Function of Reduction in RTC Allocations

Total Cost to Reach % Shave

Contribution	25% Shave	60% Shave
FCCUs Contribution	$83,566,119	$1,454,514,152
SRUs Contribution	$341,790,016	$436,096,383
Other Contribution	$127,115,072	$960,203,487
Rounded Totals	**$550,000,000**	**$2,850,000,000**

Source: ENVIRON Survey prepared for WSPA

9

FCCU Costs @ 25% Shave

Project Type	Present Value - Capital Cost	Present Value - Operating Cost	Total Present Value
Use More $DeSO_x$ catalyst	$0	$83,566,119	$83,566,119
Rounded Total	$0	$84,000,000	$84,000,000

10

FCCU Costs @ 60% Shave

Project Type	Present Value - Capital Cost	Present Value - Operating Cost	Total Present Value
Wet Gas Scrubber	$265,000,000	$103,105,728	$368,105,728
Hydrotreating Modification	$350,000,000	$734,237,757	$1,084,237,757
Use More $DeSO_x$ catalyst	$0	$2,170,667	$2,170,667
Total	$615,000,000	$840,000,000	$1,455,000,000

11

SRU Costs @ 25% shave

Project Type	Present Value - Capital Cost	Present Value - Operating Cost	Total Present Value
Tail Gas Treatment	$210,500,000	$118,727,808	$329,227,808
Unspecified Project Type	$11,000,000	$1,562,208	$12,562,208
Rounded Total	$222,000,000	$120,000,000	$342,000,000

12

SRU Costs @ 60% shave

Project Type	Present Value - Capital Cost	Present Value - Operating Cost	Total Present Value
Tail Gas Treatment	$200,000,000	$109,354,560	$309,354,560
Process Optimization	$1,000,000	$7,811,040	$8,811,040
Wet Gas Scrubber	$82,000,000	$35,930,784	$117,930,784
Total	$283,000,000	$153,000,000	$436,000,000

13

Others Improvements @ 25% Shave

Project Type	Present Value - Capital Cost	Present Value - Operating Cost	Total Present Value
Unspecified Project Type	$28,000,000	$7,811,040	$35,811,040
Other Process Improvements	$13,000,000	$39,056,200	$52,056,200
Fuel Gas Treatment	$33,000,000	$6,248,832	$39,248,832
Rounded Total	$74,000,000	$53,000,000	$127,000,000

14

Other Improvements @ 60% Shave

Project Type	Present Value - Capital Cost	Present Value - Operating Cost	Total Present Value
Wet Gas Scrubber	$70,000,000	$35,930,784	$105,930,784
Unspecified Project Type	$95,000,000	$14,059,872	$109,059,872
Other Process Improvements	$13,000,000	$7,811,040	$20,811,040
Fuel Gas Treatment	$183,000,000	$240,580,031	$423,580,031
Fuel Gas Hydrotreating	$250,000,000	$46,866,240	$296,866,240
Other Facility Improvements	$50,000	$3,905,520	$3,955,520
Total	$611,000,000	$349,000,000	$960,000,000

15

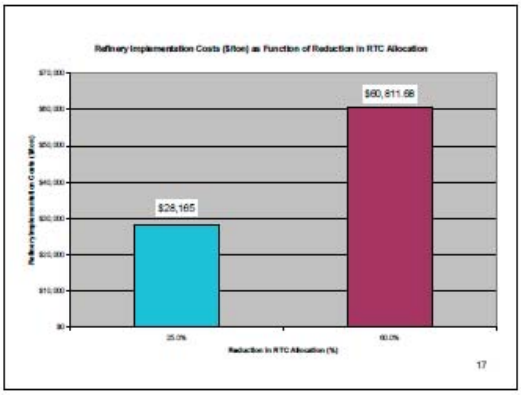
Another Look: Project and Operating Costs at Refineries as a Function of Reduction in RTC Allocations

Total Cost to Reach % Shave

Contribution	25% Shave	60% Shave
FCCUs Contribution	$83,566,119	$1,454,514,152
SRUs Contribution	$341,790,016	$436,096,383
Other Contribution	$127,115,072	$960,203,487
Rounded Totals	**$550,000,000**	**$2,850,000,000**

Source: ENVIRON Survey prepared for WSPA

16



17

Responses to Comment Letter #1
(Western States Petroleum Association, September 13, 2010)

1-1 The commenter has suggested that the PEA should include the submitted cost data as part of the CEQA analysis. However, the comment letter does not raise the potential for any physical changes to the environment which needs to be addressed through CEQA. Under CEQA Guidelines §15131(a), the economic effects of a project shall not be treated as significant effects on the environment. An environmental document may trace a chain of cause and effect from a proposed decision through economic effects to physical changes caused by economic effects. This comment does not contend that the purported economic effects will result in any physical changes. As a result, the focus of the analysis was on the physical changes caused by the proposed project.

CEQA does require public agencies to consider economic and social factors together with technological and environmental factors in deciding whether changes in a project are feasible to reduce or avoid the significant effects on the environment identified in the CEQA document. However, this information need not be presented in the CEQA document itself (CEQA Guidelines §15131(c)). Moreover, the comment does not contend that the project will result in significant adverse environmental impacts.

The SCAQMD presents information related to the economic impacts of the project in the socioeconomic analysis. As such, the Governing Board will be presented with both the PEA and the socioeconomic analysis to consider when reaching a decision on the proposed project.

Comment Letter #2

-----Original Message-----
From: Randolph Visser [mailto:RVisser@sheppardmullin.com]
Sent: Friday, October 01, 2010 2:56 PM
To: William Wong
Subject: FW: Draft Comment Letter PEA Reg XX 09292010(V2)

Bill,
Per our call, attached is another copy of Owens' comment letter on the Reg.XX Reclaim SOx "shave rule".
I understand Ev Ashworth earlier forwarded you a copy of this but his e-mail contained a boilerplate confidentiality provision(as mine probably does below as well) and there was concern at the District whether you could publish the comment letter. This will confirm that you can ignore that confidentiality paragraph on Ev's email(and mine here).
He submitted the letter on behalf of Owens to be published in the public record(as do I).
I also understand Ev messengered hard copies of the Owens letter out to the District for filing as well.
Owens will be setting up a mtg with District to discuss the shave very soon. Thanks fro calling me to clear away any confusion Electronics!
Thanks

Randolph Visser
333 South Hope Street
43rd Floor
Los Angeles, CA 90071-1448
RVisser@sheppardmullin.com
Direct: 213.617.4144
Fax: 213.443.2839

From: Ev Ashworth [mailto:EAshworth@algcorp.com]
Sent: Friday, October 01, 2010 9:31 AM
To: bradlein@aqmd.gov
Cc: Dean.Harris@o-i.com
Subject: FW: Draft Comment Letter PEA Reg XX 09292010(V2)

Ms. Radlein:

Attached, please find digital copies of the comments provided by the Owens Brockway Vernon California container glass manufacturing facility on the District's Draft Program Environmental Assessment regarding the proposed amendments to Regulation XX-RELCAIM (Rule 2002; the proposed SOx shave). A hard copy, which is addressed to you, will be hand delivered to the front desk later today (probably by mid-afternoon).

If you would, may I ask that you confirm receipt of these digital comments?

Thank you; I would welcome a call should you have questions, etc.

Regards, Ev Ashworth

_____

Everard Ashworth
Ashworth Leininger Group
601 E. Daily Drive, Suite 302
Camarillo, CA 93010
Tel: 805.764.6017
Fax: 805.764.6011
Cell: 805.432.9732
email: eashworth@algcorp.com

Owens-Brockway Glass Container Inc.
2901 Fruitland Avenue
Vernon, CA 90058
+1 323 586 4200 tel

www.o-i.com

October 1, 2010

Ms. Barbara Radlein
Office of Planning, Rule Development & Area Sources
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Proposed Amended Regulation XX –Comments on the Program Environmental Assessment - Owens-Brockway Glass Container Inc. Vernon Facility (SCAQMD ID 7427)

Dear Ms. Radlein:

By this letter, Owens-Brockway Glass Container Inc. Vernon, California facility (Owens Vernon facility) provides its comments on the August 2010 Draft Program Environmental Assessment (DPEA) that the District prepared to consider the impacts of the proposed amendments to Regulation XX, Rule 2002. Specifically, we provide to the District additional technical information that should be considered under the California Environmental Quality Act (CEQA) by the District's decision makers in setting Best Available Retrofit Control Technology (BARCT) for glass manufacturing. As summarized in correspondence previously submitted to the District, the Owens Vernon facility has already installed BARCT, which the District has recognized as Best Available Control Technology for the control of sulfur oxides[1]. Further, there is no example of a glass container manufacturing facility with a control configuration as suggested by the District to represent BARCT. Therefore, it is especially important for the District's CEQA to fully disclose the potential impacts of the proposed BARCT for container glass manufacturing – a technology that has not worked when previously applied by glass manufacturing operations here in Los Angeles

2-1

Background on Owens Vernon Facility

To put these technical issues in perspective, it is helpful to have an understanding of our plant's customers, employees, and our facility's role in sustainable manufacturing resources in the Los Angeles area. The Owens Vernon facility has been in business for over 70 years. Over the past 25 years, some six individual glass container manufacturing facilities have ceased to operate in

2-2

[1] See attached September 22, 2010 comments filed by the Owens Vernon facility with the District.

the Los Angeles basin, such that the Owens Vernon facility is the only remaining container glass manufacturing facility located within the District. We produce between 2 and 3 million glass bottles per day on five production lines pulling from two furnaces and purchase approximately 330 tons/day of recycled glass. We have 260 employees that represent 15 different countries and territories of origin, over one third of whom have worked at the Owens Vernon facility for over 20 years. The average salary for Owens Vernon staff is three times the minimum wage, with medical, dental and pension plan benefits. Our customers are here in Los Angeles; over 75% of our shipments are to customers within 25 miles of the of the Owens Vernon plant. Thus, the Owens Vernon Facility plays a vital role in maintaining sustainable container glass manufacturing in the Los Angeles area.

2-2 Cont'd

It is also important to put our environmental controls into proper perspective. Owens has been an innovator of emission controls on glass manufacturing. At significant cost, our company implemented oxygen-fuel fired glass manufacturing technology to reduce nitrogen oxide (NOx) emissions from high temperature furnace exhaust. This innovative process control technology was installed to comply with NOx RECLAIM allocations. To comply with SOx RECLAIM, Owens Vernon first employed a SOx control system that injected a water-based sorbent into the exhaust stream prior to the existing electrostatic precipitators (ESPs). However, our facility experienced numerous problems with this technology [*Petition for an Ex Parte, Emergency, and a Short Variance*, Case No. 4472-9, Facility ID 007427, May 15, 1997, paragraphs 6-10]. We also note that the Ball-Foster El Monte facility experienced significant operating problems with its wet scrubber technology, which resulted in the company's decision to replace the wet scrubber with a dry scrubber followed by an electrostatic precipitator [*Petition for Modification and Extension of a Variance*, Case No. 108-20, Facility ID 108701, April 9, 1997, paragraphs 6-14].

2-3

Therefore, with the District's approval, Owens Vernon selected dry scrubbing technology (Trona injection) to reduce sulfur dioxide to comply with RECLAIM. It is important to note that this dry scrubbing technology was identified by the District as Best Available Control Technology (BACT) for the control of sulfur oxides. The dry scrubber controls are followed by the existing three ESPs that operate in parallel to remove entrained Trona sorbent and particulate emissions from the exhaust of the two glass melting furnaces. These technologies reduce sulfur oxide emissions by up to 90%. It is critical to note that the Owens Vernon facility actual SOx emission rate (approximately 0.6 pounds/ton of glass pulled) is significantly lower than the permitted SOx emission rate established for the container glass manufacturing facility in Seattle, Washington that is controlled by the wet scrubber technology evaluated by the District in its BARCT determination.

2-4

Summary of Comments on DPEA

With this background, we now turn to consider technical issues that should be properly addressed by the District's DPEA and support the Rule 2002 revisions. In accordance with CEQA, and its Rule 110, the SCAQMD prepared a DPEA to analyze the environmental impacts of the proposed amended Regulation XX (the "Project"). As discussed below, the DPEA fails to comply with CEQA and the CEQA Guidelines (the "Guidelines") for several reasons.

As an overarching premise, an agency implementing a certified regulatory program must adhere to the basic policies and substantive obligations established by CEQA (see Guidelines §15250). Accordingly, an environmental document prepared pursuant to a certified regulatory program must include a description of the project, alternatives to the project, and mitigation measures to minimize any significant adverse environmental impacts (see Pub. Resource Code §21080.5(d)(3)(A)). In addition, public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available that would substantially lessen the significant environmental effects of the project (see Pub. Resource Code §21002). And, of course, the agency must support its analysis with substantial evidence. Here, the DPEA failed to meet several of these standards. 2-5

First, the DPEA's analysis of water supply is inadequate. The DPEA does not provide substantial evidence to factually demonstrate that adequate water supplies are available. The DPEA also acknowledges that there are no guarantees for substantial portions of the water supplies that it factored into the supply and demand analysis. In other words, the DPEA is not only relying on speculative water sources, but also relying on unsupported water supply claims. That is impermissible.

In addition, the DPEA's proposed water supply mitigation measures (i.e., HWQ-1 and HQW-2, use of recycle water) are inadequate because the measures do not minimize the water demand impacts of the Project. Also, the DPEA concludes that water demand impacts are significant, but then fails to propose all feasible mitigation measures. Worsening matters, the DPEA's cumulative impact analysis provides no meaningful assessment of the Project's cumulative water demand impacts. These are clear failures of CEQA requirements. 2-6

Second, the DPEA's analysis of greenhouse gas ("GHG") impacts is inadequate. The DPEA concedes that the Project will have a significant GHG impact. As noted above, that triggers the need to propose all feasible mitigation measures. The DPEA, however, only proposes GHG-1 and GHG-2 (i.e., use of recycle water, see p.4-31), which are inadequate from a CEQA perspective. 2-7

Third, the DPEA's analysis of alternatives is inadequate. Without the No Project Alternative, there are only two real alternatives, neither of which have a bearing on container glass 2-8

manufacturing. These two alternatives do not constitute a reasonable range under CEQA, especially considering the Project's wide-reaching effects on the industries subject to Regulation XX. SCAQMD must propose additional alternatives that are capable of reducing the Project's significant impacts.

2-8 Cont'd

Fourth, the DPEA improperly assumes that the Project will allow affected facilities to implement BARCT over a 9-year period, and that the peak construction emissions are expected to occur in 2012. This assumption is not supported with any technical analysis; rather the DPEA simply refers to the proposed compliance dates outlined in Rule 2002 (i.e., 2012-2019). Under CEQA, where specific data are not available, the responsible agency is to make reasonable worst case assumptions. Thus, absent any analysis, the peak construction should be assumed to occur in 2011, as facilities must comply with the SOx shave as of 2012. Further, in response to comments provided by the public, the DPEA assures decision makers that there is adequate production capacity to supply wet scrubber control technology to all affected sources within the seven year compliance period provided by Rule 2002 (See Comment 9, Table 1-1). We have been unable to find technical data in the DPEA to support this assumption. Therefore, consistent with CEQA guidelines, the analysis should be based on reasonable worst case assumptions, which would require that all affected facilities install controls within a two year period, not the seven year period suggested by the DPEA.

2-9

2-10

We provide additional technical data below indicating where impact analyses in the DPEA are deficient in the following areas:

- Aesthetics
- Air Quality
- Air Toxics
- Land Use
- Noise
- Water Demand
- Water Quality

Failure to remedy these deficiencies before approving the Project would be a prejudicial abuse of discretion. Therefore, we respectfully request that the SCAQMD resolve these and other CEQA deficiencies, so that the decision makers are properly informed before taking any action on the Project.

2-11

Aesthetics

In the analysis of Aesthetics impacts from project operation, the DPEA states on p. 4-8 the following:

2-12

- "If any WGS is installed as part of the proposed project ... at any of the affected facilities, the steam plume, though visible, is not expected to significantly adversely affect the visual continuity of the surrounding area of each affected facility because no scenic highways or corridors exist within the areas of the refineries, the coke calciner, the sulfuric acid plants and the glass melting plant."

- "Further, the visual continuity of the surrounding area is not expected to be adversely impacted because each WGS, if constructed, will be built within the confines of industrial areas and would be visually consistent with the profiles of the existing affected facilities."

The Owens Vernon glass plant is different from some of the other facilities affected by the proposed rule in that there currently are no visible steam plumes at the facility or nearby. Therefore, the addition of a visible plume is not visually consistent with the profile of the existing facility. We also disagree that a scenic highway or corridor within the area of the melting plant is a prerequisite for a significantly adverse affect on aesthetics. It is common practice to address aesthetics impacts for a facility in an industrial area by taking photographs of the facility from various vantage points and superimposing a mockup of the potentially offending visual element (in this case, a steam plume) on each photograph. It is not acceptable to draw broad conclusions regarding an impact that was previously determined to be potentially significant in the NOP/IS without providing the decision makers the means to form their own judgment. We therefore request that the aesthetics section be revised to properly describe the impact of the proposed BARCT on the container glass sector to properly inform the District's decision makers on the visual impacts of the proposed BARCT.

2-12 Cont'd

Air Quality

The DPEA did not address what the effect would be on the impact of NOx emissions from the furnaces due to installation of wet gas scrubbers. The exhaust streams from the furnaces currently pass through dry gas scrubbers and electrostatic precipitators (DGS-ESP). Further treating by wet scrubbers would result in evaporative cooling of the exhaust. The cooler resulting plumes would have substantially less buoyancy and plume rise, and the ground-level concentrations of pollutants not affected by the WGS (such as NOx) would be higher. To get a sense of this effect, the EPA SCREEN3 dispersion model was used to quantify the potential increase in maximum one-hour average NOx concentration. The assumed stack parameters with and without the WGS cooling effect are shown in the table below:

2-13

Parameter	Without WGS*	With WGS
Exhaust Temperature (°F)	650	150

Parameter	Without WGS*	With WGS
Flow Rate (acfm)	30,000	30,000
Stack Height (ft)	80	80
Stack Diameter (ft)	3.5	3.5
Building Height (ft)	40	40
Building Length (ft)	150	150
Building Height (ft)	100	100

*DGS-ESP case

The only difference in the modeled parameters is the exhaust temperature. The exhaust temperature for the DGS-ESP case was approximated from source test data. The temperature for the WGS case was approximated from manufacturer's data. The stack height and diameter are the values for the current ESP stacks at the Owens Vernon facility. The building dimensions, however, are a very simplified representation.

In both cases, the SCREEN3 model was run with a NOx emission rate of 2.0 g/s, which equates to 380 lb/day, the approximate average daily NOx emission rate for the Owens Vernon facility.

2-13
Cont'd

The SCREEN3 results, which are shown in the attached output files, indicate that there is the potential for a substantial difference in predicted maximum one-hour average ground level concentration. The DGS-ESP case yielded a maximum NOx concentration of 30 $\mu g/m^3$ at 120 meters downwind, whereas the WGS case yielded a maximum NOx concentration of 50 $\mu g/m^3$ at 187 meters downwind.

These results are interpreted as follows. The federal one-hour average NO_2 standard established in April of this year by the EPA is 189 $\mu g/m^3$. The background NO_2 concentration (i.e., design value) for the Vernon area, as represented by the central LA monitor, is 158 $\mu g/m^3$. If 75% of the modeled NOx is assumed to be in the form of NO_2, a common assumption for screening level modeling, then the total NO_2 impact (background plus stack impact) is 180 $\mu g/m^3$ for the DGS-ESP case. For the WGS case, however, the total concentration is 195 $\mu g/m^3$. Therefore, this simple screening analysis demonstrates that the cooler exhaust that would result from adding WGS technology has the potential to create an exceedance of the federal one-hour average NO_2 standard. Therefore, the DPEA should have evaluated this potentially significant air quality impact. We note that the DPEA does not even recognize this new standard as an applicable requirement. At a minimum, the District should evaluate the extent

to which the Rule 2002 amendments will cause or contribute to an exceedance of the new federal one hour nitrogen dioxide standard.

2-13 Cont'd

As discussed above, the DPEA concedes that the Project will have a significant GHG impact. As noted above, that triggers the need to propose all feasible mitigation measures. The DPEA, however, only proposes GHG-1 and GHG-2 (i.e., use of recycle water, see p. 4-31), which are inadequate from a CEQA perspective. At a minimum, the District should follow the outline of proposed GHG mitigation measures in the recently released California Air Pollution Control Officers Association's *Quantifying Greenhouse Gas Mitigation Measures* (see http://www.capcoa.org/). Absent this GHG mitigation analysis, a decision maker cannot reasonably conclude that all feasible GHG mitigation measures have been applied.

2-14

Air Toxics

The DPEA should not limit the evaluation of sodium hydroxide (NaOH) operational impacts to the calculation of emissions from storage tank filling and working losses (as identified in Tables 4-8 and 4-9). The potential for NaOH emissions from the proposed wet gas scrubber should also be considered. Any time a chemical solution is sprayed into a chamber through which a gaseous stream passes; there is the potential for the resulting small droplets to be carried along with the stream as drift or mist. Therefore, worse-case emission calculations should consider NaOH slip out the WGS stack into the ambient air. We realize that mist eliminators could be installed in the WGS units to reduce these emissions, but the uncontrolled emission rate(s) should be calculated and compared to the most stringent Rule 1401 Screening Emission Level for NaOH (i.e., 0.004 pounds per hour). The cost of these controls, if necessary, should be factored into the cost effectiveness analysis. Further, the impact of the pressure drop introduced by this supplemental control system on the integrity of the overall process, including the glass furnaces, dry scrubber, and ESP controls must be considered.

2-15

Land Use

The District's technical analysis does not consider what will happen should the Owens Vernon facility be unable to afford new, yet-to-be demonstrated control configurations, or secure adjusted RECLAIM Trading Credits in sufficient quantities to continue to operate. Should the Owens Vernon facility be forced to discontinue operations, over 100,000 tons/year of recycled glass will either have to be landfilled, or shipped out of the basin. Over two to three million glass containers per day will have to be shipped into the basin to our customers. Therefore, the DPEA should be revised to consider the following impacts:

2-16

- Loss of tax revenue from closure of the Vernon facility

- Loss of employment to 260 workers
- Loss of recycle capacity, and impact on neighboring landfills or from shipment of recycle glass to other locations
- Loss of container glass capacity, and the air emissions/impacts associated with shipment of container glass into Los Angeles via ship, truck and rail

These are reasonably anticipated to occur, given that the Vernon facility is now the last remaining container glass plant in Southern California.

2-16 Cont'd

Noise

The DPEA acknowledges that SOx control equipment proposed by BARCT may add new sources of noise at affected facilities, but the DPEA concludes without substantive analysis that this additional noise is not expected to be noticeable at the property line and will be within allowable noise levels set by OSHA and local noise ordinances. Notably, the DPEA provides no quantification to support this conclusion. Significantly, this conclusion is not consistent with the Ball Foster wet scrubber retrofit project, which resulted in a significant increase in noise complaints from residents and other businesses around their El Monte facility. To address these public complaints, Ball Foster installed, at considerable expense, noise attenuators and other technology to lessen the noise impact of the wet scrubber controls. As discussed elsewhere in our comments, technical problems associated with the wet scrubber technology could not be overcome, such that the wet scrubber was removed, and replaced with dry scrubber/ESP controls. The DPEA should be revised to properly summarize the direct experience at Ball Foster, quantify the incremental acoustic impact of wet scrubber technology on all affected units, and provide mitigation, as necessary, to comply with OSHA and local noise ordinances.

2-17

Water Demand

The DPEA concedes that the Project demands 52,272 gallons per day ("gpd") for construction activities and up to 883,368gpd for operation. DPEA, pp. 4-67, 4-83. To meet this significant demand, the DPEA states that SCAQMD staff has been coordinating with various water suppliers who claim that there will be sufficient water supplies for the Project. The DPEA, however, does not provide substantial evidence to support that assertion or factually demonstrate that adequate water supplies are available. The DPEA also acknowledges that there are no guarantees for substantial portions of the water supplies that it factored into the supply and demand analysis. In other words, the DPEA is not only relying on speculative water sources, but also relying on unsupported water supply claims. That is impermissible.

2-18

In addition, the DPEA's proposed water supply mitigation measures (i.e., HWQ-1 and HQW-2) are inadequate because the measures do not minimize the water demand impacts of the Project. Also, the DPEA concludes that water demand impacts are significant, but then fails to propose all feasible mitigation measures. Worsening matters, the DPEA's cumulative impact analysis provides no meaningful assessment of the Project's cumulative water demand impacts. These are clear failures of CEQA requirements. 2-19

Water Quality

The DPEA's conclusion regarding project operational water quality impacts is as follows: "Since all of the affected facilities have been shown under both options of the proposed project to have a potential wastewater increase less than 25 percent, no modifications to any existing wastewater discharge permits are anticipated as a result of the proposed project. Thus, the operational impacts of the proposed project on each affected facility's wastewater discharge and the Industrial Wastewater Discharge Permit are expected to be less than significant." (p. 4-79). What the DPEA did not address is that the installation and use of WGS at the existing glass plant would add a new and different stream to the wastewater. Therefore, the wastewater permit would need to be modified, and the conclusion that the operational impacts are expected to be less than significant is flawed. 2-20

As indicated in our attached September 22, 2010 technical comments, container glass manufacturing operations have experienced significant difficulties in treating the selenium content of wastewater from wet gas scrubbers to meet Regional Water Quality Control Board (RWQCB) industrial wastewater discharge standards. Selenium is used to refine flint (clear) glass container bottles to improve the clarity of the final product. Following the installation of wet gas scrubber technology at the Ball Foster El Monte facility, the facility was unable to comply with its selenium discharge limit. The Ball Foster facility was cited by the RWQCB, and paid substantial fines to settle these violations. Despite a concerted effort and the application of several chemical treatment technologies, the facility was unable to identify a wastewater treatment technology to address these exceedances. As indicated in our technical comments, the Ball Foster facility scrapped the wet scrubber technology, and with the approval of District engineering staff, installed dry scrubber/ESP controls to meet BACT. This effectively eliminated the high-selenium wastewater. The DPEA should therefore properly inform District decision makers of these significant technical challenges associated with treating container glass wet gas scrubber wastewater. In addition, the engineering assessment should not conclude that an expenditure of $225,000 will be sufficient to address high selenium loading in wet gas scrubber wastewater, absent a technical analysis to support this assumption. 2-21

Ms. Barbara Radlein
October 1, 2010
Page 10

Thank you for this opportunity to provide these comments on the Draft DPEA. Please contact Ms. Sandra Guzmàn, P.E. ((323) 586-4207) should you have any questions regarding these data. We look forward to working with the District to finalize Rule 2002 amendments.

Very truly yours,

Dean Harris

Dean Harris
Plant Manager

Attachments: September 22, 2010 Owens Vernon facility correspondence filed with SCAQMD regarding proposed amendments to Rule 2002
SCREEN3 Model outputs

cc: Mark Tussing
Susan Smith, Esq.
Randolph Visser, Esq.

Owens-Brockway Glass Container In
2901 Fruitland Avenue
Vernon, CA 90058
+1 323 586 4200 tel

www.o-i.com

September 22, 2010

Ms. Minh Pham, P.E.
Planning, Rule Development &Area Sources
SCAQMD
21865 Copley Drive
Diamond Bar, CA 91765

Re: Proposed Amended Regulation XX – Technical Comments - Owens-Brockway Glass Container Inc. Vernon Facility (SCAQMD ID 7427)

Dear Ms. Pham:

By this letter, Owens-Brockway Glass Container Inc. Vernon, California facility (Owens Vernon facility) provides its comments on the August 17, 2010 draft proposed amendments to Regulation XX as presented and discussed during the September 8, 2010 Public Consultation Meeting. Specifically, we provide to the District additional technical information that should be considered in setting Best Available Retrofit Control Technology (BARCT) for glass manufacturing. As summarized below, the Owens Vernon facility has already installed BARCT, which the District has recognized as Best Available Control Technology for the control of sulfur oxides. Our outside technical consultant has found no example of a glass container manufacturing facility with a control configuration as suggested by the December 2008 ETS, Inc. engineering evaluation and the December 2009 District draft staff report. In addition, we have identified numerous technical feasibility issues not considered in the District's analyses to date. Therefore, for the reasons outlined below, the Owens Vernon facility should be excluded from the facilities subject to the SOx shave proposed by the Rule 2002 revisions. 2-22

To put these technical issues in perspective, it is helpful to have an understanding of our plant's customers, employees, and our facility's role in sustainable manufacturing resources in the Los Angeles area. The Owens Vernon facility has been in business for over 70 years. Over the past 25 years, some six individual glass container manufacturing facilities have ceased to operate in the Los Angeles basin, such that the Owens Vernon facility is the only remaining container glass manufacturing facility located within the District. We produce between 2 and 3 million glass bottles per day on five production lines pulling from two furnaces and purchase approximately 330 tons/day of recycled glass. We have 260 employees that represent 15 different countries and territories of origin, over one third of whom have worked at the Owens Vernon facility for over 20 years. The average salary for Owens Vernon staff is three times the minimum wage, 2-23

with medical, dental and pension plan benefits. Our customers are here in Los Angeles; over 75% of our shipments are to customers within 25 miles of the of the Owens Vernon plant. Thus, the Owens Vernon Facility plays a vital role in maintaining sustainable container glass manufacturing in the Los Angeles area.

2-23 Cont'd

It is also important to put our environmental controls into proper perspective. Owens has been an innovator of emission controls on glass manufacturing. At significant cost, our company implemented oxygen-fuel fired glass manufacturing technology to reduce nitrogen oxide emissions from high temperature furnace exhaust. This innovative process control technology was installed to comply with NOx RECLAIM allocations. To comply with SOx RECLAIM, Owens Vernon first employed a SOx control system that injected a water-based sorbent into the exhaust stream prior to the existing electrostatic precipitators (ESPs). However, our facility experienced numerous problems with this technology [*Petition for an Ex Parte, Emergency, and a Short Variance*, Case No. 4472-9, Facility ID 007427, May 15, 1997, paragraphs 6-10]. We also note that the Ball-Foster El Monte facility experienced significant operating problems with its wet scrubber technology, which resulted in the company's decision to replace the wet scrubber with a dry scrubber followed by an electrostatic precipitator [*Petition for Modification and Extension of a Variance*, Case No. 108-20, Facility ID 108701, April 9, 1997, paragraphs 6-14].

2-24

Therefore, with the District's approval, Owens Vernon selected dry scrubbing technology (Trona injection) to reduce sulfur dioxide to comply with RECLAIM. It is important to note that this dry scrubbing technology was identified by the District as Best Available Control Technology (BACT) for the control of sulfur oxides. The dry scrubber controls are followed by the existing three ESPs that operate in parallel to remove entrained Trona sorbent and particulate emissions from the two glass melting furnaces. These technologies reduce sulfur oxide emissions by up to 90%. It is critical to note that the Owens Vernon facility actual SOx emission rate (approximately 0.6 pounds/ton of glass pulled) is significantly lower than the permitted SOx emission rate established for the container glass manufacturing facility in Seattle, Washington that is controlled by the wet scrubber technology evaluated by the District in its BARCT determination.

With this background, we now turn to consider technical issues raised by the District's BARCT analysis that supports the Rule 2002 revisions. As a threshold matter, we know of no container glass facility that currently operates the control configuration that is being proposed as BARCT:

- Dry scrubber/Trona injection, followed by
- Three separate electrostatic precipitators operating in parallel, followed by
- Two wet scrubber (50% NaOH) towers.

The December 2008 engineering evaluation suggests that this is technically feasible and cost effective for the Vernon facility. Owens retained Ashworth Leininger Group (ALG) to review this engineering evaluation, and the technical feasibility of installing retrofit wet scrubber technology at the Vernon facility. Their comments are attached for your review. We note the following:

2-25

- ALG is not aware of any glass manufacturing facility that currently operates with the BARCT control configuration recommended by staff for Owens Vernon: dry scrubbers followed by ESPs followed by wet scrubbers;
- To maintain the current redundancy of controls, which is essential as the glass melting operations cannot be temporarily shut down, it will be necessary to install three wet scrubbers instead of the two suggested in the ETS, Inc. report;
- The ETS, Inc. report does not consider/address how proper operating pressures will be maintained in both the oxy-fuel furnaces and existing ESP controls when the new wet scrubbers are added onto this system;
- The ETS, Inc. report does not address how the integrity of the wet scrubbers will be maintained should there be an upset condition in the ESPs, which will result in high particulate loadings directed to the wet scrubbers;
- The ETS, Inc. report does not properly consider site limitations associated with adding three wet scrubber towers that will be required to control the three existing ESP control systems;
- The ETS, Inc. report does not include all foreseeable costs associated with the wet scrubber retrofits;
- The ETS, Inc report provides no technical analysis of how wastewater discharges will meet RWQCB effluent limitations for selenium and other inorganic compounds;
- If retrofit with wet scrubber technology, the new exhaust gas will have a significantly lower temperature, and therefore significantly reduced plume buoyancy. No modeling analysis has been presented to demonstrate that ambient impacts from the Owens Vernon facility glass manufacturing operations will continue to comply with state and federal ambient air quality standards, including the new short term federal nitrogen dioxide standard; and

- The ETS, Inc. report and District draft staff report/evaluations do not properly consider the acute health risks posed by sodium hydroxide emissions from the wet scrubbers, as required by District Rule 1401.

2-25 Cont'd

Finally, the District's technical analysis does not consider what will happen should the Owens Vernon facility be unable to afford new, yet-to-be demonstrated control configurations, or secure adjusted RECLAIM Trading Credits in sufficient quantities to continue to operate. Should the Owens Vernon facility discontinue operations, over 100,000 tons/year of recycled glass will either have to be landfilled, or shipped out of the basin. Over two to three million glass containers per day will have to be shipped into the basin to our customers. We believe that this issue, along with the land use impacts associated with urban decay resulting from our plant's potential closure and adverse impact on environmental justice areas should be addressed in the District's Program Environmental Assessment for the proposed rule change. Our formal comments on that document will be provided by October 1, 2010.

2-26

We recognize that these comments are provided at the end of this public comment period for Rule 2002 modifications. If you think helpful, we would be willing to meet with you to clarify our comments. We look forward to working with the District to finalize Rule 2002 amendments.

Very truly yours,

Dean Harris

Dean Harris
Plant Manager

Attachment: Ashworth Leininger Group Comments on Proposed Amended Rule 2002 on Behalf of Owens-Brockway Glass Container Inc.

cc: Mark Tussing
Susan Smith, Esq.
Randolph Visser, Esq.

Dean A Harris
Plant Manager

2901 Fruitland Ave
Vernon, CA 90058
+1 323 586 4288 tel
+1 323 586 4209 fax
+1 323 514 8776 cell
Dean.Harris@o-i.com
www.o-i.com

Ashworth Leininger Group Comments on Proposed Amended Rule 2002
On Behalf of Owens-Brockway Glass Container Inc.

