SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PROPOSED AMENDED RULE 2012 PROTOCOL - APPENDIX A

Rule 2012 - Protocol for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NO_X) Emissions

CHAPTER	TITLE	PAGE
1	Overview	2012A-1-1
2	Major Sources - Continuous Emission Monitoring System (CEMS)	2012A-2-1
3	Large Sources - Continuous Process Monitoring System (CPMS)	2012A-3-1
4	Process Units - Periodic Reporting and Rule 219 Equipment	2012A-4-1
5	Large Sources and Process Units - Source Testing	2012A-5-1
6	All Sources and Units - Determining Source Category Status	2012A-6-1
7	Remote Terminal Unit (RTU) - Electronic Reporting	2012A-7-1
8	Reference Methods	2012A-8-1

Attachment A -1N Procedure

Attachment B -Bias Test

Attachment C -Quality Assurance and Quality Control Procedures

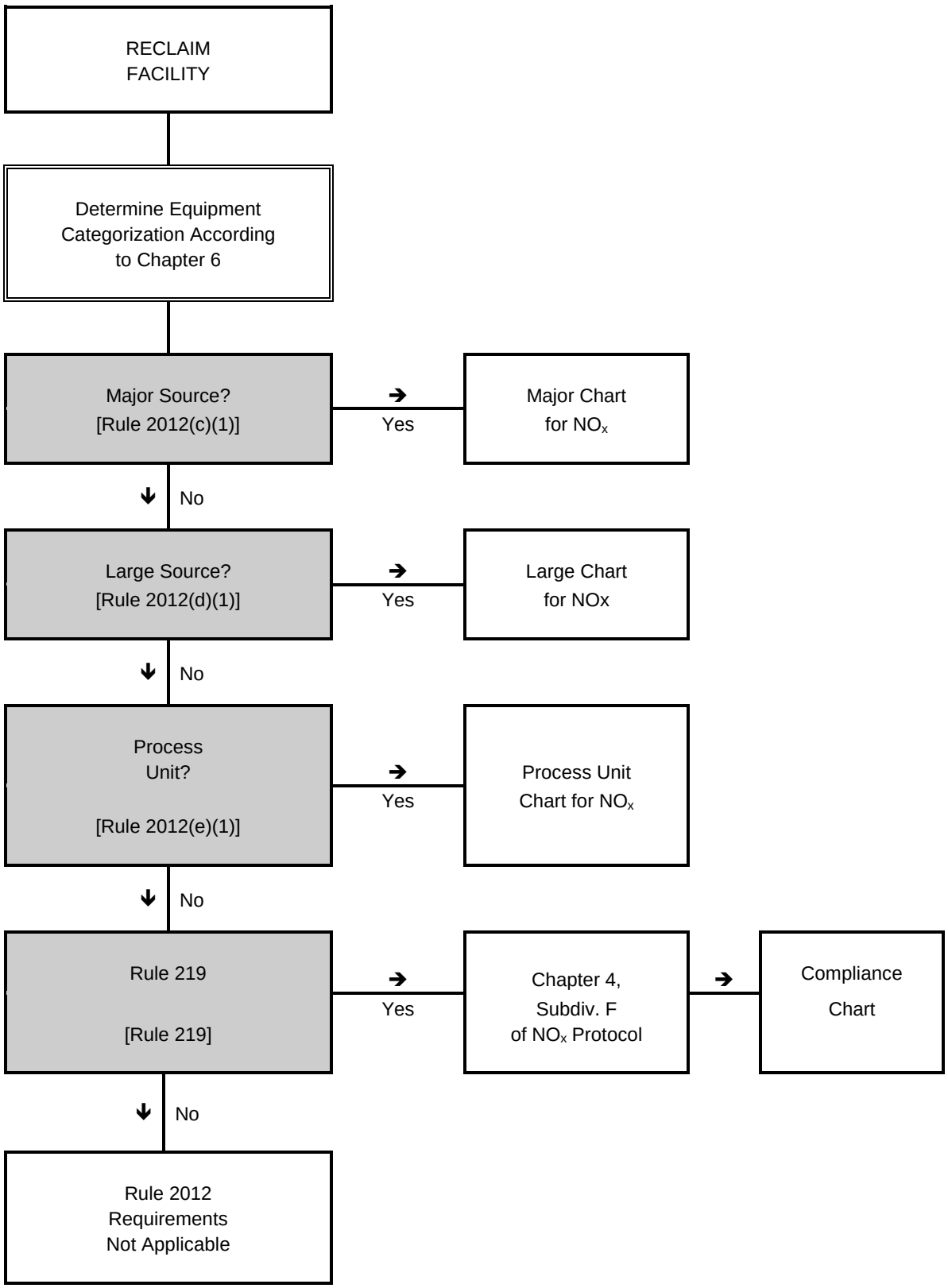
Attachment D -Equipment Tuning Procedures

