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

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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

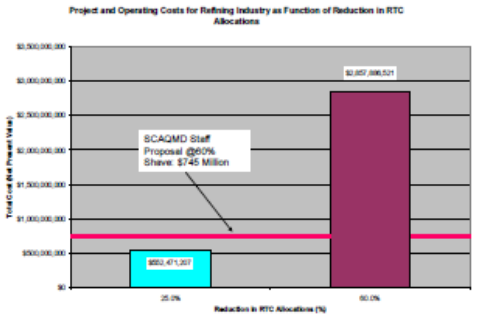
Example Cost Calculation

- 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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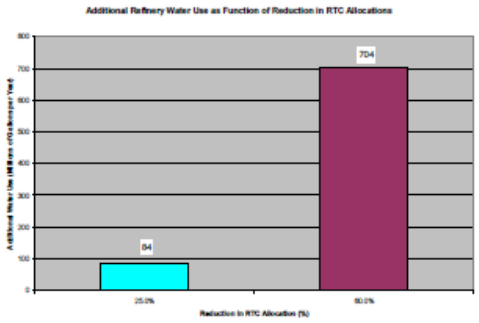

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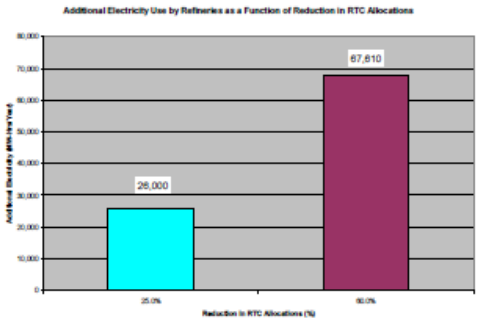

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Project and Operating Costs at Refineries as a Function of Reduction in RTC Allocations

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

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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

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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

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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**

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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	$39,055,200	$52,055,200
Fuel Gas Treatment	$33,000,000	$6,248,832	$39,248,832
Rounded Total	**$74,000,000**	**$53,000,000**	**$127,000,000**

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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**	**$348,000,000**	**$960,000,000**

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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

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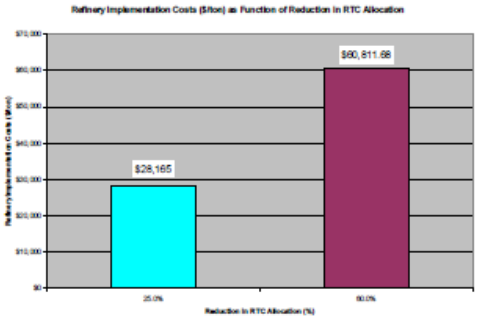

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Responses to Comment Letter #1
(Western States Petroleum Association, September 13, 2010)

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

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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

_____

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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.

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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

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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. 2-9

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. 2-10

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

2-11

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.

Aesthetics

2-12

In the analysis of Aesthetics impacts from project operation, the DPEA states on p. 4-8 the following:

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- "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

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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
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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
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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

Ms. Minh Pham
September 22, 2010
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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.

Ms. Minh Pham
September 22, 2010
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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

Ms. Minh Pham
September 22, 2010
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- 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.

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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.

Comments on Proposed Amended Rule 2002

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:

Comments on Proposed Amended Rule 2002

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. 2-30 Cont'd
   - 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

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.

Comments on Proposed Amended Rule 2002

- 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. 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.

– 6 –

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

****************************************
      END OF CAVITY CALCULATIONS
****************************************


     ****************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ****************************************

 CALCULATION         MAX CONC    DIST TO   TERRAIN
  PROCEDURE         (UG/M**3)    MAX (M)    HT (M)
--------------     -----------   -------   -------
SIMPLE TERRAIN       29.94          120.        0.
```

Page 2

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

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                                        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
****************************************


     ****************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ****************************************

 CALCULATION         MAX CONC    DIST TO   TERRAIN
  PROCEDURE         (UG/M**3)    MAX (M)    HT (M)
--------------     -----------   -------   -------
SIMPLE TERRAIN       50.60          187.        0.


                                        Page 2
```

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."*

<u>Ball-Foster Glass Container</u>

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.

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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

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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

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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.

3-11

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.

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

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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. 3-14

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).

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

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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. 3-27

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.

Comment 1-2: While companies will answer individually, it is clear that plot space limitations <u>and related infrastructure requirements</u> 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, <u>the collective experience of the refineries and their respective engineering contractors to design, construct, and operate refinery equipment is greater than that</u> 3-28

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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

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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

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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. 3-33

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?

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 <u>for those specific facilities</u> 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. 3-34

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.

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

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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

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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. 3-40

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.

"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

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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.*

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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] 3-51

> **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.

"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] 3-53

> **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.

"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

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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. 3-55

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.

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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[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.