# APPENDIX A

# Appendix A-1

# APPENDIX A-1

## MARTINEZ SAP MONITORING PLAN

### CEMS Plan for $SO_2$ Emissions for the Martinez Refinery Double Absorption SAP

### Principle

This CEMS Plan is the mechanism for determining compliance with the Short-Term SAP $SO_2$ Emission Limit and the Long-Term SAP $SO_2$ Emission Limit in the Consent Decree for the Martinez SAP, as well as the $SO_2$ emission limit of 40 C.F.R. § 60.82. The methodology described in this CEMS Plan will provide a real-time indication of compliance with these $SO_2$ emission limits by determining the emission rate in terms of both pounds of $SO_2$ emitted per unit of time and pounds of $SO_2$ emitted per ton of 100% Sulfuric Acid Produced (lbs/ton). The system will utilize at least the following: appropriate meters to measure 100% sulfuric acid production, one analyzer to measure stack $SO_2$ concentration, and one stack volumetric flow rate analyzer. From these data, the emission rate, expressed as both pounds per unit of time and lbs/ton, will be directly calculated using Equations 1 and 2 below.

Equation 1:

$$M_{SO_2 Stack} = Q_{Stack} \cdot B \cdot \frac{64.058 \ {}^{lbs}/_{lb-mol}}{385.57 \ \frac{SCF}{lb-mol}}$$

Equation 2:

$$E_{lbs/ton} = \frac{M_{SO_2 Stack}}{P_{TonsH_2SO_4}} = \frac{Q_{Stack} \cdot B}{P_{TonsH_2SO_4}} \cdot 0.166 \ {}^{lbs}/_{SCF}$$

Where:

$P_{TonsH_2SO_4}$ = 100% Sulfuric Acid Produced, tons per unit of time

$M_{SO_2 Stack}$ = Mass $SO_2$ stack emission rate, lb per unit of time

$Q_{Stack}$ = Volumetric flow rate of stack gas, dry standard cubic feet (DSCF) per unit of time

$B$ = Stack $SO_2$ concentration, fraction (dry basis)

$E_{lbs/ton}$ = lb $SO_2$ per ton 100% Sulfuric Acid Produced

$64.058 \ {}^{lbs}/_{lb-mol}$ = Molecular weight of $SO_2$

$0.166 \ {}^{lbs}/_{SCF} = \frac{64.058 \ {}^{lbs}/_{lb-mol}}{385.57 \ \frac{SCF}{lb-mol}}$

$385.57 \ \frac{SCF}{lb-mol}$ = Volume of one lb-mole of gas at standard temperature and pressure (68˚F and 14.696 psia), cubic feet

The mass emission rate equation (Equation 1) calculates the $SO_2$ mass emission rate by multiplying the total stack gas flow rate by the stack $SO_2$ concentration. The lbs/ton equation (Equation 2) is the ratio of the $SO_2$ emission rate to the 100% Sulfuric Acid Produced rate.

**Definitions**

Terms used in this CEMS Plan that are defined in the Consent Decree shall have the meaning assigned to them therein.

"SAP Operating Periods" shall mean, for the purposes of this Martinez SAP Monitoring Plan, periods during which acid gas is being fed to the Martinez SAP. For the purpose of this definition, "acid gas" shall include, but not be limited to, spent acid from the alkylation plant, hydrogen sulfide from diethanolamine unit strippers, sulfuric acid from the Martinez SAP, or vent gas from the Martinez SRP Sulfur Pit(s).

**Emissions and Production Monitoring**

Tesoro will undertake the following monitoring procedures at the Martinez SAP:

- Emissions monitoring will be done using 100% sulfuric acid production meters, an $SO_2$ analyzer at the exit stack, and a stack flow rate analyzer. Except for any analyzer or meter malfunctions, associated repairs, and required quality assurance or control activities (including calibration checks and required zero and span adjustments, if required), Tesoro will conduct monitoring during all SAP Operating Periods and during Malfunction, SAP Startup, or SAP Shutdown.

- Once every five minutes, the analyzers and production meters will measure the stack $SO_2$ concentration (fraction, dry basis), 100% sulfuric acid production rate (tons per minute), and the volumetric flow rate (dry standard cubic feet per minute). These values will consist of the calculated average of all readings taken within each 5 minute block.

- During routine calibration checks, maintenance, and adjustments of any analyzers or meters, the last valid 5-minute average value will be used to fill in any data gaps that occur pending completion of the calibration checks, maintenance, and adjustments.