Attachment E -List of Acronyms and Abbreviations

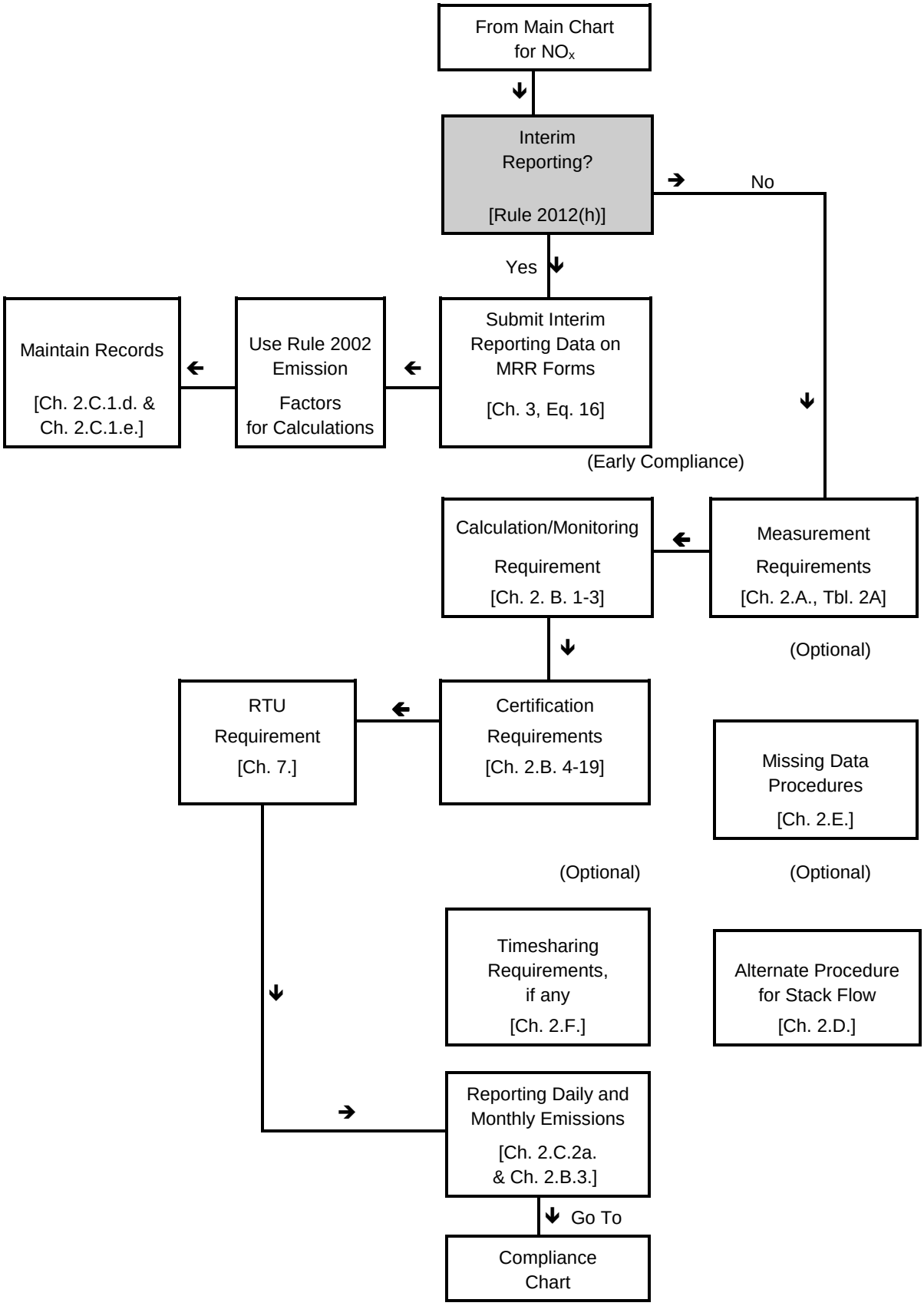
Attachment F -Definitions

Attachment G - Supplemental and Alternative CEMS Performance Requirements for Low NO_X Concentrations

