

**Region 6 Compliance Assurance and Enforcement Division
INSPECTION REPORT**

Inspection Date(s):	6/16-18/2014		
Media:	Air		
Regulatory Program(s)	Consent Decree, Civil Action SA-05-CA-0569		
Company Name:	Valero Refining – Texas, L.P.		
Facility Name:	Valero Port Arthur Refinery		
Facility Physical Location:	1801 South Gulfway Dr.		
(city, state, zip code)	Port Arthur, TX 77640		
Mailing address:	P.O. Box 909		
(city, state, zip code)	Port Arthur, TX 77641-0909		
County/Parish:	Jefferson County		
Facility Contact	Paula LaRocca	Manager Environmental Engineering	
	Paula.larocca@valero.com		
FRS Number:	110000464006		
Identification/Permit Number:	NSR 6825A, PSD-TX-49, N65, O-01498, O-02229, O-02227, O-02228, O-03423		
Media Number:	AFS # 4824500004		
NAICS:	324110		
SIC:	2911		
Facility Representatives:	Paula LaRocca	Manager Environmental Engr.	409/985-1200
EPA Inspectors:	Jim Gold	Region 6, 6EN-ASH	281/983-2153
State Inspector(s):	DNA	TCEQ Region 10	
Other Inspector(s):	NA		
Metadata	Title:	Valero Refining, Port Arthur Refinery, Port Arthur, Texas, Jefferson County	
	Author:	US EPA Region 6 Compliance Assurance and Enforcement Division Dallas TX	
	Subject:	Partial Compliance Evaluation Inspection Report	
	Keywords:	refinery consent decree (CD)	
EPA Lead Inspector Signature/Date	Jim Gold	<i>Jim Gold</i>	9/17/2014
			Date
Supervisor Signature/Date	Samuel Tates	<i>Samuel Tates</i>	9/17/2014
			Date

Section I - INTRODUCTION

PURPOSE OF THE INSPECTION

EPA Region 6 inspector Jim Gold conducted an inspection of the Valero Refining - Port Arthur Refinery. At 1:30 pm on June 16, 2014, I met with Paula LaRocca, Manager Environmental Engineering for the facility, for an opening conference. I presented my credentials to Ms. LaRocca and informed her that this was an EPA inspection to determine compliance with the federally issued Consent Decree (Civil Action SA-05-CA-0569-RF). The Consent Decree (CD) is listed in 72 Federal Register notice 50124 as SA-07-CA-0683-RF which is an addendum to Consent Decree CA-05-CA-0569-RF. The addendum is a result of the September 1, 2005 merger between Premcor Inc. and Valero Energy Corporation. The inspection was a Partial Compliance Evaluation (PCE), which included an evaluation of the consent decrees (CD) four marquee issues: NO_x/SO₂ reductions, leak detection and repair (LDAR), benzene waste operations (BWON) and flaring of both acid gases and hydrocarbons.

The CD consists of 26 Parts designated by Roman numerals. Of these, Parts IV - XIV requires affirmative relief, which was a focus of the inspection. These Parts address the requirements of NO_x, SO₂, CO, particulate, VOC, and benzene emission reductions through various construction projects, process additives, and process and program enhancements. Each item in Parts IV - XIV was addressed. Note that these inspection findings pertain only to the compliance status affecting Valero's Port Arthur refinery. Photos taken during the inspection (26) are included as **Appendix 1**. A sign in sheet for the opening conference is included as **Appendix 2**.

FACILITY DESCRIPTION

The facility was originally built in 1901 and was acquired by Valero in 2007. The facility has had multiple upgrades and now has the capacity to refine 415,000 barrels per day and operates as a fully integrated refinery with crude distillation, FCCU, alkylation (hydrofluoric), catalytic reforming, hydrodesulphurization, sulfur recovery, and fuel blending. Main products are motor gasoline, diesel fuel, jet fuel, and fuel oil. Crude oil is obtained primarily by ship and pipeline, products leave the facility by pipeline, tank truck, and marine shipping. A plant wide process flow diagram is included in **Appendix 3**. An in-house CD tracking chart is included as **Appendix 4**.

A detailed list of processes and descriptions can be found in Appendix A of the CD. The CD can be accessed via internet at <http://www2.epa.gov/sites/production/files/documents/valero-premcor-cd.pdf>

Section II - OBSERVATIONS

Part IV, NO_x Emissions Reductions from Heaters and Boilers

Status: Complete.