- If one or more analyzers or meters are not operating for a period of 24 hours or greater, data gaps in the array involving the non-operational analyzer(s) will be filled in as follows:

    - Exit stack gas will be sampled and analyzed for $SO_2$ at least once per 8-hour period, during all SAP Operating Periods. Sampling will be conducted by portable analyzer or other established method. The most recent sampling value will be substituted for the 96 five-minute readings that would otherwise have been taken if the analyzer had been operating normally.

- 100% sulfuric acid production rate will be estimated using engineering judgment.
- Stack volumetric flow rate will be estimated using engineering judgment.

- If one or more analyzers or meters are not operating for a period of less than 24 hours, one of the following must be done: (i) the requirements set forth for a 24-hour or greater period of downtime must be used to fill in the data gaps; or (ii) the data recorded for the last valid 5-minute average immediately preceding the affected analyzer's(s') stoppage must be used to fill in the data gap.

**Emissions Calculations**

Tesoro will make the following calculations at the Martinez SAP:

3-hour Rolling Average.

For purposes of calculating a 3-hour rolling average, the system will maintain an array of the 36 most recent measurements of each of the three monitored parameters. Every five minutes, the system will add the most recent readings to the array and exclude the oldest readings.

The 3-hour rolling average lbs/ton $SO_2$ emission rate ( $E_{3hravg}$ ) will be calculated using Equation 3.

Equation 3:

$$E_{3hravg} = 0.166\,{}^{lbs}\!/_{SCF} \cdot \frac{\sum_{i=1}^{36} Q_{Stack\ i} \cdot B_i}{\sum_{i=1}^{36} P_{TonsH_2SO_4\ i}}$$

Where:

$P_{TonsH_2SO_4 i}$ = 100% Sulfuric Acid Produced (tons per minute) at measurement "*i*"

$B_i$ = Stack $SO_2$ concentration, fraction (dry basis) at measurement "*i*"

$Q_{Stack\ i}$ = Stack volumetric flow rate, dry standard cubic feet per minute (DSCFM) at measurement "*i*"

$0.166\,{}^{lbs}\!/_{SCF} = \frac{64.058\,{}^{lbs}\!/_{lb-mol}}{385.57\,\frac{SCF}{lb-mol}}$

$E_{3hravg}$ = 3-hour average lb $SO_2$ per ton 100% Sulfuric Acid Produced

365-Day Rolling Average.

For the purposes of calculating a 365-day rolling average, the system will maintain an array of all of the measurements of each of the three monitored parameters for 365 Days. Every day, the system will add the readings from that day to the array and exclude the readings from the oldest day.

The 365-day rolling average lbs/ton $SO_2$ emission rate ( $E_{365-Day\ Avg}$ ) will be calculated using Equation 4.

Equation 4:

$$E_{365-Day\ Avg} = 0.166\ {}^{lbs}\!/_{SCF} \cdot \frac{\sum_{j=1}^{n} Q_{Stack\ j} \cdot B_j}{\sum_{j=1}^{n} P_{TonsH_2SO_4\ j}}$$

Where:

$P_{TonsH_2SO_4\ j}$ = 100% Sulfuric Acid Produced (tons per minute) at measurement "*j*"

$B_j$ = Stack $SO_2$ concentration, fraction (dry basis) at measurement "*j*"

$Q_{Stack\ j}$ = Stack volumetric flow rate, dry standard cubic feet per minute (DSCFM) at measurement "*j*"

$0.166\ {}^{lbs}\!/_{SCF} = \frac{64.058\ {}^{lbs}\!/_{lb-mol}}{385.57\ \frac{SCF}{lb-mol}}$

*n* = the number of measurements taken at 5-minute intervals over the 365-day period

$E_{365-Day\ Avg}$ = 365-day rolling average lb $SO_2$ per ton 100% Sulfuric Acid Produced

**Rounding of Numbers resulting from Calculations**

Upon completion of the calculations, the final numbers shall be rounded as follows:

$E_{3hravg}$: Rounded to the nearest tenth.

$E_{365-Day\ Avg}$: Rounded to the nearest hundredth.

The number "5" shall be rounded up (*e.g.*, a short-term rate of 2.05011 shall be rounded to 2.1).

**Rounding of Variables $B$, $P_{TonsH_2SO_4}$, and $Q_{Stack}$**

Rounding of the variables identified as $B$, $P_{TonsH_2SO_4}$, and $Q_{Stack}$ in the equations set forth in this CEMS Plan shall be done based on the accuracy of the measuring device as provided by the manufacturer of the device.