Ashworth Leininger Group (ALG) was retained by Owens-Brockway Glass Container Inc. (Owens) Vernon facility to review the August 17, 2010 draft Rule 2002 rule modifications, and data provided by the South Coast Air Quality Management District (District) staff at the September 8, 2010 Public Consultation meeting[1]. Comments 1-3 address proposed amended Rule 2002 revisions; comments 4-8 address technical issues associated with the Best Available Retrofit Control Technology (BARCT) analysis.

Specific Comments on Proposed Amended Rule 2002:

1. Owens-Brockway should be included in the list of SOx RECLAIM holders exempted from proposed "shave". As discussed further below, Owens Vernon has already installed dry scrubbing technology considered by the District to be Best Available Control Technology (BACT). Further, there are unique site conditions that have not been fully evaluated in the December 2008 ETS, Inc. engineering report, and make installation of additional retrofit controls infeasible. Since additional SOx controls are infeasible (as discussed below), it is inappropriate to subject Owens to the same SOx shave requirements as the other ten SOx RECLAIM participants impacted by section (f)(1)(J). For these reasons, the Owens Vernon facility should be added to Table 5 that lists the RECLAIM facilities that are exempted from the proposed SOx RTC adjustments ("shave") described in section (f)(1)(J). 2-27

2. Table 4 should be revised to remove the Best Available Retrofit Control Technology level for container glass melting furnaces. As discussed in more detail below, Owens has already installed dry scrubbing technology equivalent to what should be considered as Best Available Retrofit Control Technology (BARCT) to reduce container glass furnace SOx emissions. As discussed below, the District's evaluation of wet gas scrubber (WGS) controls with respect to the existing Owens facility process and control configuration did not properly consider the technical and operational issues associated with installing retrofit WGS controls in conjunction with existing dry scrubbers and electrostatic precipitators. The evaluation did not consider the need to install three, not two, WGS units, nor physical site limitations with respect to installing three new WGS units (in addition to the existing two dry scrubbers and three ESPs.) The District's evaluation also 2-28

[1] The rule development history for the proposed amended Rule 2002 is somewhat complex and lengthy. Briefly, Table 4 of Proposed Amended Rule 2002 indicates that BARCT for container glass melting furnaces is a SOx emission rate of 5 ppm, equivalent to 0.03 pound of SOx per ton of glass pulled. The District's December 2009 *Draft Staff Report for Proposed Amended Regulation XX* identifies this as representing 95% control from Owens' 2005 SOx emission rate of 0.62 pound per ton of glass pulled. As the final BARCT study report indicates, emissions at the Owens facility are already controlled with two dry scrubbers, followed by three electrostatic precipitators (ESPs). Based on information presented by the District at its September 8, 2010 SOx RECLAIM Public Consultation Meeting, Tier I BARCT had previously been determined to be the 1993 average Reported Value of 2.51 pounds SOx per ton of glass pulled; therefore the proposed BARCT level represents a 99% reduction in SOx emissions.

did not consider the severe operational difficulties encountered by another container glass manufacturer when it attempted to operate a WGS in conjunction with an oxy-fueled glass furnace. As described below, the engineering analysis did not fully calculate the cost of WGS retrofits and RECLAIM compliance modifications. Considering these issues, BARCT for container glass melting furnaces should not be established any lower than presently achieved at Owens with its dry scrubbers operated in conjunction with ESPs.

2-28 Cont'd

3. Section (f)(1)(Q) should be clarified to indicate that it applies only to new SOx RECLAIM program entrants. Rule 2002 section (f)(1)(Q) provides that:

> "SOx Allocations for compliance years 2012 and after, for facilities that enter RECLAIM after (date of adoption) and for basic equipment listed in Table 4 shall be determined according to the BARCT level listed in Table 4 or the permitted emission limits, which ever is lower."

2-29

Section (f)(1)(Q) should be clarified to indicate that SOx allocations for facilities entering RECLAIM after rule adoption (new facilities) with equipment listed in Table 4 will receive allocations for 2012 and later based on the BARCT limits in Table 4 or based on permitted levels (whichever is lower). As written, section (f)(1)(Q) could be interpreted as also requiring allocations for existing facilities with basic equipment listed in Table 4 be reduced to Table 4 BARCT levels effective 2012, which runs contrary to the provisions of proposed sections (f)(1)(I) and (f)(1)(J).

Specific Comments on Best Available Control Technology:

The Owens Vernon facility operates two oxy-fuel furnaces (Furnace B, rated at 60 MMBtu/hr, and Furnace C, rated at 100 MMBtu/hr). These two process units are controlled by dry scrubber sorbent (Trona) injection, followed by three 3-field electrostatic precipitators (ESPs) which remove the sorbent and particulate emissions associated with glass melting. The use of three ESPs is required to provide redundancy in controls, as the underlying equipment (glass melting furnaces) cannot be shut down. Furnace B has a permitted SOx emission rate of 3.15 pounds SOx/ton of glass pulled; Furnace C has a permitted SOx emission rate of 2.4 pounds SOx/ton of glass pulled.

2-30

Following the adoption of RECLAIM, the facility first installed a United McGill semi-dry SOx scrubber on Furnace B in 1994. This control configuration proved infeasible in the long term due to maintenance and operational issues, as agreed to by the District Hearing Board, and was subsequently replaced by a dry scrubber, which was optimized through the use of Trona sorbent materials. Testing on the unit demonstrated up to 90% control efficiency relative to SOx; however, the systems typically operate at a 75-85% control level. With this general background, we provide specific comments related to the District's BARCT evaluation and proposed control level:

4. The emission reductions associated with the specific combination of controls relied upon by the District to achieve its proposed BARCT level has not been achieved in practice. We know of no installation in which a facility relies upon dry scrubbing, dry ESPs, followed by wet scrubbing to achieve the emission reductions anticipated by the District. Further, we have talked to equipment vendors, engineering/environmental staff at glass manufacturing facilities, and independent consultants, and they are aware of no such control configurations. We anticipate such a combination of controls would encounter the following challenges:
    - There is no discussion as to why two wet scrubbers (with a combined capacity of 60,000 cfm) are to be applied to control emissions from three ESPs (with a combined capacity of 90,000 cfm). To maintain the quick dispatch, operating pressures (addressed further below) and current redundancy in the existing control configuration, a single wet scrubber is required to follow each ESP. Thus, three wet scrubbers will be required to support the Vernon facility, as opposed to the two units considered in the ETS, Inc. analysis.
    - Pressure drop over the dry scrubber and dry ESP stages could preclude the wet scrubber stage from achieving the anticipated SOx removal efficiencies, and unless properly managed, can adversely affect the operation of the oxy-fuel furnace itself. Management of the furnace operating pressures and pressure drop across all three controls (Trona injection, ESP, wet scrubber) would require use of variable fans/process controls that are not addressed in the December 2008 ETS, Inc. report. Failure to properly maintain pressures throughout the system will compromise the furnace operation (including potential catastrophic failure), particulate control and sulfur oxide control efficiencies. In addition to these technical issues, the costs for viable induction fan motors/drives and process controls do not appear to have been considered.
    - Injection of sodium sesquicarbonate (Trona) in the dry scrubber stage results in increased particulate loading that is removed by three ESPs operating in parallel. While there is redundancy in the use of three ESPs, the ESP control units break down and when this occurs, increased particle loading to be routed directly to the wet scrubbers would occur at an uncontrolled rate of 120-150 pounds/hour. No discussion is provided as to how the wet scrubber technology will be protected when there is an upset condition in the Trona injection/ESP operation. This is a significant issue as high particulate loading will foul and compromise the wet scrubber technology.
    - We note that the particulate loading design value provided by ETS to the various equipment vendors understated the particulate loading allowed by the permit by an order of magnitude (0.008 grains/dry standard cubic foot cited in the ETS report versus the permit limit of 0.08 grains/dry standard cubic foot). The ETS, Inc. analysis should be corrected, and vendors contacted to assure that increased particulate loading can be accommodated by the wet scrubber technology.
    - Selenium is present in Owens' exhaust gas. Large quantities of water will be required to cool the exhaust gas to the temperature range required for the wet scrubbers, as well as for operation of the wet scrubbers. This water will require

2-30 Cont'd

treatment to remove the selenium prior to off-site disposal. There is no detailed analysis of the technical feasibility to treat this stream; rather the ETS, Inc. report assumes that one of four options is feasible at a cost of $225,000, which in our view ignores technical issues and simply throws money at the problem without solving this issue. As an example, one of the options proposed in the ETS report for treating wastewater (Option 3 on page 6 of the ETS report) is to send blowdown from the scrubbers to a storage tank and then spray it into the duct ahead of the precipitators to evaporate the water and collect the dry particulate in the ESPs. This does not account for the PM loading to the ESPs associated with Trona injection, does not address whether the exhaust temperature will be sufficient to support evaporation of the water, nor does it account for the potential issues associated with adsorption/absorption of the water by the Trona and particulate matter.

Owens encountered a nearly identical situation in 1997, when it experienced moisture buildup in the ESPs resulting in short-circuits within the units, as a result of water injection prior to the ESPs and insufficient temperatures to evaporate the water. At the time, Owens was operating a semi-dry scrubber on Furnace B, in which soda ash and water were injected into the furnace exhaust prior to the ESP. Previously, Owens had been operating three furnaces, and the combined exhaust temperature was sufficient to support evaporation of the injected water. However, once Furnace A was shut down, exhaust temperature dropped, resulting in condensation buildup in the ESPs. The condensation buildup, combined with the ESP dust, became acidic and corroded wiring within the ESPs. Acidic water also began leaking outside the ESPs, necessitating additional abatement efforts. Owens attempted to prevent heat loss by adding insulation on the ducting, which proved insufficient. Owens also considered raising the scrubber exhaust temperature, but recognized that this was infeasible since it would require reducing the exhaust gas residence time and reduce the scrubber control efficiency [*Petition for an Ex Parte, Emergency, and a Short Variance*, Case No. 4472-9, Facility ID 007427, May 15, 1997, paragraphs 6-10].

2-30 Cont'd

- We note that the Ball Foster El Monte facility was unable to achieve compliance with its selenium discharge permit limits when operating a wet scrubber. Based on discussions with former company staff, high selenium concentrations in wastewater discharge resulted in non-compliance penalties and was a key consideration in the decision by the company to switch to dry scrubber control technology.
- No analysis is provided of the acute health risk posed by emissions of 50% NaOH scrubber mist that will be released from the operation of the three wet scrubbers, and whether this incremental acute health risk is within District Rule 1401 requirements. The District's CEQA analysis improperly focuses on storage of sodium hydroxide, and fully ignores emissions from the wet scrubber stack. As indicated below, this toxics analysis is especially important, as the wet scrubber controls require that exhaust temperatures be reduced to ~150

degrees F. This lower exhaust temperature will reduce the buoyancy of the plume, and increase ambient concentrations near the facility.

- No analysis has been performed to show compliance with the new federal ambient standard for nitrogen dioxide. The wet scrubber technology requires that the temperature of the exhaust gas has to be reduced from 650 degrees F to ~150 degrees F. This significant reduction in exhaust temperature will significantly reduce the buoyancy of the plume, and thus increase ambient concentrations of exhaust gases, including nitrogen dioxide, particulate, air toxics, and combustion gases. This refined analysis must be performed as it will be required by the District.
- As we will comment as part of the CEQA documentation, the District has not evaluated the ability to introduce a new hazardous material (50% sodium hydroxide solution) into a manufacturing process consistent with the California Legislature's directive under the new Green Chemistry Initiative, which will be in effect when SOx emission reduction process modifications will be made.

5. Adding a wet scrubber stage to the Owens SOx emissions control system is technically infeasible. Beyond the technical issues identified in the immediately preceding comment, Owens will encounter the following issues which preclude addition of a wet scrubber stage:
   - There is insufficient space next to the existing controls to install three wet scrubbers, stacks, and necessary support equipment adjacent to the existing facility. As explained to ETS at the time of their site visit, there is a single 14'x22' pad proximate to the existing three ESPs. In our experience, this is insufficient to locate three wet scrubber towers rated at 30,000 cfm each, and associated pumps/Continuous Emissions Monitoring Systems (CEMS) and related process equipment.
   - Owens would have only two options for installing the required wet scrubber controls: 1) installing the control systems in its parking lot located to the east of the existing ESPs and running ducting over the top of a building (which would pose unacceptable safety issues); or 2) tearing down a building. No cost/feasibility analysis was provided for these two options.

2-30
Cont'd

6. Costs associated with BARCT for container glass melting furnaces is understated. Costs are underestimated for the following reasons:
   - As previously stated, BARCT for container glass melting furnaces is currently established at a level of 2.51 pounds of SOx per ton of glass pulled. Based on the District's evaluation of BARCT, achieving the proposed BARCT level of 0.03 pound SOx per ton of glass pulled would require a combination of dry scrubbers, dry ESPs, and wet scrubbers. Therefore, at a minimum, the costs for all three technologies need to be incorporated into the cost-effectiveness analysis.
   - The BARCT cost estimates need to account for three wet scrubbers and associated ducting/support equipment as each ESP will require a dedicated wet scrubber to maintain needed control redundancy for the oxy-fuel furnaces.

- As indicated above, the ETS report provides no basis for the estimated $225,000 in capital costs associated with wastewater treatment, which can be significant as selenium is especially hard to treat to RWQCB discharge limits.
- No costs are provided for the construction of three new exhaust stacks, for relocation and installation of the CEMS on each of these three stacks, for permitting of the CEMS with the District's RECLAIM group, for the new Relative Accuracy Test Audits that must be performed, or for the costs of RTCs to cover the missing data that will be recorded by the new CEMS. Our prior experience on CEMS monitoring systems indicates that costs for three such systems can exceed $250,000 for each CEMS.
- No technical data are provided to support the estimated 25-year useful life of a caustic wet scrubber. Our experience with caustic wet scrubbers suggests a shorter useful life (10-15 years), which is also typical of useful life assumptions based on EPA and other local air district control technology analyses.

2-30
Cont'd

7. <u>The District did not consider the implementation challenges faced by Ball-Foster when attempting to utilize a wet scrubber to control SOx emissions from an oxy-fueled glass furnace in the mid-1990s</u>. In February 1995, Ball-Foster converted its regenerative glass furnace to oxy-fuels operation at its El Monte facility. Previously, the furnace had utilized a venturi wet scrubber to control PM emissions. After the conversion, Ball-Foster reconnected the furnace to the wet scrubber. Starting one month later, the scrubber began experiencing numerous equipment failures, including component overheating and damage, plugging, and excessive solids buildup – prompting numerous emergency breakdowns. After struggling with the scrubber operational problems for a year, Ball-Foster informed the District Hearing Board that it intended to replace the wet scrubber with an ESP to control particulate emissions, and a dry scrubber to control SOx emissions. By mid-1997, the wet scrubber had been removed and replaced by a dry scrubber and ESP [*Petition for Modification and Extension of a Variance*, Case No. 108-20, Facility ID 108701, April 9, 1997, paragraphs 6-14]. Like the Ball-Foster furnace, both of Owens' glass furnaces are oxy-fuel fired.

8. <u>BARCT for container glass meting furnace SOx emissions should be established as the emission rate achievable by Owens' current dry scrubber/ESP control system</u>. Based on information presented in the District's December 2009 Draft Staff Report, this would be a level of between 0.62 and 1.05 pounds SOx per ton of glass pulled, and represent the combination of process modifications and control technology. Notably, this SOx emissions limit is below the permitted SOx emission rate (1.6 pounds SOx/ton of glass pulled) established for the Seattle, Washington container glass plant that that is controlled by the wet scrubber technology evaluated by the District in its BARCT determination.

DGS.OUT

09/27/10
14:50:40

```
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

NOx via dry scrubber

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE             =         POINT
   EMISSION RATE (G/S)     =       2.00000
   STACK HEIGHT (M)        =       26.8000
   STK INSIDE DIAM (M)     =        1.0700
   STK EXIT VELOCITY (M/S)=        15.7455
   STK GAS EXIT TEMP (K)   =      616.4833
   AMBIENT AIR TEMP (K)    =      293.1500
   RECEPTOR HEIGHT (M)     =        0.0000
   URBAN/RURAL OPTION      =         URBAN
   BUILDING HEIGHT (M)     =       12.1920
   MIN HORIZ BLDG DIM (M) =       30.4800
   MAX HORIZ BLDG DIM (M) =       45.7200

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


BUOY. FLUX =   23.179 M**4/S**3;  MOM. FLUX =   33.743 M**4/S**2.

*** FULL METEOROLOGY ***

**********************************
*** SCREEN AUTOMATED DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***
```

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
50.	5.097	4	20.0	25.6	6400.0	27.33	7.95	9.46	HS
100.	28.07	3	8.0	9.7	2560.0	36.89	21.76	20.21	HS
200.	22.65	4	8.0	10.2	2560.0	42.04	31.10	27.54	HS
300.	17.26	4	8.0	10.2	2560.0	46.77	45.71	40.63	HS
400.	16.05	4	4.0	5.1	1280.0	71.02	60.75	54.40	NO
500.	14.63	4	3.5	4.5	1120.0	77.34	74.44	66.85	NO
600.	13.68	6	1.0	1.3	10000.0	90.53	62.00	39.30	NO
700.	17.24	6	1.0	1.3	10000.0	90.53	70.45	43.14	NO
800.	19.83	6	1.0	1.3	10000.0	90.53	78.73	46.83	NO
900.	21.54	6	1.0	1.3	10000.0	90.53	86.82	50.37	NO
1000.	22.54	6	1.0	1.3	10000.0	90.53	94.73	53.77	NO
1100.	23.00	6	1.0	1.3	10000.0	90.53	102.46	57.04	NO
1200.	23.08	6	1.0	1.3	10000.0	90.53	110.02	60.19	NO
1300.	22.89	6	1.0	1.3	10000.0	90.53	117.41	63.23	NO
1400.	22.52	6	1.0	1.3	10000.0	90.53	124.64	66.17	NO
1500.	22.04	6	1.0	1.3	10000.0	90.53	131.71	69.01	NO
1600.	21.48	6	1.0	1.3	10000.0	90.53	138.63	71.77	NO
1700.	20.89	6	1.0	1.3	10000.0	90.53	145.42	74.44	NO
1800.	20.27	6	1.0	1.3	10000.0	90.53	152.07	77.04	NO
1900.	19.65	6	1.0	1.3	10000.0	90.53	158.59	79.58	NO
2000.	19.03	6	1.0	1.3	10000.0	90.53	164.99	82.05	NO
2100.	18.43	6	1.0	1.3	10000.0	90.53	171.27	84.45	NO
2200.	17.85	6	1.0	1.3	10000.0	90.53	177.43	86.81	NO
2300.	17.29	6	1.0	1.3	10000.0	90.53	183.49	89.10	NO
2400.	16.75	6	1.0	1.3	10000.0	90.53	189.45	91.35	NO
2500.	16.23	6	1.0	1.3	10000.0	90.53	195.31	93.56	NO
2600.	15.73	6	1.0	1.3	10000.0	90.53	201.07	95.71	NO

Page 1

DGS.OUT

2700.	15.26	6	1.0	1.3	10000.0	90.53	206.74	97.83	NO
2800.	14.81	6	1.0	1.3	10000.0	90.53	212.32	99.90	NO
2900.	14.38	6	1.0	1.3	10000.0	90.53	217.81	101.94	NO
3000.	13.97	6	1.0	1.3	10000.0	90.53	223.23	103.94	NO
3500.	12.18	6	1.0	1.3	10000.0	90.53	249.18	113.47	NO
4000.	10.77	6	1.0	1.3	10000.0	90.53	273.48	122.31	NO
4500.	9.623	6	1.0	1.3	10000.0	90.53	296.38	130.59	NO
5000.	8.687	6	1.0	1.3	10000.0	90.53	318.06	138.40	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 50. M:

120.	29.94	3	8.0	9.7	2560.0	38.25	26.20	24.42	HS

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

```
*****************************************
     *** REGULATORY (Default) ***
    PERFORMING CAVITY CALCULATIONS
  WITH ORIGINAL SCREEN CAVITY MODEL
          (BRODE, 1988)
*****************************************
```

*** CAVITY CALCULATION - 1 ***			*** CAVITY CALCULATION - 2 ***		
CONC (UG/M**3)	=	0.000	CONC (UG/M**3)	=	0.000
CRIT WS @10M (M/S)	=	99.99	CRIT WS @10M (M/S)	=	99.99
CRIT WS @ HS (M/S)	=	99.99	CRIT WS @ HS (M/S)	=	99.99
DILUTION WS (M/S)	=	99.99	DILUTION WS (M/S)	=	99.99
CAVITY HT (M)	=	12.95	CAVITY HT (M)	=	12.34
CAVITY LENGTH (M)	=	41.30	CAVITY LENGTH (M)	=	32.82
ALONGWIND DIM (M)	=	30.48	ALONGWIND DIM (M)	=	45.72

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S. CONC SET = 0.0

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*****************************************
     END OF CAVITY CALCULATIONS
*****************************************
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     ****************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ****************************************
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CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	29.94	120.	0.

WGS.OUT

09/27/10
14:50:27

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

NOx via wet scrubber

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	2.00000
STACK HEIGHT (M)	=	26.8000
STK INSIDE DIAM (M)	=	1.0700
STK EXIT VELOCITY (M/S)	=	15.7455
STK GAS EXIT TEMP (K)	=	338.7056
AMBIENT AIR TEMP (K)	=	293.1500
RECEPTOR HEIGHT (M)	=	0.0000
URBAN/RURAL OPTION	=	URBAN
BUILDING HEIGHT (M)	=	12.1920
MIN HORIZ BLDG DIM (M)	=	30.4800
MAX HORIZ BLDG DIM (M)	=	45.7200

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = 5.944 M**4/S**3; MOM. FLUX = 61.417 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
50.	6.577	4	20.0	25.6	6400.0	26.45	7.93	9.44	HS
100.	37.71	2	4.5	5.2	1440.0	42.43	31.56	25.40	NO
200.	50.21	3	2.5	3.0	800.0	53.59	43.03	40.73	NO
300.	47.40	4	2.0	2.6	640.0	58.67	46.26	41.25	NO
400.	44.61	4	1.5	1.9	480.0	69.30	60.65	54.29	NO
500.	39.96	4	1.0	1.3	320.0	90.55	75.27	67.77	NO
600.	39.78	6	1.0	1.3	10000.0	67.29	60.39	36.69	NO
700.	43.13	6	1.0	1.3	10000.0	67.29	69.04	40.79	NO
800.	44.01	6	1.0	1.3	10000.0	67.29	77.46	44.67	NO
900.	43.43	6	1.0	1.3	10000.0	67.29	85.68	48.37	NO
1000.	42.03	6	1.0	1.3	10000.0	67.29	93.68	51.90	NO
1100.	40.24	6	1.0	1.3	10000.0	67.29	101.49	55.28	NO
1200.	38.29	6	1.0	1.3	10000.0	67.29	109.12	58.53	NO
1300.	36.33	6	1.0	1.3	10000.0	67.29	116.56	61.65	NO
1400.	34.42	6	1.0	1.3	10000.0	67.29	123.84	64.66	NO
1500.	32.60	6	1.0	1.3	10000.0	67.29	130.96	67.56	NO
1600.	30.89	6	1.0	1.3	10000.0	67.29	137.92	70.38	NO
1700.	29.30	6	1.0	1.3	10000.0	67.29	144.74	73.10	NO
1800.	27.83	6	1.0	1.3	10000.0	67.29	151.42	75.75	NO
1900.	26.47	6	1.0	1.3	10000.0	67.29	157.96	78.33	NO
2000.	25.21	6	1.0	1.3	10000.0	67.29	164.39	80.83	NO
2100.	24.04	6	1.0	1.3	10000.0	67.29	170.69	83.28	NO
2200.	22.96	6	1.0	1.3	10000.0	67.29	176.88	85.66	NO
2300.	21.96	6	1.0	1.3	10000.0	67.29	182.95	87.99	NO
2400.	21.04	6	1.0	1.3	10000.0	67.29	188.93	90.26	NO
2500.	20.17	6	1.0	1.3	10000.0	67.29	194.80	92.49	NO
2600.	19.37	6	1.0	1.3	10000.0	67.29	200.57	94.67	NO

Page 1

WGS.OUT

2700.	18.63	6	1.0	1.3	10000.0	67.29	206.26	96.81	NO
2800.	17.93	6	1.0	1.3	10000.0	67.29	211.85	98.91	NO
2900.	17.28	6	1.0	1.3	10000.0	67.29	217.36	100.97	NO
3000.	16.67	6	1.0	1.3	10000.0	67.29	222.79	102.99	NO
3500.	14.14	6	1.0	1.3	10000.0	67.29	248.79	112.60	NO
4000.	12.24	6	1.0	1.3	10000.0	67.29	273.12	121.50	NO
4500.	10.77	6	1.0	1.3	10000.0	67.29	296.05	129.83	NO
5000.	9.607	6	1.0	1.3	10000.0	67.29	317.75	137.69	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 50. M:

187.	50.60	3	2.5	3.0	800.0	53.59	40.62	38.37	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

```
*****************************************
     *** REGULATORY (Default) ***
    PERFORMING CAVITY CALCULATIONS
  WITH ORIGINAL SCREEN CAVITY MODEL
          (BRODE, 1988)
*****************************************
```

*** CAVITY CALCULATION - 1 ***			*** CAVITY CALCULATION - 2 ***		
CONC (UG/M**3)	=	0.000	CONC (UG/M**3)	=	0.000
CRIT WS @10M (M/S)	=	99.99	CRIT WS @10M (M/S)	=	99.99
CRIT WS @ HS (M/S)	=	99.99	CRIT WS @ HS (M/S)	=	99.99
DILUTION WS (M/S)	=	99.99	DILUTION WS (M/S)	=	99.99
CAVITY HT (M)	=	12.95	CAVITY HT (M)	=	12.34
CAVITY LENGTH (M)	=	41.30	CAVITY LENGTH (M)	=	32.82
ALONGWIND DIM (M)	=	30.48	ALONGWIND DIM (M)	=	45.72

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S. CONC SET = 0.0

```
*****************************************
      END OF CAVITY CALCULATIONS
*****************************************
```

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     ****************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ****************************************
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CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	50.60	187.	0.

Responses to Comment Letter #2
(Owens-Brockway Glass Container, October 1, 2010)

2-1 Individual responses to the technical issues and background comments submitted have been prepared and begin with Response to Comment 2-3. Regarding the claim that the facility is already at BARCT, see Response to Comment 2-4.

2-2 Owens-Brockway Glass Container Inc. (Vernon Branch) is a subsidiary of Owens-Illinois, Inc. According to the website for Owens-Illinois, the parent company of Owens-Brockway, in 2009 Owens-Illinois had 22,000 employees in 21 countries with net sales of $7.1 billion[1] and a gross profit margin of 21 percent. SCAQMD records confirm that Owens-Brockway is the only glass container facility in the district.

According to the proposed amendments, there is an adequate amount of RTCs in the current SOx RECLAIM market that affected facilities could use. Currently, the surplus of RTCs in 2005 is about 1.73 tons per day and the surplus of RTCs in 2008 is about 2.55 tons per day (out of total RTC holdings of 11.77 tons per day). The amount of RTCs converted from ERCs contributed to the size of the surplus. In addition, the amendments instituted several safety valves to prevent potential facility shutdowns: 1) gradual annual reductions with extended compliance schedule (2012-2019); 2) monitoring of RTC price trend (12 month rolling average), 3) hold Public Hearing if RTC price exceeds $50,000 per ton (discrete price), 4) ability for Governing Board to set aside (give back) up to 100 percent of RTC reductions for any year when RTC price exceeds $50,000 per ton.

Based on the Staff Report the cost-effectiveness for the glass plant is estimated to be $9,000 per ton of SOx reduced. The average annual cost of complying with the proposed requirements is estimated to be $0.52 million (socioeconomic report). Based on the above assumptions, Owens-Brockway Glass Container facility is not expected to shutdown due to the requirements of the proposed amendments.

2-3 The particulate buildup problems that Owens-Brockway and Ball-Foster Glass Container encountered between 1994 and 1997 are not expected to occur with the WGSs proposed by the consultant ETS Inc. (ETS) because ETS proposed to remove the two existing dry gas scrubbers located upstream of the ESPs and replace them with two WGSs located downstream of the ESPs. The ESPs located upstream of the wet gas scrubbers will collect particulate matter and prevent excessive particulate buildup in the wet gas scrubbers. In addition, fine powder Trona injection needed for the dry gas scrubbers would no longer be needed, and thus any Trona leakage to the ESPs would drop to zero, and the particulate loading to the ESPs would be reduced significantly. Detailed explanations on the problems occurred at Owens-Brockway and Ball-Foster Glass Container encountered between in 1994 and 1997 are presented in the following paragraphs.

Owens-Brockway

Owens-Brockway currently operates two oxy-fuel furnaces (Furnace B, 60 MMBtu/hr, and Furnace C, 100 MMBtu/hr). Previously, Owens-Brockway operated three furnaces

[1] O-I Announces Third Quarter Earnings Conference Calland Webcast, September 20, 2010. http://www.o-i.com/nth_us.aspx?id=400; http://www.o-i.com/about_oi.aspx?id=1348 and http://www.o-i.com/nth_us.aspx?id=400

(Furnace A, B and C). In 1974, Owens-Brockway installed a United McGill semi-wet scrubber using soda ash as the scrubbing agent to control SOx. The particulate matter emissions from the three furnaces are controlled by three ESPs located downstream of the semi-wet scrubber (any two ESPs are in operation at one time, while one ESP is stand-by.) As explained by Ashworth Leininger Group (ALG), Owens-Brockway experienced numerous problems with the semi-wet scrubber and ESPs because during a period when one of the furnaces (Furnace A, non-oxy fuel furnace) was shutdown in December 1996, the exhaust temperature dropped, resulting in condensation buildup in the ESPs. ALG further explained that the condensation buildup caused corrosion within the ESPs. For this reason, Owens-Brockway had to seek several variances from the SCAQMD Hearing Board in 1997 and finally decided to remove the semi-wet scrubber and replaced the semi-wet scrubber with the two dry gas scrubbers. Trona, a very fine powder, is currently used as sorbent in the dry gas scrubbers.

SCAQMD staff believes that the problems with the semi-wet scrubber and ESPs were not caused by equipment capability, but equipment operation. Condensation problems would not have occurred in the ESPs if Furnace A were not shut down and the temperature of the flue gas entering the ESPs was high enough to prevent moisture condensation in the ESPs. The following, excerpted from Owens-Brockway Glass Container Corp.'s May 14, 1997 Petition for an Ex Parte, Emergency, and a Short Variance (Case No. 4472-9) supports SCAQMD staff's position:

> *"Prior to discontinuing the operation of Furnace A, the temperature of the combined exhausts from Furnaces A and C, when mixed with Furnace B exhaust, was high enough to keep the exhaust moisture content as vapor in the ESP. Since Petitioner has only been operating Furnaces B and C, the volume of exhaust has been reduced and the combined exhaust temperature has not been high enough to keep exhaust mixture in the form of vapor as exhaust enters the ESPs. Consequently, moisture condenses in the ESPs."*

Ball-Foster Glass Container

The problem that occurred at Ball-Foster Glass Container (aka Saint-Gobain Containers) was very different in nature than the problem that occurred at Owens-Brockway. Ball-Foster Glass Container did not use ESPs to control particulate matter. They operated a wet venturi, variable throat scrubber using soda ash as absorbent to control both SOx and particulate matter. In 1993, they converted their existing glass furnace to an oxy-fuel furnace which was operated with significantly less combustion air, which subsequently resulted in reducing the volume of exhaust flue gas from the furnace to the venturi scrubber and increasing the particulate loading to the scrubber. SCAQMD staff believes that the excessive solids build-up in the scrubber system was due to failure to redesign the venturi wet scrubber to handle the excessive particulate loading after the conversion to the oxy-fuel furnace. In 1999, Ball-Foster Glass Container removed the venturi wet scrubber and replaced it with a dry gas scrubber to control SOx and an ESP to control particulate matter.

2-4 Control technology has improved over time. The dry gas scrubbers operating at 80 percent to 90 percent control efficiency were considered as BARCT for SOx in 1994. However, between 2008 and 2010, two consultants (ETS and NEC) expressed agreement that non-regenerative wet gas scrubbers can achieve a range from 1 ppmv to 5 ppmv SOx outlet concentration (95 percent control efficiency or more from the 2005 emissions baseline, 99 percent from the uncontrolled level assuming that the dry gas scrubbers operated at 80

percent control efficiency) and thus, should be considered as BARCT for SOx for glass melting furnaces. While these two consultants recommended different types of WGSs, however, they both concurred that WGSs would be cost-effective and SCAQMD staff concurs with the consultants' recommendations. The two consultants both recommended keeping the existing ESPs in place for particulate control and placing the wet gas scrubbers downstream of the ESPs.

In addition, the proposed BARCT level for glass melting furnaces has been achieved in practice. Specifically, the Puget Sound Clean Air Agency in Seattle, Washington provided SCAQMD staff with source test and CEMS data from Saint-Gobain, a glass container facility, that demonstrates compliance with 5 ppmv SOx levels (96 percent control) via Tri-Mer's Cloud Chamber scrubber. The furnace at Puget Sound has a permit limit of 1.6 pounds of SOx per ton of glass pulled but tested at 0.0062 pound of SOx per ton of glass pulled [2, 3]. SCAQMD staff had multiple conversations with Tri-Mer about their WGS technology, and Tri-Mer indicated to SCAQMD staff that they provided many types of WGS that can be used to achieve 5 ppmv SOx outlet concentration, either packed bed, open throat, venturi, or Cloud Chamber scrubber. The Cloud Chamber scrubber can also be used as a particulate control device.

The commenter has indicated that dry gas scrubbers can achieve up to 90 percent control. It is interesting to note that Owens-Brockway currently holds 0.31 ton per day of RTCs. With the proposed RTC shave of 55 percent, Owens-Brockway remaining allocations would be 0.14 ton per day. The 2005 emissions from Owens-Brockway were about 0.2 ton per day at 80 percent control[4]. Thus, if the control efficiency of dry gas scrubbers were improved to 90 percent as the commenter notes is achievable, then Owens-Brockway would already be in compliance with the shave at 0.1 ton per day of SOx emissions[5]. However, if Owens-Brockway operators choose to install wet gas scrubbers, surplus RTCs will be created that could be sold when needed.

2-5 Regarding the comment that the Draft PEA does not demonstrate that adequate water supplies are available, see Responses to Comments 3-14, 3-19, 3-29, 3-31, 3-43, 3-45, and 3-46.