Program Summary: Valero will implement a program to reduce NO_x emissions from refinery heaters and boilers greater than 40 Million British Thermal Units (MMBTU)/hr by committing to an interim, system-wide weighted average concentration emission limit for NO_x of 0.060 lbs/MMBTU to be achieved by December 31, 2009. A final, system-wide weighted average concentration emission limit for NO_x of 0.044 lbs/MMBTU is to be achieved by December 31, 2011.

APPENDIX 5 is a list of up to date heaters and boilers at the refinery with greater than 40 MMBTU/hr heat input. Boilers at Boiler House 16 were taken out of service as a result of CD imposed emission limits. I observed the Continuous Emission Monitors (CEMs) monitoring the heaters and boilers and observed that the calibration gases were of the correct concentration and up to date. A complete list of CEMs required by the consent decree is included as

APPENDIX 6. I reviewed the relative accuracy test audit (RATA) results for each heater and boiler CEMs and found the relative accuracies for the CEMs to be within allowable requirements of 40 CFR, Part 60, Appendix F. **APPENDIX 7** is the recorded NO_x emission trends for the heaters and boilers equipped with NO_x Continuous Emission Monitors (CEMs) from June 2013 - June 2014. The trends also include individual emission limits for the heaters and boilers. The emission trends demonstrate compliance with the 365 day NO_x rolling average limits for the 12 months before the inspection.

Part V, NO_x Emissions Reductions from FCCUs

Status: Complete.

Program Summary: Valero will implement a program to limit NO_x emissions from its FCCU regenerators and CO boilers by achieving a system-wide average of unit-specific NO_x concentration emission limits for each FCCU. This will be achieved by implementing certain emission control systems or otherwise satisfying the NO_x emission standards.

NO_x from the FCCU is controlled by controlling oxygen levels in the regenerator.

Valero has set a final, 365 day rolling average of 50 parts per million (ppm). **APPENDIX 8** is the FCCU NO_x emission trends from June 2013 - June 2014, which demonstrates compliance for the 12 months preceding the inspection.

I observed the FCCU CEMs and that the calibration gases were of the correct concentration and up to date. I reviewed the relative accuracy test audit (RATA) results for each heater and boiler CEMs and found the relative accuracies for the CEMs to be within allowable requirements of 40 CFR, Part 60, Appendix F.

Part VI, SO₂ Emission Reductions from FCCUs

Status: Complete.

Program Summary: Valero shall implement a program to reduce SO₂ emissions from their FCCUs, which shall include the installation of wet gas scrubber ("WGS") technology systems on selected FCCUs and otherwise limiting SO₂ emissions from other FCCUs, including, in certain cases, through the use of SO₂ reducing catalyst additives and/or hydrotreating.

Appendix 9 contains a trend for FCCU SO₂ emissions from June 2013 - June 2014, which demonstrates compliance with the 25 ppm, 365 day rolling average emission limit. The FCCU is equipped with SO₂, NO_x, and O₂ CEMs. I observed the CEMs to be properly installed and that the calibration gases were up to date and of the proper concentrations. I reviewed the RATA results the FCCU CEMs and found the relative accuracies for the CEMs to be within allowable requirements of 40 CFR, Part 60, Appendix F. Valero uses a wet gas scrubber to control SO₂ emissions.

Part VII, CO, Opacity and Particulate Emissions from FCCUs

Status: Complete.

Program Summary: Valero shall implement a program to limit CO and particulate emissions from their FCCUs and shall implement monitoring of each FCCU sufficient to demonstrate compliance with emission standards specified in this Part.

Valero's Port Arthur FCCU operates in full burn mode and the regenerator stack is controlled for particulate matter by a wet gas scrubber. An Alternative Monitoring Plan (AMP) to monitor the FCCU wet scrubber parameters rather than an opacity monitor was approved on June 20, 2014.

APPENDIX 10 contains the FCCU CO emission trend from June 2013 - June 2014. The one hour 500 ppm limit was exceeded several times in the 12 months preceding the inspection due to various upset conditions. I observed the CEMs to be properly installed and that the calibration gases were up to date and of the proper concentrations. I reviewed the RATA results for the FCCU CEMs and found the relative accuracies for the CEMs to be within allowable requirements of 40 CFR, Part 60, Appendix F.

I observed that the opacity from the FCCU regenerator stack was less than 5% throughout the inspection.