**100% Sulfuric Acid Produced Calculation**

The sulfuric acid produced from each product acid stream shall be calculated as follows:

100% Sulfuric Acid Produced (tons/min) = Flow (gal/min) * Density (lb/gal) * ton/2000 lb * on-line concentration

The production rate will also include an estimated amount of liquid that condenses from the Acid Mist in the Brinks Mist Eliminator Tank.

**Compliance with Consent Decree $SO_2$ Limits**

Short-Term SAP $SO_2$ Emission Limit

The Short-Term SAP $SO_2$ Emission Limit does not apply during periods of Malfunction, SAP Startup, or SAP Shutdown. During all times other than Malfunction, SAP Startup, or SAP Shutdown, Tesoro will be in compliance with the Consent Decree's Short-Term SAP $SO_2$ Emission Limit if $E_{3hravg}$ does not exceed 1.85 lbs of $SO_2$ per ton of 100% Sulfuric Acid Produced. At Tesoro's option or upon written request from EPA, if Tesoro contends that emissions during a Malfunction(s) resulted in a calculated 3-hour rolling average emission rate(s) in excess of 1.85 lbs $SO_2$/ton $H_2SO_4$ after the period of the Malfunction(s) end(s), Tesoro shall recalculate $E_{3hravg}$ to exclude measurements recorded during the period(s) of the claimed Malfunction(s).

NSPS $SO_2$ Limit

The $SO_2$ emission limit of 40 C.F.R. § 60.82 does not apply during periods of Malfunction, SAP Startup, or SAP Shutdown. During all times other than Malfunction, SAP Startup, or SAP Shutdown, Tesoro will be in compliance with this NSPS limit if $E_{3hravg}$ does not exceed 4.0 lb of $SO_2$ per ton of 100% Sulfuric Acid Produced. At Tesoro's option or upon written request from EPA, if Tesoro contends that emissions during a Malfunction(s) resulted in a calculated 3-hour rolling average emission rate(s) in excess of 4.0 lbs $SO_2$/ton $H_2SO_4$ after the period of the Malfunction(s) end(s), Tesoro shall recalculate $E_{3hravg}$ to exclude measurements recorded during the period(s) of the claimed Malfunction(s).

Long-Term SAP $SO_2$ Emission Limit

The Long-Term SAP $SO_2$ Emission Limit applies at all times, including, but not limited to, periods of Malfunction, SAP Startup, or SAP Shutdown. Tesoro will be in compliance with the Consent Decree's Long-Term SAP $SO_2$ Emission Limit if $E_{365-Day\ Avg}$ does not exceed 1.7 lbs of $SO_2$ per ton of 100% Sulfuric Acid Produced.

**Changes to the CEMS Plan**

Tesoro may make changes to this CEMS Plan if approved by EPA. Changes to this CEMS Plan shall be considered non-material modifications under Section XX (Modification) of the Consent Decree.

**Recordkeeping and Reporting**

In addition to any requirements in the Consent Decree or in 40 C.F.R. Part 60, Subparts A or H, Tesoro shall maintain records of the date, time, and duration that any one of the analyzers or meters required under this CEMS plan, as identified in Table 1, is not operating. Except for zero and span checks, in each semi-annual report required under Section X of the Decree, Tesoro specifically shall identify all periods of analyzer or meter Downtime during the reporting period and all data during the reporting period that is "substitute" data. "Substitute" data means data that is not generated contemporaneously by an analyzer or meter when gas flow stack (or duct) emissions are being measured, but rather is substituted for contemporaneous analyzer or meter measurements when an analyzer or meter is not operating. In addition, Tesoro shall specifically identify any substitute data that is inconsistent with the provisions of the "Emissions and Production Monitoring" section of this CEMS Plan.

**Retention of All CEMS and Production Data, including Data during Malfunction, SAP Startup, or SAP Shutdown**

Tesoro will retain all data generated by its $SO_2$ analyzer, sulfuric acid production meters, and stack flow analyzer, including all data generated during Malfunction, SAP Startup, or SAP Shutdown of the Martinez SAP in accordance with the requirements of Section X of the Consent Decree.