2-6 The Draft PEA concludes that the water demand impacts are significant for potable water demand, not total water. Thus, mitigation measures HWQ-1 and HWQ-2 are designed to minimize the use of potable water by utilizing recycled water instead. The SCAQMD has identified no other feasible mitigation measures (or alternatives) that would mitigate to less than significance the need for potable water. While arguing that the SCAQMD has not required all feasible mitigation, the comment fails to identify any additional measures. With regard to the content of the cumulative water demand impacts discussion, CEQA Guidelines §15130(b) requires the discussion of cumulative impacts to reflect the severity of the impacts and the likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. SCAQMD staff

[2] Horizon Engineering, "Source Test Evaluation Report for Saint-Gobain, Seattle, Washington, Glass Melting Furnace No. 5 with Cloud Chamber Scrubber," September 18, 2009.

[3] CEMS Summary Report from Saint-Gobain to Puget Sound Clean Air Agency, for a period from October 1, 2009 to October 31, 2009.

[4] SCAQMD Engineering Evaluation, A/N 288744, March 1994.

[5] 80% control of 1 ton per day = 0.2 ton per day, and 90% control of 1 ton per day = 0.1 ton per day

believes the cumulative water demand impacts discussion in the Draft PEA adequately describes why they are considered to be cumulatively considerable. For additional information, refer to Chapter 5 of the PEA.

2-7 The commenter does not provide any information or other data demonstrating why the analysis of the GHG impacts and the corresponding mitigation measures are inadequate. The Draft PEA contains a detailed discussion of the GHG impacts which is supported by the extensive calculations in Appendix B. Because the GHG emissions estimates exceed the SCAQMD's CEQA significance threshold of 10,000 MTCO2eq/yr, the impacts were concluded to be significant and all feasible mitigation measures were identified. See also Responses to Comments 3-9, 3-39, and 3-40.

2-8 The range of alternatives evaluated in a CEQA document must be sufficient to permit a reasoned choice, but need not include every conceivable project alternative. CEQA Guidelines §15126.6(c) specifically notes that the range of alternatives required in a CEQA document is governed by a 'rule of reason' and only necessitates that the CEQA document set forth those alternatives necessary to permit a reasoned choice. The key issue is whether the selection and discussion of alternatives fosters informed decision making and meaningful public participation. A CEQA document need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. SCAQMD Rule 110 (the rule which implements the SCAQMD's certified regulatory program) does not impose any greater requirements for a discussion of project alternatives in an environmental assessment than is required for an EIR under CEQA. The commenter's suggestion that the alternatives analysis is inadequate because none, other than Alternative A, the 'no project' alternative, specifically addresses glass manufacturing, represents a misunderstanding of the RECLAIM program. Under RECLAIM, a facility may purchase RTCs in lieu of installing control equipment. Thus, the proposed project and each of the alternatives potentially affect the subject facility because it as an affected RECLAIM facility and are evaluated as part of an overall regulatory program, which is why a Program EA was prepared. As part of a regulatory program, a smaller shave, for example, would reduce compliance obligations for all facilities that would be subject to the proposed project. Moreover, Alternative A is a required alternative (CEQA Guidelines §15126.6(e)). Finally, CEQA requires a range of reasonable alternatives (CEQA Guidelines §16126.6(a)), which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. The alternatives identified and evaluated for the proposed project comply with this and all other applicable CEQA requirements.

The NOP/IS prepared for the proposed project solicited suggestions for alternatives for the proposed project. Owens-Brockway did not submit any comments on the NOP/IS. Similarly, the commenter did not provide any specific recommendations for any alternatives beyond those evaluated in the PEA.

2-9 The commenter has misunderstood the assumptions about the timing with regard to facility operators implementing the proposed project. Under the RECLAIM program, facilities have the flexibility to install air pollution control equipment, change method of operations, or purchase RTCs to meet BARCT levels. As such, the Draft PEA has been crafted to explore multiple scenarios that illustrate the worst-case effects of applying the various SOx

control technologies along with demonstrating the flexibility that is provided by the RECLAIM program to facility operators when it comes to choosing the methods for reducing SOx emissions. Because of the program's built-in flexibility, as a practical matter, there is no way to predict what each facility owner/operator will do. However, not all of the affected facilities will need to take immediate action to comply with the proposed project.

The survey conducted by the consultants identified likely technologies that could be used to comply with reducing SOx emissions in connection with amending SOx RECLAIM rules. The following SOx control technologies were identified and environmental impacts of constructing and operating these equipment were analyzed in the PEA: WGSs, dry gas scrubbers, fuel gas treatment, SOx-reducing additives, et cetera. The focus of the environmental analysis is on WGS because their size and operating characteristics typically generate a greater number of or more substantial impacts than the other technologies (e.g., construction air quality impacts, water and hydrology impacts, et cetera).

If a facility operator chooses to install air pollution control equipment such as a WGS, the consultants' reports estimate that 18 months would be needed for pre-construction/advance planning activities such as engineering analysis of the affected equipment, engineering design of the potential control equipment, contracting with a vendor, securing financing, ordering and purchasing the equipment, obtaining permits and clearances, and lining up contractors and workers. Further, to physically build a WGS, the consultants' reports indicated that an additional 18 months would be needed. The Draft PEA considers the overlapping construction of building four WGSs within the same 18-month period. This overlap could occur anytime between the date of adoption (scheduled for November 5, 2010) and full implementation (January 1, 2019). However, as a practical matter, even if a facility starts the planning and engineering process now (at the time of this writing October 2010) to design a WGS installation (and some are in the very early pre-planning stages), construction is not expected to occur sooner than 2012. For these reasons, the Draft PEA considers <u>any</u> 18-month window between January 1, 2012 and January 1, 2019 (a span of seven years) when facilities could undergo construction activities. These dates correspond to the final compliance date for the proposed project (January 1, 2019) and the first year when the RTC shave will occur (2012). Thus, the analysis in the Draft PEA has demonstrated that the peak daily construction could not reasonably occur in year 2011.

2-10 In response to the comment about the availability of wet gas scrubbers, the consultants' worked with multiple manufacturers of wet gas scrubber technology and none of the manufacturers indicated that there would be a problem with the supply chain. In response to the comment that the Draft PEA should analyze the possibility where facilities would install SOx controls within a two-year period and not a seven-year period, see Response to Comment 2-9. For a discussion about "reasonable worst case" assumptions consistent with the CEQA Guidelines, see Response to Comment 3-19.

2-11 Individual responses to the detailed comments submitted per environmental topic have been prepared and begin with Response to Comment 2-12.

2-12 While the comment states that there are no visible steam plumes at the glass melting plant or in the immediate area, SCAQMD records[6] show that there are at least three cooling towers, which are sources of steam plumes, at Owens-Brockway and at two neighboring facilities within one mile of Owens-Brockway (Henry Company located at 5731 Bickett in Huntington Park and the Seven-Up/Royal Crown Bottling Company located at 3220 East 26th Street in Los Angeles). Cooling towers, essential to industrial and commercial processes that require heat dissipation, utilize an open wet system that relies on the latent heat of water evaporation to exchange heat between the process and the air passing through the cooling tower. As the water evaporates, a stream of saturated exhaust air, a steam plume, leaves the tower. The plume is visible when the water vapor it contains condenses in contact with cooler ambient air. Depending on a cooling tower's location and the surrounding atmospheric conditions such as temperature and humidity, i.e., in an area of typically high humidity and low temperatures (near the coast) versus an area of typically low humidity and high temperatures (inland desert areas), this water-saturated air can create a visible plume.

In addition to the aforementioned facilities, there is another facility, as shown in the following satellite photo, located near the corner of 50th Street and Seville Avenue in Vernon, approximately one block away from the glass melting plant, that currently has three visible steam plumes (as identified by the ellipse) emanating from three cooling towers[7]. These plumes are also part of the existing aesthetics setting of the area surrounding the Owens-Brockway facility. This means that if all of the cooling towers are operating, depending on the ambient temperature and humidity, visible steam plumes may be present at or throughout the area near the Owens-Brockway facility. However, as noted in the Final PEA and as illustrated in the following satellite photo, because of the existing plumes, one additional plume from each WGS installed is not expected to significantly adversely affect the visual continuity of the surrounding area of each affected facility because no scenic highways or corridors exist within the areas of the refineries, the coke calciner, the sulfuric acid plants and the glass melting plant. Further, because the plume from a new WGS is located in an industrial area and would likely be located approximately the same distance from residences, approximately ¼- mile away, compared to the existing plumes from the cooling towers, it would be no more noticeable to the closest residents than the existing plumes. Therefore, the conclusion that aesthetics impacts from implementing the proposed project would be less than significant continues to be valid.

[6] SCAQMD Cooling Tower Survey, 1988.

[7] http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=2901+fruitland+ave,+vernon,+ca&sll=37.0625,-95.677068&sspn=25.010803,50.625&ie=UTF8&hq=&hnear=2901+Fruitland+Ave,+Vernon,+Los+Angeles,+California+90058&ll=33.998928,-118.221114&spn=0.000796,0.002567&t=h&z=19

A = Owens-Brockway, located at 2901 Fruitland Avenue, Vernon, CA

2-13 The air quality impact analysis provided by the commenter relied on USEPA's SCREEN3 model using standardized operating conditions with the primary adjustment for exhaust temperature due to the installation of WGSs. SCREEN3 is a very conservative tool used to calculate the "worst case" one-hour maximum ground level concentration from an emissions source. The impact predicted from SCREEN3 is the 100th percentile concentration. While the analysis uses the recommended 75 percent conversion rate from NOx to NO2, the predicted NO2 continues to represent the 100th percentile concentration and is not consistent with the form of the standard. The current NAAQS for NO2 is based on the three-year average of the 98th percentile of NO2. As a consequence, the predicted SCREEN3 modeled concentrations do not conform to the standard and are expected to overestimate the ground level impact.

The analysis used the three-year average 98th percentile NO2 concentration measured at Central Los Angeles (158 µg/m^3, 2006-2008) as the background to be added to the ground level impact. While the selection of Central Los Angeles NO2 as background was correctly assumed, it is important to note that construction and operation of the WGSs are not expected to occur before 2011. The analysis in the Draft PEA assumes the earliest that installation of WGSs could occur would be in 2012, but installations may occur anytime between 2012 and 2019. Ambient averages of NO2 have decreased since 2000 in the Basin and at Central Los Angeles. Three-year averages of the annual average and one-hour maximum NO2 concentrations from 2000-2002 through 2006-2008 have been reduced by 22 and 25 percent, respectively. Regional NOx emissions were reduced by 22 percent for the same period. Implementing the 2007 AQMP together with ongoing NOx emission reductions from mobile sources is projected to continue the trend of lower NOx emissions

reductions in future years. This trend will result in lower ambient NO2 concentrations throughout the Basin. Implementing the 2007 AQMP together with ongoing reductions in mobile source NOx is projected to continue the trend of lower NOx emissions in future years. This will result in lower ambient NO2 throughout the Basin. Using the 2007 AQMP NOx emissions inventory, an emissions-weighted projection of NO2 at Central Los Angeles is estimated to be reduced by approximately 17 percent from 2008 to 2012. Furthermore, the projection to 2019 estimates that the NO2 concentration should be lowered by 34 percent compared with the 2008 values.

When a 2012 estimated background is applied to the "worst-case" SCREEN3 modeling analysis provided, the impacts from the exhaust streams from the furnaces (153 $\mu g/m^3$ without WGSs and 168 $\mu g/m^3$ with WGSs) would not exceed the NO2 standard. If construction of the WGSs is delayed until after 2012, the impacts would be even lower and the NO2 standard would continue to be met.

2-14 Although the CAPCOA document was not released until August 2010, staff evaluated the mitigation measures in that document to identify feasible mitigation that could further reduce the program level GHG impacts from the proposed project. The CAPCOA document groups related mitigation measures under general categories similar to the environmental topic categories on the environmental checklist (CEQA Guidelines Appendix G) to facilitate identification of mitigation measures that might apply to those environmental topics. The results of staff's review of the CAPCOA document are provided in the following bullet points.

- Energy – Energy mitigation measures in the CAPCOA document are divided into three categories: building energy use; alternative energy generation; and lighting. Building mitigation measures do not apply to the proposed project because they consist of energy efficiency strategies that do not apply to industrial facilities like those affected by the proposed project, e.g., energy efficient appliances, etc. Alternative energy generation strategies are not feasible because there may be space limitations, e.g., solar panel arrays, the strategies are not applicable to the affected facilities, e.g., methane recovery in landfills, or they may generate environmental impacts that were not evaluated in the PEA. Lighting mitigation strategies refer primarily to street lighting which is not within the SCAQMD's authority to require or enforce.

- Transportation – Transportation mitigation measures in the CAPCOA document are divided into seven subcategories. Transportation strategies such as increased diversity of the urban land for suburban developments, integrated affordable housing below market rate housing, provide traffic calming measures, incorporate bike lane street design, implement market price public parking (on-street), provide transit access, improvements, install park-and-ride lots, electrify loading docks, etc., are not applicable to the proposed project; would typically be implemented by cities, counties, or transit agencies; and are not within the SCAQMD's authority to require or enforce.

- Water – Water use mitigation measures in the CAPCOA document are divided into two subcategories: water supply and water use. Under water use, the use of recycled water is consistent with water-related mitigation measures, GHG-1, already required as a mitigation measure to reduce GHG impacts. Using recycled water reduces GHG emissions because less energy is required to collect, treat, and redistribute to the point of

use. Water use mitigation measures are generally not applicable to industrial facilities, e.g., design water-efficient landscapes, reduce turf in landscapes and lawns, etc.

- Area Landscaping – The three area landscaping mitigation measures are generally not applicable to industrial facilities because such facilities tend to be devoid of landscaping to reduce fire hazards.

- Solid Waste – The solid waste mitigation measures are not generally applicable to the proposed project, e.g., institute or extend composting services. Recycling demolition materials may be a possible mitigation measures, but demolition is not expected to generate large enough volumes of waste that recycling would generate substantial reductions in GHG emissions.

- Vegetation – Of the two mitigation measures under vegetation the measure to create vegetated open space may not be feasible because of safety concerns (see area landscaping) and the industrial facilities may not have space. Although urban tree planting is a potential option, the cost effectiveness of this measure ranges from $145 per metric ton (with synergistic energy benefits) up to $1,276 per metric ton (without the energy effects)8. Given that GHG emission impacts from the propose project were calculated to be 38,771 MTCO2 per year, to reduce impacts to less than significant, 28,772 MTCO2 per year for 30 years (the life of the project), would need to be reduced making this mitigation measure cost-prohibitive and, therefore, infeasible.

- Construction – The PEA for the proposed project already includes several of the applicable construction mitigation measures, e.g., limit construction equipment idling, use alternative fuels for onsite equipment, etc.

- Miscellaneous – Most of the miscellaneous mitigation measures are not applicable to the proposed, e.g., require best management practices at agricultural and animal operations, or are too vague to provide useful mitigation, e.g., implement an innovative strategy for GHG mitigation, or its efficacy has not been fully verified, carbon sequestration.

In addition to the above discussion of GHG mitigation measures, it is necessary to point out that the analysis of potential adverse environmental impacts incorporates a "worst-case" approach. This entails the premise that whenever the analysis requires that assumptions be made, those assumptions that result in the greatest adverse impacts are typically chosen. This method likely overestimates the actual environmental impacts from the proposed project. Further, the SOx RECLAIM program is a cap-and-trade program so that it is not known and cannot be known at this time if affected facility operators will install control equipment generating the greatest or most significant environmental impacts, will install control equipment that generates fewer or less significant environmental impacts, or purchase SOx RTCs. Consequently, it is speculative at this time to predict with certainty the actual future GHG impacts from the proposed project. As a result, the need for additional GHG mitigation measures will be evaluated on a facility-by-facility basis during the permit application process.

[8] McHale, M. R., McPherson, E. G., and Burke, I. C. 2007. The Potential of Urban Tree Plantings to be Cost Effective in Carbon Credit Markets. Urban Forestry & Urban Greening 6 (2007) 49 – 60.

Finally, because GHG impacts would occur at industrial facilities, AB 32 is mentioned in the Draft PEA as part of the mitigation measure discussion because it is an ongoing process under development by CARB. While there is nothing in CARB's adopted "early action measures" or CARB's GHG reduction measures that specifically apply to the proposed project at this time, as of this writing, CARB has not yet adopted its GHG reduction cap and trade program. When adopted, it is expected to apply to projects that will need to receive permits, including any projects that may occur as a result of amending the SOx RECLAIM program. The purpose of the discussion of AB 32 is to indicate that there are no additional feasible GHG reduction measures that the SCAQMD could adopt that could mitigate impacts from the proposed project and that would be able to go beyond AB 32 requirements. In addition, under U.S. EPA's Tailoring Rule, new or modified facilities that meet or exceed the thresholds will be required to implement BACT for GHGs. With regard to the adequacy of the GHG mitigation measures, GHG-1 and GHG-2, see Responses to Comments 3-39 and 3-40.

2-15 There is no evidence for the potential of NaOH slip from a WGS. The application of the Rule 1401 screening emission level would be justified if there were any indication of NaOH emissions. In fact, with the exhaust stream entering a WGS, the NaOH would effectively disassociate to sodium and hydroxide ions, not remain as NaOH. On this basis, there is no reason to believe that here would be NaOH slip into the atmosphere.

Regarding the commenter's claim that there will be an impact due to pressure drop, refer to Response to Comment 2-25. It is important to note that both sets of consultants in their final reports included contingencies to address equipment-specific, unforeseen circumstances such as pressure drop.

2-16 Evaluation of the SOx RECLAIM inventory indicates that the amount of unused RTCs in the SOx RECLAIM market in 2005 was 1.73 tons per day and by 2008 the amount of unused RTCs in the SOx RECLAIM market had risen to 2.55 tons per day, which would be available for use by the affected facilities. In addition, the proposed amendments include several safety valves to prevent potential facility shutdowns: 1) gradual annual reductions with extended compliance schedule (from 2012 to 2019); 2) monitoring of RTC price trend over a 12-month rolling average; 3) hold public hearing if RTC price exceeds $50,000 per ton (discrete price); and 4) ability for the Governing Board to set aside (give back) up to 100 percent of RTC reductions for any year when RTC price exceeds $50,000 per ton.

Further, the cost-effectiveness of the glass plant complying with the proposed project is estimated to be $9,000 per ton of SOx reduced. The average annual cost for Owens-Brockway to comply with the proposed project is estimated to be $0.52 million (socioeconomic report). Moreover, as discussed in Response to Comment 2-4, Owens-Brockway may be able to comply with the proposed RTC shave with its current control equipment. For these reasons plus the fact that in 2009 Owens-Brockway had net sales of $7.1 billion (see Response to Comment 2-2), Owens-Brockway is not expected to shutdown their operations due to the requirements of the proposed amendments. See also Response to Comment 2-26.

2-17 The commenter implies that the noise impacts from installing a WGS at the Ball-Foster facility in El Monte should be applicable to the Owens-Brockway facility located in Vernon. Further, the commenter asserts that installing a wet gas scrubber, "…resulted in a

significant increase in noise complaints from residents and other businesses." The comparison with regard to residences is not applicable to the Owens-Brockway facility because the Ball-Foster facility is located adjacent to residences while the Owens-Brockway facility is located in an industrial area approximately ¼-mile away from the nearest residences, which is consistent with Vernon's Noise Element Policy, N-2.3: Prohibit the establishment of any new noise-sensitive land uses in Vernon, including but not limited to residences, schools, day-care facilities, and community facilities.

Vernon's Noise Element Policy states, "…In general, industrial noise within the City is not considered excessive because Vernon is a predominantly industrial city with few noise-sensitive properties." The Owens-Brockway facility currently operates scrubbers and has not received reports of any noise problems or complaints from neighboring industrial/commercial facilities. The conclusions in the NOP/IS for noise impacts were based on the potential replacement of two existing dry gas scrubbers with two new WGSs at the Owens-Brockway facility. Since the noise from the existing scrubbers would be replaced with equipment rated at a similar noise profile, any change in the noise level is expected to be minimal relative to the current noise baseline of the facility. A previous installation of WGS technology within the district was rated about 85 decibels (dBA)[9].

When a distance is doubled from a point source, the sound level decreases by six dBA[10]. By applying an estimated six dBA reduction for every doubling distance, for a WGS sound level of 85 dBA at 50 feet, the sound level will be 79 dBA at 100 feet, 73 dBA at 200 feet, 67 dBA at 400 feet, 61 dBA at 800 feet, and 55 dBA at 1,600 feet. As a point of comparison, according to the City of Vernon's Noise Element background noise levels in residential areas are generally within the range of 60 dBA to 70 dBA, however, noise levels can be as high as 85 dBA near the Burlington Northern Santa Fe Railroad tracks to the northeast of the Owens-Brockway facility (See Figure N-4, City of Vernon Noise Element[11]). It is important to note that there are no residences within ¼-mile (i.e., 1,320 feet) of the Owens-Brockway facility as the nearest residence is located at approximately 1,420 feet of the facility. Similarly, it is not reasonably foreseeable that the replacement of two dry gas scrubbers with two wet gas scrubbers with similar noise profiles at the Owens-Brockway facility would create an increase in noise that would be discernable from the existing background noise in the area.

2-18 Regarding the adequacy of water supplies for the proposed project and specific to water supplies in the City of Vernon, see Response to Comment 3-29.

2-19 Regarding the feasibility of mitigation measures, HWQ-1 and HWQ-2, and the cumulative water demand analysis in the Draft PEA, see Response to Comment 2-6.

2-20 When the consultants conducted a site visit of the glass plant, analyzed potential BARCT for the facility, and identified the potential environmental impacts that may occur as a result of installing BACT, the consultants also provided a copy of the report for Owens-Brockway

[9] Final Environmental Impact Report for: ConocoPhillips Los Angeles RefineryPM10 and NOx Reduction Projects: http://www.aqmd.gov/ceqa/documents/2007/nonaqmd/cp/cp_feir.html.

[10] A Guide to Noise Control in Minnesota, Minnesota Pollution Control Agency, Distance Attenuation Estimations, March, 1999. http://www.nonoise.org/library/sndbasic/sndbasic.htm

[11] The City of Vernon General Plan and Noise Element can be found at the following link: http://www.cityofvernon.org/assets/docs/General_plan.pdf.

personnel for review and comment. During that process, the Owens-Brockway representatives did not provide any indication that there would be a new and different wastewater stream resulting from the new WGSs. Further, when SCAQMD staff surveyed the Owens-Brockway facility regarding their water and wastewater streams, facility operators did not provide a copy of the requested wastewater permit. The commenter, in raising the issue now, has not provided any substantiating evidence to support the claim that there would be a new wastewater stream. SCAQMD staff has limited information on Owens-Brockway's current wastewater setting and permit specifications because this information was not provided by the operators. Consequently, SCAQMD staff used a surrogate analysis based on the available wastewater data on an existing WGS installation in the District. Further, based on the potential increase in wastewater that may occur at the Owens-Brockway facility, SCAQMD staff does not believe that if WGSs are installed at the glass melting plant that there will be a need to revise the wastewater permit because facilities typically operate at less than maximum capacity to ensure no violations. Further, the commenter did not provide additional information demonstrating that the anticipated increase in wastewater stream as a result of installing a WGS would require modifications to any existing wastewater limitations. Therefore, based on the available information, the comment does not provide evidence refuting SCAQMD staff's conclusion that wastewater impacts from the proposed project would require modifications to existing waster limitations or otherwise create significant adverse wastewater impacts. See also Response to Comment 2-21.

2-21 The proposed project for Owens-Brockway, as confirmed by both sets of consultants, requires the decommissioning of the two existing dry gas scrubbers and the installation of two new wet gas scrubbers (WGSs) downstream from (after) the existing ESPs. The selenium that is added to the glass manufacturing process is in the vapor phase as it exits the furnaces and enters and exits the ESPs as selenium oxide (SeO_2) due to the high temperature. Any gaseous phase selenium that is currently exiting the ESPs is being discharged into the atmosphere. At the very minimum, the WGSs installed after the ESPs will cool the gaseous phase selenium oxide into a solid state, which could then be scrubbed out of the flue gas to be retained in the scrubber effluent solution, and thus, preventing the selenium compound from being discharged into the ambient air. ETS provided several different options for the facility to consider for treatment of the WGS waste stream. Options 1 through 3 involve processing the liquid blowdown from the scrubbers and reintroducing the solids into the process before the ESPs. In particular, Option 3 will not introduce excessive particulate loading to the ESPs since Trona will no longer be utilized as a result of the removal of the dry gas scrubbers from the process (also refer to Response to Comment 2-30). ETS believed that the budgetary allotment was sufficient to address these waste stream considerations. The District recognizes that there are engineering design challenges (e.g., waste stream handling, pressure drop, plugging, et cetera) associated with the installation and operation of WGS technology, but these challenges are not insurmountable within the budgetary framework of the consultants' recommendations.

2-22 This comment is a summary of some of the main points made in subsequent comments in this letter. Therefore, for specific responses to each point refer to Responses to Comments 2-23 through 2-30.

2-23 See Response to Comment 2-2.

2-24 See Responses to Comments 2-3 and 2-4.

2-25 Two sets of consultants, ETS and NEC, visited the Owens-Brockway facility, collected data, interviewed facility representatives and then independently ascertained that WGSs are technically and economically feasible for this facility's furnaces. Both ETS and NEC have direct experience in DGS and WGS technologies, as well as ESPs, as applied to furnace operations at Owens-Brockway facility. SCAQMD staff sent Owens-Brockway's comment letter and SCAQMD staff responses to the consultants for their input, and their input is incorporated into this response[12].

The consultant's (ETS) analysis of the Owens-Brockway facility was finalized in December 2008, nearly two years ago. During this time, representatives from Owens-Brockway rarely participated in the SOx RECLAIM Working Group meetings or provided SCAQMD staff with any questions or feedback on the consultant's report. Only recently, SCAQMD staff received two comment letters from Owens-Brockway submitted on September 22, 2010, and on October 1, 2010. The letters contain several incorrect assumptions and technical errors relative to ETS's analysis as follows:

- The commenter incorrectly assumes that the proposed BARCT configuration relies on the continued operation of the two existing dry gas scrubbers. In actuality, ETS proposed to remove the two dry gas scrubbers upstream of the ESPs and replace them with two new WGSs downstream of the ESPs.
- The current configuration at Owens-Brockway requires redundancy for controlling particulate emissions (via the ESPs) but not for controlling SOx emissions. Owens-Brockway currently operates two dry gas scrubbers with three ESPs connected by piping/valves, but only two ESPs are in operation at any one time while one ESP remains in stand-by mode. ETS recommended removing the two dry gas scrubbers and discontinuing the use of Trona, a very fine powder, in the two dry gas scrubbers. Doing so would be expected to reduce the particulate loading and Trona entrainment to the ESPs. Further, ETS's recommendation may substantially improve the reliability of the two on-line ESPs to the extent that the stand-by ESP may no longer be needed.
- Additional pressure drop is a concern for ALG since ALG incorrectly assumed that the BARCT control configuration recommended by ETS included both the continued operation of the two existing dry gas scrubbers and the installation and operation of two new wet gas scrubbers. Under ALG's incorrect assumption, the configuration of two dry gas scrubbers with two wet gas scrubbers would cause an additional pressure drop across the wet gas scrubbers. However, ETS recommended the removal of the two existing dry gas scrubbers upstream of the ESPs, and their replacement with two new wet gas scrubbers downstream of the ESPs so that there would be no substantial increase in pressure drop. In addition, in ETS analysis, ETS had included the costs for a system fan in the vendor's budgetary quote:

  "Each system comes complete with all necessary pumps, reagent storage tanks, ***system fan*** [emphasis added]*, and stack."*

[12] SCAQMD staff sent Owens-Brockway comment letter and SCAQMD staff's responses to the consultants for review, and received confirmation back that they were in agreement with SCAQMD staff's assessment. The consultants' feedback is included in this response. Emails from James Norton of NEC to Minh Pham on October 12, 2010, and Marshall Bell of NEXIDEA to Minh Pham on October 12, 2010.

ETS made a determination, based on their extensive knowledge and experiences with ESPs, wet gas scrubbers, and dry gas scrubbers, that the pressure drop would not be a concern in this situation. An additional fan or blower to push or pull the flue gas through the WGS would not make the control system recommended by ETS cost-ineffective, because these costs are already included in the estimates.

- The three ESPs (two in operation and one in stand-by mode) were designed to ensure that if one ESP experiences operational difficulties, the stand-by ESP will take its place. ETS recommended removing the dry gas scrubbers and eliminating Trona injection. Based on this recommendation, particulate loading to the two ESPs is expected to be reduced substantially and will improve the reliability of the ESPs. ETS recommended that Owens-Brockway keep one stand-by ESP to handle upset conditions, and thus maintain the integrity of the two wet gas scrubbers downstream of the ESPs. ETS's analysis did not determine that redundancy for SOx control by adding a third scrubber would be necessary because monitoring the pH level and increasing the use of caustic may work efficiently to remove enough SOx.
- As explained above, only two WGSs would be needed. Two consultants, ETS and NEC, both identified suitable, separate locations for placement of the WGSs, Owens-Brockway is not expected to have site limitations associated with the placement of two WGSs within their facility[13].
- The commenter failed to specifically identify the foreseeable additional costs that the consultants might not have included in their analyses. ETS estimated a cost effectiveness of about $5,000 per ton SOx reduced and both ETS and NEC concurred that WGS technology is cost-effective.
- Owens-Brockway did not release any information to ETS at the site visit that could lead to a reasonably foreseeable situation that the wastewater discharge would fail the discharge limit because of selenium. Technology for treating selenium is available. The facility can treat selenium on site or can send the additional wastewater stream (10 gallons per minute) to be treated by LACSD/City of Vernon. Note that ETS budgeted $225,000 to cover the cost of wastewater treatment and this cost is included in the cost-effective calculation. ETS also provides four options to treat the wastewater stream as follows:
    1. The liquid blowdown from the scrubbers could be sent to a storage tank and recycled back to the furnaces for the batch wetting process.
    2. The blowdown could be sent to a storage tank and then to an energy efficient dryer for liquid evaporation. The solid waste could then be placed in a hopper and recycled back to the furnaces.
    3. The blowdown could be sent to a storage tank and then sprayed into the duct ahead of the precipitators to evaporate the water and collect the dry particulate in the ESPs.
    4. The blowdown could be sent to a storage tank and ran through a small skid-mounted filtration system (approximately 6 feet by 6 feet) prior to discharging to the local sanitary sewer system. See also response to 2-30.

[13] SO_x RECLAIM Study Final Report, Module 3-D: Wet/Dry Scrubbing Technology For Container Glass Manufacturing Plant, December 16, 2008, page 2.

- One WGS for a FCCU has been installed and is currently operating at a refinery in the District. The exhaust gas stream from this existing WGS is expected to have similar characteristics (i.e., lower temperature, reduced plume buoyancy, caustic mist) as the proposed WGSs for Owens-Brockway. The WGS at the aforementioned refinery was evaluated to assure that it complies with all state and federal ambient air quality standards and a Permit to Operate was issued by the SCAQMD. If applications for the proposed WGSs are submitted by Owens-Brockway, the WGSs scrubbers will undergo an equivalent or similar evaluation. Moreover, with the exhaust stream entering a WGS, the NaOH would effectively disassociate to sodium and hydroxide ions, not remain as NaOH. On this basis, there is no reason to believe that here would be NaOH slip into the atmosphere.

2-26 Owens-Brockway currently holds 0.31 ton per day of RTCs and the remaining RTCs would be 0.14 ton per day after the proposed 55 percent shave. Owens-Brockway's SOx emissions in 2005 were approximately 0.2 ton per day. Owens-Brockway indicated that the control efficiency of their dry gas scrubbers was demonstrated at 90 percent, but that they are operated at 75 percent to 80 percent. If Owens-Brockway can operate their dry gas scrubbers at 90 percent, then the facility will be in compliance with the 55 percent shave since their emissions at 90 percent control would be 0.1 ton per day, below the 0.14 ton per day allocation after the shave. Under this scenario, Owens-Brockway will have surplus credits of 0.04 ton per day, which can be made available in the open market and could generate a substantial revenue stream to the company. This revenue stream could be even larger if Owens-Brockway elects to install higher efficiency WGSs.

However, if Owens-Brockway elects not to operate their dry gas scrubbers at 90 percent control, then the facility operators can purchase 0.06 ton per day (0.2 ton per day 2005 baseline – 0.14 ton per day = 0.06 ton per day) to be in compliance with 55 percent shave. The RTCs can be purchased from investors or from other SOx RECLAIM facilities that have surplus RTCs. The surplus pool has approximately 1.73 tons per day of unused RTCs in 2005, and 2.55 tons per day of unused RTCs in 2008. For these reasons, SCAQMD staff did not assume that Owens-Brockway would shut down their facility because of the proposed 55 percent shave for SOx RECLAIM.

For the above reasons, and the fact that the annual cost of compliance is estimated to be $0.52 million (Socioeconomic Report) for a facility whose parent company had net sales of $7.1 billion[14] in 2009 and a gross profit margin of 21 percent (see Response to Comment 2-2), SCAQMD staff concluded that it was not reasonably foreseeable that Owens-Brockway would shut down its facility because of the proposed 55 percent shave for SOx RECLAIM. Consequently, environmental impacts such as those mentioned in the comment are also not reasonably foreseeable, so further analysis is not required.

2-27 BARCT technology is improving over time. For example, dry gas scrubbers operating at 80 percent control efficiency were considered as BARCT in 1994. Current control technologies routinely demonstrate 95+ percent control efficiencies and can achieve control levels of 5 ppmv or better. Owens-Brockway can achieve these reductions cost-effectively.

[14] O-I Announces Third Quarter Earnings Conference Calland Webcast, September 20, 2010. http://www.o-i.com/nth_us.aspx?id=400; http://www.o-i.com/about_oi.aspx?id=1348 and http://www.o-i.com/nth_us.aspx?id=400

Therefore, Owens-Brockway should not be included in the list of exempt facilities in Table 5 of the PAR 2002.

2-28 SCAQMD staff and the consultants[15] disagree with ALG's technical assessment in a number of areas as explained in the following paragraphs.

- As explained in Response to Comment 2-25, the assumed configuration of the proposed BARCT to include dry gas scrubbers is incorrect. The combination of monitoring pH levels, using a sufficient amount of caustic solvent for controlling SOx emissions, and having ESPs located upstream for controlling particulate emissions would prevent excessive particulate loading and catastrophic failure to the WGSs located downstream of the ESPs.

- Since three WGSs are not required for redundancy as each can be sized to handle the entire flue gas flow from the ESPs, plot space limitations are not expected. Both consultants visited the site, evaluated the situation, and concurred that there is available plot space to located two new WGSs.