Part VIII, NSPS Applicability to SO₂ Emissions from FCCU Regenertors

Status: Complete.

Program Summary: Valero shall comply with all requirements of 40 CFR Part 60, Subparts A and J for SO₂ emissions from the FCCU regenerator.

APPENDIX 9 is an SO₂ emission trend, which demonstrates continuous compliance with NSPS Subparts A and J (50 ppmwd 7 day and 25 ppmwd 365 day rolling averages). I observed that the SO₂ CEM was properly installed and that calibration gas was of the correct concentration and up to date.

Part IX, SO₂ and NSPS Requirements for Heaters and Boilers

Status: Complete.

Program Summary: Valero shall undertake the following measures at Valero Refineries covered by this Consent Decree to reduce SO₂ emissions from heaters and boilers by eliminating or minimizing the burning of fuel oil and complying with 40 C.F.R. Part 60, Subparts A and J, as such provisions apply to fuel gas combustion devices.

APPENDIX 11 contains a description and schematic of the three fuel gas systems. Fuel gas H₂S trends from June 2013 to June 2014 is included as **APPENDIX 12** which demonstrates that the 162 ppm H₂S limit imposed by NSPS is being met, with the exception of various upsets conditions.

I observed that the three H₂S analyzers were installed correctly and that the calibration gas was of the correct concentration and up to date.

Part X, Benzene Waste NESHAP Program Enhancements

Status: Complete.

Program Summary: Valero shall undertake measures set forth in Part X establishing enhancements to 40 CFR Part 61, Subpart FF ("Benzene Waste NESHAP) to minimize or eliminate fugitive benzene waste emissions.

Valero's Port Arthur refinery is implementing the 6BQ compliance option of Subpart FF using upstream controls. A schematic of the process is included as **APPENDIX 13**. The facility does not use stripping technology to remove benzene from waste waters.

Valero's Port Arthur refinery is using 29 carbon canister stations to control benzene emissions as shown in **APPENDIX 14**. I reviewed the carbon canister sampling data and practices. The canisters are all arranged in series as required (with sampling points located between the primary and secondary canisters). The sampling data indicates that all canisters are being sampled anywhere from daily to monthly based on break through frequency. The end of line sampling plan required by paragraph 164 of the CD has previously been submitted to EPA.

I reviewed the sampling procedure and standard operating procedures (SOPs) used by the facility and found the procedures written in a formal SOP and consistent with BWON sampling techniques required by 40 CFR § 61.355.

I reviewed the most recent BWON storage tanks inspection records. The tanks seals are being inspected annually as required (using industry standard techniques)

Part XI, Leak Detection and Repair Program Enhancements

Status: Complete.

Program Summary: Valero shall undertake the measures listed in Part XI to enhance the Valero's Port Arthur Refinery's LDAR program.

Third party audits, periodic reports and other requirements of Part XI of the consent decree have been previously reported to EPA and TCEQ.

Valero's Port Arthur refinery uses TEAM Inc. to conduct repairs and follow-up monitoring. TEAM personnel are authorized to make first attempt at repair on most valves. Chronically leaking components are tracked and replaced. Drill and tap repair techniques are being used on leaking valves if the 500 ppm limit is exceeded and cannot be repaired using conventional methods. The plant wide delay of repair list up to date and lists 29 components, which will require a shut down for repair. I reviewed instrument calibration logs. TEAM has implemented a mid day and the end of day drift check, as required by the CD.

I reviewed the quarterly precision test results for the instruments being used at the facility, calibration gas certificates, and the most recent third party audit findings. Calibration gases observed were up to date and approximately equal to the leak definitions required by EPA Method 21.

I observed that electronic data collection for LDAR monitoring is being conducted by using data loggers and leak tracking and reporting software.

Records indicate annual training is being conducted and is incorporated into new employee orientation.

I walked through the HCU -943, HCU 942, DCU 843, AVU 147, AVU 146, SRU 545, SRU 546 and CRU 1344 process units and observed no open ended lines or valves.

Part XII, Program Enhancements RE: NSPS Subparts A and J SO₂ Emissions from Claus Sulfur Recovery Plants and Flaring

Status: Complete.

Program Summary: Beginning immediately upon the lodging of this Consent Decree, Valero agrees to take the following measures at all of its SRPs and certain flaring devices at Valero's Refineries. Valero will install additional equipment at certain refineries to achieve additional SO₂ emission reductions and further reduce flaring incidents. Valero will implement procedures for root cause analysis of acid gas and hydrocarbon flaring incidents and tail gas incidents at all refineries.