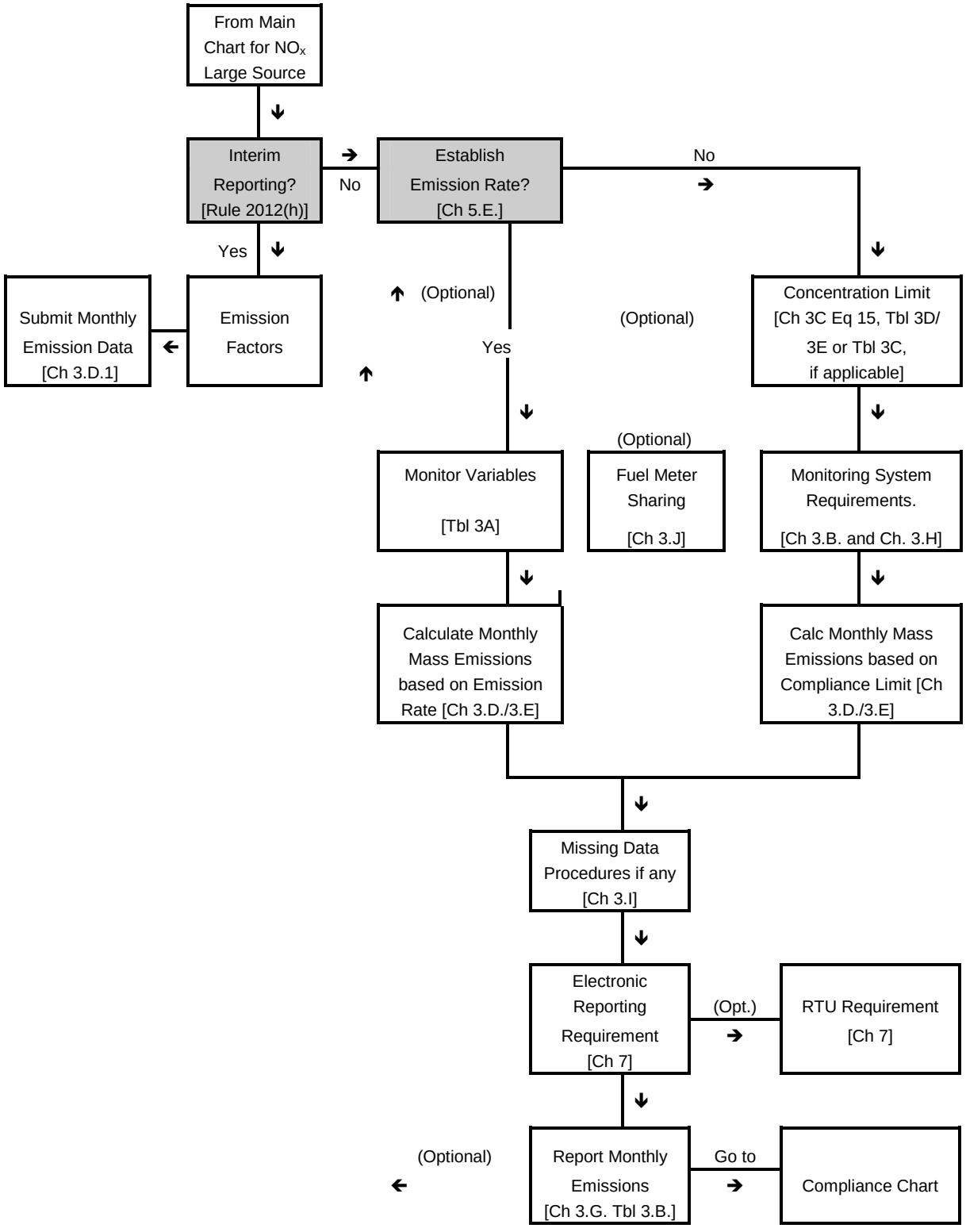
Main Chart for NO_x



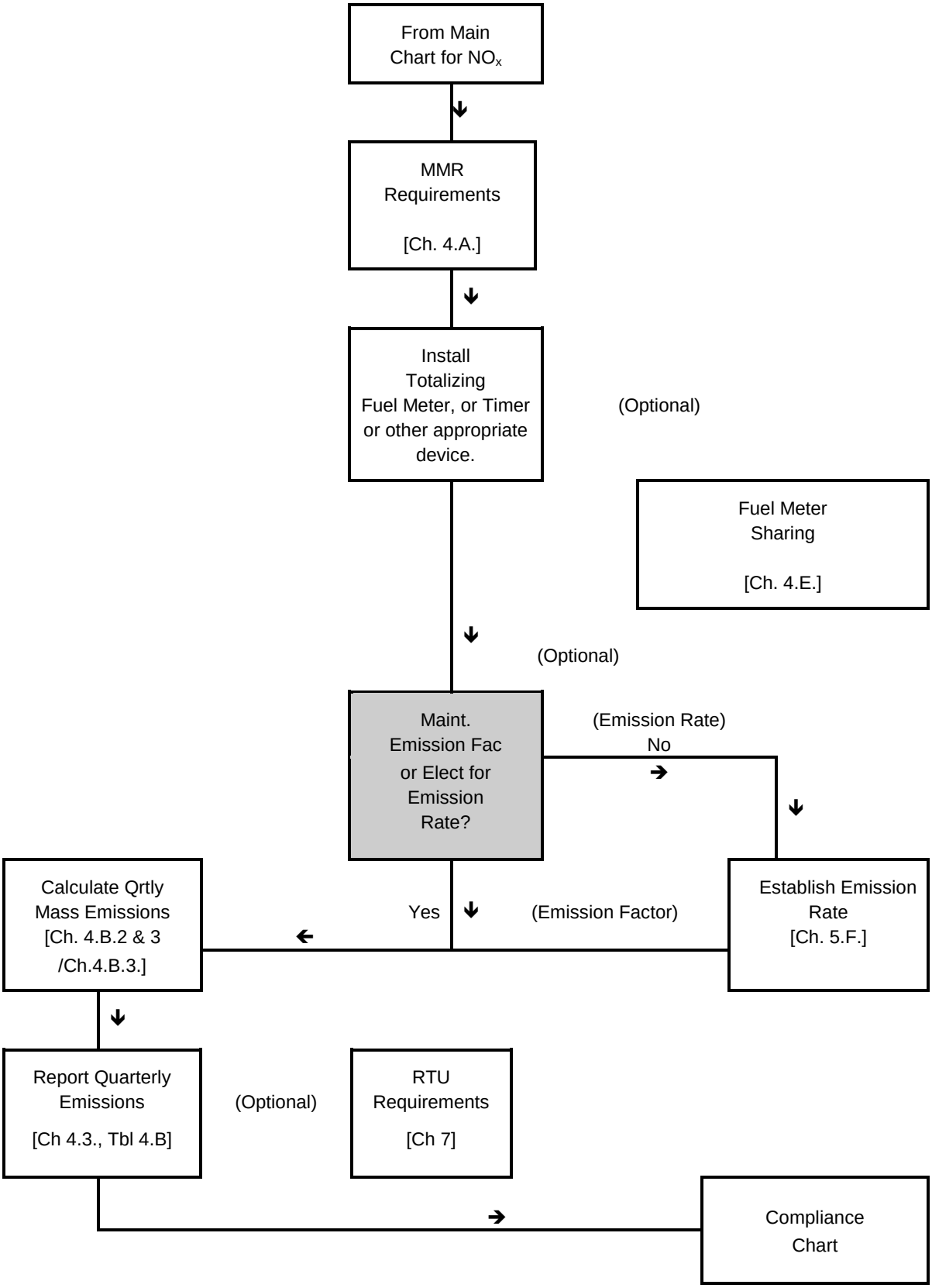
Major Chart for NO_x



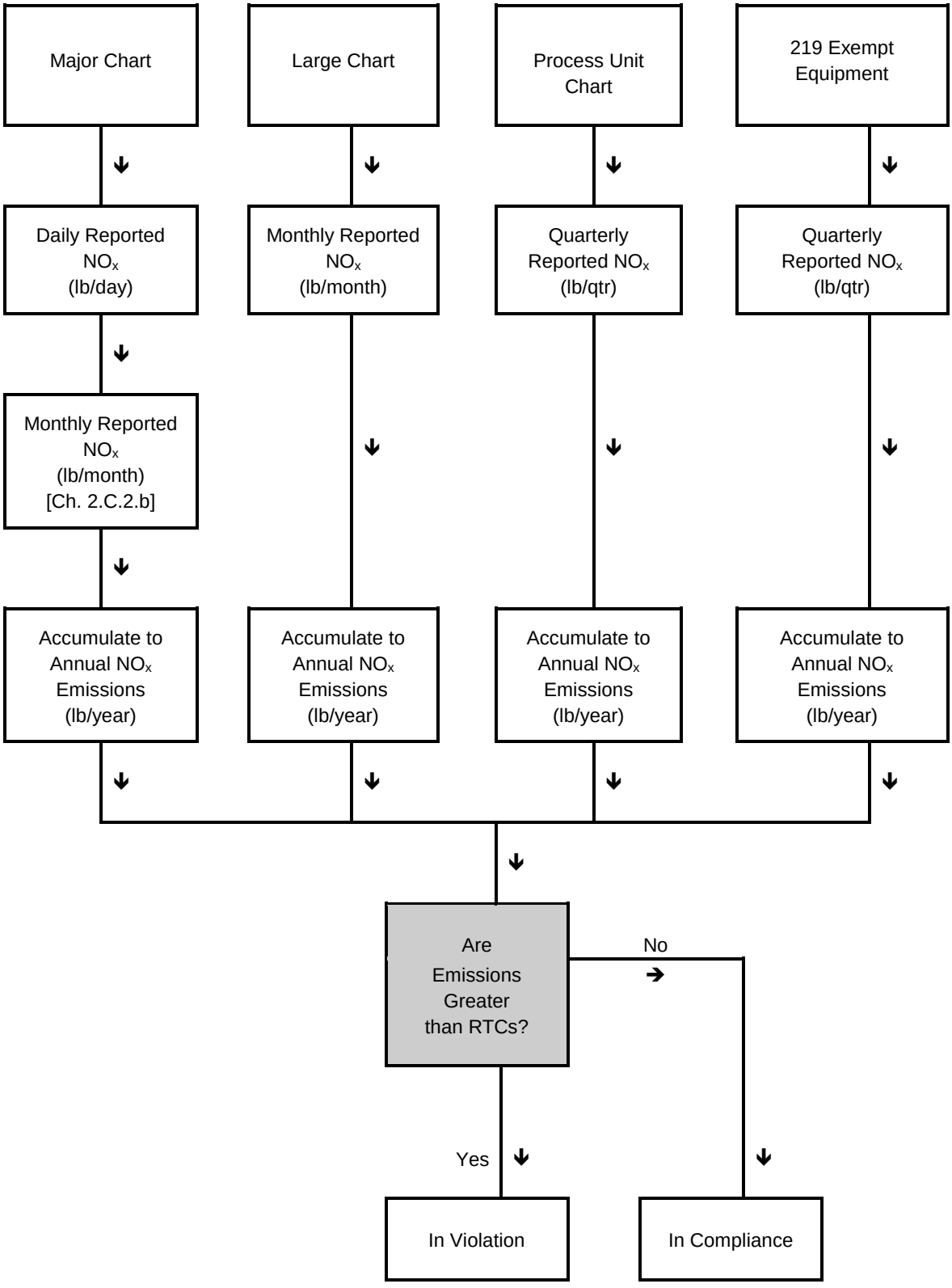
Large Chart For NO_x



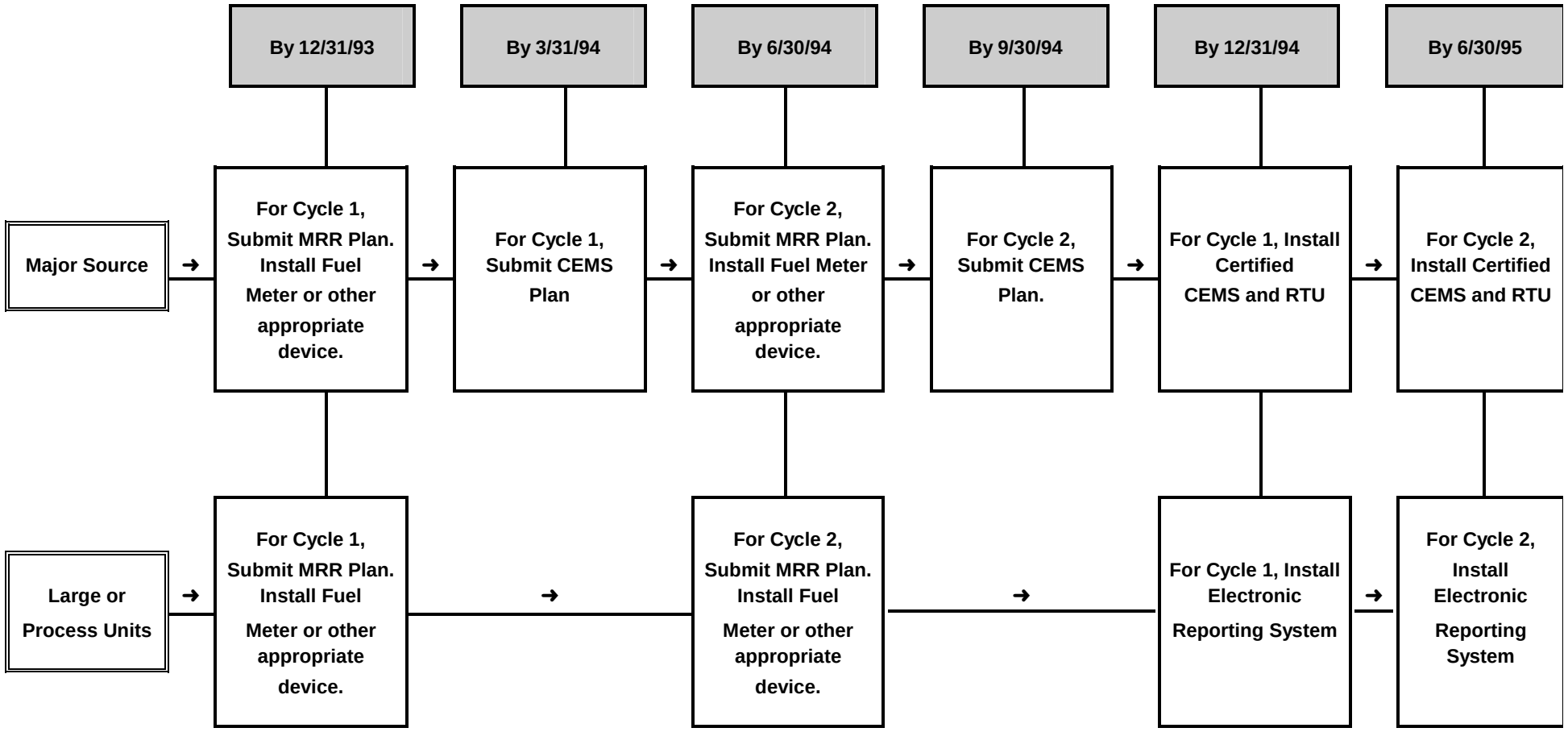
Process Unit Chart For NO_x



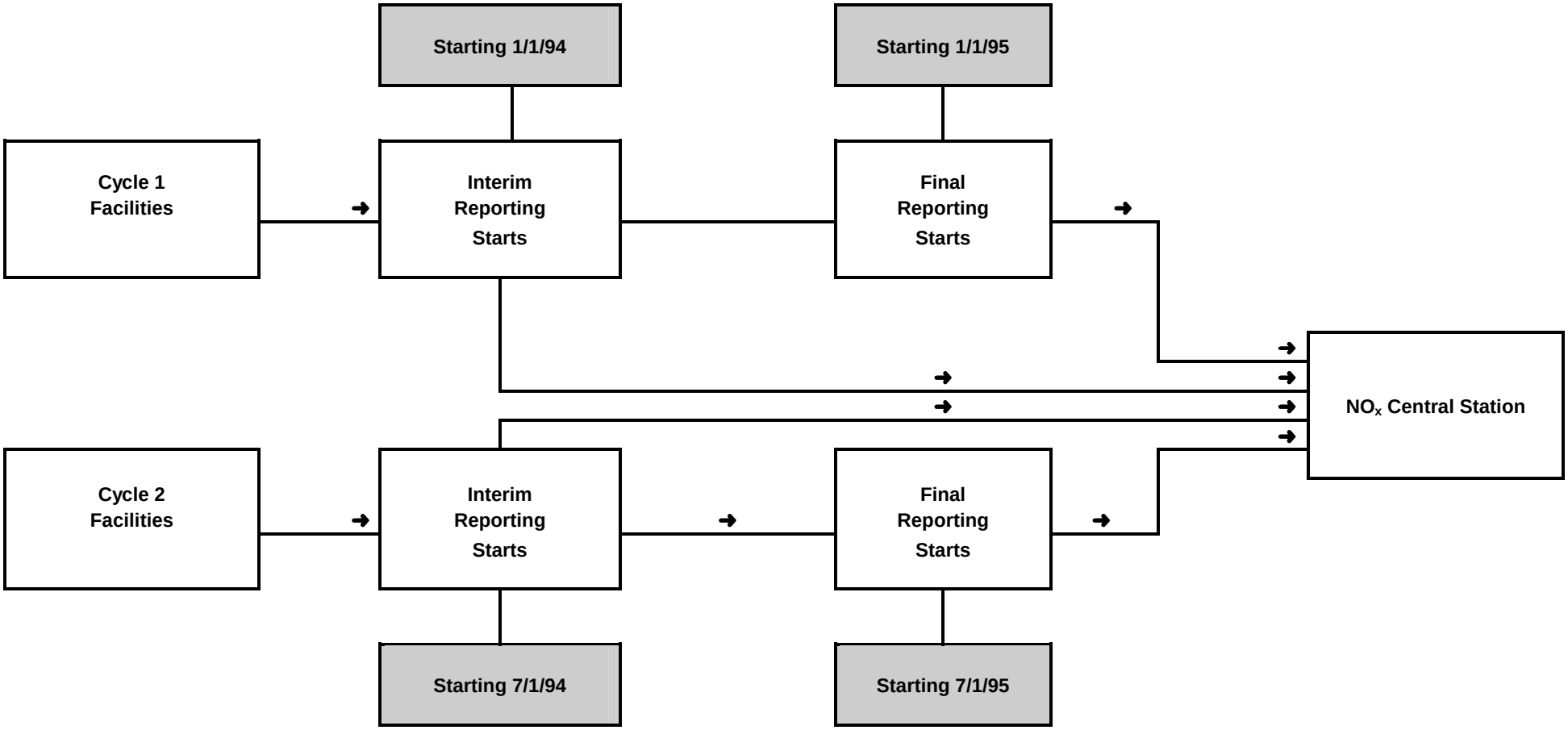
Compliance Chart For NO_x



NO_x Timeline Chart for Plan, Certification And Installation



Timeline For NO_x Emission Reporting



Note 1: **The Facility Permit Holder shall submit a variance to the hearing board, if any of the deadlines are not met.**

Note 2: **Refer to Chapter 6 of NO_x Protocol for remedial actions required when the loss of categorization status occurs.**

RULE 2012 PROTOCOL-
CHAPTER 1

OVERVIEW