- Operational problems are site- and equipment-specific, particularly in cases where process changes are made upstream of existing systems such as in the case of the Ball-Foster facility experiencing excessive loading of particulate emissions to their venturi scrubber converting their furnace to an oxy-fuel furnace. The venturi scrubber should be redesigned to handle a lower flow with higher particulate loading from the oxy-fuel furnace. As any new equipment would need to be designed for a specific installation, the design would need to take into account all operating modes and upstream conditions. Therefore, SCAQMD staff finds that the problems occurring at the Ball-Foster facility were due to the re-use of existing control equipment instead of redesigning the controls, and these problems would not be expected to apply to the Owens-Brockway facility. In addition, Owens-Brockway has three ESPs located upstream of the scrubbers to control particulate matter which will help prevent excessive buildup of particulate emissions in the WGSs.

- Dry gas scrubbers operating at 80 percent control efficiency are no longer considered BARCT because current state-of-the-art systems can reliably achieve 95 percent or more SOx reductions and achieve SOx emission levels of 5 ppmv or lower. SCAQMD staff, therefore, recommends the BARCT level for glass melting furnaces to be 5 ppmv. However, if the dry scrubbers are operated at 90 percent efficiency, then Owens-Brockway should be able to comply with the proposed RTC shave.

2-29 Regarding the suggestion to clarify the language in subparagraph (f)(1)(Q) of Rule 2002, SCAQMD staff disagrees with the commenter's proposed interpretation. The intent of this subparagraph is that any facility entering the RECLAIM program after the date of adoption and that operates the basic equipment in Table 4 shall have its SOx allocations determined according to the BARCT level listed in Table 4 or the permitted emission limits, whichever

[15] SCAQMD staff sent Owens-Brockway comment letter and staff's responses to the consultants for review, and received confirmation back that they were in agreement with staff's assessment. The consultants' feedback is included in this response. E-mails from James Norton of NEC to Minh Pham on October 12, 2010, and Marshall Bell of NEXIDEA to Minh Pham on October 12, 2010.

is lower. Existing facilities that operate the basic equipment listed in Table 4 will have their allocations adjusted in accordance with Rule 2002, subparagraphs (f)(1)(I) and (f)(1)(J) at the Table 4 BARCT levels, effective 2012. It should be noted that all Table 4 equipment in existing non-RECLAIM facilities have achieved the proposed BARCT standards (e.g., diesel combustion). This clarification will be made in the proposed amended rule and Staff Report.

2-30 SCAQMD staff's responses to the individual comments are summarized as follows, but because of overlapping concepts in several bulleted items, the order of the responses does not necessarily directly correspond to the order of each bulleted item in the comment letter:

- The 2005 reported emissions for Owens-Brockway's glass furnaces were approximately 0.2 ton per day with their dry gas scrubbers typically operating in the range of 75 percent to 85 percent control efficiency, but occasionally achieving a control efficiency as high as 90 percent. The background on Owens-Brockway's furnaces and control equipment provided in the comment is consistent with this 2005 emissions data and the information documented by ETS (i.e., testing on the dry gas scrubbers demonstrated up to 90 percent control efficiency). If the dry gas scrubbers were operated consistently at a 90 percent control efficiency level, then Owens-Brockway would emit approximately 0.1 ton per day and as such, would be in compliance with the proposed 55 percent shave without additional control.

- SCAQMD staff knows of no installation in which a facility relies upon using dry gas scrubbers, dry ESPs, followed by wet gas scrubbers to achieve the emission reductions recommended by the consultants. However, based on the consultants' reports, SCAQMD staff believes that the level of 5 ppmv SOx (which represents a 95 percent control efficiency or more) can be achieved in practice, is cost-effective and is not expected to create the severe problems alleged by the commenter's technical assessment.

  The proposed BARCT level for glass melting furnaces has been achieved in practice. Specifically, the Puget Sound Clean Air Agency in Seattle, Washington, provided SCAQMD staff with source test and CEMS data that demonstrates compliance with 5 ppmv SOx levels at 96 percent control efficiency via Tri-Mer's Cloud Chamber scrubber for a furnace with a permit limit of 1.6 pound of SOx per ton of glass pulled but tested at 0.0062 pounds of SOx per ton of glass pulled[16, 17]. SCAQMD staff was provided with supporting documentation from Tri-Mer and other WGS vendors that demonstrated that the Cloud Chamber scrubber as well a packed bed scrubber, venturi scrubber, or open throat type of scrubber can be used to achieve 5 ppmv SOx level when appropriately designed and operated.

  There are several types of WGSs that can be considered for the Owens-Brockway facility: 1) quench, vertical packed bed scrubbers as recommended by Manufacturer A; 2) simple open-throat scrubbers as recommended by Manufacturer D; or, 3) fluidized rotating scrubber as offered by Manufacturer B. NEC recommended

[16] Horizon Engineering, "Source Test Evaluation Report for Saint-Gobain, Seattle, Washington, Glass Melting Furnace No. 5 with Cloud Chamber Scrubber," September 18, 2009.

[17] CEMS Summary Report from Saint-Gobain to Puget Sound Clean Air Agency, for a period from October 1, 2009 to October 31, 2009.

Manufacturer D's open-throat type and ETS recommended Manufacturer A's packed bed scrubber. Manufacturer A indicated that the packed bed scrubber can tolerate up to 20 micrograms per cubic nanometer (µg/nm3) of insoluble particulate without clogging; and if the particulate is soluble (e.g., sodium sulfate), then the packed bed scrubber would not have a problem with plugging[18]. The SOx RECLAIM program does not require Owens-Brockway's operators to install any particular type of scrubber. In fact, Owens-Brockway's operators are encouraged to study their options further and research the type of WGSs and solvents that best fits their operation and emission profiles.

- The control configuration recommended by ETS (which was proposed by Manufacturer A) consists of three existing ESPs followed by two new WGSs. Manufacturer A and ETS recommended the removal and replacement of the two existing dry gas scrubbers with two WGSs downstream of the three existing ESPs. Further, the commenter incorrectly assumes that three WGSs would be needed to correspond with the three ESPs units. Even though the three ESPs are connected by piping/valves, only two are in operation at any one time and the one remains in standby mode. Thus, there is no need to install three WGSs when there are only two operational ESPs at any one time. For these reasons, ETS recommended replacing the two existing dry gas scrubbers with two new WGSs. Further, because the analysis is based on the replacement of the two existing dry gas scrubbers with two new WGSs, and not three WGSs as suggested by the commenter, the cost-effectiveness analysis only includes the costs associated with the installation and operation of two new WGSs downstream of two existing ESPs. Also, because ETS recommended the removal of the two existing dry gas scrubbers, the cost-effectiveness analysis does not and should not be based on the continued operation of the dry gas scrubbers in addition to the two WGSs.
- Regarding the sizing of the two WGSs, since each of Owens-Brockway's ESPs operates at a capacity of 30,000 acfm, or at combined capacity of 60,000 acfm with one ESP in stand-by mode, then the combined capacity of the two WGSs would also need to be sized at 60,000 acfm, not 90,000 acfm as suggested by the commenter. However, Owens-Brockway operators may choose to build a larger system for redundancy (e.g. 90,000 acfm instead of 60,000 acfm). A larger system will cost more but it will not make the BARCT recommended by the consultants become cost-ineffective (i.e. larger than $50,000 per ton) since the cost-effectiveness for the 60,000 cfm system was estimated to be $5,000 per ton, and the capital costs are proportional to the $(90{,}000/60{,}000)^{\exp 0.6} = 1.28$ factor.
- As explained in Response to Comment 2-25, additional pressure drop was a concern for ALG since ALG incorrectly assumed that the BARCT control configuration recommended by ETS included both the two dry gas scrubbers and the two wet gas scrubbers. However, ETS recommended the removal of two dry gas scrubbers upstream of the ESPs, and replace those with two WGSs downstream of the ESPs. Also, Manufacturer A included a fan in their proposal. Therefore, the manner in which the equipment could be configured should remedy any concerns of pressure drop across the system.

[18] Email from Manufacturer A to Minh Pham – Solution Based Absorbents for Scrubbers, January 29, 2010.

- The commenter incorrectly assumes that Trona will still be needed even though ETS recommended stopping the use of Trona and replacing the two existing dry gas scrubbers upstream of the ESPs with two new WGSs downstream of the ESPs. Removing the dry gas scrubbers and eliminating the use of Trona would substantially reduce the particulate loading to the ESPs. Further, as is the case with current operations at Owens-Brockway, if an ESP goes offline, the stand-by ESP would become operational so that only two ESPs would be operational at any time. Thus, there would be no extra loading to the WGSs in the event an ESP goes off-line. Overall, this configuration would reduce the loading to the WGSs downstream of the ESPs.

- The suggestion that the WGS proposed by ETS is under-sized because the particulate loading allowed by the permit (0.08 grains/dry standard cubic feet) is an order of magnitude higher than the amount assumed by ETS (0.008 grains/dry standard cubic feet) represents a misunderstanding about what data is considered when sizing a WGS. The capacity or size of a WGS is dependent upon several factors. ETS provided the vendors with flue gas flow rates, inlet concentrations, and other necessary parameters so that the manufacturers could estimate the size and associated costs of the WGS. Because flue gas flow rate, not particulate loading, is the critical parameter that was used to determine the equipment costs and the size of the WGS, the WGS recommended by ETS would be able to handle the permitted particulate loading (0.08 grains/dry standard cubic feet).

- Owens-Brockway reported that the facility is currently sending wastewater to the LACSD and the City of Vernon to be treated at a rate of 41.89 million gallons per year which equates to approximately 80 gallons per minute (gpm). Owens-Brockway has a maximum discharge limit of 131.4 million gallons per year or 250 gpm. The increase in discharge due to the two WGSs is 10 gpm which is expected to mainly contain soluble sodium sulfate that would result from using caustic solvent as the scrubbing agent. With an additional discharge of 10 gpm, Owens-Brockway is far below their permitted threshold of 250 gpm. In addition, on October 26, 2010, following SCAQMD staff's request, Owens-Brockway provided SCAQMD staff with their facility's industrial wastewater discharge permit issued by the LACSD which shows that currently LACSD has effluent concentration limits for arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, zinc, cyanide, and total dissolved sulfides. There is no effluent discharge concentration limit for selenium on Owens-Brockway's industrial discharge permit. Furthermore, SCAQMD staff estimated the concentration of selenium that could potentially be present in Owens-Brockway's wastewater stream based on their annual emission reports from 2002 to 2009. Selenium concentrations in their wastewater stream was estimated to be around 0.022 mg/L[19], much less than the thresholds set in the Code of Federal Regulations(CFR), Part 268 – Land Disposal Restrictions for wastewater and non-wastewater. For these reasons, SCAQMD staff believes that both the LACSD and the City of Vernon will be able to receive and treat an additional 10 gpm waste stream that contains trace amounts of selenium and other inorganic compounds.

  The consultant (ETS) also allocated $225,000 into the scrubber equipment cost estimate for handling the waste stream from the scrubbers (e.g., selenium). The $225,000 estimate was based on information provided by Manufacturer D which has

[19] Email from Kevin Orellana to Minh Pham on October 26, 2010.

expert knowledge of WGS technology and WGS effluent waste treatment. The estimate was also based on relevant experience with the waste stream from a glass manufacturing facility located in Seattle, Washington[20]. In addition, ETS, in their final report, provided four options for Owens-Brockway to treat the waste stream onsite:

1. The liquid blowdown from the scrubbers could be sent to a storage tank and recycled back to the furnaces for the batch wetting process.
2. The blowdown could be sent to a storage tank and then to an energy efficient dryer for liquid evaporation. The solid waste could then be placed in a hopper and recycled back to the furnaces.
3. The blowdown could be sent to a storage tank and then sprayed into the duct ahead of the precipitators to evaporate the water and collect the dry particulate in the ESPs.
4. The blowdown could be sent to a storage tank and ran through a small skid-mounted filtration system (approximately 6 feet by 6 feet) prior to discharging to the local sanitary sewer system.

Lastly, since technology for selenium treatment is available, SCAQMD staff recommends that Owens-Brockway operators conduct their own evaluation of these recommended options to find an appropriate method to treat any selenium in the WGS wastewater. There are no significant environmental impacts expected with the options quoted above. While the commenter criticized Option 3 (the comments were based on the incorrect assumption about the continued use of dry gas scrubbers and Trona injection), no comments were submitted relative to Options 1, 2 and 4.

- Regarding the comment about moisture build-up/clogging in the ESPs, see Responses to Comments 2-3 and 2-28.
- There are hundreds of scrubbers operating across the nation that currently utilize caustic solution (NaOH, 50 percent by weight) as a scrubbing agent. The commenter has failed to provide evidence to support the claim that the use of caustic solution will create additional environmental impacts, other than what was already identified and analyzed in the Draft PEA. Further, as mentioned in Response to Comment 2-15, there is no evidence for the potential of NaOH slip from a WGS. The application of the Rule 1401 screening emission level would be justified if there were any indication of NaOH emissions. In fact, with the exhaust stream entering a WGS, the NaOH would effectively disassociate to sodium and hydroxide ions, not remain as NaOH. Thus, there is no reason to believe that the use of caustic in a WGS would emit NaOH slip into the atmosphere.
- Regarding compliance with the new federal NO2 standard, see Response to Comment 2-13.
- The commenter refers to the Green Chemistry Initiative and suggests that the use of NaOH may be inconsistent with its requirements. The "Green Chemistry Draft Regulation for Safer Consumer Products[21]" is a draft regulation prepared by

[20] Email from ETS, Inc. to Minh Pham on October 27, 2010.
[21] http://www.dtsc.ca.gov/PollutionPrevention/GreenChemistryInitiative/upload/Safer-Product-Alternative-Regulations-6-23-10.pdf

California Department of Toxic Substances Control (DTSC) that specifies the processes for DTSC to scientifically and systematically identify and prioritize chemicals and consumer products, for manufacturers to conduct alternatives assessments, and for DTSC to impose regulatory responses for alternatives selected by manufacturers.

According to the draft regulation, the term "Green Chemistry Principles" means: 1) prevention of waste rather than treating it or cleaning it up; 2) incorporation of all materials used in the manufacturing process in the final product; 3) use of synthetic methods that generate substances with little or no toxicity to people or the environment; 4) design of chemical products to be effective, but reduce toxicity; 5) phase-out of solvents and auxiliary substances when possible; 6) use of energy efficient processes, at ambient temperature and pressure, to reduce costs and environmental impacts; 7) use of renewable raw materials for feedstocks; 8) reuse of chemical intermediates and blocking agents to reduce or eliminate waste; 9) selection of catalysts that carry out a single reaction many times instead of less efficient reagents; 10) use of chemicals that readily break down into innocuous substances in the environment; 11) development of better analytical techniques for real-time monitoring to reduce hazardous substances; and, 12) use of chemicals with low risk for accidents, explosions and fires.

While NaOH, a toxic air contaminant (TAC) that is a non-cancerous but acutely hazardous substance, is a very common scrubbing agent, it is not the only solvent that can be used in Manufacturer A's scrubber. However, for a worst-case analysis in the Draft PEA, the use of NaOH was assumed. Thus, if Owens-Brockway operators choose to install WGSs and apply the draft Green Chemistry Principles to their choice of solvent for the WGSs, soda ash, a non-toxic, non-cancerous, and non-hazardous substance, could be utilized instead as an alternative scrubbing agent.

- While there may not be sufficient space for three WGSs, only two scrubbers were recommended by the consultants (ETS and NEC) with input from Owens-Brockway's operators as explained in Response to Comment 2-25. Both ETC and NEC were in agreement that three WGSs are not needed to handle the entire flue gas flow (60,000 acfm) from the two ESPs and that the facility had sufficient space for siting two WGSs. Thus, there is no need to find space for a third WGS.
- Regarding the comment relative to siting the control equipment, the consultants identified two different potential locations at the site for the WGSs. While the specifics of the potential locations are confidential at the request of the facility operators and cannot be disclosed in this response, the confidential details have been provided to Owens-Brockway personnel. What can be disclosed in this document, however, is ETS's general description of the plot space availability at the Owens-Brockway facility:

  > *"The plant has limited space available for additional equipment, approximately a 14' x 20' footprint between two existing scrubbers. In addition O-I personnel indicated that the height of any new equipment could not exceed 30 feet above the top of the existing scrubbing vessels. A request was made of O-I to provide us with dimensional information pertaining to available space for the Manufacturer A equipment footprint.* ***They stated that there is space available*** [emphasis added]. *Horizontal distance is 63' depending on the location of the ducting out of the pieces*

> *of equipment. This does not take into account the vertical distance which will depend on location of entry to the stream*[22]*."*

In addition, NEC's general description of the plot space availability is as follows:

> *"We located an elevated area just to the west of the ESP's* [sic] *and adjacent to the existing ammonia storage tank where Facility D felt the unit could potentially be located. This new area is located above an existing truck turnaround area*[23]*."*

Neither ETC's nor NEC's reports reflect any suggestions from Owens-Brockway's representatives that the WGSs would need to be sited in a parking lot or that an existing structure would need to be torn down. In the context of the comment, it seems that the commenter is suggesting these circumstances based on the misunderstanding that a third WGS would need to be installed. SCAQMD staff continues to assert that two WGSs sufficiently sized can provide the necessary capacity to ensure compliance with the proposed BARCT for glass melting furnaces. See also Responses to Comments 2-25 and 2-28.

For these reasons, SCAQMD staff continues to believe that there is sufficient space at the Owens-Brockway facility to site two WGSs. Further, the costs associated with the siting options proposed by the consultants have already been included in the cost-effective and socioeconomic analyses. See also Response to Comment 2-2.

- The ETS analysis included all of necessary costs. However, NEC recommended raising ETS's costs to include contingencies, costs for additional ducting and valves for an alternative location. The commenter indicated that additional costs for CEMS upgrade were also needed. This additional cost would be covered by NEC's recommended cost adjustment for contingencies. By including all of the additional costs suggested by NEC, which would cover the cost for the CEMS upgrade, the BARCT recommended by ETS would remain cost-effective. Even with the adjustments made to ETS's initial cost estimates, NEC concurred that the control costs for WGSs would be cost-effective for glass melting furnaces.
- With regard to the comment about the technical data that was relied upon to support a 25-year useful life of a WGS, a leading manufacturer of WGSs provided the SCAQMD staff with a confidential list of all its wet scrubbing systems installed worldwide. In this list, there were 20 wet gas scrubber installations that are 25 years or older and still operating. For this reason, SCAQMD staff applied a 25-year useful life assumption for WGSs.
- Regarding the implementation challenges face by the Ball-Foster facility, see Response to Comment 2-3.
- Regarding the proposed BARCT level and how it relate to the emissions at glass plant located in Seattle, Washington, see Response to Comment 2-4.

[22] SO_x RECLAIM Study Final Report, Module 3-D: Wet/Dry Scrubbing Technology For Container Glass Manufacturing Plant, ETS Inc., December 16, 2008, page 2.

[23] SOx RECLAIM BARCT Capital & Operating Cost Review – Final Report – Non-Confidential, NEC Inc., May 28, 2010, page 12.

Comment Letter #3

From: Joey Martinelli [mailto:jmartinelli@wspa.org]
Sent: Friday, October 01, 2010 3:02 PM
To: Barbara Radlein
Cc: Steve Smith; Barry Wallerstein; Elaine Chang; Laki Tisopulos; Joe Cassmassi; Cathy Reheis-Boyd; Joe Sparano; sschuyler wspa.org; Patty Senecal
Subject: WSPA Comments on SCAQMD SOx RECLAIM Draft Program Environmental Assessment (DPEA)

Sent on behalf of Catherine Reheis-Boyd.

Dear Ms. Radlein:

Please see attached Western States Petroleum Comments on the SCAQMD SOx RECLAIM Draft Program Environmental Assessment (DPEA). If you have any questions, please call Cathy at (916)498-7752 or email: cathy@wspa.org.
Thank you.

Joey Martinelli
Executive Assistant, President
Western States Petroleum Association
(916)498-7750
joey@wspa.org

Western States Petroleum Association
Credible Solutions • Responsive Service • Since 1907

Catherine H. Reheis-Boyd
President

October 1, 2010

Barbara Radlein
Air Quality Specialist
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, CA. 91765-4182

Dear Ms. Radlein:

SCAQMD SOx RECLAIM Draft Program Environmental Assessment (DPEA)

Attached are the Western States Petroleum Association's (WSPA's) comments related to the Draft Program Environmental Assessment (DPEA) for proposed amendments to Regulation XX, the RECLAIM SOx shave. WSPA is a non-profit trade association representing twenty-eight companies that explore for, produce, refine, transport and market petroleum, petroleum products natural gas and other energy products in California and five other western states.

WSPA member companies operate petroleum refineries, distribution terminals and other facilities in the South Coast Air Basin. WSPA has been involved in air quality issues in California and the South Coast for 40 years. We pioneered the use of computerized modeling, and sponsored some of the first regional air quality monitoring programs that documented ambient air quality and the impacts of atmospheric emissions. 3-1

The RECLAIM Work Plan that was initiated in January 2010 identified environmental impacts and substantial cost factors associated with this regulatory proposal. WSPA made a commitment to follow the Work Plan in January 2010. We continue to be responsive and transparent in working with the District staff.

As an outgrowth of the work plan, and in an effort to understand the basis for our differing views concerning the costs and environmental benefits of various reductions in RTC allocations, staff from WSPA and the District have recently begun development of a clear and concise cost summary. That cost summary identifies the policy choices facing industry and the District. 3-2

If this effort is successful, we see development of the summary as an important first step in informing the SCAQMD Board in preparation of the upcoming adoption hearing. We will keep you informed of our collective progress.

1415 L Street, Suite 600, Sacramento, California 95814
(916) 498-7752 • Fax: (916) 444-5745 • Cell: (916) 835-0450
cathy@wspa.org • www.wspa.org

As part of our ongoing effort to work with the District and balance environmental impacts with costs, WSPA first proposed a 25% shave. Then, using alternative methodology we presented a 33% shave proposal. WSPA recently increased our proposal to a 40% shave.

The estimated costs to the refining industry for the 40% proposal are still over half a billion dollars. This represents a huge commitment from the refining industry to support the District's efforts to reduce emissions. Despite our proposal the District's position remains unchanged at a 55% shave with an estimated cost to the refining industry of over $1.5 billion.

WSPA's proposal exceeds all applicable local, state, and federal regulatory requirements for this proposed rule making. WSPA believes the District should accept our proposal or bring forth a more realistic and reasonable proposal than the current 55% shave – one that balances the clean air obligations of the District with the economic health of the region and the refining industry.

3-2 Cont'd

Background

As currently proposed, the amendments to Regulation XX rely heavily on the control of industrial facilities including several refinery source categories. WSPA has reviewed all the SCAQMD reports by consultants and District staff, and provided feed back to the District staff.

Detailed comments for the District's 55% proposal are provided in the attachment; however, the DPEA only partially addresses some of the impacts and cost issues. Our attached comments note deficiencies in areas where additional critical analyses should be done. We would like to highlight the following:

3-3

1. RTC Market Analysis

   The DPEA concludes that the current shave proposal will not result in constraints to the RECLAIM market and states: "there will be sufficient SOx RTC's available to maintain trading within the SOx RECLAIM program." This statement has not been substantiated by any analysis conducted as a part of the DPEA or any other document available for review to date.

   The SCAQMD arrived at this conclusion before the socio-economic or market impacts studies have been concluded. District Staff needs to conduct an analysis and make it available to the public for review and comment so that it may inform the Board's decision.

3-4

2. Cost to Comply

   WSPA has repeatedly informed the District that the estimated compliance costs are underestimated substantially. The District's consultants' estimates failed to consider the project scope including, but not limited to space limitations, additional utility infrastructure and the practical limitations placed on working refineries. The depth of the proposed shave will drive compliance costs far beyond any reasonable level and exceeds acceptable cost effectiveness thresholds.

3-5

1415 L Street, Suite 600, Sacramento, California 95814
(916) 498-7752 • Fax: (916) 444-5745 • Cell: (916) 835-0450
cathy@wspa.org • www.wspa.org

WSPA agrees with the conclusion of the District's consultant Norton Engineering that the cost effectiveness analysis needs improvement. The Norton Engineering Report documented various deficiencies in the analysis of five out of six source categories.

The Report encourages the District to re-calculate the cost effectiveness analysis for the affected source categories; however, the District has refused to follow the recommendation of its consultant and recalculate the cost effectiveness.

The District's overly aggressive proposal incorporates the seizure of "unused" RTC's in a manner that doubles the compliance cost. The costs to achieve emission reductions required by the proposed shave are nearly double the costs required to achieve emission reductions equivalent to installation of BARCT controls on refinery sources.

The DPEA should expressly evaluate the costs of achieving BARCT levels of emission reductions. We note that this approach was partially discussed as Alternative C; however, that did not expressly discuss the implications for not confiscating an additional 1.75 TPD in RTC's.

3-5 Cont'd

3. The DPEA concludes the cumulative mitigation measures for water supply and green house gas (GHG) emissions are insufficient to mitigate impacts below the level of significance. This finding requires the District to adopt a statement of over-riding consideration in order to certify the DPEA findings. Because of this fact, it seems appropriate that the District consider an alternative that is less environmentally adverse.

3-6

4. The District's DPEA notes that Alternative C poses fewer environmental impacts and may not require a statement of over-riding consideration for either water or GHG mitigation. The District should specifically address why Alternative C was not selected as this would satisfy all current local, state and federal regulatory requirements.

3-7

5. The District's Norton Report notes that technologies identified as BARCT for cement plants and acid plants are neither typical installations nor appropriate for identification of BARCT. The DPEA should revisit the identification of BARCT and correct errors associated with the Staff Report, and should document the resulting consequent changes in the environmental impacts.

3-8

6. The DPEA is insufficient in scope to support the permitting of required equipment and related processes as companies prepare to meet compliance objectives. Key issues such as New Source Review (NSR), Prevention of Significant Deterioration (PSD) and offsets, are not addressed. Mitigation measures have not been documented sufficiently and the analysis of these impacts may not be sufficient to support applications submitted in support of projects proposed to achieve the required shave levels.

3-9

WSPA is committed to working with the SCAQMD to facilitate a constructive SOx rule making that will result in meeting the necessary environmental objectives at a cost that will not economically damage the region or the refining industry. We have negotiated in good faith, moving from an initial position of a 25% shave to our current 40% shave position, which results in 4.7 TPD of actual reductions.

3-10

1415 L Street, Suite 600, Sacramento, California 95814
(916) 498-7752 • Fax: (916) 444-5745 • Cell: (916) 835-0450
cathy@wspa.org • www.wspa.org

Since this DPEA will be used to support permitting and actual project implementation, it is vital that the environmental impacts and mitigation measures adopted are based on an accurate and complete body of evidence.

WSPA supports the 2007 AQMP analysis and related emission reduction targets, but with a BARCT adjustment that is based on a complete and accurate technological and cost effective determination. This in-turn requires a sound environmental impacts analysis, based on realistic compliance assumptions.

3-11

Please contact me at this office or Mike Wang at (310) 808-2149 to answer any questions associated with our comments.

Sincerely

cc: Steve Smith
Barry Wallerstein
Elaine Chang
Laki Tisopulos
Joe Cassmassi

1415 L Street, Suite 600, Sacramento, California 95814
(916) 498-7752 • Fax: (916) 444-5745 • Cell: (916) 835-0450
cathy@wspa.org • www.wspa.org

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ATTACHMENT A: GENERAL COMMENTS

Overall

Comment: The District should have analyzed environmental impacts of seizing the "unused" RTCs. These are NOT unused, but are necessary for the facilities to ensure compliance with the existing rule and avoid having to purchase RTCs in an adverse market. In addition, a market for RTCs gives facilities flexibility when implementing compliance options and at the end of each cycle. WSPA requests that the District analyze the impact of a highly constrained market on key environmental factors such as air emissions, GHG emissions and water use. 3-12

Comment: The District should have re-calculated the cost-effectiveness for all technologies because of the Norton Report's findings. The District should, in particular, recognize that there were major edits in 5 of the 6 source categories reviewed by Norton Engineering. WSPA requests that the updated cost-effectiveness calculations be included in the Programmatic Environmental Assessment (PEA). This evaluation is critical to understanding the environmental impacts of the proposed project and identified alternatives. 3-13

Comment: The DPEA did not adequately address the possible need for additional water supplies or the costs for and reliability of the supply of the additional water needed. For example, given the current restrictions in the supply of potable water, the DPEA makes reference to the substitution of recycled water.

However, the expanded use of recycled water was not carefully evaluated. For example, costs associated with building the needed infrastructure to the facility, infrastructure within the facility, expansion and operation of the process water treatment plant, cost of the recycled water itself, and cost of waste water handling were not discussed in any detail. Another critical issue not addressed is the reliability of the recycled water source and delivery infrastructure. Refinery process units are 24/7 operations, requiring the same level of dependability from any utility required to operate related emission control equipment.

In order to prepare a complete PEA, the District should expand its analysis of water and wastewater use and handling (see Attachment B, Comments 1-3 and 1-5). 3-14

BARCT Technology

Comment: A comprehensive discussion of De-SOx technology feasibility and control effectiveness – which are highly unit-specific – is necessary. In addition, De-SOx additives have the effect of diluting the circulating cracking catalyst and potentially adversely impacting conversion within the FCCU. Such a reduction of cracking effectiveness would have a significant adverse economic impact on a refinery. 3-15

Comment: No "dry alternative" is considered. The District, in order to evaluate the full range of options, should consider Alternatives that do not include use of a Wet Gas Scrubber. We note, for example, that even Alternative C features use of four scrubbers. 3-16

Comment: The District claims (page 2-6) that there are "three main strategies that can be employed" to reduce SOx emissions from SRU/TGUs - 1) increase the efficiency of the SRU, 2) improve the efficiency of the TGU, and 3) install a wet gas scrubber. WSPA notes that so-called strategies 1 and 2 are not strategies at all but, rather are 3-17

1

general and non-specific objectives. The District goes on (Table 2-2, page 2-10) to suggest that a candidate BARCT technology for SRUs would be the use of a selective oxidation catalyst. Such catalysts, to WSPA's knowledge, have never been used in an SRU and, consequently, cannot be deemed a viable option. Further, if staff is going to consider this technology, the possible impacts to air emissions, energy use and water consumption as well as an updated cost analysis also need to be considered. 3-17 Cont'd

Comment: To consider a WGS for the calciner, the District must recalculate the cost effectiveness with Norton's updated numbers. This recalculation will help inform the decision on the comparative impacts of various control strategies on water, electricity use and air emissions. 3-18

Comment: The District failed to consider the reasonable worst-case scenario of no additional recycled water supplies dedicated to the RECLAIM facilities. As noted in Comment 1-3 and 1-5 in Attachment B, it is quite possible that the facilities will have no access to new supplies or future increases in the supply of recycled water. The current analysis is insufficient for both the "most likely" and "mitigated" scenarios. Thus the conclusions on P 5-83 are unsupported by the analysis. 3-19

Comment: Table 4-1 indicates that a 5 ppm SOx level can be achieved on FCCUs by using De-SOx catalyst. Yet, no underlying data are provided to show this to be the case. If the District is now asserting that 5 PPM SOx level can be achieved by De-SOx catalyst, then this data should be presented as part of the Final PEA because this option may have significant implications on energy use, water use and emissions compared to other alternatives. 3-20

Comment: The District Staff states (pages 2-5 and 6) that their consultant determined that utilizing a wet gas scrubber for process heaters or boilers would not be cost-effective, but that refineries can "opt" to use lower sulfur-containing fuels in order to reduce SOx emissions from these combustion sources. This assertion is inaccurate.

Fuel gas sulfur content can only be reduced to the extent allowed by the capacity of a facility's fuel gas treating system. Further, the refinery's sulfur plant has to have the capacity to process the additional sulfur that would be removed from the fuel gas. A detailed analysis of the effort required to reduce sulfur emission is essential for a complete PEA. WSPA encourages an expanded review of the costs, environmental impacts and resource commitments associated with various sulfur control technologies. 3-21

Comment: The District claims (page 2-13) that the sulfur content of refinery fuel gas may be further reduced to a range between 25 ppmv and 35 ppmv and the outlet SO_x concentrations from refinery boilers and process heaters may also be limited to less than 20 ppmv by implementing "efficiency improvements" to fuel gas treatment systems. However, the District does not provide any data to support this contention or any analysis to support their conclusions.

There is no information provided about cost effectiveness of such "efficiency improvements." Some refineries included fuel gas treatment options in the WSPA cost survey and the District is aware of this. But, any such treatment enhancements are not necessarily applicable or cost effective for every refinery. While not a part of the BARCT adjustment, if the District wishes to include this approach within the PEA, it would seem appropriate to conduct more site-specific analyses. 3-22

BARCT Definition

Comment: The Health and Safety Code specifically defines BARCT as "…best available retrofit technology means an emission limitation that is based on the maximum degree of reduction achievable taking into account environmental, energy and economic impacts by each class or category of source." Because of the significant water demand impacts of the proposed rule, a "dry" technology alternative should be included in the DPEA. Currently, Alternative C contemplates a reduction in the number of categories subject to wet gas scrubber technology. 3-23

Draft Rule and Calculated Emission Reductions

Comment: Regarding paragraphs (f)(1)(N) and (M) of the rule, the $50,000/ton threshold should be based on perpetuity credits, not single year credits, because perpetuity credits are more reflective of long-term compliance costs. The price of single year credits would just depend on whether a facility had excess credits during that particular year due to, for example, a turnaround. 3-24

The single year credit cost is not directly related to the true cost of controls. This aspect of the rule should be addressed as part of the PEA and the Socioeconomic Report that must be prepared to inform the Board in its deliberations.

Draft Rule Emission Reductions

Comment: The emission reductions shown in the table below are still too aggressive, particularly in terms of feasibility concerns and significant environmental impacts. Tonnage in the table is based on the schedule for emission reductions in the Proposed Project. The tonnage and emission reduction schedule should be provided for all Alternatives.

For example, the DPEA should consider the environmental impacts of a less aggressive reduction such as 1 TPD each year for the first 3 years and then 0.4 TPD from 2015 - 2019 for a total of 5 tons by the end of 2019. 3-25

Year	Pounds/yr	Tons/yr	Cumulative Tons/Day	Incremental Yearly Ton/Day Reduction
2012	1,095,000	547.5	1.5	1.5
2013	2,190,000	1095	3	1.5
2014	3,285,000	1642.5	4.5	1.5
2015	3,518,600	1759.3	4.82	0.32
2016	3,752,200	1876.1	5.14	0.32
2017	3,985,800	1992.9	5.46	0.32
2018	4,219,400	2109.7	5.78	0.32
2019 and after	4,453,000	2226.5	6.1	0.32

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ATTACHMENT B: MAJOR COMMENTS

EXECUTIVE SUMMARY (CHAPTER 1)

SCAQMD's response to the controversy in the amount of the SOx shave as indicated in Table 11 on page 1-11 of the DPEA is as follows: "…the rule analysis shows that after the shave is imposed, there will be sufficient SOx RTCs available to maintain trading within the SOx RECLAIM program."