**Analyzer Specifications**

These analyzers or meters will meet the following specifications:

**Table 1**

| Parameter | Location | Range |
|---|---|---|
| $SO_2$, mole fraction, dry basis | Stack | Dual range:<br>Normal: 0 – 500 ppm $SO_2$<br>SSM: 0 – 3,600 ppm $SO_2$ |
| 100% $H_2SO_4$, tons/min | 93% Acid Flow Meter: Outlet of the discharge pump from the cross flow stripper (V-12)<br><br>98% Acid Flow Meter: Outlet of the product cooler (E-16) | 0 – 60 gallons per minute (gpm) |
| Volumetric flow rate, DSCFM | Stack | 0 to 125% of the maximum expected volumetric flow rate |

The stack $SO_2$ analyzer will meet all applicable requirements of 40 C.F.R. §§ 60.11 and 60.13; the applicable requirements of 40 C.F.R. Part 60, Appendix A; 40 C.F.R. Part 60, Appendix B, Performance Specification 2; and the Quality Assurance and Quality Control Procedures in 40 C.F.R. Part 60, Appendix F, Procedure 1.

- In lieu of the requirements of 40 C.F.R. Part 60, Appendix F §§ 5.1.1, 5.1.3, and 5.1.4, Tesoro must conduct either a RAA or a RATA on the stack $SO_2$ analyzer at least once every three (3) years. Tesoro must also conduct a CGA each Calendar Quarter during which a RAA or a RATA is not performed. Tesoro may conduct a FAT, as defined in BAAQMD regulations or procedures, in lieu of the required RAA or CGA.

- The current stack $SO_2$ analyzer location is acceptable provided it meets the requirements of 40 C.F.R. Part 60, Appendix B, Performance Specification 2, § 8.1.1.

The sulfuric acid production meters will meet all manufacturer specifications.

The volumetric flow rate analyzer will meet 40 C.F.R. Part 60, Appendix B, Performance Specification 6 and the Quality Assurance and Quality Control Procedures in 40 C.F.R. Part 60, Appendix F, Procedure 1.

**Compliance with the NSPS: 40 C.F.R. Part 60, Subparts A and H**

In addition to the requirements in this CEMS Plan, Tesoro also will comply with all of the requirements of the 40 C.F.R. Part 60, Subparts A and H relating to monitoring provided that, pursuant to 40 C.F.R. § 60.13(i), this CEMS Plan will be an approved alternative to the following provisions of 40 C.F.R. Part 60, Subpart H:

- The requirement at 40 C.F.R. § 60.84(a) that the stack $SO_2$ analyzer have a span value of 1000 ppm. In lieu of this, Tesoro will utilize the span values specified in Table 1; and

- The procedures specified at 40 C.F.R. § 60.84(b) for converting monitoring data into the units of the applicable standard. In lieu of this, Tesoro will utilize the procedures specified in this CEMS Plan for calculating compliance with the $SO_2$ emission limit of 40 C.F.R. § 60.82.

# Appendix A-2

# APPENDIX A-2

## 2005 CONSENT DECREE REQUIREMENTS APPLICABLE TO THE MARTINEZ REFINERY

### A. Additional Definitions

Except as expressly set forth elsewhere in this Consent Decree, the terms used in this Appendix A-2 shall have the meaning given to those terms in this Appendix or in Sections IV or V.E of this Consent Decree; or, if not defined in this Consent Decree, as defined in the Clean Air Act and the implementing regulations promulgated thereunder.

"Fuel Oil" shall mean fuel that is predominantly in the liquid phase at the point of combustion with a sulfur content of greater than 0.05% by weight. Fuel Oil does not include torch oil used to heat and/or maintain catalyst temperature during FCCU Startup or Shutdown.

"HHV" shall mean higher heating value.

"Hydrotreater" shall include any units that hydrotreat or otherwise desulfurize FCCU feedstocks.

"One-hour average" shall mean average hourly emission rate.

### B. $SO_2$ Emissions Reductions from the Martinez Refinery FCCU

1. Martinez FCCU $SO_2$ Emission Limits.

a. Limits. Beginning no later than September 30, 2006, Tesoro shall comply with the following emission limits at the Martinez FCCU: (i) a short-term FCCU $SO_2$ emission limit of 50 ppmvd $SO_2$ @ 0% $O_2$ (7-day rolling average) ("Short-Term Martinez FCCU $SO_2$ Emission Limit"); and (ii) a long-term FCCU $SO_2$ emission limit of 25 ppmvd $SO_2$ @ 0% $O_2$ (365-day rolling average) ("Long-Term Martinez FCCU $SO_2$ Emission Limit").

b. Startup, Shutdown, or Malfunction. Beginning no later than October 4, 2010, Tesoro shall comply with an EPA-approved Hydrotreater Outage Plan ("HTO Plan") at all times, including periods of Startup, Shutdown, or Malfunction. Tesoro may make changes to the HTO Plan if approved by EPA.