This document provides the technical specifications for normally operated RECLAIM sources subject to District Rule 2012 "Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NO_X) Emissions." District Rule 2012 divides sources into four categories - major sources, large sources, NO_X process units and equipment designated in Rule 219 - Equipment Not Requiring A Written Permit Pursuant To Regulation II. One difference in requirements between these source categories is the monitoring approach. A major source shall be monitored by a continuous emissions monitoring system (CEMS) or alternative monitoring system; a large source has the option to be monitored by a continuous process monitoring system (CPMS); and a NO_X process unit has the option to be monitored manually by a fuel meter and/or timer, and any other device specified by the Executive Officer, in accordance with approval criteria stated in Rule 2012.

Another distinction between major and large sources and process units is the way in which they transmit data to the District's Central Station and the reporting frequency. Major sources shall electronically transmit the data via an RTU on a daily basis. In addition, the aggregated NO_X emissions from all major sources shall be submitted in a Monthly Emissions Report. Large sources and process units must report data via the RTU or other acceptable approaches such as a modem. Large sources report monthly; all RECLAIM NOx Sources shall submit emission data as part of the Quarterly Certification of Emissions required by Rule 2004 - Requirements.

The criteria for determining the applicable NO_X RECLAIM category is presented in Table 1-A for a major source, Table 1-B for a large source, and Table 1-C for a NO_X process unit. A fourth class of NO_X sources are those that are exempt from permits per Rule 219. For both NO_X process units and equipment exempt under Rule 219, the Facility Permit holder shall report the NO_X emissions in the Quarterly Certification of Emissions . Election conditions for large sources and process units based on a NO_X emission factor, concentration limit or emission rate would be part of an amendment to the Facility Permit. Election conditions for process units based on category-specific emission rate shall also require an amendment to the Facility Permit.