> **Comment 1-1**: The District has not provided any analysis in its DPEA to support this statement. This is especially important because the current SOx market is very "thinly traded" with a limited number of participants. Hence it seems important that the District assess the environmental impacts if, as has occurred in other emission trading programs, SOx market trading is distorted or impaired due to the proposed shave and seizure of currently "unused" RTCs.
>
> Moreover, the assertion that there will be sufficient RTCs available to maintain trading within the program after an aggressive shave in RTCs has not been substantiated by fact. In fact, there is no way for the District to predict, with any certainty, future market response to reductions in the RTC market consistent with the proposal, nor has the possibility for significant environmental impacts associated with an aggressive shave in RTC reductions been analyzed. The District must more fully evaluate the range of possible impacts to the RECLAIM market resulting from various shave levels.
>
> The SOx market is much more constrained in terms of market participants and trading, so any "lessons learned" from the NOx market may not be applicable. Thus, the PEA should consider and evaluate impacts due to market instabilities that are more likely in a constrained credit situation such as the current proposed rule.

3-26

In the DPEA, SCAQMD states (Table 1-1; P. 1-12), "According to both of the consultants' reports, a facility-by-facility evaluation was conducted which included an analysis of plot space availability. The analysis does not support the claim that there is not adequate plot space available to install SOx controls." While we understand that the District's consultants were instructed to look at control technology, it seems clear that key issues such as plot space and the requirements of a functioning refinery were not given adequate weight.

Design and layout of control technology including construction and installation needs are important constraints that must be considered. If the District's assumptions on layout are incorrect, it could mean that a lot more construction must be done which will have greater impacts. The District Staff should revisit their assumptions and environmental requirements associated with their proposed control technologies.

3-27

Comment 1-2: While companies will answer individually, it is clear that plot space limitations and related infrastructure requirements documented by company operators are both real and unaddressed. The PEA should analyze the impacts of actual plot space needs.

> We disagree with the Staff assertion that "the contractor analysis does not support the claim that there is not adequate plot space available to install SO_x controls." For example, the Norton Engineering Report (NE) cites examples where the location of proposed equipment needs to be modified due to operations needs [see p. 8-9]. Moreover, the collective experience of the refineries and their respective engineering contractors to design, construct, and operate refinery equipment is greater than that

3-28

associated with consultants retained to simply look at feasibility. Again, flawed assumptions relating to space requirements can adversely impact the analysis of construction costs and operating requirements.

3-28 Cont'd

"With regard to water demand impacts, SCAQMD staff recognizes that wet gas scrubber technology is water intensive. However, recycled water can be used in lieu of potable water. Specifically, up to 75 percent of the estimated increase in water demand due to the wet gas scrubbers under Option 1 of the proposed project can be satisfied with recycled water." [p. 1-13]

Comment 1-3: These statements are misleading. Although it is true that recycled water could likely be used in lieu of potable water, this can occur only if there is sufficient supply and infrastructure to supply the water to the affected facilities. The district must also consider whether building the additional infrastructure is feasible, both physically and economically.

Specific issues that need to be considered are: 1) the existence of a reliable supply of recycled water available to each facility 2) the existence of infrastructure, internal to each facility, to provide recycled water to the processes that would use the water 3) the capital cost to build the necessary infrastructure if it does not already exist and 4) to have a supply of recycled water available for use within the timeframe required for compliance.

3-29

Currently 8 out of 11 affected facilities "do not have access to recycled water" (see p. 3-67 in DPEA). While water purveyors are looking into the possibility of providing additional recycled water (i.e., the Harbor Refineries Recycled Water Pipeline Project (HRRWPP)), this does not necessarily mean that the specific RECLAIM facilities will have access and/or rights to it, or that water can be supplied in sufficient volumes.

The Staff should also analyze this issue on the basis that 8 of the 11 affected facilities have no current access to recycled water (see also comment 1-5 below).

"Implementation of the proposed project is expected to span over seven years, which should be adequate time for purchasing and installing wet gas scrubbers." [p. 1-14]

Comment 1-4: This assumption is speculative and leads to the underestimation of environmental impacts. While it is true that companies would tend to defer the more costly investments to the future, it is not clear that it would be the case for most companies. In fact, given the very aggressive reductions required in the first 3 years, and the uncertainty in the market, companies may need to reduce emissions in the short term – leading to high capital investments early in the compliance period rather than later as the District expects.

3-30

The District should evaluate a range of construction and installation schedules that vary from installation within 3 years to installation through the end of 2019.

"For water demand, there are three significance thresholds based on whether: 1) the total water demand of the proposed project is less than five million gallons per day 2) the existing water supply has the capacity to meet the increased demands of the proposed project and, 3) the potable water demand is a substantial use of water. The analysis shows that the increased potential demand for total water that may result from implementing the proposed project is not expected to exceed the significance threshold of five million gallons of total water demand per day.

3-31

Further, based on discussions with the local water suppliers, the existing water supply is expected to have the capacity to meet the increased demands of the proposed project. However, because the entire state of California is in the midst of a severe drought, a water supply analysis relative to the current and future availability of potable water and the use of recycled water and industrial-use groundwater to satisfy some of the water demand needs of the proposed project was conducted." [p. 1-24]

Comment 1-5: In analyzing the impact for CEQA, the district should analyze the worst-case scenario, which is that the demand would be on the potable water supply. While such an analysis could mean that the technology would become infeasible, the District must conduct a realistic environmental assessment and should not attempt to choose assumptions simply to justify its rule options.

Although the District does conclude by determining that potable water demand impacts are significant, the District Staff's summary of environmental impacts is inadequate given their review of the current water shortage in the State as described below: "However, back-to-back dry years and low reservoir levels have put California in a statewide drought. In late 2008, the state's major reservoirs were at about one-third of capacity, at a time when they would typically be at about two-thirds.

As a result, the DWR has allocated only 15 percent of requested amounts of water to be delivered to the SWP in 2009. This allocation is the second lowest in the history of the project. [1-18]… The [Governor's] proclamation further requested that all urban water users immediately increase their water conservation activities in an effort to reduce their individual water use by 20 percent [emphasis added].

3-31
Cont'd

In response to the Governor's proclamation, the California legislature has proposed Assembly Bill (AB) 49 – Water Efficiency[9] and Senate Bill (SB) 261 – Urban Water Efficiency[10]. These proposed bills will require a 10 percent reduction of urban water use by 2015 and 20 percent by 2020. However, these proposed bills will allow the use of non-potable or recycled water to count towards the progress in meeting these targets.

Water districts, in response to the drought, have also taken actions throughout the state such as: 1) asking for voluntary reductions 2) imposing mandatory restrictions or declaring a local emergency 3) imposing agricultural rationing 4) imposing drought rates, surcharges and fines 5) limiting new development and requiring water efficient landscaping and, 6) implementing a conservation campaign. [1-19][emphasis added]

Finally, the District's assertion that reclaimed water use can feasibly and cost-effectively displace an INCREASE in water use requirements in the face of mandated reductions of 20% in potable water can only be substantiated by a thorough analysis --- an analysis that was not conducted. The PEA should acknowledge the cross-media impacts and potential regulatory conflict of the proposed rule. The decision to determine that the impacts are significant does not release the District from analyzing the impacts fully.

Also, the conclusion that potable water impacts could be less than significant with mitigation implies incorrectly that 1) additional recycled water will be available for the specific facilities and 2) the facility has the ability to obtain written declarations from water purveyors that recycled water is not available [see mitigation measures GHG-2 (page 4-31) and HWQ-2 (page 4-84)].

6

In Tables 1-3 and 1-4, Options 1 and 2 of the preferred project show identical emission reductions for different FCCU control technologies. [p. 1-27 and 1-28]

> **Comment 1-6**: We do not understand why the District identified two options for FCCU SOx control with vastly different costs but equal emission reductions. We agree that De-SOx catalyst is less costly than installation of new Wet Gas Scrubbers (WGS); what is unclear is if the level of emission reductions achieved with De-SOx catalyst is equivalent to WGS. The equivalent emission reduction potential should be demonstrated and/or Option 2 analysis should be revised. This analysis should be revised to more clearly define the emission reductions and substantiating documentation. The current analysis is either incomplete or inaccurate.

3-32

Footnote 17 of Table 1-3 indicates the following regarding the potential 0.85 tpd reduction from refinery boilers/heaters: "… the environmental impacts from such controls are evaluated in this analysis but the potential emission reductions are excluded from the proposed RTC shave." (emphasis added).

> **Comment 1-7**: It is not clear how the proposed RTC shave values were calculated. In addition, because the refinery heaters and boilers are not part of the proposed project, it should be clarified and justified why the "environmental impacts from such controls" are included as part of the project evaluation.
>
> What are the environmental benefits of including refinery heaters and boilers? What emission reductions could they displace? Under RECLAIM, substitution of more cost-effective controls on a site-by-site basis is encouraged, so what benefit is derived from including this specific choice within the Draft PEA?

3-33

EXISTING SETTING (CHAPTER 3)

Table 3-10 (p. 3-67) shows the existing water demand for the facilities that will be affected by the SOx shave.

> **Comment 3-1**: 8 out of 11 facilities have no access to recycled water (see our comments 1-3 and 1-5). In addition, we do not believe that the District's assumption that additional recycled water will be available for those specific facilities from the HRRWPP is correct – thus leading to an incorrect analysis of the impacts to this resource. Yet, the District proposes to offset the increase in use of potable water by expanded use of recycled water.
>
> The analysis should be based on the worst case scenario that none of the facilities specifically will have access to more recycled water, even if the HRRWPP is completed. At the very least, CEQA requires that the District assess the impacts of having to use potable water at those facilities.

3-34

ENVIRONMENTAL IMPACTS (CHAPTER 4)

Table 4-1 (p. 4-2) shows 0.85 tons per day (TPD) emission reduction for Refinery Heaters and Boilers.

> **Comment 4-1**: Refinery heaters and boilers were not included in the proposed rule because no new BARCT is being proposed for this source category. Inclusion of this class of sources within the DPEA is misleading and inappropriate. The CEQA mandates the evaluation of alternatives to the project, not alternatives to technology (i.e., wet gas

3-35

scrubbers) that may be evaluated (but ultimately rejected) as part of the project.

This option comes "out of left field" and there appears to be no documented basis within the context of the proposed rule and DPEA. Inclusion of this "alternative' weakens the DPEA by suggesting alternatives that are not covered by the proposed action.

3-35 Cont'd

Table 4-2 (p. 4-4) summarizes the options for control of the FCCU.

Comment 4-2: The District should document the basis for determining that De-SOx and Wet Gas Scrubbing can produce equivalent emission reductions. Such an analysis, using data from existing facilities (i.e., achieved in practice), is essential if the District is to assess adequately the environmental impacts associated with those technologies.

3-36

Under Option 1, 11 units may be retrofitted with one WGS each at eight facilities by December 31, 2018. Under Option 2, seven units may be retrofitted with one WGS each at five facilities by December 31, 2018. [p. 4-14]

Comment 4-3: It is not clear that these dates match the requirements in the Rule nor that this schedule has any relationship to how companies plan to comply with the final rule requirements. There is no basis for evaluating the potential construction impacts associated with installation of equipment on this schedule.

3-37

Cumulative Air Quality Impacts

"In general, the preceding analysis concluded that air quality impacts from any construction activities would be significant from implementing the proposed project because the SCAQMD's significance thresholds for construction will be exceeded for VOC, NO_x, and PM_{10}. Thus, the air quality impacts due to construction are considered to be cumulatively considerable pursuant to CEQA Guidelines §15064 (h)(1) and therefore, generate significant adverse cumulative air quality impacts." [4-24]

Comment 4-4: We concur that the proposed regulation (i.e., reduce RTCs by 55%) will cause significant environmental impacts. We believe that the district should consider Alternatives B and C that have much smaller impacts overall. It should be noted that those alternatives would cause significantly fewer environmental impacts (see p. 5-13 through 5-14) – particularly associated with water use and GHG impacts, while still achieving SOx emission reductions called for in the 2007 AQMP (Alternative B) or greater reductions similar to the proposed project (Alternative C).

3-38

Global Climate Change/GHG Impacts

The DPEA lists the following GHG mitigation measures:

"GHG-1 When SOx control equipment is installed and water is required for its operation, the facility operator is required to use recycled water, if available, to satisfy the water demand for the SOx control equipment.

GHG-2 In the event that recycled water cannot be delivered to the affected facility, the facility operator is required to submit a written declaration with the application for a Permit to Construct for the SOx control equipment, to be signed by an official of the water purveyor indicating the reason(s) why recycled water cannot be supplied to the project." [P. 4-31]

3-39

Comment 4-5: GHG-2 mitigation does not have any mitigating effect on GHG emission. Moreover, it mandates that the source gain a "written declaration" from the water purveyor that is inherently out of the control of the operator. Thus, this condition cannot be imposed on the facility operators (see also ES-4, ES-6, C 1). 3-39 Cont'd

"While there may be additional measures that could eventually be imposed on sources with potential increases in GHG emissions, CARB is adopting measures pursuant to AB 32 that would require the maximum technically feasible and cost-effective GHG emission reductions from most of the industry categories affected by the proposed project. CEQA Guidelines §15364 defines 'feasible' as 'capable of being accomplished in a successful manner within a reasonable period of time…' Specifically, CARB's adopted 'early action measures' include a measure to limit methane emissions from landfills, which SCAQMD staff will enforce." [pp. 4-33 to 4-34]

Comment 4-6: The District's assertion that AB 32 projects will serve as mitigation to the GHG emissions that could be caused by the project makes no sense. Notwithstanding the current uncertainty concerning the ultimate levels of emission reductions, the timing of the reductions, or even how those emission reductions will be achieved, it is unclear how GHG emissions achieved under AB 32 would qualify as mitigation.

The District's approach is incomplete and not helpful in developing approaches that can be used in the subsequent permitting required by projects in order to comply. Issues such as the applicability of BACT, NSR, PSD as well as the effect of EPA's Tailoring Rule (p. 4-33 ff) are unresolved and cannot be resolved before permitting begins.

Hence, projects that are required to comply with the proposed action, and the District as well, would be faced with a Gordian Knot. Again, this issue argues for Alternative B or C that will have many fewer environmental impacts while still resulting in SOx emission reductions called for in the 2007 AQMD (Alternative B) or greater reductions similar to the proposed project (Alternative C). The DPEA is inadequate because it has not identified feasible and reasonable mitigation measures to address GHG impacts. 3-40

"Therefore, GHG BACT is at least as stringent as CEQA's definition of feasible mitigation, which similarly allows consideration of economic, technological and environmental factors. Thus, application of BACT will require the maximum feasible reductions of GHGs at new or modified sources." [p. 4-35]

Comment 4-7: How has the District determined the relationship of GHG BACT to CEQA? No one in USEPA, CARB, or the District has documented the findings, requirements, conditions, emission control efficiencies or technology associated with BACT for GHGs. Even if this is true, it is speculative to assert that BACT for GHGs is as stringent as CEQA mitigation requirements. 3-41

Energy Impacts

"In summary, the energy impacts from both Option 1 and Option 2 of the proposed project are concluded to be less than significant." [p. 4-42]

Comment 4-9: The District did not include in its analysis the additional energy needed to pump potable water (rather than recycled water) to 8 of the 11 facilities that likely will not be able to utilize recycled water to meet the requirements of the rule. This should be included in the PEA. 3-42

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Hydrology – Water Impacts

"Level of Significance After Mitigation: The analysis shows that proposed increase in total water use under both Option 1 and Option 2 cannot be fully supplied with recycled water (either currently or in the future) and non-potable groundwater and that some potable water may still be required for certain facilities. While the potentially adverse water impacts can be reduced to below significance if facility operators are required to use current and future supplies of recycled water, if available, there is no absolute guarantee at the time of this writing that future supplies of recycled water will be available to the affected facilities included in the HRRWPP Project.

While the use of recycled water can help reduce the water demand impacts substantially, the overall water demand will not be completely mitigated. Therefore, the proposed project will remain significant after mitigation for water demand." [p. 4-84] 3-43

Comment 4-10: Here the District acknowledges that Options 1 and 2 cannot be fully supplied with recycled water. Even if the District Staff concludes the impact will be significant, it does not relieve them of the responsibility to analyze the most likely scenario. The PEA should also analyze the impacts if existing and/or foreseeable water use regulations significantly impede the facilities' use of potable water.

Comment 4-11: As in mitigation measure GHG-2, mitigation measure HWQ-2 mandates that the source gain a "written declaration" from the water purveyor that is inherently out of the control of the operator. Thus, this condition cannot be imposed on the facility operators (see also Comments ES-4, ES-6, C 1). The PEA should identify feasible and reasonable mitigation measures. 3-44

Cumulative Hydrology and Water Quality Impacts: Because the project-specific water demand impacts under Option 1 have been concluded to be significant due to the 500DU potable water demand criteria and in consideration of California's on-going drought and that 100 percent of the potential increase in water use cannot be supplied by recycled water, it could be argued that the proposed project is cumulatively considerable pursuant to CEQA Guidelines §15064 (h)(1). Therefore, the proposed project is expected to generate significant adverse cumulative water demand impacts.

However, because the project-specific water quality impacts do not exceed any applicable significance thresholds, they are not considered to be cumulatively considerable pursuant to CEQA Guidelines §15064 (h)(1) and therefore, do not generate significant adverse cumulative water quality impacts." [pp. 4-84 to 4-85] 3-45

Comment 4-12: WSPA agrees that with the water demand impacts of the project will be cumulatively significant. Even if the District concludes the impacts will be significant, it does not relieve them of the responsibility to analyze the most likely scenario – no additional supplies of recycled water for the RECLAIM facilities. The PEA should also analyze the impacts if existing and/or foreseeable water use regulations significantly impede the facilities' use of potable water. (See also comment 1-3, 1-5)

"Cumulative Mitigation Measures: The potentially adverse water impacts can be reduced further than initial estimates if recycled water is employed for WGS installations. Even with the use of recycled water as part of the implementing the proposed project, the analysis shows that 100 percent of the proposed increase in total water demand cannot be fully offset by the use of recycled water. While the use of recycled water can help reduce the water demand impacts substantially, the overall total water demand will not be completely mitigated. Therefore, the 3-46

10

proposed project will remain cumulatively significant after mitigation for water demand." [p. 4-85]

Comment 4-13: WSPA agrees with the significance determination but believes the impact analysis should be done assuming no future increases in recycled water. GHG-2 mitigation condition mandates that the source gain a "written declaration" from the water purveyor that is inherently out of the control of the operator.

Thus, this condition cannot be imposed on the facility operators (See also comments 1-3, 1-5, C-1), because its assumption that all the facilities would have access to increased supplies of recycled water is not the likely worst-case scenario as RECLAIM facilities will not have certain access to any new supplies.

3-46 Cont'd

ALTERNATIVES (CHAPTER 5)

Alternatives and BARCT Determination

Please note that Options 1 and 2 of the preferred project are not fully specified in Table 5-1. [p. 5-2]

Comment 5-1: Options 1 and 2 need to be more clearly defined in Table 5-1 because Option 2 is not sufficiently defined to indicate exactly how it (if it in fact can) achieve the same emission reductions. It is not clear how the two Options result in the same emission reductions for different projects and costs. More description of Option 2 and how equivalent emissions reductions can be achieved is needed.

3-47

Footnote 91 of Table 5-1 indicates the following regarding the potential 0.85 tpd reduction from refinery heaters and boilers: "… the environmental impacts from such controls are evaluated in this analysis but the potential emission reductions are excluded from the proposed RTC shave." (emphasis added)

Comment 5-2: It is not clear how the proposed RTC shave values were calculated. In addition, the refinery heaters and boilers are not even included as part of the proposed project. See Comment 4-1[1].

3-48

In Table 5-2, Options 1 and 2 for Alternative C list SOx emission reductions for Refinery heaters and boilers of 0.85 tpd under "Decreases total operational SOx emissions by 5.48 tpd as follows…"[p. 5-3]

Comment 5-3: The project description for Alternative C on page 5-13 does not include these units as part of the project. Emission reductions associated with these units should not be included as part of the reduction scenario. (See comment 5-2 and 4-1 above)

3-49

[1] *Comment 4-1 Refinery heaters and boilers were not included in the proposed rule because no new BARCT is being proposed. Inclusion of this class of sources within the DPEA is misleading and inappropriate. The CEQA mandates the evaluation of alternatives to the project, not alternatives to technology (i.e., wet gas scrubbers) that may be evaluated (but ultimately rejected) as part of the project. This option comes "out of left field" and there appears to be no documented basis within the context of the proposed rule and DPEA. Inclusion of this "alternative' weakens the DPEA by suggesting alternatives that are not covered by the proposed action.*

Under "Energy Impacts Significant" for the proposed project Option 1 states "the reduction in the use of natural gas is not as much as the proposed project – Option 2" and for proposed project Option 2 states "the reduction in the use of natural gas is more than the proposed project – Option 1". [p. 5-7]

Comment 5-4: These statements are inconsistent with the numbers shown in the Table 2 under "Energy" on page 5-6 which states for both proposed project options "overall reduction in the use of natural gas by 4.1 MMBTU/day." Natural gas reductions for Alternative C (both options) were listed as 34.25 MMBTU/day, eight times greater than the proposed project.

3-50

"…the operation GHG emissions would be less than both Options 1 and 2 of the proposed project. In addition, less than significant adverse secondary impacts for aesthetics, energy, hazards and hazardous materials, hydrology and water quality, and transportation and traffic are expected to result from implementing Alternative C, but these impacts would be less than both Options 1 and 2 of the proposed project." [p. 5-14]

Comment 5-5: Given that less impacts result from implementation of Alternative C while still reducing SOx emissions, it is not clear why Alternative C is not the proposed project, since the SOx reductions are similar (5.48 vs. 6.21 tpd) and the proposed project reductions are far more uncertain.

3-51

"In summary, if Alternative C were implemented, less SO_x reductions would be achieved and less health benefits from reducing SOx overall will be realized." [p. 5-20]

Comment 5-6: An assessment of the difference in health benefits between the proposed project and Alternative C has not been conducted. A linear relationship between increased reductions in SOx and health benefits cannot be assumed for reductions beyond those included in the 2007 AQMP without further multi-pollutant, photochemical modeling analysis. Therefore, to state that there will be additional health benefits from the proposed project versus Alternative C, which provides less significant impacts than the proposed project, is unsubstantiated.

3-52

"However, for Alternative C - Option 2, the adjusted estimate for increased potable water demand would be 108,436 gallons per day, which is below the minimum amount of potable water needed to qualify for as a water demand project per the 500 DU calculations (e.g., 133,911 gallons per day). Thus, for this reason, Option 2 of Alternative C is expected to contribute to less than significant adverse water demand impacts." [p. 5-65]

Comment 5-7: As WSPA stated earlier, we still believe that the District should analyze potable water demand without assuming the facilities will be able to access new and/or greater amounts of potable water.

3-53

"Further, even though Alternative C would require less WGSs to be installed and would require less total water overall, both Option 1 and Option 2 of Alternative C are estimated to have equivalent demands of potable water when compared to Option 1 and Option 2 of the proposed project. With regard to water quality, both Option 1 and Option 2 of Alternative C would generate less wastewater than Option 1 and Option 2 of the proposed project, respectively. Overall, Alternative C has less environmental impacts than the proposed project." (emphasis added) [p. 5-83]

3-54

Comment 5-8: We agree that Alternative C, particularly without inclusion of the unused RTCs, has less environmental impact than the proposed project. We do not believe that the impacts of the District's seizure of "unused" RTCs have been adequately assessed. Aggressive shave reductions will force facilities to alter operations (i.e., over-control) leading to the installation of additional emissions control equipment with attendant costs and environmental impacts.

3-54 Cont'd

"… but it does not achieve the additional SOx reductions and health benefits expected from the proposed project." [p. 5-83 emphasis added]

Comment 5-9: This statement is misleading. Aerosol particulate formation is a highly non-linear process, dependent on a complex location and aerometric conditions. NO additional air quality or health benefits beyond the AQMP have been documented because the analysis has not been done (see Comment 5-6 above). The District should note that even Alternative C, without inclusion of the unused RTCs, results in greater emission reductions than the AQMP.

What the District must do if it wishes to document the need for, and benefit of additional emissions reduction beyond what has been specified in the AQMP, is to conduct an appropriate modeling analysis of the air quality and health impacts associated with more aggressive emission reductions. Without such information, the DPEA is incomplete.

Without the proper analysis, the district's conclusion, that emissions beyond those required by the AQMP can lead to measurable improvements in air quality at the desired monitoring stations is speculative.

3-55

Barbara Radlein
October 1, 2010
Page C-1

ATTACHMENT C: MINOR COMMENTS

WSPA offers the following minor comments on the DPEA, which do not affect the overall assessment of the proposed project or the alternatives, but which are editorial or typographical in nature.

Comment: The air quality and hazardous materials impacts related to sodium hydroxide (NaOH) usage for Alternative B (Table 5-2, p. 5-5, 3rd bullet and p. 5-7) indicate that the impact from increased NaOH usage is "less than the proposed project – Option 1, but equivalent to the proposed project – Option 2" (emphasis added). However, the increase in NaOH usage listed in the table on the previous page (5.45 tpd) is less than the NaOH increases for both options of the proposed project (13.24 tpd and 8.79 tpd for Options 1 and 2, respectively). This apparent inconsistency needs to be corrected. 3-56

Comment: The GHG impacts for Alternative C – Option 1 column (Table 5-2, p. 5-5, 2nd bullet) indicates that the GHG emissions increase is "significant for GHGs, but less than proposed project for both Options 1 and 2." However, although the emissions for Alternative C are less than those for proposed project Option 1, the GHG emissions increase for Alternative C – Option 1 (34,159 MT/yr without mitigation; 33,911 MT/yr with mitigation) is actually greater than proposed project – Option 2 (19,662 MT/yr without mitigation; 19,580 MT/yr with mitigation). Please make this update to Table 5-2, Alternative C - Option 1. 3-57

Comment: The impacts due to traffic for the proposed project (both Options 1 and 2) listed in Table 5.2 (p. 5-9) indicate that the impacts are different under both the construction and operation scenarios; however, the number of construction trips listed in the table (700 trips) is the same for both options of the proposed project, and therefore, this comment is inconsistent with the numbers shown in the table. 3-58

Comment: There also appears to be a typographical error on p. 5-20 of the DPEA, where it references the number of wet gas scrubbers that would be installed under Alternative C – Option 1. The last paragraph on p. 5-20 indicates that this alternative has a total of eight add-on controls, of which six are wet gas scrubbers; however, other references in this chapter of the DPEA indicate that there would be eight wet gas scrubbers installed under this alternative, for a total of ten add-on controls. 3-59

Comment: On the top of page 5-34, the increase in diesel and gasoline is stated as follows: "For Alternative C – Option 1, the analysis shows an overall increase in diesel and gasoline use of approximately 2,410 gallons per day and 1,384 gallons per day, respectively. Similarly for Alternative C – Option 2, the analysis shows an overall increase in diesel and gasoline use of approximately 2,180 gallons per day and 1,384 gallons per day, respectively."

However, the numbers listed in Table 5-25 at the bottom of the same page indicate that the total diesel and gasoline uses for Alternative C – Option 1 are 3,063 gallons per day and 1,354 gallons per day, respectively, and for Alternative C – Option 2 are 2,690 gallons per day and 1,354 gallons per day, respectively. The numbers should be updated as appropriate. 3-60

Comment: For the Alternative C, peak daily water use during construction listed in Table 5-1 appears to be a typo. It should not be the same as the proposed project (52,272 gal/day, p 4-67) but rather 66,000 gal/day (p-5-57). 3-61

Comment: Footnote 12 is missing from Table 1-3. Please add it to the table as it is critical information. 3-62

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Responses to Comment Letter #3
(Western States Petroleum Association, October 1, 2010)

3-1 SCAQMD staff appreciates the effort made by WSPA in their commitment to follow the January 2010 Work Plan. The collaborative working relationship is also greatly appreciated.

3-2 SCAQMD staff has evaluated the proposals submitted by WSPA regarding the SOx shaves ranging from 25 to 40 percent. However, based on SCAQMD staff's assessment of available control technologies, the WSPA proposals do not appear to qualify as Best Available Retrofit Control Technology (BARCT) in accordance with California Health and Safety (H&S) Code §40440 as well as equivalency to command-and-control regulations, as required under H&S Code § 39616(c)(1). In addition, the SCAQMD's proposal for a 55 percent shave reflects the modifications to the SCAQMD's original proposal of a 67 percent shave made in response to discussions with industry with regard to determining BARCT. SCAQMD seeks the maximum achievable SOx reductions from the proposed project to ensure attainment of the annual PM2.5 standard, since SOx reductions are 15 times more effective than NOx reductions in reducing PM2.5 concentrations. Moreover, future attainment of the 24-hour PM2.5 and revised annual PM2.5 standards will require even greater SOx emissions reductions for attainment. Without sufficient SOx reductions from the proposed project, which is a control measure in the 2007 AQMP, the SCAQMD may have difficulty attaining the revised annual PM2.5 standard. With regard to economic impacts of the proposed project, refer to Response to Comment 3-5. See also the Socioeconomic Impact Report for the proposed project.

3-3 Individual responses to the detailed comments submitted have been prepared and begin with Response to Comment 3-4.

3-4 If the proposed project is adopted, SCAQMD staff has concluded that there would be sufficient SOx RTCs available to maintain trading within the SOx RECLAIM program. This conclusion is based on a 25 percent difference between facility holdings and emissions. In addition, the proposed shave incorporates a 10 percent compliance margin and a safety valve where RTCs are released back to the market in case the RTC price exceeds a $50,000/ton threshold. All of these rule components will assist in maintaining trading within the SOx RECLAIM program.

3-5 The independent consultants, ETS and NEXIDEA, were selected by a four member panel including representatives from the SCAQMD as well as from WSPA. WSPA's member refineries were in agreement with the selected consultants and they were fully paid for by the refineries. The consultants started their project in September 2008. After considerable amount of time spent at the site visits to all six refineries discussing technical issues such as space limitations, utility infrastructure, control technologies, BARCT levels, and time needed for the refineries to install control technologies considering equipment downtime, the consultants finalized their independent studies in April 2009. During this nine-month period working closely with the refineries, the consultants sent their draft analyses to the refineries at least four times for input and comments, and the consultants addressed all the comments received before the reports were finalized. The consultants' team of engineers

carefully listened to all comments and input from the refineries, and incorporated the refineries' input, if technically sound and correct, in their final feasibility and cost analyses.

In March 2010, as part of the Work Plan developed by SCAQMD staff in concert with WSPA representatives, SCAQMD staff hired Norton Engineering Consultants (NEC) to review ETS's and NEXIDEA's analyses. (It should be noted that NEC applied for this project in 2008 together with ETS and NEXIDEA. NEC received the highest score from WSPA in 2008 but was not selected because their bid was higher than the budget allowable in 2008. NEC has also done work for several refineries.) Generally, NEC estimates for capital costs and annual maintenance costs were higher than ETS and NEXIDEA. However, for the FCCU's WGSs, NEC was in close agreement with ETS. Because NEC's estimates for costs were higher than ETS and NEXIDEA, NEC recommended SCAQMD staff to re-estimate the cost-effectiveness values for the project. SCAQMD staff did so and their re-estimated cost-effectiveness values based on NEC's recommendations are presented in Chapter 12, Section 12.2 of the Staff Report. The table below provides a comparison between ETS, NEXIDEA and NEC's estimates:

	ETS/AEC, NEXIDEA	**NEC**
Present Value for 25 Years	$630 million	$738 million
Emission Reductions	4.36 tons per day*	4.21 tons per day*
Cost Effectiveness	15,845 $/ton	19,199 $/ton

*Early reduction was 1 ton per day, applicable to a refinery that installed and operated a WGS for their FCCU since 2008, and a refinery that conducted process modification to their SRU/TGU to reduce emissions pursuant to EPA consent decree. The emission reductions from this FCCU and this SRU/TGU accounted for from 2005 baseline were 1 ton per day. The total emission reductions estimated from 2005 baseline are about (4.36+1=5.36 tons per day) for ETS/NEXIDEA and 5.21 tons per day for NEC.

ETS/AEC and NEC estimated that the actual emission reductions estimated from the 2005 baseline that could be cost-effectively achieved for this project are approximately 5.21 tons per day to 5.36 tons per day. However, to achieve these actual reductions, excess RTCs or "unused" RTCs must be removed to prevent avoidance of installing controls. Thus, SCAQMD staff has estimated that 6.1 tons per day of RTC reductions must be made in order to achieve these actual reductions. The amount of excess or "unused" RTCs estimated for the 2005 baseline was 1.73 tons per day (i.e., the difference between the RTC holdings of 11.77 tons per day and the 2005 audited emissions of 10.04 tons per day) can be counted towards the goal of 6.1 tons per day RTC reductions at no cost to the facilities. In other words, if RECLAIM facilities agree to reduce all "unused" RTCs, the "real" compliance costs to achieve a programmatic 6.1 tons per day RTC reductions could be less than $630 to $738 million estimated by the consultants. WSPA's assessment that the "*The District's overly aggressive proposal incorporates the seizure of "unused" RTC's in a manner that doubles the compliance cost. The costs to achieve emission reductions required by the proposed shave are nearly double the costs required to achieve emission reductions equivalent to installation of BARCT controls on refinery sources*" does not make sense.

With regard to the comment that the Draft PEA should evaluate the costs of achieving BARCT levels, see Response to Comment 1-1.

3-6 The proposed project and Alternative C have identical, significant adverse water demand impacts. With regard to GHG emissions, the analysis for the proposed project indicates the

quantity of GHG emissions would be greater than those analyzed for Alternative C (i.e., by approximately 5,000 MT CO2eq/year), but both the proposed project and Alternative C are shown to have significant adverse impacts for GHG emissions. While there are mitigation measures to help minimize the impacts for water demand and GHGs, the mitigation will not bring the impacts below the applicable significance thresholds (using recycled water can reduce GHG emission impacts up 40 percent in northern California to as much as 81 percent in southern California[24] because less energy is required to collect, treat, and redistribute to the point of use). For these reasons, SCAQMD staff has prepared a Statement of Findings, a Statement of Overriding Considerations, and a Mitigation Monitoring Plan. This document, referred to as "Attachment 1 to the Resolution," will be included in the Governing Board package.

In addition to Alternative C, SCAQMD staff considered two other alternatives: Alternative A (the "no project" alternative) and Alternative B (the AQMP alternative). While both Alternative A and Alternative B were shown to have less environmental impacts than the proposed project and Alternative C, neither was shown to achieve the goals of the proposed project. Specifically, Alternative A, the 'no project' alternative, does not achieve the goals of the proposed project because it does not implement the AQMP control measure. While no significant adverse secondary environmental impacts would result from the 'no project' alternative, it is not necessarily the environmentally superior alternative in accordance with CEQA Guidelines §15126.6(e)(2) because SOx emissions would continue to be emitted at current levels, thus, not improving air quality in the District.