i. $SO_2$ emissions during periods of Hydrotreater outages shall not be used in determining compliance with the Short-Term Martinez FCCU $SO_2$ Emission Limit (i.e., 7- day rolling average) required by this Paragraph, provided that during such periods (i) Tesoro is in compliance with the applicable HTO Plan; and (ii) Tesoro, to the extent practicable, maintains and operates the Martinez FCCU, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. In addition, in the event that Tesoro asserts that the basis for the Hydrotreater outage for which Tesoro seeks to secure relief from the Short-Term Martinez FCCU $SO_2$ Emission Limit is a shutdown (where no catalyst change out occurs) required by American Society of Mechanical

Engineers pressure vessel requirements or applicable state boiler requirements, Tesoro shall submit to EPA a report that identifies the relevant requirement and justifies Tesoro's decision to implement the shutdown during the selected time period.

2. NSPS Applicability to the Martinez FCCU. Beginning no later than September 30, 2006, the Martinez FCCU Catalyst Regenerator shall continue to be an "affected facility" as that term is used in 40 C.F.R. Part 60, Subparts A and J, and shall continue to be subject to and comply with the requirements of 40 C.F.R. Part 60, Subparts A and J, for $SO_2$ applicable to FCCU catalyst regenerators. $SO_2$ limits under this Paragraph B.2 shall not apply during periods of Startup, Shutdown, or Malfunction of the Martinez FCCU and Hydrotreater or Malfunction of the associated $SO_2$ control equipment, if any, provided that during such periods Tesoro, to the extent practicable, maintains and operates the Martinez FCCU, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. Entry of the 2005 Martinez Consent Decree and compliance with the relevant monitoring requirements of the 2005 Martinez Consent Decree for the FCCU catalyst regenerator satisfied the notice requirements of 40 C.F.R. § 60.7(a) and the initial performance test requirement of 40 C.F.R. § 60.8(a).

3. Demonstrating Compliance with Martinez FCCU $SO_2$ Emission Limits. Beginning no later than September 30, 2006, Tesoro shall use $SO_2$ and $O_2$ CEMS to monitor performance of the Martinez FCCU and to report compliance with the terms and conditions of this Section B. CEMS shall be used to demonstrate compliance with the $SO_2$ emission limits established pursuant to this Section B. Tesoro shall make CEMS data available to EPA upon request. Tesoro shall install, certify, calibrate, maintain, and operate all CEMS required by this Paragraph in accordance with the provisions of 40 C.F.R. § 60.13 that are applicable to CEMS (excluding those provisions applicable only to COMS) and Part 60, Appendices A and F, and the applicable performance specification test of 40 C.F.R. Part 60, Appendix B. With respect to 40 C.F.R. Part 60 Appendix F, in lieu of the requirements of 40 C.F.R. Part 60, Appendix F §§ 5.1.1, 5.1.3 and 5.1.4, Tesoro shall conduct either a RAA or a RATA on each CEMS at least once every three (3) years. Tesoro shall also conduct CGAs each Calendar Quarter during which a RAA or a RATA is not performed. Tesoro may conduct a FAT in lieu of the required RAA or CGA.

**C. PM Emissions Reductions from the Martinez Refinery FCCU**

4. Martinez FCCU PM Emission Limit.

a. Limit. Beginning no later than September 30, 2006, Tesoro shall comply with an emission limit at the Martinez FCCU of 1.0 pound of PM per 1,000 pounds of coke burned (front half only according to EPA Method 5B or 5F, as appropriate, set forth at 40 C.F.R. Part 60, Appendix A), measured as a one-hour average over three performance test runs ("Martinez FCCU PM Emission Limit").

b. Startup, Shutdown, or Malfunction. PM emissions during periods of Startup, Shutdown, or Malfunction of the Martinez FCCU or Malfunction of the associated PM control equipment, if any, shall not be used in determining compliance with the Martinez FCCU PM Emission Limit required by this Paragraph, provided that during such periods Tesoro, to the extent practicable, maintains and operates the Martinez FCCU, including associated air pollution

control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

5. NSPS Applicability to Martinez FCCU. Beginning no later than September 30, 2006, the Martinez FCCU Catalyst Regenerator shall continue to be an "affected facility" as that term is used in 40 C.F.R. Part 60, Subparts A and J, and shall continue to be subject to and comply with the requirements of 40 C.F.R. Part 60, Subparts A and J, for PM and opacity applicable to FCCU catalyst regenerators. PM and Opacity limits under this Paragraph C.5 shall not apply during periods of Startup, Shutdown, or Malfunction of the Martinez FCCU or Malfunction of the associated PM control equipment, if any, provided that during such periods Tesoro, to the extent practicable, maintains and operates the Martinez FCCU, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. Entry of the 2005 Martinez Consent Decree and compliance with the relevant monitoring requirements of the 2005 Martinez Consent Decree for the FCCU catalyst regenerator satisfied the notice requirements of 40 C.F.R. § 60.7(a) and the initial performance test requirement of 40 C.F.R. § 60.8(a).