The Facility Permit will limit mass emissions in accordance with the following:

$$\sum E_{CEMS} + \sum E_{CL} + \sum E_{ER} + \sum E_{EF} + \sum E_{219} \leq RTCs$$

where:

$\sum E_{CEMS}$ = sum of facility emissions monitored by CEMS or alternative monitoring system

$\sum E_{CL}$ = sum of facility emissions from large sources subject to concentration limits

$\sum E_{ER}$ = sum of facility emissions from large sources and process units subject to emission rates

$\sum E_{EF}$ = sum of facility emissions from large sources* and process units subject to emission factors

$\sum E_{219}$ = sum of facility emissions from equipment exempt under Rule 219

RTC = RECLAIM Trading Credit held by the Facility Permit holder

The fuel usage, production rate, processing feed rate, or operating time for any large source, process unit, or equipment exempt under Rule 219 shall not exceed the value determined in accordance with the following relationship:

$$\sum (FxEF)_{pu,l} + \sum (FxER)_{pu,l} + \sum (FxEF)_{219} \leq RTC - \sum E_{CEMS} - \sum E_{CL}$$

where:

F = Fuel usage, production rate, processing feed rate, or operating time for the large source, process unit, or equipment exempt under Rule 219

The Facility Permit holder shall document the duration of operating time of any rental equipment or equipment operated by a contractor at the RECLAIM facility. Emissions generated at the RECLAIM facility by either rental equipment or equipment not listed or required to be listed under the Facility Permit and operated by a contractor, which exceeds 72 hours of operation in a quarter, shall be determined and reported by the Facility Permit holder according to the applicable methodology for major or large sources or process units or Rule 219 exempt equipment.

The duration of operating time and emissions from equipment operated by contractors need not be monitored or reported if the equipment is exclusively used for the following purposes that do not contribute to the manufacturing process:

- Landscaping and grounds maintenance;
- Maintenance and repair of structure, equipment, and their appurtenances;
- Construction and demolition; or
- Environmental investigation, testing, and remediation.

A Facility Permit holder subject to the requirements of Rules 2005(b)(2) and 2005(f) shall monitor and report applicable emissions as specified in Rule 2005(b)(2)(C). The emissions from these activities shall be determined according to the methodology specified for process units.

Emissions resulting from equipment during breakdowns shall be quantified in a manner specified by the Executive Officer in accordance with the following criteria:

1. When emissions are within the valid monitoring range of the monitor, the emissions shall be calculated based on the methodology pursuant to Chapters 2 and 3.
2. When emissions exceed the valid monitoring range of the monitor, the emissions may be calculated based on any one or more of the following:
   - Source test data
   - Fuel flow or throughput
   - Emission factor
   - Control efficiencies

This document has been divided into chapters addressing the various compliance aspects of Rule 2012. A summary of these chapters follows:

CHAPTERS 2 AND 3: MAJOR (CEMS) AND LARGE (CPMS) SOURCES

Chapters 2 and 3 describe the methodologies for measuring and reporting emissions from major and large sources, respectively. If a major source category is applicable then the Facility Permit holder shall be required to comply with the performance standards associated with a CEMS or an approved alternative monitoring system.

For large sources, the Facility Permit holder shall use a CEMS or elect to use a CPMS to measure NO_X emissions. With a CPMS, the focal point for determining NO_X emissions in this source category shall be the emission factor, concentration limit, or equipment-specific emission rate. In its most simplistic form, mass emissions shall be estimated by using the emission factor* (e.g., lb/mmscf), emission rate (e.g., lb/mmBtu), or concentration limit (e.g., ppmv converted to lb/mmBtu) and a throughput rate (typically fuel consumption adjusted for heating value).

Unless specifically exempted by Rule 2012, the Facility Permit holder for a major source shall measure and record all applicable measured variables as specified in Table 2-A. The Facility Permit holder for a large source shall measure and record one or more measured variables as specified in Table 3-A.

For large sources, process units and Rule 219 equipment, measurement and reporting requirements apply to variables used to calculate the NO_X emissions. The Facility Permit will specify either a concentration limit or an emission rate for a large source, in accordance with Rule 2012. One or more measured variables necessary to substantiate the equipment specific emission rate shall be monitored for large sources. Fuel usage or throughput is required to be measured for large sources subject to a concentration limit.

> * On and after January 1, 1995 (Cycle 1 facilities) and July 1, 1995 (Cycle 2 facilities), large-source emissions shall not be based on emission factors.

Several important aspects of Chapters 2 and 3 include:

- equations describing the methods used to calculate NO_X emissions
- operational requirements
- obtaining valid data points
- alternative data acquisition methods
- accuracy requirements
- quality assurance procedures
- missing data procedures
- final and interim reporting procedures, and
- time-sharing

The concentration limit for large sources plays an important role in assessing the equipment's compliance status. If a large source exceeds the applicable concentration limit then the equipment shall be in violation of District Rules. The methodology for determining the applicable concentration limit is covered in Chapters 3 and 5.

The protocol allows for election to a different monitoring classification by fuel usage. Dedicated fuel meters for major and large sources shall be required for fuel usage verification. The emission rate for large sources shall comply with source testing requirements specified in Chapter 6. Once approved by the Executive Officer, an emission rate serves as an "average" value representing the source's annual NO_X emissions.

CHAPTER 4: PROCESS UNITS- PERIODIC REPORTING AND RULE 219 EQUIPMENT

Chapter 4 describes the measuring and reporting requirements for the NO_X process unit category. NO_X process units, shall base emission calculations primarily on fuel consumption, processing rate, or operating time in conjunction with an emission factor or emission rate.

Important aspects of Chapter 4 include equations describing the method used to calculate NO_X emissions and reporting procedures, as well as determining NO_X emissions from equipment exempt under Rule 219.