While less add-on control equipment would be installed overall under Alternative B when compared to the proposed project, the environmental impacts would be less than significant and substantially less than the proposed project but the potential SOx emission reductions would also be less. Because Alternative B is limited to fewer source categories, fewer WGSs would be installed. Of the adverse environmental impacts that would be generated under Alternative B, the impacts would be less than the proposed project and less than significant, except for air quality construction emissions which are identical to the proposed project and are concluded to be significant. Alternative B, with a potential SOx emissions reduction of 1.50 tons per day, only partially achieves the SOx emission reductions identified in the AQMP, which are necessary to demonstrate attainment with state and federal air quality standards. When compared to the proposed project, Alternative B provides fewer benefits to air quality and public health.

Alternative C, with a potential SOx emissions reduction of 5.48 tons per day, achieves slightly less potential SOx emission reductions than the proposed project. When compared to the proposed project, the GHG emissions projected for both options of Alternative C are significant, but less than the proposed project. Because Alternative C employs the same amount of NaOH for Option 1 and Option 2, respectively as the proposed project, it has equivalent toxic impacts when compared to the proposed project. Further, even though Alternative C would require less WGSs to be installed and would require less <u>total</u> water overall, both Option 1 and Option 2 of Alternative C are estimated to have equivalent demands of potable water when compared to Option 1 and Option 2 of the proposed project. Thus, Alternative C has equivalent potable water demand impacts as the proposed

[24] California Air Pollution Control Officers Association (CAPCOA), Quantifying Greenhouse Gas Mitigation Measures, August 2010.

project. With regard to water quality, both Option 1 and Option 2 of Alternative C would generate less wastewater than Option 1 and Option 2 of the proposed project, respectively. Overall, Alternative C has less environmental impacts than the proposed project but it does not achieve the additional SOx reductions and health benefits expected from the proposed project.

3-7 The comment states that if Alternative C was selected in lieu of the proposed project, a Statement of Findings, a Statement of Overriding Considerations, and a Mitigation Monitoring Plan may not be necessary. The analysis for Alternative C was shown to also have significant adverse impacts for air quality during construction, GHGs, and water demand, even after mitigation measures are employed. Further, the air quality and water demand impacts for Alternative C are identical to the proposed project. For these reasons, if Alternative C was selected, a Statement of Findings, a Statement of Overriding Considerations, and a Mitigation Monitoring Plan would also be required. However, Alternative C was not selected because even though it has less environmental impacts than the proposed project it does not achieve the additional SOx reductions and corresponding health benefits expected from the proposed project and does not achieve what the SCAQMD staff's analysis concludes to be BARCT.

3-8 WSPA's assessment related to NEC's report, for cement kilns and sulfuric acid plants, which was incorporated into the analysis, is addressed below.

Cement Kilns

NEC review on cement plants on page 7 of NEC's report states, "*The control technology selection [ETS]… for the cement manufacturing plant kiln is not yet commercially proven… NEC expects the cost for wet scrubbing technology to be more cost effective…….*"

On page 10, NEC states, "…*The original estimate did not add any project scope contingency. NEC revised the estimate by adding the required additional ductwork for the new plot location and the project contingency……The original cost (without project scope contingency) was $19.6M and it would rise to $32.7M if project scope contingency equivalent to that used for the FCC scrubbers …is added.*"

SCAQMD staff's estimates of cost effectiveness for cement kilns based on NEC's recommendation are shown in Section 12.2, Chapter 12 of Part 1 of the Staff Report. The following table shows a comparison between the numbers developed based on ETS's and NEC's recommendation:

	ETS	**NEC**
Capital Costs	$19.6 million	$32.7 million
Present Values	$43.7 million	$62 million
Cost Effectiveness	$19,300 per ton	$26,824 per ton

The costs estimated by NEC were higher than those of ETS. However, the control technology selection of ETS, estimated by NEC, was still cost-effective.

SCAQMD staff acknowledges that the control equipment selection made by ETS (i.e., hybrid limestone scrubber) has not yet been installed at a cement manufacturing facility,

however the technology is feasible and cost-effective, and therefore, ETS's recommendation satisfies the BARCT requirements of the H&S Code. Furthermore, NEC recommended wet gas scrubbing as an alternative control technology. NEC indicated that WGS is even more cost-effective than the technology recommended by ETS. Under the RECLAIM program, the cement manufacturing facility is not required to use the technology recommended by ETS, and may select to use WGS, or any other technologies to reduce their emissions so that they can be in compliance with the shave.

Sulfuric Acid Plants

NEC review on sulfuric acid plant on page 7 of NEC's report states, *"The original costs for installation of scrubbers on the sulfuric acid plant .....appear to be underestimated by a factor of 2.5 to 3.*"

Adjusting the costs upward as recommended by NEC, the costs and cost-effectiveness for the sulfuric acid plants were shown in the following table and are compared to NEXIDEA's estimates:

	NEXIDEA	**NEC**
Capital Costs	$ 7 million	$20 million
Present Values	$19 million	$32 million
Cost Effectiveness	$2,016 per ton	$3,431 per ton

Thus, both consultants believe that WGS technology is a feasible method of SOx control for sulfuric acid plants, and cost-effective even using NEC assumptions.

3-9 The Draft PEA concluded that air quality impacts during construction would be significant, while air quality impacts related to the operation of necessary control equipment and related processes would be less than significant. However, the analysis in the Draft PEA showed an increase in criteria pollutants during both construction and operation activities, and these increases can be attributed to construction equipment, worker vehicle trips and on-road truck trips associated with delivery and hauling activities, and not stationary sources. Emissions from construction activities are not subject to offset requirements pursuant to Regulation XIII – New Source Review. Further, the construction worker vehicle trips and operational truck trips do not qualify under the mobile source criteria that would require the emissions to be accumulated and offset pursuant subdivision (g) of Rule 1306 – Emission Calculations. Thus, no offsets would be required for these activities.

When making findings as required by Public Resources Code §21081 and CEQA Guidelines §15091, the lead agency must adopt a reporting or monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment (Public Resources Code §21081.6 and CEQA Guidelines §15097(a)). To fulfill the requirements of Public Resources Code §21081.6 and CEQA Guidelines §15097, the SCAQMD has developed a mitigation monitoring plan for anticipated impacts resulting from implementing the proposed project. The mitigation measures developed to mitigate the air quality impacts of the proposed project contain standard requirements that have been consistently applied for both SCAQMD rule projects and projects where the SCAQMD is the lead agency. In addition, because of the significant adverse water demand impacts, two additional

mitigation measures were included to require the use of recycled water to mitigate the use of potable water, and the GHGs that may otherwise be generated from utilizing potable water.

Lastly, regarding the applicability of Regulation XVII – Prevention of Significant Deterioration (PSD), based on the quantity of estimated emissions, no component of the proposed project is expected to meet or exceed the annual emissions thresholds outlined in subdivision (s) of Rule 1702 – Definitions. This conclusion is based on the fact that operational criteria pollutant emissions from all affected facilities (Final PEA, Chapter 4, Table 4-7) would be less than the significant increase levels for major sources Rule 1702(s) and shown in the table below. Therefore, PSD would not apply to the proposed project.

	Rule 1702(s) Significant Increase Level	
Pollutant	Tons per Year	Pounds per Day
Carbon Monoxide	100	548
Sulfur Dioxide	40	219
Nitrogen Oxides	100	548
Particulate Matter	25	137
PM10	15	82
Volatile Organic Compounds	40	219

Any permit application submitted by an owner or operator of a facility to install new equipment or modify existing equipment in response to the proposed modifications to the SOx RECLAIM program will be individually evaluated by SCAQMD staff to determine, what, if any, emission increases or decreases would occur, and what applicable SCAQMD rules and regulations would apply as part of the engineering review and permitting process. Permit applications will also be evaluated to determine whether or not the SOx reduction strategies listed in the permits are identified in the PEA for the proposed project and environmental impacts have been analyzed. To the extent that no new control strategies or unique facility characteristics are identified in the permit applications, further environmental analysis would likely not be required. If new SOx control strategies or unique facility characteristics are identified that were not evaluated in the PEA, further environmental analyses may be required. Finally, at the time an application is issued a permit to construct, the mitigation measures outlined in the Mitigation Monitoring Plan would be included as part of the permit conditions. The analysis in the PEA should be able to support permit applications within the scope of the project. Pursuant to current standard practice, SCAQMD staff would evaluate the individual permit applications to determine if any additional CEQA analysis would be required.

3-10 SCAQMD staff has evaluated the proposals by WSPA to increase the amount of the proposed SOx RTC shave, but does not believe that the newly proposed RTC shave would achieve the required BARCT reductions. As a result, SCAQMD staff continues to support the proposed project, which reflects BARCT in accordance with H&S Code §40440 as well as equivalency to command-and-control regulations, as required under H&S Code

§39616(c)(1). Also, the SCAQMD has reduced its initial shave proposal in response to industry concerns regarding costs.

3-11 Under the RECLAIM program, affected facilities have the flexibility to install air pollution control equipment, change method of operations, or purchase RTCs to meet BARCT levels. As such, the Draft PEA analyzes multiple scenarios that illustrate the worst-case effects of applying the various SOx control technologies along with demonstrating the flexibility that is provided by the RECLAIM program to facility operators when it comes to choosing the methods for reducing SOx emissions. Because of the program's built-in flexibility, as a practical matter, there is no way to predict what each facility owner/operator will do. The various alternatives, including the 2007 AQMP analysis (referred to as Alternative B in the Draft PEA), were designed to evaluate the worst-case options available based on the consultants' reports.

3-12 The environmental impacts of the proposed RTC shave are impacts that would occur as a result of facility operators making physical modifications to reduce SOx emissions overall or using unused RTCs (see Response to Comment 3-5). These impacts to air quality (including GHG emissions) and water use, as well as several other environmental topics identified in the NOP/IS, have already been analyzed in the Draft PEA for the proposed project and the alternatives. Further, the socioeconomic effects of the proposed project and the alternatives have also been analyzed and can be found in the socioeconomic report. Moreover, SCAQMD staff has provided a 10 percent margin to help facilities ensure compliance. In addition, the proposed amendments include several safety valves to prevent potential facility shutdowns: 1) gradual annual reductions with extended compliance schedule (from 2012 to 2019); 2) monitoring RTC price trends over a 12-month rolling average; 3) hold public hearing if RTC price exceeds $50,000 per ton (discrete price); and 4) ability for the Governing Board to set aside (give back) up to 100 percent of RTC reductions for any year when RTC price exceeds $50,000 per ton.

ETS/AEC and NEC estimated that the actual emission reductions estimated from the 2005 baseline that could be cost-effectively achieved for this project are approximately 5.21 tons per day – 5.36 tons per day. However, to achieve these actual reductions, excess RTCs or "unused" RTCs must be removed to prevent avoidance of installing controls. Thus, SCAQMD staff has estimated 6.1 tons per day of RTC reductions must be made to achieve these actual reductions. The amount of excess or "unused" RTCs estimated for the 2005 baseline was 1.73 tons per day (i.e., the difference between the RTC holdings of 11.77 tons per day and the 2005 audited emissions of 10.04 tons per day) can be counted towards the goal of 6.1 tons per day RTC reductions at no cost to the facilities. In other words, if RECLAIM facilities agree to reduce all "unused" RTCs, the "real" compliance costs to achieve a programmatic 6.1 tons per day RTC reductions could be less than $630 to $738 million estimated by the consultants.

3-13 SCAQMD staff's estimates of cost-effectiveness based on NEC's recommendations are in Chapter 12, Section 12.2 of the Staff Report, and a comparison of the cost-effectiveness based on NEC/AEC, NEXIDEA and NEC is also Chapter 12, Section 12.3 of the Staff Report. With regard to the comment suggesting that the costs and cost-effectiveness analyses should be included in the Draft PEA, see Response to Comment 1-1.

3-14 The comment states that the need for additional water supplies was not adequately analyzed in the Draft PEA. The total water demand for each source category and each facility for the proposed project and alternatives was quantified and compared to the CEQA significance criteria for water demand. There is a comprehensive analysis of water demand impacts in Chapters 4 and 5 of the PEA and the impacts are summarized in several tables throughout the Draft PEA (e.g., Tables 4-41, 4-42, 4-43, 4-44, 5-38, 5-45, 5-46, 5-47 and 5-48). Detailed calculations supporting the analysis of water demand impacts are included in Appendix B. Further, the quantities and availability of potable water, industrial use water (groundwater) and recycled water that may be needed to implement the proposed project were carefully analyzed facility-by-facility and in cooperation with each facility's water supplier. In addition, water supply data were provided by each of the individual facility operators as a part of a survey and relied upon in the hydrology/water quality analysis in the Draft PEA. A comprehensive analysis of the availability of the various types of water identified here was also prepared in Chapters 4 and 5 of the PEA and the analysis is summarized in several tables throughout the Draft PEA that define the type and amount of water that may be needed to implement the proposed project (e.g., Tables 4-45, 4-46, 4-47, 4-48, 5-39, 5-40, 5-41, 5-49, 5-50, 5-51, and 5-52). The amount of potable water that may be required is within the range of what was considered to be a substantial use of potable water.

The Draft PEA includes a comprehensive evaluation of the use of recycled water as a viable substitute for potable water. Based on input from the various recycled water purveyors, the Draft PEA makes a distinction between the facilities that currently have access to recycled water and those that do not. The Draft PEA also identifies those facilities that currently do not have access to recycled water, but are earmarked to receive future access to recycled water as a result of the anticipated 2013 completion of the Harbor Refineries Recycled Water Pipeline Project (HRRWPP)[25]. Representatives from both the Los Angeles Department of Water and Power (LADWP) and West Basin Municipal Water District (WBMWD) have provided detailed information about the availability of future access to recycled water to specific facilities that may also be affected by the SOx RECLAIM project. Further, these representatives have assured SCAQMD staff that there is an over-abundance of reliable recycled water ready for use. The EIR prepared for the HRRWPP project contains a detailed analysis of the environmental impacts and costs associated with building the pipeline extensions to the existing recycled water infrastructure. Because these impacts are already accounted for in the EIR for the HRRWPP, SCAQMD staff has incorporated by reference the environmental and cost impacts of the Final EIR for the HRRWPP project into the PEA prepared for the proposed project pursuant to CEQA Guidelines §15150. While the PEA for the proposed project incorporates by reference the impacts of building the HRRWPP infrastructure, the PEA includes an analysis of potentially significant adverse impacts from tying in to the HRRWPP infrastructure. Therefore, between the Final EIR for the HRRWPP and the PEA for the proposed project adverse cost and environmental impacts from constructing the HRRWPP and each facility tying in to the HRRWPP have been comprehensively analyzed.

Finally, it should be emphasized here the Draft PEA also considers what the potable water demand would be in the event that future recycled water will not be available, despite the fact that the HRRWPP project is currently under construction and it is reasonably

[25] Final EIR available online at: http://www.ladwp.com/ladwp/cms/ladwp012729.pdf.

foreseeable that at completion of construction, future recycled water will be made available to certain facilities. Even though the HRRWPP is under construction, it has not yet been fully completed and as such, the affected facilities have not yet tied into the system. For this reason, the PEA does not assume that recycled water will be available and the conclusion of significance in the Draft PEA for potable water demand is based on the more conservative approach that future supplies of recycled water may not be available. For these reasons, potable water demand was found to be significant, so a Statement of Findings (CEQA Guidelines §15091) and a Statement of Overriding Considerations (CEQA Guidelines §15093) will be prepared for the Governing Board's consideration.

For further information on the costs associated with the increased water demand, see Response to Comment 1-1. With regard to the comment that the SCAQMD should expand its analysis of water and wastewater use and handling, see also Responses to Comments 3-19, 3-29 and 3-31.

3-15 The comment does not include any information or data indicating that the use of SOx-reducing additives such as De-SOx at rates to meet the proposed BARCT levels would dilute the circulating cracking catalyst and adversely impact gasoline conversion (yield) within the FCCU[26]. The SCAQMD's own analysis also did not find that this would occur.

In 2008, the SCAQMD, WSPA and the refineries worked together and developed a testing protocol for SOx-reducing additives. The protocol was designed to demonstrate the performance and effectiveness of SOx-reducing additives to achieve a level of 10 ppmv or below. Only one out of six refineries elected to participate in the protocol. The participating refinery conducted short-term testing with SOx-reducing catalysts from September 2008 to November 2008. The SOx-reducing catalyst addition was approximately six percent to seven percent of the total catalyst addition, which was approximately 300 to 400 pounds per day. During this short term testing, the FCCU achieved a level of SOx below 10 ppmv without any negative effects on the yield of gasoline conversion. During the testing, in addition to the catalyst addition rate, the refinery carefully monitored numerous operating parameters (e.g., regenerator operating data such as burn mode, temperature, pressure, total air rate, coke burn rate; riser/reactor operating data such as feed preheat and riser temperature, pressure, FCCU feed rate, feed composition, conversion; and many other operating parameters) and no substantial problems with using the SOx-reducing additives were reported. Further, the refinery also conducted a source test for PM10 emissions and demonstrated that the FCCU continually met the requirements of Rule 1105.1, even with the increased use of SOx-reducing additives. Lastly, while the results of this study are confidential and cannot be disclosed in this response, the refinery reported to SCAQMD staff that they did not experience any substantial increase in loading to their SRU/TGU system during the three months of testing.

3-16 SCAQMD staff analyzed the likely SOx control technologies identified by the consultants as well as the refineries to meet BARCT and none suggested a "dry alternative." Dry gas scrubbers operating at 80 percent to 90 percent control efficiency were considered as BARCT for SOx in 1994. However, between 2008 and 2010, two consultants (ETS and NEC) expressed agreement that non-regenerative wet gas scrubbers can achieve from 1

[26] Letter from INTERCAT to SCAQMD, from Guido Aru, Director of Sales of INTERCAT to Dr. Laki Tisopulos, Assistant DEO of SCAQMD, October 10, 2010.

ppmv to 5 ppmv SOx outlet concentration (95 percent control efficiency or more from the 2005 emissions baseline) and thus, should be considered as BARCT. Based upon SCAQMD staff's and the consultants' evaluation of the dry gas scrubber technology, it is unlikely that it would achieve sufficient emission reductions to qualify as BARCT. While these two consultants recommended different types of WGSs, however, they both concurred that WGSs would be cost-effective and SCAQMD staff concurs with the consultants' recommendations. The two consultants both recommended keeping existing ESPs in place for particulate control and placing the wet gas scrubbers downstream of the ESPs. In addition, SCAQMD staff has worked with the refiners to demonstrate the effectiveness of enhanced usage of SOx-reducing additives, a dry technology, as a compliance option.

3-17 While SCAQMD staff acknowledges that the SOx oxidation catalysts have not yet been used at any of the refineries to reduce SOx from SRU/TGUs, the consultants (ETS/AEC) indicated that the catalysts have been used to capture SOx, destroy CO, VOC and PM10 from incinerators, heaters, turbines, and boilers. Therefore, the technology is transferrable to the SRU/TGU application. The consultants provided costs, cost-effectiveness and other parameters such as water usage and energy usage in Module 2. This information was incorporated in SCAQMD's costs and cost-effectiveness analyses for the SOx RECLAIM program and analyzed in the socioeconomic analysis.

In particular, the consultants have identified one facility (Facility A) that may consider employing the use of a proprietary catalytic gas treatment for their SRU/TGU called selective oxidation catalyst marketed by EmeraChem Power LLC as "ESx." The consultants also identified data relative to natural gas, electricity and catalyst consumption and this data was relied upon to determine air, energy and transportation impacts in the Draft PEA. As the ESx process does not utilize water, no water or wastewater impacts were identified. Thus, socioeconomic analysis has already considered costs of this type of control technology. Similarly, in addition to the information above on water and wastewater impacts, the Draft PEA already has analyzed impacts of these technologies on air quality, energy, and solid waste. For a summary of the environmental impacts for the SRU/TGU and ESx at Facility A, refer to Appendix B, Worksheet B-20.

3-18 Both consultants were in agreement that WGS is BARCT for coke calciner and it is cost-effective. NEC concurred with NEXIDEA on the BARCT selection stating, "*NEC concurs with the consultant's recommendation to use a Vendor D scrubber for emission control*."

NEC however thought that the contingency (35 percent) estimated by NEXIDEA was low. NEC suggested a 50 percent contingency instead. In addition, the facility had an issue with the location proposed by NEXIDEA. The facility operators indicated that this location is needed for truck access for coke loading/unloading. NEC reviewed the area and suggested to raise the WGS above the road. For this reason, the costs estimated by NEC were higher than those estimated by NEXIDEA. SCAQMD staff's calculation of cost-effectiveness for the coke calciner are based on NEC's recommendation as shown in Section 12.2, and 12.3 of Chapter 12 of Part 1 of the Staff Report, and is summarized in the following table:

	NEXIDEA	NEC
Capital Costs	$13.3 - $14.8 million	$45.7 million
Present Values	$21 - $23.4 million	$58.8 million
Cost Effectiveness	$9,902 per ton	$23,036 per ton

3-19 The comment states that the Draft PEA should consider a "reasonable, worst-case scenario" which would assume that no additional recycled water would be supplied to the RECLAIM facilities. California Public Resources Code §21159(a)(1) requires an analysis of *reasonably foreseeable* environmental impacts of the methods of compliance [emphasis added]. Further, CEQA Guidelines §15064(d) requires the lead agency to consider direct physical changes in the environment and *reasonably foreseeable* indirect physical changes in the environment which may be caused by the proposed project [emphasis added].

One reasonably foreseeable environmental impact to be expected from the proposed project is that some SOx control equipment such as WGSs could be installed and these devices are water-intensive. However, WGSs do not require the use of potable water in order to function. SCAQMD staff recognizes that the use of water-intensive equipment is a sensitive issue because California is in the midst of a drought. On February 27, 2009, Governor Schwarzenegger proclaimed a state of emergency regarding the drought and the availability and future sustainability of California's water resources. The proclamation directed all state government agencies to utilize their resources, implement a state emergency plan and provide assistance for people, communities and businesses impacted by the drought. The proclamation further requested that all urban water users immediately increase their water conservation activities in an effort to reduce their individual water use by 20 percent and the use of recycled water can be counted towards the progress in meeting this target.

Recognizing that there is a state goal for a 20 percent reduction in potable water consumption on a per capita basis, it is reasonable that any facility that currently has access to recycled water will choose to tie into their existing recycled water pipeline to operate their WGS (or any other water-intensive SOx controls that do not require potable water) instead of only installing a connection to their potable water supply and increasing their use of potable water at the facility. This is especially true because, according to LADWP (see next paragraph), LADWP is providing competitive pricing to its customers to incentivize the use of recycled water. For these reasons, the hydrology analysis in the Draft PEA considers the use of recycled water for those facilities that currently have access to it.

In addition, representatives from both the LADWP and WBMWD have provided detailed information about the availability of future access to recycled water to specific facilities that may also be affected by the SOx RECLAIM project, but do not have access at present. Further, these representatives have assured SCAQMD staff that there is currently an over-abundance of reliable recycled water ready for use. The Draft PEA considers what the potable water demand would be if future recycled water will be available to these facilities. However, the Draft PEA also considers what the potable water demand would be in the event that future recycled water will not be available, despite the fact that the HRRWPP project is currently under construction and it is reasonably foreseeable that at completion of construction, future recycled water will be made available to certain facilities. The

conclusion of significance in the Draft PEA for potable water demand is based on the more conservative approach that future supplies of recycled water may not be available.

3-20 Subsequent to the release of the January 2010 Staff Report, manufacturers of SOx-reducing additives such as De-SOx catalyst provided SCAQMD staff with data indicating that 5 ppmv SOx level is achievable for FCCUs. On this basis, BARCT at 5 ppmv may be met by using SOx-reducing additives or WGSs. The potential environmental effects of using SOx-reducing additives in lieu of WGSs for FCCUs have been analyzed in the Draft PEA and have been shown to have less impacts than WGSs. The analysis specific to the use of SOx reducing additives can be found in Appendix B, Worksheet B-31.

3-21 The first set of consultants explored several measures that were specific to fuel gas treatment. Their purpose was to find controls that would lower the fuel gas sulfur that is fed to the refinery boilers and heaters. A 40 ppmv sulfur concentration in the refinery fuel gas has been justified as technologically and economically feasible with SCAQMD Rule 431.1. SCAQMD's proposal does not assume a new BARCT standard for refinery boilers and heaters. In fact, the 40 ppmv fuel sulfur concentration is an existing BARCT standard that was adopted in the May 4, 1990 amendments to SCAQMD Rule 431.1 – Sulfur Content of Gaseous Fuels, and became effective on May 4, 1992; it is still applicable today. However, with the adoption of the RECLAIM program in April 1993, the command-and-control rules, like Rule 431.1, were subsumed, giving the refineries flexibility in complying with this BARCT standard. Over the past 18 years since going into effect, several refineries have avoided meeting the 40 ppmv fuel sulfur concentration BARCT standard under RECLAIM. To the extent that these refineries have avoided meeting that limit because of costs, SCAQMD staff has determined that the proposed shave can be readily met without complying with the 40 ppmv fuel sulfur concentration limit. WSPA's proposal listing various control strategies supports SCAQMD staff's position. As a result, it is not reasonably foreseeable that refiners who avoided complying with the 40 ppmv fuel sulfur concentration limit due to costs would be required to do so now as a result of the proposed shave. Nevertheless, SCAQMD staff has analyzed the potential environmental impacts of complying with the 40 ppmv fuel sulfur concentration limit in the Draft PEA.

3-22 Although not part of SCAQMD's proposal for new BARCT because it is existing BARCT pursuant to Rule 431.1 as explained in Response to Comment 3-21, the consultant ETS/AEC conducted site-specific analyses for fuel gas treatment, and found several possible measures that were cost effective. These are summarized in Module 2 of the consultant's analyses. For this reason, an analysis of the environmental effects associated with fuel gas treatment in the Draft PEA has been included because the consultants' reports indicated that some of the affected facilities may choose to focus on improving SOx emissions from their refinery boilers and heaters in lieu of other equipment. The analysis specific to the refinery boilers and heaters source category identifies the specific facilities that may benefit from SOx reductions. This analysis can be found in Appendix B, Worksheet B-19.

3-23 Nothing in the proposed amended rule would prohibit the use of a "dry" alternative. However, as the commenter pointed out, the CEQA analysis looked at a worst-case scenario of using WGSs, which have a greater water impact. See also Response to Comment 3-16.

3-24 SCAQMD staff would be interested in obtaining more information on the basis for selecting perpetuity credits instead of single-year credits. It should be noted that in a given year, the perpetuity credits would tend to be less expensive than single-year credits because even though the value of perpetuity credits represent an infinite block of emission reductions, on an annualized basis, the value is discounted when compared to a single-year credit. Consequently, the single-year credit would be more a conservative criterion with respect to a RTC trading threshold. Nevertheless, as suggested by the SCAQMD's Executive Officer at the October 14, 2010 Refinery Committee meeting, SCAQMD staff is open to proposals for other trigger thresholds for subparagraphs (f)(1)(M) and (f)(1)(N) in Rule 2002.

3-25 The analysis of the proposed project, which takes into consideration the compliance schedule, demonstrates that the emission reductions as listed in the schedule in the proposed amended rule are achievable while providing a means for giving the affected facilities sufficient time to install the required SOx reducing control equipment. Because facilities will have the flexibility under the RECLAIM program to install air pollution control equipment, change method of operations, and/or purchase RTCs to meet BARCT levels, the analysis in the Draft PEA for the proposed project and each of the alternatives is based on the conservative assumption that multiple projects could be under construction at any one time, regardless of the amount and the year when the RTC reductions would occur. So even if a less aggressive RTC reduction was employed or if more facilities wait until later to implement physical changes to reduce their SOx emissions, the worst-case environmental impacts on a peak daily basis will likely remain unchanged.

3-26 Although the current SOx RTC market may be "thinly traded" as asserted by the commenter, this is not the result of unavailability of SOx RTCs. As noted in Response to Comment 2-26, the surplus SOx RTC pool had approximately 1.73 tons per day of unused RTCs in 2005, and 2.55 tons per day of unused RTCs in 2008. Based on currently available information, SCAQMD staff has concluded that with its proposed shave there should be an adequate supply of RTCs to ensure market stability. The actual availability in the future cannot be substantiated by fact. CEQA recognizes this by stating that a CEQA document "…necessarily involves some degree of forecasting. While foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can." [CEQA Guidelines §15144] Consistent with CEQA, SCAQMD staff has used the best information currently available to project future RTC availability and market responses to project RTC availability (see the Socioeconomic Report for the proposed project). In the event RTC prices spike to a level of concern, a "safety valve," similar to a component in the NOx RECLAIM program, has been added to the SOx RECLAIM program. This "safety valve" sets aside a portion of the RTCs called non-tradable/non-usable RTCs from 2015 to 2019. In a scenario where SOx RTC prices exceed $50,000 per ton, SCAQMD staff will be required to report to the Governing Board at a public hearing. The Governing Board will decide whether to convert any portion of the non-tradable/non-usable RTCs to tradable/usable RTCs, and how much to convert. This approach is expected to help the market regain its balance should the price of RTCs increase above $50,000 per ton because it would increase the RTCs in the market. The "safety valve" provision added to the NOx RECLAIM rules helped stabilize the NOx trading market and there is no reason to believe that it would not have the same effect on the SOx market in the event of price spikes.

3-27 SCAQMD staff recognizes the fact that the design and layout of equipment during construction and installation are key parameters that rely on the appropriate and available plot space. Two sets of consultants were hired specifically to address this issue and made assessments of the available plot space for each control technology measure, so it is incorrect to say that the consultants did "not give adequate weight" to plot space considerations. The consultants based their findings on site visits; their collective experience in refinery technology design, construction, and installation; and on input that was elicited from the affected facilities on several occasions. The consultants' final recommendations identify BARCT that can be installed within the plot space of each individual affected facility based on an analysis of all of the above factors. The consultant reports can be found online at the following URL: http://www.aqmd.gov/rules/proposed.html#RegulationXX.

The commenter notes also, "If the District's assumptions on layout are incorrect, it could mean that a lot more construction must be done which will have greater impacts." First, the comment does not identify which assumptions may be inappropriate. Second, the assumptions with regard to constructing and analyzing impacts from installation of control technologies are clearly laid out in Chapter 4 of the PEA, but the commenter does not provide suggestions for different assumptions. Third, information on construction activities was solicited from affected facility representatives. Finally, the assumptions used in the PEA are considered to be "worst-case" assumptions based on a number of factors including engineering time, time to obtain control equipment and associated materials, availability of appropriately trained construction crews that are able to install the necessary control equipment, etc.

3-28 As discussed in Response to Comment 3-27, the consultants reached their conclusions regarding the availability of plot space and assumptions used in the analysis, the consultants reached their conclusions after visits to the affected facilities and soliciting and receiving input from the affected facility operators. This is why the PEA analyzed different control technologies for each facility. In addition, the comment does not provide any information with regard to why the consultant analysis regarding plot space is inaccurate nor does it provide any recommendations for alternative assumptions or analyses.

3-29 As noted in the PEA, one of the SCAQMD's significance criteria for hydrology/water quality is whether or not the existing water supply has the capacity to meet the increased demands of the proposed project. SCAQMD staff contacted the water purveyors for each of the affected facilities and they have confirmed that that they would be able to supply the needed amount of potable water for the proposed project[27]. In addition, for those facilities that currently have access to recycled water (i.e., Facilities A, B, and D), the applicable water purveyor indicated that it would also be able to supply additional recycled water to accommodate the water demand for the proposed project. Lastly, for those facilities that may have access to future supplies of recycled water (i.e., Facilities C, E, and F), the

[27] Facilities A, B, C, D, E and F: West Basin Municipal Water District, email from Uzi Daniel, February 17, 2010.
Facilities C, E, and F: LADWP, letter from James McDaniel, August 16, 2010.
Facility H: Long Beach Water Department, conversation with Chris Pincherli, August 13, 2010.
Facility I: City of Vernon, email from Scott Rigg, July 28, 2010.
Facility J: No water purveyor; all water is supplied from on-site wells and this facility has unlimited pumping rights.

applicable water purveyor indicated that it would also be able to supply either potable water or recycled water for the proposed project.

The Draft PEA also considers what the potable water demand would be in the event that future recycled water will not be available, despite the fact that the HRRWPP project is currently under construction and it is reasonably foreseeable that at completion of construction, future recycled water will be made available to certain facilities. Since the HRRWPP has not yet been constructed and the affected facilities have not tied into the system, the PEA does not assume that recycled water will be available. For that reason, the conclusion of significance in the Draft PEA for potable water demand is based on the more conservative approach that future supplies of recycled water may not be available. For these reasons, potable water demand was found to be significant, so a Statement of Findings (CEQA Guidelines §15091) and a Statement of Overriding Considerations (CEQA Guidelines §15093) will be prepared for the Governing Board's consideration.

Regarding the infrastructure to increase current supplies of recycled water to Facilities A, B and D as well as to provide future supplies of recycled water to Facilities C, E, and F, representatives from both the LADWP and the WBMWD have assured SCAQMD staff of the following:

1) The existing infrastructure that currently provides recycled water to Facilities A, B and D can handle the proposed increase of additional recycled water to supply the proposed project.
2) The new infrastructure that is currently under construction pursuant to the HRRWPP will provide Facilities C, E, and F with new access to recycled water. The HRRWPP is expected to be completed by Summer 2013. Should any of these facilities install water-based SOx control equipment prior to completion of the HRRWPP, potable water will be supplied. When the HRRWPP is completed, each facility can tie-in to the recycled water pipeline.

The physical and economic feasibility of recycled water pipeline infrastructure has already been evaluated in the Final EIR for the HRRWPP. The HRRWPP would occur regardless of the SCAQMD's proposed project to amend the SOx RECLAIM program. Thus, the Draft PEA need not evaluate the impacts that would occur pursuant to the HRRWPP. See also Response to Comment 3-19.

3-30 From a construction point of view, the installation of a WGS, for example, is a complex process. If a facility operator chooses to install a WGS, the consultants' reports estimate that 18 months would be needed for pre-construction/advance planning activities such as engineering analysis of the affected equipment, engineering design of the potential control equipment, contracting with a vendor, securing financing, ordering and purchasing the equipment, obtaining permits and clearances, and lining up contractors and workers. Further, to physically build a WGS, the consultants' reports indicated that an additional 18 months would be needed. The Draft PEA considers the overlapping construction of building four WGSs within the same 18-month period as a worst-case scenario. This overlap could occur anytime between the date of adoption (scheduled for November 5, 2010) and full implementation (January 1, 2019). However, as a practical matter, even if a facility starts the planning and engineering process immediately if the proposed project is adopted in November 2010 (the currently scheduled public hearing date) to design a WGS installation (and some are in the very early pre-planning stages), construction is not

expected to occur sooner than 2012. For these reasons, the Draft PEA considers any 18-month window between January 1, 2012 and January 1, 2019 (a span of seven years) when facilities could undergo construction activities. Further, based on the practicalities of engineering and constructing applicable control equipment a shorter installation period, such as three years as suggested in the comment, is unrealistic.