6. Demonstrating Compliance with Martinez FCCU PM and Opacity Emission Limits.

a. PM Performance Tests. Any future performance testing performed by Tesoro to demonstrate compliance with the PM emission limits established by this Section C shall be conducted in accordance with EPA Method 5B or 5F, as appropriate, set forth at 40 C.F.R. Part 60, Appendix A.

b. COMS. Beginning no later than September 30, 2006, Tesoro shall use COMS or an approved alternative monitoring plan to monitor performance of the Martinez FCCU and to report compliance with the terms and conditions of this Section C. COMS shall be used to demonstrate compliance with the Opacity limits established pursuant to Paragraph C.5 of this Appendix. Tesoro shall make COMS data available to EPA upon request. Tesoro shall install, certify, calibrate, maintain, and operate all COMS required by this Paragraph in accordance with the provisions of 40 C.F.R. § 60.11, 60.13, and Part 60, Appendix A and the applicable performance specification test of 40 C.F.R. Part 60, Appendix B.

**D. CO Emissions Reductions from the Martinez Refinery FCCU**

7. Martinez FCCU CO Emission Limit.

a. Limit. Beginning no later than September 30, 2006, Tesoro shall comply with the following emission limit at the Martinez FCCU: a short-term Martinez FCCU CO emission limit of 500 ppmvd CO @ 0% $O_2$ (one-hour block average) ("Short-Term Martinez FCCU CO Emission Limit").

b. Startup, Shutdown, or Malfunction. CO emissions during periods of Startup, Shutdown, or Malfunction of the Martinez FCCU or Malfunction of the associated CO control equipment, if any, shall not be used in determining compliance with the Short-Term Martinez FCCU CO Emission Limit (i.e., one-hour block average) required by this Paragraph, provided that during such periods Tesoro, to the extent practicable, maintains and operates the Martinez

FCCU, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

8. NSPS Applicability to Martinez FCCU. Beginning no later than September 30, 2006, the Martinez FCCU Catalyst Regenerator shall continue to be an "affected facility" as that term is used in 40 C.F.R. Part 60, Subparts A and J, and shall continue to be subject to and comply with the requirements of 40 C.F.R. Part 60, Subparts A and J, for CO applicable to FCCU catalyst regenerators. CO limits under this Paragraph D.8 shall not apply during periods of Startup, Shutdown, or Malfunction of the Martinez FCCU or Malfunction of the associated CO control equipment, if any, provided that during such periods Tesoro, to the extent practicable, maintains and operates the Martinez FCCU, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. Entry of the 2005 Martinez Consent Decree and compliance with the relevant monitoring requirements of the 2005 Martinez Consent Decree for the FCCU catalyst regenerator satisfied the notice requirements of 40 C.F.R. § 60.7(a) and the initial performance test requirement of 40 C.F.R. § 60.8(a).

9. Demonstrating Compliance with Martinez FCCU CO Emission Limits. Beginning no later than September 30, 2006, Tesoro shall use CO CEMS to monitor performance of the Martinez FCCU and to report compliance with the terms and conditions of this Section D. CEMS shall be used to demonstrate compliance with the CO emission limits established pursuant to this Section D. Tesoro shall make CEMS data available to EPA upon request. Tesoro shall install, certify, calibrate, maintain, and operate all CEMS required by this Paragraph in accordance with the provisions of 40 C.F.R. § 60.13 that are applicable to CEMS (excluding those provisions applicable only to COMS) and Part 60, Appendices A and F, and the applicable performance specification test of 40 C.F.R. Part 60, Appendix B. With respect to 40 C.F.R. Part 60 Appendix F, in lieu of the requirements of 40 C.F.R. Part 60, Appendix F §§ 5.1.1, 5.1.3 and 5.1.4, Tesoro shall conduct either a RAA or a RATA on each CEMS at least once every three (3) years. Tesoro shall also conduct CGAs each Calendar Quarter during which a RAA or a RATA is not performed. Tesoro may conduct a FAT in lieu of the required RAA or CGA.