CHAPTER 5: ALL SOURCES AND UNITS - SOURCE TESTING

Large sources shall require source testing to establish emission rates and concentration limits, and verify compliance with the concentration limit. Process units shall require source testing only to establish alternative emission rates. Chapter 5 presents a brief description of the required test methods and the required source testing and tune-up frequency for affected equipment.

CHAPTER 6: ALL SOURCES AND UNITS - DETERMINING SOURCE CATEGORY STATUS

As shown in Tables 1-A, 1-B, and 1-C all NO_X RECLAIM equipment are categorized by equipment rating, mass emissions and annual operating capacity. On that basis, Chapter 6 prescribes the methodology for assessing these criteria so that the RECLAIM Facility Permit holder can adequately categorize each piece of equipment.

CHAPTER 7 REMOTE TERMINAL UNITS (RTU) - ELECTRONIC REPORTING

Once the variables for determining emissions and tracking equipment operations have been measured, the measured data shall be stored at the facility. In addition, selected measured and calculated data shall be transmitted to the District's Central Station. This storing and transmitting of data shall be performed by the remote terminal unit (RTU) for a major source.

The use of a RTU for reporting purposes is optional for large sources, process units, and Rule 219 equipment.

Chapter 7 specifies tasks and characteristics required of the RTU as well as a guide for providing the required software/hardware for the RTU. In addition, this chapter serves as a:

- a functional guideline for operating requirements of the RTU, and
- an information source concerning RTU hardware/software procurement, configuration, installation, maintenance, and compatibility with the monitoring equipment and the District's Central Station.

TABLE 1-A

Criteria for Determining Major NO_X Source Category

- Any boiler, furnace, oven, dryer, heater, incinerator, test cell and any solid, liquid or gaseous fueled equipment with maximum rated capacity greater than or equal to 40 but less than 500 million Btu per hour and an annual heat input greater than 90 billion Btu per year; or 500 million Btu per hour or more irrespective of heat input;

- Any internal combustion engine with rated brake horsepower (bhp) greater than or equal to 1,000 bhp and operating more than 2,190 hours per year;

- Any gas turbine rated greater than or equal to 2.9 megawatts excluding emergency standby equipment or peaking unit;

- Any petroleum refinery fluid catalytic cracking unit;

- Any petroleum refinery tail gas unit;

- Any kiln or calciner with a rated process weight greater than or equal to 10 tons per hour and processing more than 21,900 tons per year;

- Any equipment burning or incinerating solid fuels or materials;

- Any existing equipment using NO_X CEMS or required to install CEMS under District rules to be implemented as of October 15, 1993;

- Any NOx source or process unit elected by the Facility Permit holder or required of the Executive Officer to be monitored with a CEMS;

- Any NO_X source or process unit for which NO_X emissions reported pursuant to Rule 301 were equal to or greater than 10 tons per yr for any calendar year from 1987 to 1991, inclusive, excluding NO_X sources or process units listed under Rule 2012 subparagraphs (d)(1)(A) through (d)(1)(E), and (e)(1)(A) through (e)(1)(D) and excluding any NO_X source or process unit which has reduced NO_X emissions to below 10 tons per year prior to January 1, 1994.

TABLE 1-B

Criteria for Determining Large NO_X Source Category

- Any boiler, furnace, oven, dryer, heater, incinerator, test cell and any liquid or gaseous fueled equipment with a maximum rated capacity greater than or equal to 40 but less than 500 million Btu per hour and an annual heat input of 90 billion Btu per year or less, or greater than or equal to 10 but less than 40 million Btu per hour and an annual heat input greater than 23 billion Btu per year;

- Any internal combustion engine with rated brake horsepower greater than or equal to 1,000 bhp and operating 2190 hours per year or less, or greater than or equal to 200 bhp but less than 1000 bhp and operating more than 2,190 hours per year;

- Any gas turbine rated greater than or equal to 0.2 but less than 2.9 megawatts, excluding any emergency standby equipment or peaking unit;

- Any kiln or calciner with rated process weight less than 10 tons per hour;

- Any sulfuric acid production unit;

- Any Facility Permit holder-selected NO_X process unit or equipment required by the Executive Officer to be monitored with a CPMS;

- Any NO_X source with reported emissions pursuant to Rule 301 equal to or greater than 4 tons per year, but less than 10 tons per year for any calendar year from 1987 to 1991, inclusive, excluding NO_X sources or process units listed under Rule 2012 subparagraphs (c)(1)(A) through (c)(1)(H), and (e)(1)(A) through (e)(1)(D).

TABLE 1-C

Criteria for Determining NO_x Process Unit Category

- Any boiler, furnace, oven, dryer, heater, incinerator, test cell and any liquid or gaseous fueled equipment with maximum rated capacity greater than or equal to 10 but less than 40 million Btu per hour and an annual heat input of 23 billion Btu per year or less; or greater than or equal to 2 but less than 10 million Btu per hour;

- Any internal combustion engine with rated brake horsepower greater than or equal to 200 bhp but less than 1000 bhp and operating 2,190 hours per year or less; or greater than 50 but less than 200 bhp;

- Any portable combustion and process equipment which is not a major or large source;

- Any emergency standby equipment or peaking unit;

- Any other NO_X source that is not a large or major NO_X source, or exempt pursuant to Rule 219 - "Equipment Not Requiring a Written Permit Pursuant to Regulation II".