3-31 As previously mentioned in Response to Comment 3-19, the Draft PEA analyzes the worst-case potable water demand for the proposed project which was based on data provided by the consultants, the operators of the affected facilities, and the water purveyors. The analysis also takes into account the drought in California, the water conservation measures and the use of recycled water to help meet the water conservation measures. The conclusion of the analysis is that the estimated amounts do not make the proposed project infeasible. As mentioned in Response to Comment 3-29, the water purveyors for each of the affected facilities have confirmed that both potable and recycled water is available and will be supplied to any affected facility that requests it, in amounts necessary to carry out the project.

While it is true that the California legislature has proposed Assembly Bill (AB) 49 – Water Efficiency and Senate Bill (SB) 261 – Urban Water Efficiency, which will require a 10 percent reduction of urban water use by 2015 and 20 percent by 2020, neither of these bills has been adopted by the full legislature. On January 27, 2010, AB 49 was moved to the inactive file[28]. On August 27, 2009, a hearing was set for SB 261 and then canceled[29]. These are the last times any actions were taken on these bills.

In any case, these proposed bills and the water conservation measures share a common concept, which is to allow the use of recycled water to count towards the progress in meeting these targets. Thus, if an affected facility proposes to increase its water use as a result of the proposed project by installing water-based SOx controls, and uses recycled water to satisfy the water demand, the increased use of recycled water would not cause the facility to incur: 1) voluntary reductions; 2) mandatory restrictions during a local emergency; 3) drought rates, surcharges and fines; 4) limits on the new construction subject to water efficient landscaping; or, 5) mandatory conservation. Further, the HRRWPP project is one mechanism designed specifically to convert all of the refineries from potable water to recycled water and the feasibility and cost-effectiveness of this goal was analyzed in the Final EIR for the HRRWPP.

While the preparation of the Draft PEA and in particular, the hydrology analysis, is dependent upon information from the certified Final EIR for the HRRWPP project as it relates to the affected facilities for the SOx RECLAIM project, CEQA Guidelines §15148 requires the document to be cited, but not included in the Draft PEA. Thus, there is no requirement to incorporate or re-analyze in the Draft PEA what was already analyzed and concluded in the Final EIR for the HRRWPP as being cost-effective and feasible with regard to the use of recycled water. The Final EIR for the HRRWPP clearly states and representatives from the LADWP and WBMWD (the project's sponsors) agree that recycled water will be available to the specified facilities (see also Response to Comment 3-29).

[28] http://www.leginfo.ca.gov/pub/09-10/bill/asm/ab_0001-0050/ab_49_bill_20101006_status.html
[29] http://www.leginfo.ca.gov/pub/09-10/bill/sen/sb_0251-0300/sb_261_bill_20090831_status.html

The commenter's statement that the potable water impacts could be less than significant with mitigation is not complete, and is taken out of context. The conclusion states that the overall water demand will not be completely mitigated, even with the use of recycled water. The conclusion can be found on page 4-84 of the Draft PEA. It is important to note that even if mitigation measures cannot fully reduce the impacts to below significance, not being able to fully mitigate the impact would not make the mitigation measure infeasible or unreasonable.

With regard to the remark that the SCAQMD has incorrectly implied that each facility has the ability to obtain written declarations that recycled water is not available pursuant to mitigation measures GHG-2 and HWQ-2, the commenter does not explain why the facilities would not be able to obtain such a declaration. This remark is inconsistent with discussions SCAQMD staff has had with representatives from both the LADWP and WBMWD. Both of these water purveyors have indicated that their staff has met with each facility operator (i.e., those with current supplies of recycled water as well as those with future access to recycled water) as part of a series of on-going negotiations and discussions about their plans to convert from potable water to recycled water. Based on this understanding, there should be no barrier to facility operators obtaining a written declaration from their water purveyor about the status of their current or potential future recycled water supplies. Even if the commenter were correct that the facilities could not obtain such a declaration, this would not change the conclusion that water demand impacts remain significant even after mitigation, but that overriding considerations, nevertheless justify adoption of the proposed project.

It is important to note, however, that the Draft PEA also considers what the potable water demand would be in the event that future recycled water will not be available, despite the fact that the HRRWPP project is currently under construction and it is reasonably foreseeable that at completion of construction, future recycled water will be made available to certain facilities. Since the HRRWPP has not yet been constructed and the affected facilities have not tied into the system, the PEA does not assume that recycled water will be available. For that reason, the conclusion of significance in the Draft PEA for potable water demand is based on the more conservative approach that future supplies of recycled water may not be available. For these reasons, potable water demand was found to be significant, so Findings (CEQA Guidelines §15091) and a Statement of Overriding Considerations (CEQA Guidelines §15093) will be prepared for the Governing Board's approval.

3-32 Two potential control options have been identified for FCCUs: WGSs and SOx-reducing additives. SCAQMD staff believes that 5 ppmv should be the BARCT level for FCCUs based on the performance of an existing WGS installed and operated in the District since 2008. Therefore, the actual emission reductions from the 2005 baseline should be estimated based on a BARCT level of 5 ppmv, and the emission reductions for the two options analyzed in the Draft PEA should both be equal to 2.88 tons per day for FCCUs. SCAQMD staff acknowledges that the 5 ppmv has not yet been fully demonstrated in practice for the SOx-reducing additives. However, short-term testing with a local refinery and multiple discussions with the manufacturers of SOx-reducing additives who have presented SCAQMD staff with actual testing results indicated that the use of SOx-reducing additives can potentially achieve 5 ppmv SOx on a long-term basis. Further, the use of

SOx-reducing additives is not expected to incur any upfront additional capital costs like WGSs. While the annual operating costs are likely to be high for SOx-reducing additives when compared to WGSs, the water demand will be less with SOx-reducing additives. Other environmental impacts and differences between the two technologies are analyzed in the Draft PEA. See also Response to Comment 3-20.

In addition to the fact that both WGSs and SOx-reducing additives may be considered BARCT, the analysis of these technologies also relies on the concept of analyzing maximum impacts that could be created by the technologies to ensure that all potential adverse impacts that may be generated by the proposed project are identified and disclosed to the public. Further, it is important to remember that the PEA is a program level analysis that shows the options a facility may choose to comply with the proposed requirements. The RECLAIM program does not mandate that any particular technology be adopted by facility. For this reason, the analysis is based on those technologies that would allow the facility to comply with the proposed project, while generating the maximum adverse impacts as indicated above.

3-33 The proposed RTC shave values are from Table 13-1 of the Staff Report. They are the RTC reductions in Year 2019 with a 10 percent compliance margin. Although refinery heaters and boilers are not part of the proposed project, they are a potential source of cost-effective SOx reductions. A facility operator may seek additional reductions from this source category if it chooses to. The benefit of analyzing the potential environmental impacts from this source category is that if a facility operator chooses to install controls for refinery heaters and boilers in the future, this PEA may be used for those projects. The SCAQMD encourages the substitution of more cost-effective controls on a site-by-site basis. A facility operator may choose to install cost-effective controls for refinery boilers and heaters and, if those controls achieve further reductions that those specified as Tier 1, then those reductions can be used to displace the reductions from other equipment.

3-34 With regard to the assumptions and analysis associated with the current and future use recycled water as part of implementing the proposed project, see Responses to Comments 3-19, 3-29, and 3-31.

3-35 While it is true that no new BARCT is being proposed for the refinery boilers and heaters source category, the 40 ppm SOx limit was not explicitly included in the previous versions of the SOx RECLAIM rules and as such, is now included in the proposal (see Table 4 in PAR 2002). As explained in Response to Comment 3-22, an analysis of the environmental effects associated with fuel gas treatment in the Draft PEA has been included because the consultants' reports indicated that some of the affected facilities may choose to focus on improving SOx emissions from their refinery boilers and heaters in lieu of other equipment and that choice may have direct and indirect environmental impacts.

3-36 See Responses to Comments 3-20 and 3-32.

3-37 For a discussion about the assumptions associated with timing of construction, see Response to Comment 3-30.

3-38 The analysis in the Draft PEA considers the proposed project and three alternatives. A summary of the environmental impacts can be found in Table 5-60 and shows a side-by-

side comparison of each environmental topic. The comment states that Alternatives B and C "would cause significantly fewer environmental impacts… particularly associated with water use and GHG impacts" than the proposed project. Although the analysis of GHG impacts estimated for Alternative B in Chapter 5 of the PEA are less than significant, the GHG impacts for Alternative C exceed the 10,000 MTCOeq/yr significance threshold.

Similarly for total water demand, neither the proposed project nor any of the alternatives exceed the total water significance threshold. Further, the proposed project and Alternative C have identical, significant potable water demand impacts and only Alternative B has less than significant potable water demand impacts. The comment that there are significantly less impacts from Alternative C compared to the proposed project is inconsistent with analysis of impacts from the project alternatives in Chapter 5 of the PEA. While it is true that Alternative B has less impacts overall when compared to the proposed project, it also achieves the least amount of SOx emission reductions. As a result, the proposed project was preferred over the project alternatives because, even though the proposed project has the potential generate more or more significant adverse environmental impacts, it is more effective at achieving the project objectives than all alternatives evaluated.

3-39 Because there are SOx controls that need water for operation and because the HRRWPP project has identified several facilities that have current or may have future access to recycled water, mitigation measure GHG-2 was designed to work in cooperation with mitigation measure GHG-1 as a backstop to make sure that the water purveyor vouches for the recycled water status at a given facility. In the event that recycled water cannot be delivered to a given facility and potable water needs to be used instead, there will be no reductions in GHG emissions. However, if recycled water is used, there will be less GHGs generated than if potable water was used due to less energy needs for transport. All affected water purveyors have participated in the CEQA process for the proposed project, all have received copies of the PEA and none has expressed concern about this mitigation measure.

3-40 Currently there are two feasible GHG mitigation measures identified in the Draft PEA that are designed to work together to reduce GHG emissions by utilizing recycled water in lieu of potable water, if available. These mitigation measures do not rely on AB 32 projects serving as GHG mitigation measures. AB 32 is mentioned in the Draft PEA as part of the mitigation measure discussion because it is an ongoing process under development by CARB that may result in further GHG emission reductions. While there is nothing in CARB's adopted "early action measures" or CARB's GHG reduction measures that specifically apply to the proposed project as of this writing, CARB has not yet adopted its GHG reduction cap and trade program. When adopted, it is expected to apply to projects that will need to receive permits, including any projects that may occur as a result of amending the SOx RECLAIM program. The purpose of the discussion of AB 32 is to indicate that there are no additional feasible GHG reduction measures that the SCAQMD could adopt that could mitigate impacts from the proposed project, able to go beyond AB 32 requirements.

With regard to applicability of GHG BACT via EPA's Tailoring Rule, the SCAQMD would begin to require GHG BACT for sources already subject to PSD and having a GHG increase of 75,000 MTCO2eq/yr or more, effective January 2, 2011. However, the analysis in the Draft PEA has demonstrated that on an individual facility basis, no facility exceeds

the 10,000 MTCO2eq/yr threshold and for the project as a whole, let alone individual modifications, the GHG emissions do not exceed 75,000 MTCO2eq/yr. Thus, GHG BACT would not apply to the proposed project or any permit action thereafter.

With regard to applicability of NSR and PSD, see Response to Comment 3-9. Lastly, with regard to the comparison of environmental impacts between the proposed project and Alternatives B and C, see Responses to Comments 3-6, 3-7 and 3-38.

3-41 There is a direct relationship between CEQA and GHG BACT as CEQA requires all feasible measures, and GHG BACT is based on what is achievable in practice. Therefore, if GHG BACT can be achieved in practice, then it may also be considered as feasible under CEQA. The purpose of this discussion was to indicate that no additional GHG reduction measures beyond GHG BACT could feasibly be imposed to mitigate impacts from the proposed project.

3-42 The comment states that the Draft PEA did not account for the energy needed to pump potable water to the affected facilities. The analysis in the Draft PEA is based on energy demand from using potable water and does not take any credit for any energy reductions that may occur from using recycled water instead.

3-43 The water purveyors for each affected facility have indicated that, from their perspectives, the proposed increases in water are relatively small. Further, as mentioned in Responses to Comments 3-14, 3-29 and 3-31, the water purveyors have indicated that they can supply the water demand, whether it is for potable water, recycled water or a combination of the two. None of the water purveyor representatives have indicated that there are any regulations in place that would be impediments for them to supply the affected facilities with potable water, if requested, by the facility operators.

3-44 With regard to the appropriateness and feasibility of mitigation measure GHG-2, see Response to Comment 3-39. With regard to the Draft PEA identifying feasible mitigation measures, see Responses to Comments 3-9 and 3-31.

3-45 The comment states that the most likely scenario to analyze would be that there will be no additional supplies of recycled water available to the refineries. This position is not supported by the conclusions in the HRRWPP project and the water purveyor's affirmations, as discussed in Responses to Comments 3-14, 3-29, and 3-31, that both potable water and recycled water will be fully available to the affected facilities. Also, as mentioned in Response to Comment 3-43, none of the water purveyor representatives have indicated that there are any regulations in place that would be impediments for them to supply the affected facilities with potable water, if requested, by the facility operators.

The Draft PEA also considers what the potable water demand would be in the event that future recycled water will not be available, despite the fact that the HRRWPP project is currently under construction and it is reasonably foreseeable that at completion of construction, future recycled water will be made available to certain facilities. Since the HRRWPP has not yet been constructed and the affected facilities have not tied into the system, the PEA does not assume that recycled water will be available. For that reason, the conclusion of significance in the Draft PEA for potable water demand is based on the more conservative approach that future supplies of recycled water may not be available. For

these reasons, potable water demand was found to be significant, so a Statement of Findings (CEQA Guidelines §15091) and a Statement of Overriding Considerations (CEQA Guidelines §15093) will be prepared for the Governing Board's consideration.

3-46 With regard to the Draft PEA analyzing the circumstance of no future increases in recycled water, see Response to Comment 3-19. With regard to the comment that compliance with mitigation measure GHG-2 is out of control of the facility operator and as such it cannot be imposed on a facility, see Response to Comment 3-31.

3-47 While all of the details associated with the proposed project and each of the alternatives are not fully specified in Table 5-1 because it is intended as tool to provide a brief overview or summary, a very detailed description of each component of the proposed project and each alternative is fully described throughout Chapter 5. With regard to how the same emission reductions are expected to be achieved for both options of Alternative C, see Responses to Comments 3-20 and 3-32.

3-48 See Response to Comment 3-33.

3-49 The project description for Alternative C on page 5-13 does not include the refinery boilers/heaters source category because the proposed project does not establish a new BARCT level for refinery boilers/heaters. However, cost-effective emission reductions in the amount of 0.85 ton per day are potentially available from future retrofits in this source category and the environmental impacts from such controls are evaluated in this analysis but the potential emission reductions are excluded from the proposed RTC shave.

3-50 The commenter has identified an inconsistency in the Table 5-2, which is also in Table 1-4. Review of the text in the body of the document and the calculations in Appendix B confirms that both options of the proposed project are equivalent for natural gas reductions. As such, both Table 1-4 and Table 5-2 have been corrected to state the following in the "Energy Impacts Significant?" row: 1) in the "Proposed Project - Option 1" column: *The reduction in the use of natural gas is equivalent to the proposed project – Option 2*; and, b) in the "Proposed Project - Option 2" column: *The reduction in the use of natural gas is equivalent to the proposed project – Option 1*.

The commenter is correct that the natural gas reductions under both options of Alternative C are approximately eight times greater than the proposed project.

3-51 With regard to why Alternative C is not preferred when compared to the proposed project, see Response to Comment 3-7.

3-52 SCAQMD staff has conducted a sensitivity analysis to assess the future health impacts associated with meeting the PM 2.5 standard in 2020. A health impacts model was run to assess the incremental changes in PM levels as a function of SOx emissions. The analysis showed that reducing PM levels resulted in reductions in premature deaths and chronic bronchitis resulting from reductions in annual average PM2.5 concentrations; and reductions in respiratory and cardiovascular hospital admissions, emergency room visits, asthma symptom days, acute respiratory symptom days, and non-fatal heart attacks. The report on the 2007 AQMP Socioeconomic Analysis can be extrapolated to reflect the health impacts associated with PM as a result of SOx emissions. This was an emissions-based

linear model to estimate the air quality and health impacts in 2020. The studies found that there are health benefits with SOx emission reductions beyond what is specified in the AQMP in the effort to meet the future PM 2.5 standards. Thus, the statement on page 5-20 of the Draft PEA correctly characterizes the potential emission reductions and health benefits of Alternative C relative to those of the proposed project.

3-53 .Regarding analyzing the project without assuming new or increased access to potable water, see Responses to Comments 3-29 and 3-31.

3-54 In order to achieve the air quality benefits reflected by the proposed BARCT standards, it is important that surplus unused RTCs are reduced. The shave methodology used by SCAQMD staff does account for anticipated future growth and provides a compliance range that is within 10 percent of the shave methodologies analyzed prior to RECLAIM amendments. Thus, the shave reductions of the proposed project are designed to meet the 2007 AQMP targets as well as future attainment standards for PM 2.5. The Draft PEA analyzes the potential effects of what facility operators may do to implement the proposed project.

3-55 See Response to Comment 3-52.

3-56 The commenter has identified an inconsistency in the Table 5-2, which is also in Table 1-4. Review of the text in the body of the document and the calculations in Appendix B confirms that the use of NaOH for Alternative B is less than both options of the proposed project. As such, both Table 1-4 and Table 5-2 have been corrected to state the following in the "Air Quality Impacts Significant?" row in the "Alternative B: AQMP" column, third bullet: *Less than significant for TACS use (NaOH) during operations, and less than the proposed project for both Options 1 and 2*.

3-57 The commenter has identified an inconsistency in the Table 5-2, which is also in Table 1-4. Review of the text in the body of the document and the calculations in Appendix B confirms that GHG emissions for Alternative C – Option 1 are less than the proposed project – Option 1 but greater than the proposed project – Option 2. As such, both Table 1-4 and Table 5-2 have been corrected to state the following in the "Air Quality Impacts Significant?" row in the "Alternative C - Option 1" column, second bullet: *Significant for GHGs but less than the proposed project -Option 1 and more greater than the proposed project - Option 2.*

3-58 The commenter has identified an inconsistency in the Table 5-2, which is also in Table 1-4. Review of the text in the body of the document and the calculations in Appendix B confirms that the number of daily truck trips for construction is the same for both options of the proposed project (e.g., 700) and the number of daily truck trips for operation are slightly more for the proposed project – Option 1. As such, both Table 1-4 and Table 5-2 have been corrected to state the following in the "Transportation & Traffic Impacts Significant?" row: 1) in the "Proposed Project - Option 1" column: *Less than significant, but equivalent to the proposed project – Option 2 for construction and more than the proposed project – Option 2 for operation*; and, 2) in the "Proposed Project - Option 2" column: *Less than significant, but equivalent to the proposed project – Option 1 for construction and less than the proposed project – Option 2 for operation.*

3-59 The commenter has identified a typo in the last paragraph on page 5-20. The typo has been corrected to reflect that eight WGSs plus two DGSs for a total of 10 add-on controls were analyzed Alternative C – Option 1.

3-60 The commenter has identified some typos on page 5-34 and Table 5-25. The numbers have been updated and are now consistent with each other.

3-61 The commenter has identified a typo relative to the amount of water needed for construction for both options of Alternative C. The amount of plot space that would be affected by Alternative C is less than the proposed project. This means that the amount of water needed to control the fugitive dust should be about the same or less for Alternative C than the proposed project because the amount of soil that can be disturbed in one day, is physically limited by the amount that construction equipment such as a backhoe can do. For these reasons, the amount of water that may be applied to minimize fugitive dust for Alternative C has been adjusted to be the same as the proposed project during construction (i.e., 52,272 gal/day).

3-62 The commenter has identified a typo relative to Footnote 12 in Table 1-3. The reference has been corrected to reflect Footnote 14 instead.

Back to Agenda

BOARD MEETING DATE: November 5, 2010 AGENDA NO. 38

PROPOSAL: Amend Rule 1175 – Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products

SYNOPSIS: Proposed Amended Rule 1175 will address the concerns expressed by the U.S. EPA in their disapproval of the September 2007 amendment. As requested by the U.S. EPA, the proposed amended rule will require source testing to demonstrate compliance, require all operational parameters necessary for compliance to be contained in a federally enforceable permit and recordkeeping to verify operational techniques and parameters. The proposed rule will also clarify the prohibition of use for chlorofluorocarbons to be consistent with U.S. EPA Significant New Alternatives Policy Program, correct typographical errors and make minor clarifications and editorial corrections to the rule. The proposed changes are administrative in nature and are not expected to impact emissions or costs.

COMMITTEE: Stationary Source, September 24, 2010, Reviewed

RECOMMENDED ACTIONS:
Adopt the Resolution:

1. Certifying the Notice of Exemption for the proposed amendments to Rule 1175 – Control of Emissions from the Manufacture of Cellular (Foam) Products; and

2. Adopting Proposed Amended Rule 1175 - Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products.

Barry R. Wallerstein, D.Env.
Executive Officer

EC:LT: NB:DO:MM

Background
Rule 1175 was adopted November 3, 1989 and has since been amended three times with the last amendment on September 7, 2007. The rule prohibits the use of chlorofluorocarbons (CFCs), Volatile Organic Compounds (VOCs) and methylene chloride in polymeric cellular foam product operations except for expandable polystyrene molding and extrudable polystyrene foam operations. The rule controls VOC emissions of expandable polystyrene molding operations and extrudable polystyrene foam operations by either requiring control devices to capture VOC emissions or by limiting emissions to 2.4 pounds of VOC emitted per 100 pounds of product produced.

The September 7, 2007 rule amendment provides block foam manufacturers with an alternative compliance option that allowed for equivalent emissions collection and control by over-controlling the manufacturing emissions, in lieu of controlling their less cost-effective block storage areas. On May 10, 2010, as published in the Federal Register [FR Doc 2010-109121], U.S. EPA announced their disapproval to the amendment on the grounds that the rule did not explicitly require source testing to demonstrate compliance. Although source testing requirements are currently reflected in the individual permits held by facilities subject to the rule, the proposed amendments will address the rule deficiencies identified by U.S. EPA by explicitly stating source testing requirements and other improvements into the rule.

Affected Facilities
The facilities subject to the proposed rule include polystyrene foam product manufacturing, urethane and other foam product manufacturing. Such facilities manufacture food containers, ice chests, insulation, packaging and other foam products. Currently there are an estimated 21 facilities subject to the proposed rule.

Public Process
On May 10, 2010, U.S. EPA announced their disapproval to the amendment. A public workshop was held on September 7, 2010.

Proposal
As requested by the U.S. EPA, the proposed amended rule will require source testing to demonstrate compliance, require all operational parameters to be contained in a federally enforceable permit and include record keeping to verify operational techniques and parameters.

Sources subject to Rule 1175 that utilize an approved emission control device to comply with the rule are required to obtain a federally enforceable permit from the District. At the time of permit issuance, the Executive Officer, in writing, will impose specific permit conditions reflecting the necessary parameters needed to achieve this level of control. The specific parameters may include, but are not limited to, establishing

specific temperatures and pressure limits for aging rooms, establishing volumetric flow rates into a control device and requiring a minimum operating temperature for the control device. Failure to maintain the control device in good operating condition, including conditions imposed by the Executive Officer, will be considered a violation of Rule 1175.

Furthermore, facilities utilizing control equipment to comply with the provisions of the proposed rule will be required to conduct source testing, approved in writing by the Executive Officer, to demonstrate the collection and control efficiency. Such testing is routinely required as part of the permitting process.

The prohibition of using methylene chloride and CFCs has been relocated to subdivision (d) to clarify that the prohibition applies to all polyurethane operations subject to the rule including expandable polystyrene molding operations and extruded polystyrene foam operations. All CFCs used in operations subject to Rule 1175 are prohibited unless specifically approved as acceptable alternatives under 40 CFR Part 82 Subpart G – Significant New Alternatives Policy (SNAP) Program. This will provide consistency between Rule 1175 and federal requirements. At this time the only use of CFCs approved in foam products is HCFC-141b for space vehicle, nuclear, defense and research and development for foreign customers (see Appendix M to Subpart G—Unacceptable Substitutes Listed in the September 30, 2004 Final Rule, Effective November 29, 2004).

Records of operations and emission control system parameters shall be maintained for five years to maintain consistency with Title V permit requirements.

The proposed rule will also make clarifications to the definitions and applicability of the rule, correct typographical errors and make minor editorial corrections to the rule.

The proposed changes are administrative in nature and are not expected to impact emissions or costs.

Key Issues

A few key issues have been brought to staff's attention during the rule making period. The most notable issues and their resolutions are summarized below:

ISSUE: Clarify that Rule 1175 is not in conflict with Federal requirements on prohibited foam blowing agents.

RESPONSE: The proposed rule has been modified to prohibit the use of all CFCs in foam operations except those specifically approved under the SNAP program. This will provide consistency between Rule 1175 and the federal requirements.

ISSUE: The alternative compliance option under (c)(5) should be available to shape molding operations. Shape molders have similar issues as the block molders do when it comes to product density, inability to construct 48-hour controlled enclosures due to leased property and limited space and the need to process some higher pentane material while processing mostly low-to-mid-range pentane material.

RESPONSE: The data currently provided to demonstrate equivalence is insufficient to make a determination to include shape molding operations under the alternative compliance option. Further testing is necessary to establish the collection efficiency of the control equipment and emissions lost during the initial 48 hours of storage. Staff will continue to work with interested parties to determine if the alternative compliance option can be made available to shape molding operations.

Emission Reductions and Cost Effectiveness Determination

The proposed changes are administrative in nature and are not expected to impact emissions or costs.

AQMP and Legal Mandates

Proposed Amended Rule (PAR) 1175 will address the concerns expressed by the U.S. EPA in their disapproval of the September 2007 amendment. While the proposed amendments do not result in additional emission reductions, the amendments are consistent with AQMP objectives. The proposed amendment does contain source testing, permitting and record keeping requirements; however, these demonstration and documentation activities are routinely required as part of the permitting process.

California Environmental Quality Act

Staff has reviewed the proposed amendments to Rule 1175 – Control of Emissions from the Manufacture of Cellular (Foam) Products, pursuant to CEQA Guidelines § 15002(k)(1) - Three Step Process, and has determined that the proposed amendments are exempt from CEQA pursuant to CEQA Guidelines § 15061(b)(3) – Review for Exemption. The proposed amendments are covered by the general rule that CEQA applies only to projects which may have a significant effect on the environment. Staff has reviewed the proposed amendments and has determined that it can be seen with certainty that there is no possibility that proposed amendments to Rule 1175 will have a significant impact on air quality or other environmental areas. Therefore, the proposed project is exempt from CEQA. If approved by the Governing Board, a Notice of Exemption (NOE) will be prepared for the proposed project pursuant to CEQA Guidelines §15062 – Notice of Exemption, and mailed to the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties.

Socioeconomic Analysis
The proposed changes are administrative in nature and are not expected to impact emissions or costs.

Implementation and Resources
Staff does not anticipate the need for additional resources to adequately implement and enforce the proposed rule.

Attachments
A. Summary of Proposed Amendments
B. Rule Development Process
C. Key Contacts List
D. Resolution
E. Rule Language
F. Final Staff Report
G. Notice of Exemption

ATTACHMENT A
SUMMARY OF PROPOSED AMENDMENTS

- ***Source Testing***
  Require source testing, approved by the Executive Officer, to demonstrate compliance.

- ***Permitting***
  Sources subject to Rule 1175 that utilize a control device to comply with the rule are required to obtain a federally enforceable permit, such as a Title V operating permit, that includes any identified critical operational techniques and parameters.

- ***Prohibition of Use***
  Clarify that the prohibition for methylene chloride and chlorofluorocarbons (CFC) applies to all manufacturing operations subject to the rule excluding those specifically approved as acceptable alternatives under 40 CFR Part 82 Subpart G – Significant New Alternatives Policy Program.

- ***Record keeping***
  Records of operations and emission control system techniques and parameters shall be maintained for five years to demonstrate compliance and maintain consistency with Title V permit requirements.

ATTACHMENT B

PAR 1175 RULE DEVELOPMENT PROCESS

ATTACHMENT C
KEY CONTACTS LIST

Manufacturers
APTCO
Dart Container
Foam Fabricators
Insulfoam
Lifoam Industries

Regulatory Agencies
U.S. Environmental Protection Agency
California Air Resources Board

Others
Associates Environmental

ATTACHMENT D

RESOLUTION NO.

A Resolution of the South Coast Air Quality Management District (AQMD) Governing Board certifying the Notice of Exemption for the proposed amendments to Rule 1175 – Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products.

A Resolution of the AQMD Governing Board amending Proposed Amended Rule 1175 – Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products.

WHEREAS, the AQMD Governing Board finds and determines that the proposed amendments to Rule 1175 are considered a "project" pursuant to the California Environmental Quality Act (CEQA); however, AQMD staff reviewed the proposed project and determined with certainty that the proposed amendments are exempt from the requirements of CEQA pursuant to CEQA Guidelines §15061 (b)(3) and have prepared a Notice of Exemption (NOE); and

WHEREAS, the AQMD Governing Board voting on Proposed Amended Rule 1175 - Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products, has reviewed and considered the NOE prior to its certification; and

WHEREAS, the AQMD Governing Board has determined that a need exists to amend Proposed Amended Rule 1175 - Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products, to address the concerns expressed by the U.S. Environmental Protection Agency in their disapproval of the September 2007 amendment; and

WHEREAS, the AQMD Governing Board of the South Coast Air Quality Management District obtains its authority to adopt this proposed amended rule from Sections 39002, 40000, 40001, 40440, 40702 and 41508 of the California Health and Safety Code; and

WHEREAS, the AQMD Governing Board has determined that Proposed Amended Rule 1175 - Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products, as proposed to be adopted is written or displayed so that its meaning can be easily understood by the persons directly affected by it; and

WHEREAS, the AQMD Governing Board has determined that Proposed Amended Rule 1175 - Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products, as proposed to be adopted, is in harmony with, and not in conflict with or contradictory to, existing federal or state statutes, court decisions, or regulations; and

WHEREAS, the AQMD Governing Board has determined that Proposed Amended Rule 1175 - Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products, as proposed to be adopted, does not impose the same requirements as any existing state or federal regulation and the proposed rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the District; and

WHEREAS, the AQMD Governing Board has determined that Proposed Amended Rule 1175 - Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products, as proposed to be adopted, references the following statutes which the AQMD hereby implements, interprets or makes specific; Health and Safety Code 40001(a) and (b) (air quality standards and air pollution episodes); 40702 (adoption of rules and regulations), and 40440 (rules and regulations to carry out the air quality management plan and to require best available retrofit control technology); and

WHEREAS, the AQMD Governing Board has determined that a Socioeconomic Impact Assessment is not required, pursuant to Health and Safety Code Section 40440.8 or 40728.5, because these amendments do not have a significant impact on air quality or emissions limitations; and

WHEREAS, a public hearing has been properly noticed in accordance with the provisions of Health and Safety Code Section 40725; and

WHEREAS, the AQMD Governing Board has held a public hearing in accordance with all provisions of law; and

WHEREAS, the AQMD Governing Board specifies the manager of Proposed Amended Rule 1175 - Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products, as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of this proposed amendment is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

WHEREAS, the AQMD Governing Board finds and determines, taking into consideration the factors in Section (d)(4)(D) of the Governing Board Procedures, that the modifications adopted which have been made to Proposed Amended Rule 1175 - Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products, since notice of public hearing was published do not significantly change the meaning of the proposed amended rule within the meaning of Health and Safety Code Section 40726; and

WHEREAS, the AQMD Governing Board has determined that Proposed Amended Rule 1175 - Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products, should be amended for the reasons contained in the Final Staff Report; and

NOW, THEREFORE, BE IT RESOLVED, that the AQMD Governing Board does hereby certify the Notice of Exemption for Rule 1175, as proposed to be amended, is completed in compliance with CEQA Guidelines §15002 (k)(1) - Three Step Process and §15061(b)(3) – Review for Exemption (General Rule Exemption). This information was presented to the Governing Board, whose members reviewed, considered, and approved the information therein prior to acting on the proposed amendments.

BE IT FURTHER RESOLVED, that the AQMD Governing Board does hereby adopt, pursuant to the authority granted by law, Proposed Amended Rule 1175 - Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products, as set forth in the attached and incorporated herein by reference.

_____ _____

Date Clerk of the Boards

(Adopted November 3, 1989)(Amended January 5, 1990)
(Amended May 13, 1994)(Amended September 7, 2007)
(Proposed Amended Rule November 5, 2010)

PROPOSED AMENDED RULE 1175. CONTROL OF EMISSIONS FROM THE MANUFACTURE OF POLYMERIC CELLULAR (FOAM) PRODUCTS

(a) Applicability

This rule shall apply to polymeric cellular products manufacturing operations including but not limited to expandable polystyrene, extruded polystyrene, ~~foam~~ polyurethane, isocyanurate and phenolic foam operations. All steps of the manufacturing operation and the storage of the final product for a maximum of 48 hours are subject to the requirements of this rule.

(b) Definitions

For the purpose of this rule, the following definitions shall apply:

(1) APPROVED EMISSION CONTROL SYSTEM means any system used to reduce manufacturing and storage emissions and consists of an emission collection system and a control device, which are approved, in writing, by the Executive Officer, that has been demonstrated to perform and operate according to the following provisions:

(A) The emission collection system shall collect at least 90 percent by weight of the manufacturing emissions; and

(B) The emission collection system shall collect at least 90 percent by weight of the storage emissions; and

(C) The control device shall reduce emissions from the emission collection system by at least 95 percent, by weight.

(2) BLOWING AGENT means a liquid, gaseous or solid material that facilitates the formation of a cellular product from raw polymeric material.

(3) CERTIFICATE OF ANALYSIS is a written document that cites the range of pentanes in expandable polystyrene bead, expressed as the percentage by weight of a manufactured bead-lot, prior to shipment from the manufacturer. It also contains the name of the manufacturer, a bead-lot number, and grade and type identifiers, along with a signature of an officer or an officer's designee of the bead-lot manufacturer.

(4) CHLOROFLUOROCARBON (CFC) is any chlorinated fluorinated compound of carbon., ~~excluding;~~

~~chlorodifluoromethane (HCFC-22),~~
~~dichlorotrifluoroethane (HCFC-123),~~
~~tetrafluoroethane (HFC-134a),~~
~~dichlorofluoroethane (HCFC-141b),~~
~~chlorodifluoroethane (HCFC-142b)~~
~~2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124),~~

(5) EXEMPT COMPOUNDS (see Rule 102 - Definition of Terms)

(6) EXPANDABLE POLYSTYRENE (EPS) MOLDING OPERATIONS consist of a series of processes, where polystyrene beads and blowing agent are expanded by exposure to steam or any other expansion agent and processed through cup, block or shape molding into low-density, closed cell, cellular products. EPS products include but are not limited to drinking cups, insulation board, packaging material, and ice chests.