**E. NOx Emissions Reductions from the Martinez Refinery Heaters and Boilers**

10. Scope. For the purpose of this Section E, "Covered Heaters and Boilers" shall be defined to include all units at the Martinez Refinery that meet both of the following criteria:

a. Any stationary combustion unit used for the purpose of burning fossil fuel for the purpose of (i) producing power, steam, or heat by heat transfer; or (ii) heating a material for initiating or promoting a process or chemical reaction in which the material participates as a reactant or catalyst, but expressly excluding any turbine, internal combustion engine, duct burner, CO boiler, incinerator, or incinerator waste heat boiler; and

b. Any heaters and boilers with heat input capacity greater than 40 MMBtu/hr (HHV).

11. Martinez Refinery Heaters and Boilers NOx Emission Limit. Tesoro shall comply with Sections 9-10-301 or 9-10-308 of BAAQMD Regulation 9, Rule 10, as such provisions both relate to Covered Heaters and Boilers at the Martinez Refinery and establish NOx emission

standards for certain units, including the Covered Heaters and Boilers at the Martinez Refinery, based upon an emission level of 0.033 pounds NOx/MMBtu of Section 9-10-301 or the alternative total mass emission limit established pursuant to Section 9-10-308. If BAAQMD revises Sections 9-10-301 or 9-10-308, such revisions will become the applicable emission standard under this Paragraph provided that the refinery-wide NOx emission limit remains no less stringent than the 0.033 pounds NOx/MMBtu average emission rate limit of Section 9-10-301 or the alternative total mass emission limit established pursuant to Section 9-10-308. Compliance with these requirements shall be determined in accordance with BAAQMD's rules and regulations, including without limitation the interchangeable emission reduction credit provisions of BAAQMD Regulation 2, Rule 9.

12. Restriction on Use of Credits. Nothing in this Consent Decree is intended or shall be construed to limit the methods available to Tesoro under the BAAQMD rules and regulations for compliance with Sections 9-10-301 and 9-10-308 thereof; provided however, no credits generated under the BAAQMD rules and regulations may be traded or sold to another facility as provided in Paragraph 161.c of this Consent Decree. In the event that EPA, BAAQMD, the BAAQMD Hearing Board, or a court of competent jurisdiction should finally determine that this Consent Decree prohibits or limits the ability of Tesoro to generate, bank, or use interchangeable emission reduction credits, as defined in BAAQMD Regulation 2, Rule 9, from emission reductions at any emission unit at the Martinez Refinery, including without limitation the Covered Heaters and Boilers at the Martinez Refinery, then Tesoro may elect, upon written notice to EPA, to render null and void the provisions of this Section E. In the event that Tesoro provides written notice to EPA of such election pursuant to this Paragraph, the release from liability under Section XVII (Effect of Settlement/Reservation of Rights) of this Consent Decree applicable to NOx emissions from Covered Heaters and Boilers at the Martinez Refinery shall be rendered null and void. In lieu of providing such notice to EPA, Tesoro may propose and EPA may agree to allow Tesoro to implement such actions sufficient to satisfy the obligations of this Section E as if this Section E had remained in full force and effect not withstanding an adverse determination by EPA, BAAQMD, the BAAQMD Hearing Board, or a court of competent jurisdiction with respect to the Martinez Refinery. If such an agreement is reached, committed to writing, and signed by Tesoro and EPA, then the release from liability under Section XVII of this Consent Decree applicable to NOx emissions from Covered Heaters and Boilers at the Martinez Refinery shall not be rendered void under this Paragraph.

**F. $SO_2$ Emissions Reductions from the Martinez Refinery Heaters and Boilers**

13. Elimination of Fuel Oil Burning. Beginning no later than December 31, 2005, Tesoro shall not burn or combust Fuel Oil in any heater or boiler at the Martinez Refinery.