(7) EXTRUDED POLYSTYRENE (XPS) FOAM OPERATIONS consist of a series of processes, where a blowing agent is injected into molten polystyrene and upon exit of the extrusion die the blowing agent vaporizes thus expanding the molten resin into foam, where it expands in both thickness and width, and includes directly associated processes that incorporate reprocessed material into XPS products. XPS products include but are not limited to food containers and insulation foams used in the construction of structures for both residential and commercial buildings, such as under concrete slabs, roofing, decks, steel and wood framed wall sheathing.

(~~7~~8) LOW-PENTANE BEAD is an expandable polystyrene bead containing pentane as a blowing agent with an upper limit less than 4.0 percent by weight, prior to shipment, as certified upon delivery by an accompanying bead lot manufacturer's Certificate of Analysis.

(~~8~~9) MANUFACTURING EMISSIONS are any emissions of VOC, CFC, or methylene chloride that occur during the manufacturing operation.

(~~9~~10) MANUFACTURING OPERATION means every step of the processing of a polymeric material from the delivery of the raw material, until the storage of the final cellular product.

(~~10~~11) MID PENTANE BEAD is an expandable polystyrene bead containing pentane as a blowing agent within the range of 4.0 to 5.2 percent by weight, prior to shipment, as certified upon delivery with an accompanying bead lot manufacturer's Certificate of Analysis.

(~~11~~12) RAW MATERIAL means all polystyrene beads, polyurethane, reprocessed material and blowing agent used in the manufacture of polymeric cellular products.

(13) REPROCESSED MATERIAL means all regrind trim, scrap or recycled material.

(~~12~~14) RIGID POLYURETHANE is a closed cell polyurethane, primarily manufactured as rigid slabstock, laminated boardstock, field spray foam or pour-in-place foam.

(~~13~~15) STORAGE EMISSIONS are VOC emissions occurring for a maximum of 48 hours after the polymeric cellular foam product is manufactured.

(~~14~~16) VOLATILE ORGANIC COMPOUND (VOC) ~~(see Rule 102 - Definition of Terms)~~ is as defined in Rule 102.

(c) Emission Control Requirements

(1) Manufacturing Operations, Excluding Expandable Polystyrene ~~(EPS)~~ Molding Operations and Extruded Polystyrene Foam Operations

(A) ~~By January 1, 1994, each~~ No polyurethane operation subject to the~~is~~ rule shall ~~discontinue its~~ use ~~of~~ any ~~CFCs,~~ VOCs~~, or methylene chloride~~.

(B) Each manufacturing operation, excluding rigid polyurethane operations shall reduce yearly emissions from its 1988 emissions baseline, based on Rule 301 emission fees filing, by 100 percent, beginning calendar year 1994.

(2) Expandable Polystyrene ~~(EPS)~~ Molding and Extruded Polystyrene Foam Operations

The owner or operator of an expandable polystyrene ~~(EPS)~~ molding operation or an extruded polystyrene foam operation shall demonstrate, to the satisfaction of the Executive Officer, manufacturing emissions and post-manufacturing emissions, assuming all the blowing agent is released from the product, are less than 2.4 lbs per 100 lbs of raw material processed.

(3) The owner or operator of any polymeric cellular manufacturing operation, subject to the requirements of paragraphs (c)(1) or (c)(2), shall submit a plan to be approved by the Executive Officer, that demonstrates compliance with paragraph (c)(1) or (c)(2).

(4) The owner or operator of any polymeric cellular manufacturing operation that has not achieved the requirements specified in paragraph (c)(1), (c)(2), or (c)(3) shall:

(A) Submit permit applications for the installation of an emission control system within four months of the date that compliance with such requirement was not achieved; and

(B) Within twelve months of failing to meet the requirements of paragraph (c)(1), (c)(2), or (c)(3), the following provisions must be satisfied:

(i) An approved emission control system is installed and operated with all sources of manufacturing emissions collected and reduced according to subparagraphs (b)(1)(A) and (b)(1)(C); this system, including any critical operational techniques and parameters (e.g., minimum temperature and time in aging/curing areas venting to the control system, if applicable), must be incorporated in a federally enforceable permit, such as a Title V operating permit, as approved by the Executive Officer; and

(ii) All sources of storage emissions from the final manufactured product are collected and reduced according to subparagraphs (b)(1)(B) and (b)(1)(C) for at least:

(I) 48 hours, in the case of expandable polystyrene molding operations that process more than 800,000 pounds per calendar year of raw material; or

(II) 24 hours, in the case of all other manufacturing operations.~~; or~~

(~~iii~~5) Expanded ~~Polystyrene~~ polystyrene ~~(EPS)~~ block molding operations may, in lieu of complying with the specific control requirements of clauses (c)(4)(B)(i) and (c)(4)B)(ii), collect and reduce, ~~through a combination of emission control systems and operational techniques, as approved by the Executive Officer,~~ manufacturing emissions by at least 93 percent overall by weight (the product of capture and control device efficiencies), provided, at least 60 percent of the annual ~~EPS~~ expanded polystyrene block throughput is manufactured with low-pentane bead and the remainder with mid-pentane bead. Any owner or operator of a facility who elects to comply using this alternate compliance method shall

demonstrate the requisite 93 percent reduction through a source test approved in writing by the Executive Officer. Facilities with a Title V permit shall repeat such demonstration every five (5) years. This alternate compliance method, including any critical operational techniques and parameters (e.g., minimum temperature and time in aging/curing areas venting to the control system, if applicable), must be incorporated in a federally enforceable permit, such as a Title V operating permit, as approved by the Executive Officer.

(6) The owner or operator of a facility utilizing an approved emission control system shall conduct source testing, to be approved in writing by the Executive Officer, to demonstrate compliance with paragraphs (c)(2) or (c)(4). Facilities with a Title V permit shall repeat such demonstration every five (5) years.

(d) Prohibition of Use

No polymeric cellular product operation subject to this rule shall use methylene chloride, or any CFC, unless specifically approved as an acceptable alternative under 40 CFR Part 82 Subpart G – Significant New Alternatives Policy Program.

(~~d~~e) Exemptions

(1) The provisions of paragraph (c) shall not apply to any:

(A) Expandable polystyrene operation that processes less than 200 pounds per day of raw material.

(B) Rigid polyurethane operation that processes less than 1,000 pounds per day of raw material.

(2) The provisions of clause (c)(4)(B)(ii) shall not apply to any facility that only manufactures:

(A) ~~rigid~~ Rigid polyurethane foam; or

(B) Expanded polystyrene ~~EPS~~ foam and the highest concentration of the blowing agent in the cellular product is 1.8 percent or less by weight within 15 minutes of completion of the manufacturing operation. Verification of the concentration shall be demonstrated annually, pursuant to a written protocol submitted to and approved by the Executive Officer.

(~~e~~f) Recordkeeping

(1) Any owner or operator subject to this rule or claiming an exemption under ~~paragraph~~ subdivision (~~d~~e) shall maintain a daily record of operations, including but not limited to the amount of raw material processed, the equipment used, and the type of blowing agent used. Such records shall be retained in the operator's files for a period of ~~two~~ five (5) years and be made available to the Executive Officer upon request.

(2) Owners and/or operators using any emission control system as a means of complying with this rule shall maintain daily records of the operation and maintenance of the emission control system. These records shall include key system operating parameters such as temperatures, pressures, flowrates, and other measures needed to demonstrate compliance with paragraphs (c)(4), (c)(5) and (c)(6). Such records shall be retained in the operator's files for a period of five (5) years and be made available to the Executive Officer upon request.

(~~f~~g) Methods of Analysis

All applicable methods of analysis shall be as cited in paragraphs (~~f~~g)(1) through (~~f~~g)(~~6~~4) below, or any other applicable method approved by the Executive Officer, the United States Environmental Protection Agency (U.S. EPA), and the California Air Resources Board (CARB), provided the approved alternative method is equivalent to those listed ~~above~~below.

(1) Determination of VOC Content

The VOC content of materials subject to the provisions of this rule shall be determined by the following methods:

(A) U.S. EPA Reference Method 24 (Code of Federal Regulations Title 40 Part 60, Appendix A). The exempt solvent content shall be determined by SCAQMD Method 303 (Determination of Exempt Compounds) contained in the SCAQMD "Laboratory Methods of Analysis for Enforcement Samples" manual; or,

(B) SCAQMD Method 304 [Determination of Volatile Organic Compounds (VOCs) in Various Materials] contained in the SCAQMD "Laboratory Methods of Analysis for Enforcement Samples" manual.

(C) Exempt Perfluorocarbon Compounds

The following classes of compounds will be analyzed as exempt compounds for compliance with subdivision (c), only when

manufacturers specify which individual compounds are used in the manufacture of polymeric cellular products:

cyclic, branched, or linear, completely fluorinated alkanes;

cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;

cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and

sulfur-containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

In addition, the manufacturers must identify the U.S. EPA, CARB, and SCAQMD approved test methods used to quantify the amount of each exempt compound.

(2) Determination of Pentanes in Expandable Styrene Polymers

The weight percent pentane in expandable polystyrene polymer shall be determined by SCAQMD Method 306 (Analysis of Pentanes in Expandable Styrene Polymers) contained in the SCAQMD "Laboratory Methods of Analysis for Enforcement Samples" manual.

(3) Determination of Efficiency of Emission Control System

(A) Capture efficiency specified in paragraph (b)(1) or ~~phrase~~ paragraph (c)(45)~~(B) (iii)~~ shall be determined by the procedures presented in the U.S. EPA technical guidance document "Guidelines for Determining Capture Efficiency, January 9, 1995", or U.S. EPA Methods 204 A-F.

(B) The efficiency of the control device of the emission control system specified in paragraph ~~-~~(b)(1) or ~~phrase~~ paragraph (c)(45)~~(B) (iii)~~ and the VOC content in the control device exhaust gases, measured and calculated as carbon, shall be determined by U.S. EPA Test Methods 25, 25A, SCAQMD Method 25.1 (Determination of Total Gaseous Non-Methane Organic Emissions as Carbon), or SCAQMD Method 25.3 (Determination of Low Concentration of Non-Methane Non-Ethane Organic Compound Emissions from Clean Fueled Combustion Sources) as applicable. U.S. EPA Test Method 18, or ARB Method 422 shall be used to determine emissions of exempt compounds.

(4) Multiple Test Methods

When more than one test method or set of test methods are specified for any testing, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of the rule.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

~~Draft~~ Final Staff Report

Proposed Amended Rule 1175 – Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products

~~September~~ October 2010

Deputy Executive Officer
Planning, Rule Development, and Area Sources
Elaine Chang, Dr.PH

Assistant Deputy Executive Officer
Planning, Rule Development, and Area Sources
Laki Tisopulos, Ph.D., P.E.

Planning and Rules Manager
Planning, Rule Development, and Area Sources
Naveen Berry

AUTHORS:	Don Hopps	AQ Specialist
	Mike Morris	AQ Specialist
REVIEWED BY:	Andrew Lee, P.E.	Program Supervisor
	David Ono	Program Supervisor
	Veera Tyagi	Deputy District Counsel II
CONTRIBUTORS:	Stephen Jiang	AQ Engineer II

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

GOVERNING BOARD

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Speaker of the Assembly Appointee

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Senate Rules Appointee

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County of San Bernardino

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Mayor, Riverside
Cities of Riverside County

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Governor's Appointee

JUDITH MITCHELL
Councilmember, Rolling Hills Estates
Cities of Los Angeles County/Western Region

JAN PERRY
Councilmember, Ninth District
City of Los Angeles

MIGUEL PULIDO
Mayor, Santa Ana
Cities of Orange County

EXECUTIVE OFFICER:

BARRY R. WALLERSTEIN, D.Env.

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EXECUTIVE SUMMARY

Proposed Amended Rule 1175 – Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products has been developed to address the concerns the U.S. Environmental Protection Agency (U.S. EPA) expressed when they disapproved the September 2007 amendment because of rule deficiencies. The specific deficiencies described by U.S. EPA are as follows:

1. The rule must require demonstration, through source testing approved in writing by the Executive Officer, that the systems and techniques in place at a facility achieve 93% collection and reduction of emissions for source complying with paragraph (c)(5) [was clause (c)(4)(B)(iii)].
2. The rule must clarify that all operational techniques and parameters needed to achieve compliance with paragraph (c)(5) [was clause (c)(4)(B)(iii)] be clearly defined, enforceable through a federally enforceable permit and identified in Rule 1175, where possible.
3. The rule must clarify that all operational techniques and parameters needed to achieve 90% collection and 95% destruction to comply with clauses (c)(4)(B)(i) and (c)(4)(B)(ii) be clearly defined, enforceable through a federally enforceable permit and identified in Rule 1175, where possible.

Staff proposes the following requirements for Proposed Amended Rule 1175:

- Require source testing, approved by the Executive Officer, to demonstrate compliance with clauses (c)(4)(B)(i), (c)(4)(B)(ii) and paragraph (c)(5) [was clause (c)(4)(B)(iii)].
- Require record keeping to verify that all operational techniques and parameters needed to ensure continued utilization of operational techniques used to comply with clauses (c)(4)(B)(i), (c)(4)(B)(ii) and paragraph (c)(5).
- Clarify that the prohibition for methylene chloride and chlorofluorocarbons (CFC) applies to all manufacturing operations subject to the rule excluding those specifically approved as acceptable alternatives under 40 CFR Part 82 Subpart G – Significant New Alternatives Policy Program.
- Correct typographical errors associated with Methods of Analysis.
- Make minor clarifications and editorial corrections to the rule.

The proposed changes are administrative in nature and are not expected to impact emissions or costs.

CHAPTER 1: BACKGROUND

INTRODUCTION

REGULATORY HISTORY

INTRODUCTION

In May 2010, U.S. EPA disapproved a revision to the District portion of the State Implementation Plan because of concerns about VOC emissions from polymeric foam manufacturing operations. The specific deficiencies are described below under Regulatory History.

REGULATORY HISTORY

Rule 1175 was adopted November 3, 1989 and has since been amended three times with the last amendment on September 7, 2007. The rule prohibits the use of chlorofluorocarbons (CFCs), Volatile Organic Compounds (VOCs) and methylene chloride in polymeric cellular foam product operations except for expandable polystyrene molding and extrudable polystyrene foam operations. The rule controls VOC emissions of expandable polystyrene molding operations and extrudable polystyrene foam operations by either requiring control devices to capture VOC emissions or by limiting emissions to 2.4 pounds of VOC emitted per 100 pounds of product produced.

The September 7, 2007 rule amendment allowed for equivalent emissions collection and control by over-controlling the manufacturing emissions, in lieu of controlling their less cost-effective block storage areas. On May 10, 2010, as published in the Federal Register [FR Doc 2010-109121], U.S. EPA announced their disapproval to the amendment. According to U.S. EPA, some rule provisions do not satisfy the requirements of section 110 and part D of the Clean Air Act. Specifically:

1. The rule must require demonstration, through source testing approved in writing by the Executive Officer, that the systems and techniques in place at a facility achieve 93% collection and reduction of emissions for sources complying with clause (c)(4)(B)(iii) [revised to be paragraph (c)(5)].

2. The rule must clarify that all operational techniques and parameters needed to achieve 93% control to comply with paragraph (c)(4)(B)(iii) [revised to be paragraph (c)(5)] must be clearly defined and enforceable through a federally enforceable permit such as a Title V operating permit. Rule 1175 should also be revised where possible to identify these parameters.

3. The rule must clarify that all operational techniques and parameters needed to achieve 90% collection and 95% destruction to comply with paragraphs (c)(4)(B)(i) and (c)(4)(B)(ii) must be clearly defined and enforceable through a federally enforceable

permit such as a Title V operating permit. Rule 1175 should also be revised where possible to identify these parameters.

U.S. EPA also included recommendations to further improve the rule that do not affect their current action. In response to their request, AQMD staff has made minor clarifications and editorial corrections to the rule to enhance the clarity of the rule.

CHAPTER 2: SUMMARY OF PROPOSED AMENDED RULE 1175

OVERVIEW

Staff proposes to address the deficiencies identified by the U.S. EPA. In addition, the rule will incorporate the administrative recommendations included in U.S. EPA's technical support document.

PROPOSED MODIFICATIONS TO RULE 1175

Applicability

A minor clarification is included to make the terms used to describe application operations more consistent. Specifically, the term "Extruded Polystyrene" will be used consistently throughout the rule and associated documentation.

Definitions

The definition for Chlorofluorocarbon had been modified to include previously excluded CFCs: chlorodifluoromethane (HCFC-22), dichlorotrifluoroethane (HCFC-123), tetrafluoroethane (HFC-134a), dichlorofluoroethane (HCFC-141b), chlorodifluoroethane (HCFC-142b) and 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124). All CFCs used in operations subject to Rule 1175 are prohibited unless specifically approved as acceptable alternatives under 40 CFR Part 82 Subpart G – Significant New Alternatives Policy Program.

A definition is included for Extruded Polystyrene (XPS) Foam Operations. These operations were previously included under Expandable Polystyrene (EPS) Molding Operations even though the definition did not adequately describe them. Rather than broadening the definition for Expandable Polystyrene Molding Operations, the new definition is included.

Reprocessed Material has been defined and the definition for Raw Material has been clarified to indicated that the use of regrind recycled, scrap or trim foam may be included as a raw material.

Requirements

The requirements applicable to Extruded Polystyrene (XPS) Foam Operations have been clarified. The requirements are unchanged but the inclusion of the definition necessitates explicitly referencing the new term in paragraphs (c)(1) and (c)(2).

Sources subject to Rule 1175 that utilize a control device to comply with the rule are required to obtain a federally enforceable permit from the District. At the time of permit issuance, the Executive Officer, in writing, will impose specific permit conditions reflecting the necessary parameters needed to achieve this level of control. The specific parameters may include, but

are not limited to, establishing specific temperatures and pressure limits for aging rooms, establishing volumetric flow rates into a control device and requiring a minimum operating temperature for the control device. Failure to maintain the control device in good operating condition, including conditions imposed by the Executive Officer, will be considered a violation of Rule 1175.

Facilities utilizing control equipment to comply with the provisions of the proposed rule will be required to conduct source testing, approved in writing by the Executive Officer, to demonstrate the collection and control efficiency. Such testing is routinely required as part of the permitting process.

The prohibition of using methylene chloride and CFCs has been relocated to subdivision (d) to clarify that the prohibition applies to all polyurethane operations subject to the rule including expandable polystyrene molding operations and extruded polystyrene foam operations. All CFCs used in operations subject to Rule 1175 are prohibited unless specifically approved as acceptable alternatives under 40 CFR Part 82 Subpart G – Significant New Alternatives Policy Program. This will provide consistency between Rule 1175 and federal requirements. At this time the only use of CFCs approved in foam products is HCFC-141b for space vehicle, nuclear, defense and research and development for foreign customers (see Appendix M to Subpart G—Unacceptable Substitutes Listed in the September 30, 2004 Final Rule, Effective November 29, 2004).

Monitoring, Recordkeeping and Reporting Requirements

Records of operations and emission control system parameters shall be maintained for five years to maintain consistency with Title V permit requirements.

Methods of Analysis

Typographical errors are corrected in subdivision (g) of the proposed rule. Specifically, the paragraphs referenced shall be (g)(1) through (g)(4) rather than (g)(6) which does not exist. Also, the alternative methods must be equivalent to the methods that are listed below, rather than above the lead-in language of the rule.

CHAPTER 3: IMPACT ASSESSMENT

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EMISSION IMPACT ASSESSMENT

SOCIOECONOMIC IMPACT ASSESSMENT

POTENTIAL ENVIRONMENTAL IMPACTS

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE 40727

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INTRODUCTION

Rule 1175 applies to polymeric cellular products manufacturing operations and includes but is not limited to expandable polystyrene, extruded polystyrene, polyurethane, isocyanurate and phenolic foam operations. This amendment is an administrative change request by the U.S. EPA and is not expected to affect emission impacts.

EMISSION IMPACT ASSESSMENT

The proposed amendments are administrative in nature and will not impact the emission inventory nor result in any emission reductions.

SOCIOECONOMIC IMPACT ASSESSMENT

The proposed amendments to Rule 1175 do not significantly affect air quality or emission limitations and therefore a socioeconomic impact analysis pursuant to California Health and Safety Code Sections 40440.8 and 40728.5 is not required.

Cost and Cost-Effectiveness

The proposed amendments will not result in additional costs to industry. Source testing and record keeping are routinely required in permit conditions applied to control devices. Since there is no additional cost and no change in emissions, cost effectiveness is not applicable.

Incremental Cost-Effectiveness

Under Health and Safety Code Section 40920.6, the AQMD is required to perform an incremental cost analysis when adopting a Best Available Retrofit Control Technology (BARCT) rule or feasible measure required by the California Clean Air Act. To perform this analysis, the AQMD must (1) identify one or more control options achieving the emission reduction objectives for the proposed rule, (2) determine the cost effectiveness for each option, and (3) calculate the incremental cost effectiveness for each option. To determine incremental costs, the AQMD must "calculate the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option."

Proposed Amended Rule 1175 addresses administrative issues identified by the U.S. EPA. The proposed amended rule does not implement a BARCT rule or a feasible measure required by the California Clean Air Act. Thus an incremental cost analysis is not required.

POTENTIAL ENVIRONMENTAL IMPACTS

CEQA applies only to projects which may have a significant effect on the environment. Staff has reviewed the proposed amendments and, pursuant to CEQA Guidelines § 15002(k)(1) – Three Step Process, has determined that the proposed amendments to Rule 1175 - Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products are exempt from CEQA pursuant to CEQA Guidelines § 15061(b)(3) – Review for Exemption. If approved by the Governing Board, a Notice of Exemption (NOE) will be prepared for the proposed project pursuant to CEQA Guidelines §15062 – Notice of Exemption, and mailed to the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties.

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE 40727

Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the hearing. The draft findings are as follows:

Necessity – The AQMD Governing Board has determined that a need exists to amend Rule 1175 - Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products to address the deficiencies identified by the U.S. EPA.

Authority - The AQMD Governing Board obtains its authority to adopt, amend, or repeal rules and regulations from Health and Safety Code Sections 39002, 40000, 40001, 40440, 40441, 40702 and 41508.

Clarity - The AQMD Governing Board has determined that Proposed Amended Rule 1175 - Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products, is written and displayed so that the meaning can be easily understood by persons directly affected by them.

Consistency - The AQMD Governing Board has determined that Proposed Amended Rule 1175 - Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products, is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, federal or state regulations.

Non-Duplication - The AQMD Governing Board has determined that Proposed Amended Rule 1175 - Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products, does not impose the same requirement as any existing state or federal regulation,

and the proposed amendments are necessary and proper to execute the powers and duties granted to, and imposed upon, the AQMD.

Reference - In adopting this regulation, the AQMD Governing Board references the following statutes which the AQMD hereby implements, interprets or makes specific: California Health and Safety Code sections 40001, 40440, and 40702.

COMPARATIVE ANALYSIS

Health and Safety Code Section 40727.2 requires a written analysis comparing the proposed rule with existing federal and AQMD regulations. Federal regulations do not regulate VOC emissions from the manufacture of polymeric cellular (foam) products. However, federal regulations do prohibit the use of certain ozone-depleting substances under section 610(d) of the Clean Air Act (CAA). Specifically, Class I and Class II ozone depleting substances (ODS) including CFCs, halons, carbon tetrachloride and methyl chloroform, methyl bromide and most hydrofluorocarbons (HCFCs). Section 612 of the CAA required EPA to establish the Significant New Alternatives Policy (SNAP) program to evaluate alternatives to ODS making it unlawful to substitute alternatives that present adverse effects to human health or the environment where another alternative has been identified that reduces risk and is available. Under the SNAP program HCFC-124, HCFC-22 and HCFC-142b have been determined to be unacceptable substitutes. HCFC-141b has been determined to be an unacceptable substitute in certain foam blowing applications. The proposed rule will prohibit the use of all CFCs except those specifically approved under the SNAP program. At this time, only the use of HCFC 141b for space vehicle, nuclear, defense and research and development for foreign customers has been approved.

COMMENTS AND RESPONSES

The following comments and AQMD staff responses were in response to the concerns of U.S. EPA staff, from their September 30, 2009 e-mail.

Comment: While Rule 1175 applies to polystyrene foam extrusion operations, it does not explicitly reference these operations as it does polystyrene molding and block making operations. Future revisions should clarify which requirements also apply to polystyrene foam extrusion.

Staff Response: *A definition for Extruded Polystyrene Molding Operations (polystyrene extrusion operations) has been included in the proposed amendments. The proposal also explicitly references provisions applicable to such operations.*

Comment: Please revise paragraph (c)(2) to clarify whether polystyrene foam extrusion may include reprocessed material when demonstrating compliance with the limit of 2.4 pounds VOC per 100 pounds raw material processed.

Staff Response: *The definition for Raw Material will specifically include reprocessed material and paragraph (c)(2) has been clarified to note that Extruded Polystyrene Molding Operations may utilize this alternative compliance option.*

Comment: Note two potential typographical errors in the introductory paragraph of section (f). The first sentence references paragraphs (f)(1) through (f)(6), although the rule ends with (f)(4). The last sentence reads, "…provided the approved alternative method is equivalent to those listed above," but we find no methods listed above.

Staff Response: *The typographical errors have been corrected.*

Comment: In developing the additional compliance option in paragraph (c)(4)(iii) [revised to paragraph (c)(5)], SCAQMD relied on data generated using procedures designed to measure emissions from highway vehicles. In June 2005, EPA supported an expanded polystyrene block molding facility's plan to complete these tests for a separate purpose, and EPA did not expect that the results would be used to support this rule amendment. As a result, we strongly recommend that SCAQMD reevaluate the compliance option in light of: (a) the small number of polystyrene block tests that form the technical basis for the compliance option; and (b) a report released in March 2009 by the Alliance of Foam Packaging Recyclers and EPS Manufacturers Association, entitled "Pentane Emissions Profile for Expanded Polystyrene Foam Manufacturing Industry", which suggests considerably higher emissions during block storage.

Staff Response: *According to the Staff Report for the previous amendment to Rule 1175, the expanded polystyrene block testing "shows that the alternative compliance option is at a minimum equivalent to the current rule and in most cases is superior in terms of emission reduction benefits when compared to the current requirement for capture and destruction of manufacturing and 48-hour storage emissions. In addition, the*

pollution prevention element included in the proposed compliance option, requiring the use of lower pentane bead will further ensure that the proposed alternative provides superior environmental benefit." In the report cited by U.S. EPA, "the type of pentane isomers used in the blowing agent were not identified for the industry data set provided; therefore, the potential effect of the pentane isomers on residual pentane content was not considered. Insufficient support data were provided to quantify any difference in pentane losses on a weight percentage basis due to low pentane or regular pentane beads for like applications and product densities." The District believes that the alternative control option combined with lower pentane bead requirement will not lead to backsliding. The report cited by U.S. EPA does not have any data that contradicts that conclusion because it does not address low pentane beads.

Comment: Is it possible for a facility to utilize multiple compliance options to demonstrate compliance with the rule provisions?

Staff Response: *A facility may utilize multiple compliance options to demonstrate compliance. Facilities seeking such alternatives will be required to submit permit applications for engineering review, source test each scenario requested, accept federally-enforceable permits with critical operation techniques and parameters incorporated into the permit and maintain daily records demonstrating compliance.*

Comment: Is reprocessed material included as raw material?

Staff Response: *Raw material does include reprocessed material such as regrind trim, scrap or recycled materials. The definition for Raw Material has been clarified to include reprocessed material and a definition for Reprocessed Material has been included in the proposed rule.*

Comment: The alternative compliance option under (c)(5) should be available to shape molding operations. Shape molders have similar issues as the block molders do when it comes to product density, inability to construct 48-hour controlled enclosures due to leased property and limited space and the need to process some higher pentane material while processing mostly low-to-mid-range pentane material.

Staff Response: *The data currently provided to demonstrate equivalence is insufficient to make a determination to include shape molding operations under the*

alternative compliance option. Further testing is necessary to establish the collection efficiency of the control equipment and emissions lost during the initial 48 hours of storage. Staff will continue to work with interested parties to determine if the alternative compliance option can be made available to shape molding operations.

Comment: Paragraph (c)(1) prohibits the use of CFCs excluding HCFC-22, HCFC-123, HFC-134a, HCFC-141b, HCFC-142b and HCFC-124. Therefore the rule allows the HCFCs and HFCs listed above. However, the use of HCFC-22, HCFC-124, HCFC-141b and HCFC-142b is in conflict with the ban of these chemicals in some foam manufacturing applications as U.S. EPA-approved foam blowing agents under the SNAP program. We recommend that the District clarifies that Rule 1175 is not in conflict with Federal requirements on prohibited foam blowing agents.

Staff Response: *The proposed rule has been modified to prohibit the use of all CFCs in foam operations except those specifically approved under the SNAP program. This will provide consistency between Rule 1175 and the federal requirements.*

Comment: The Preliminary Staff Report acknowledges that certain HCFCs are not allowed as foam blowing agents by the U.S. EPA. Specifically, the reports states in part:

> Under the SNAP program HCFC-124, HCFC-22 and HCFC-142b have been determined to be unacceptable substitutes. HCFC-141b has been determined to be an unacceptable substitute in certain foam blowing applications. With the exception of expanded polystyrene molding operations, Rule 1175 prohibits the use of CFCs. While the rule is silent regarding the use of CFCs in expanded polystyrene molding operations and HCFC in all applications, there is no direct conflict between Rule 1175 and federal regulations.

The above staff analysis may not be entirely accurate (or perhaps unclear). The rule prohibits CFCs but specifically allows the use of HCFC-22, HCFC-123, HFC-134a, HCFC-141b, HCFC-142b and HCFC-124. We suggest that the District provides additional

clarification on how the rule is not in conflict with U.S. EPA foam blowing agent SNAP regulations.

Staff Response: *We concur that the rule language and analysis provided were unclear regarding the use HCFC-22, HCFC-123, HFC-134a, HCFC-141b, HCFC-142b and HCFC-124. The proposed rule has been modified to prohibit the use of all CFCs in foam operations except those specifically approved under the SNAP program. This will provide consistency between Rule 1175 and the federal requirements.*

REFERENCES

REFERENCES

"Disapproval of State Implementation Plan Revisions, South Coast Air Quality Management District." Federal Register 75:89 (May 10, 2010) p.25775.

Pentane Emissions Profile for Expanded Polystyrene Foam Manufacturing Industry, URS Corporation, March 2009.

Final Staff Report for Proposed Amended Rule 1175 – Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products, South Coast Air Quality Management District, August 2007.

"Title 40: Protection of Environment, Part 82-Protection of Stratospheric Ozone, Subpart G-Significant New Alternatives Policy Program." Federal Register 59 FR 13147, March 18, 1994, unless otherwise noted.

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • http://www.aqmd.gov

SUBJECT: **NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT**

PROJECT TITLE: **PROPOSED AMENDED RULE 1175 – CONTROL OF EMISSIONS FROM THE MANUFACTURE OF CELLULAR FOAM PRODUCTS**

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, the South Coast Air Quality Management District (SCAQMD) is the Lead Agency and has prepared a Notice of Exemption for the project identified above.

The SCAQMD has reviewed the proposed project pursuant to CEQA Guidelines §15002 (k)(1), the first step of a three-step process for deciding which document to prepare for a project subject to CEQA. Since it can be seen with certainty that the proposed project has no potential to adversely impact air quality or any other environmental area, it is exempt from CEQA pursuant to CEQA Guidelines §15061(b)(3) - Review for Exemption (General Rule Exemption).

A Notice of Exemption has been prepared pursuant to CEQA Guidelines §15062 - Notice of Exemption. The Notice of Exemption will be filed with the county clerks of Los Angeles, Orange, Riverside and San Bernardino counties immediately following the adoption of the proposed project.

Any questions regarding this Notice of Exemption should be sent to Barbara Radlein (c/o Planning, Rule Development and Area Sources) at the above address. Ms. Radlein can also be reached at (909) 396-2716. Mr. Michael Morris is also available at (909) 396-3282 to answer any questions regarding the proposed amendments.

Date: October 6, 2010

Signature: Steve Smith

Steve Smith, Ph.D.
Program Supervisor
Planning, Rule Development & Area Sources

Reference: California Code of Regulations, Title 14

NOTICE OF EXEMPTION

To: *County Clerks*
Counties of Los Angeles, Orange,
Riverside and San Bernardino

From: *South Coast Air Quality Management District*
21865 Copley Drive
Diamond Bar, CA 91765

Project Title:
Proposed Amended Rule 1175 – Control of Emissions from the Manufacture of Cellular Foam Products

Project Location:
South Coast Air Quality Management District: the four-county South Coast Air Basin (Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties) and the Riverside County portions of the Salton Sea Air Basin and Mojave Desert Air Basin.

Description of Nature, Purpose, and Beneficiaries of Project:
The proposed amendments to Rule 1175 – Control of Emissions from the Manufacture of Cellular Foam Products, are considered to be administrative in nature as they would remedy deficiencies in the September 2007 version of Rule 1175 as identified by the United States Environmental Protection Agency (USEPA) by requiring: 1) source testing, approved by the Executive Officer, to demonstrate compliance with clauses (c)(4)(B)(i) and (c)(4)(B)(ii), and paragraph (c)(5) [originally referred to as clause (c)(4)(B)(iii)]; and, 2) recordkeeping to verify that all operational techniques and parameters needed to ensure continued utilization of operational techniques used to comply with clauses (c)(4)(B)(i) and (c)(4)(B)(ii), and paragraph (c)(5). Other minor changes are proposed for clarity and consistency throughout the rule.

Public Agency Approving Project:
South Coast Air Quality Management District

Agency Carrying Out Project:
South Coast Air Quality Management District

Exempt Status:
Three-Step Process: CEQA Guidelines §15002 (k)(1)
General Rule Exemption: CEQA Guidelines §15061 (b)(3)

Reasons why project is exempt:
The project was reviewed and determined to have no potential to generate significant adverse impacts on the environment. Therefore, the SCAQMD has determined that the proposal is exempt from CEQA pursuant to CEQA Guidelines §15061 (b)(3) - Review for Exemption, since it can be seen with certainty that there is no possibility that the proposed project in question has the potential to have a significant adverse effect on the environment.

Certification Date:
SCAQMD Governing Board Hearing: November 5, 2010, 9:00 a.m.; SCAQMD Headquarters

CEQA Contact Person: *Ms. Barbara Radlein* **Phone Number:** *(909) 396-2716*

Rule Contact Person: *Mr. Michael Morris* **Phone Number:** *(909) 396-3282*

Date Received for Filing: _____ **Signature:** *(Signed Upon Certification)*

Steve Smith, Ph.D., Program Supervisor
Planning, Rule Development & Area Sources