14. NSPS Applicability to Martinez Refinery Heaters and Boilers. Beginning no later than December 31, 2006, all of the heaters and boilers located at the Martinez Refinery (except FCCU Startup Heater and Furnaces F-8, F-9, F-12, and F-13) shall continue to be "affected facilities" as that term is used in 40 C.F.R. Part 60, Subparts A and J, and shall continue to be subject to and comply with the requirements of 40 C.F.R. Part 60, Subparts A and J, applicable to heaters and boilers. Beginning no later than December 31, 2010, FCCU Startup Heater and Furnaces F-8, F-9, F-12, and F-13 located at the Martinez Refinery shall continue to be "affected facilities" as that term is used in 40 C.F.R. Part 60, Subparts A and J, and shall continue to be subject to and

comply with the requirements of 40 C.F.R. Part 60, Subparts A and J, applicable to heaters and boilers. The limits under this Paragraph F.14 shall not apply during periods of Startup, Shutdown, or Malfunction of the heaters and boilers or Malfunction of the associated control equipment, if any, provided that during such periods Tesoro, to the extent practicable, maintains and operates the heaters and boilers, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. Entry of the 2005 Martinez Consent Decree and compliance with the relevant monitoring requirements of the 2005 Martinez Consent Decree for the heaters and boilers satisfied the notice requirements of 40 C.F.R. § 60.7(a) and the initial performance test requirement of 40 C.F.R. § 60.8(a).

15. Demonstrating Compliance with Martinez Refinery Heaters and Boilers $SO_2$ Emission Limit. Beginning no later than December 31, 2006, Tesoro shall use $SO_2$ and $O_2$ CEMS or an $H_2S$ CMS to monitor performance of the Martinez Refinery heaters and boilers (except FCCU Startup Heater and Furnaces F-8, F-9, F-12, and F-13) and to report compliance with the terms and conditions of this Section F. Beginning no later than December 31, 2010, Tesoro shall use $SO_2$ and $O_2$ CEMS or an $H_2S$ CMS to monitor performance of the Martinez Refinery FCCU Startup Heater and Furnaces F-8, F-9, F-12, and F-13 and to report compliance with the terms and conditions of this Section F. $SO_2$ CEMS or $H_2S$ CMS shall be used respectively to demonstrate compliance with the $SO_2$ or $H_2S$ emission limit established pursuant to this Section F. Tesoro shall make $SO_2$ CEMS or $H_2S$ CMS data available to EPA upon request. Tesoro shall install, certify, calibrate, maintain, and operate all $SO_2$ CEMS or $H_2S$ CMS required by this Paragraph in accordance with the respective provisions of 40 C.F.R. § 60.13 that are applicable to $SO_2$ CEMS or $H_2S$ CMS (excluding those provisions applicable only to COMS) and Part 60, Appendices A and F, and the applicable performance specification test of 40 C.F.R. Part 60, Appendix B. With respect to 40 C.F.R. Part 60 Appendix F, in lieu of the requirements of 40 C.F.R. Part 60, Appendix F §§ 5.1.1, 5.1.3 and 5.1.4, Tesoro shall conduct either a RAA or a RATA on each CEMS at least once every three (3) years. Tesoro shall also conduct CGAs each Calendar Quarter during which a RAA or a RATA is not performed. Tesoro may conduct a FAT in lieu of the required RAA or CGA.

**G. $SO_2$ Emissions Reductions from the Martinez Refinery Sulfur Recovery Plant**

16. NSPS Applicability to Martinez SRP. Beginning no later than December 31, 2006, the Martinez SRP shall continue to be an "affected facility" as that term is used in 40 C.F.R. Part 60, Subparts A and J, and shall continue to be subject to and comply with the requirements of 40 C.F.R. Part 60, Subparts A and J, for $SO_2$ applicable to sulfur recovery plants. Entry of the 2005 Martinez Consent Decree and compliance with the relevant monitoring requirements of the 2005 Martinez Consent Decree for the Martinez SRP satisfied the notice requirements of 40 C.F.R. § 60.7(a) and the initial performance test requirement of 40 C.F.R. § 60.8(a).

17. Emission Points. All emission points (stacks) to the atmosphere for tail gas emissions from the Martinez SRP will be monitored and reported upon in accordance with 40 C.F.R. §§ 60.7(c), 60.13, and 60.105. This requirement is not applicable to the following AG Flaring Devices: Ammonia Plant Flare, East Air Flare, West Air Flare, North Steam Flare, South Steam Flare, DCU Flare, and Emergency Flare.

18. Startup, Shutdown, or Malfunction. During the life of this Consent Decree and for the purpose of determining compliance with the SRP emission limits, Tesoro shall apply the "startup" and "shutdown" provisions set forth in NSPS Subpart A to the Martinez SRP but not to the independent startup or shutdown of its corresponding control device(s) (e.g., the tail gas unit). However, the malfunction exemption set forth in NSPS Subpart A shall apply to both the Martinez SRP and its control device(s) (e.g., the tail gas unit).