The facility operates ten flares. Eight of the flares are tied into flare gas recovery. The number 5 flare (used for emergencies and maintenance operations) and the number 13 flare (serving the Alkylation unit) are not tied into flare gas recovery systems. There are three flare gas recovery systems at the

facility: Flare Gas Recovery Units (FGRU) 7042, 7043 and 7044. FGRU 7042 recovers gas from flares 23 and 26. FGRU 7043 recovers gas from flares 15, 18 and 20. FGRU 7044 recovers gas from flares 19, 22 and 103B. The FGRU compressors are liquid ring sealed. During the inspection I observed the FGRU's compressors using an infrared optical imaging device and observed there were no leaks from the compressors or associated equipment. Each FGRU has an amine section to remove H₂S from the recovered gas so the recovered gas can be used in the refinery fuel gas system. Gas flow to each of the FGRU's are included as **APPENDIX 15**.

According to Valero's records there have been 79 reportable hydrocarbon and five acid gas flaring events since the CD has been entered. These events are recorded in the State of Texas Excess Emission Reporting System (STEERS).

I observed no smoke or flames being emitted by the flares. I also observed the flares using an infrared optical imaging device and did not observe any abnormal flaring activity (e.g. puffing or indications of incomplete combustion). All flares observed were operating on pilot fuel only.

The facility operates four Claus sulfur recovery units (SRU 543, 544, 545 and 546). Each SRU has its own dedicated four tail gas incinerator. The 12 hour average SO₂ emissions trends, as recorded by CEM, for the four incinerators are included in **APPENDIX 16**. The trends show the 250 ppm limit has not been exceeded for the 12 months prior to the inspection with the exception of two incidents at SRU 543 and five incidents at SRU 544. The spikes in SO₂ emissions were caused by power failures and maintenance activities.

I observed that the H₂S analyzer was installed correctly and the calibration gas was of the correct concentration and up to date. I reviewed the RATA results for each SRU CEMs and found the relative accuracies for the CEMs to be within the allowable requirements of 40 CFR, Part 60, Appendix F.

XIII – Refinery Self Evaluations and Audits

Valero's Port Arthur refinery has elected to conduct audits of their NSPS QQQ programs and Refinery MACT programs. The NSPS QQQ audit was performed in April/May 2008 and the Refinery MACT audit was performed in July - November of 2008.

XIV Permitting

Status: Complete.

Appendix 17 contains excerpts from the most recently revised NSR operating permit incorporating permits # 6825A, PSDTX49 and N65. Specific CD imposed limits are incorporated into the NSR permit and the Title V permit by reference.

Section III – AREAS OF CONCERN

I observed no areas of concern at the time of the inspection. The affirmative relief items contained in parts IV - XIV of the CD have been met. The AMP regarding the measurement of opacity on the FCCU was received in June, 2014. Also discussed during the closing conference was the suggestion of labeling the LDAR calibration gas tubing at the location where instruments are calibrated to reduce human error in the calibration process. Also visited during the inspection is a community health clinic built as a supplemental environmental program (SEP) under Section XIX of the consent decree. The facility was in operation and being maintained and personnel were observed entering and leaving the building. The parking lot contained six vehicles during the visit.

Section IV – FOLLOW UP

N/A

Section V – LIST OF APPENDICES

Appendix 1 - Photo Log (27 photos taken 6/17-18/2014)
Appendix 2 - Opening conference sign-in sheet
Appendix 3 - Plant wide process flow diagram
Appendix 4 - CD implementation chart
Appendix 5 - Updated list of heaters and boilers
Appendix 6 – List of CD required CEMs
Appendix 7 – Heaters and Boilers NO_x emission trends
Appendix 8 - FCCU NO_x emission trend
Appendix 9 - FCCU SO₂ emission trend
Appendix 10 - FCCU CO emission trend
Appendix 11 - Refinery fuel gas diagram
Appendix 12 - Mix drums H₂S analyzer trend
Appendix 13 - BWON schematic
Appendix 14 – BWON Carbon Canister
Appendix 15 – Flare gas recovery gas flows
Appendix 16 – SRU SO₂ emission trends
Appendix 17 - Operating permit excerpts

Appendix CBI (None)

Appendix 1

Photograph Log

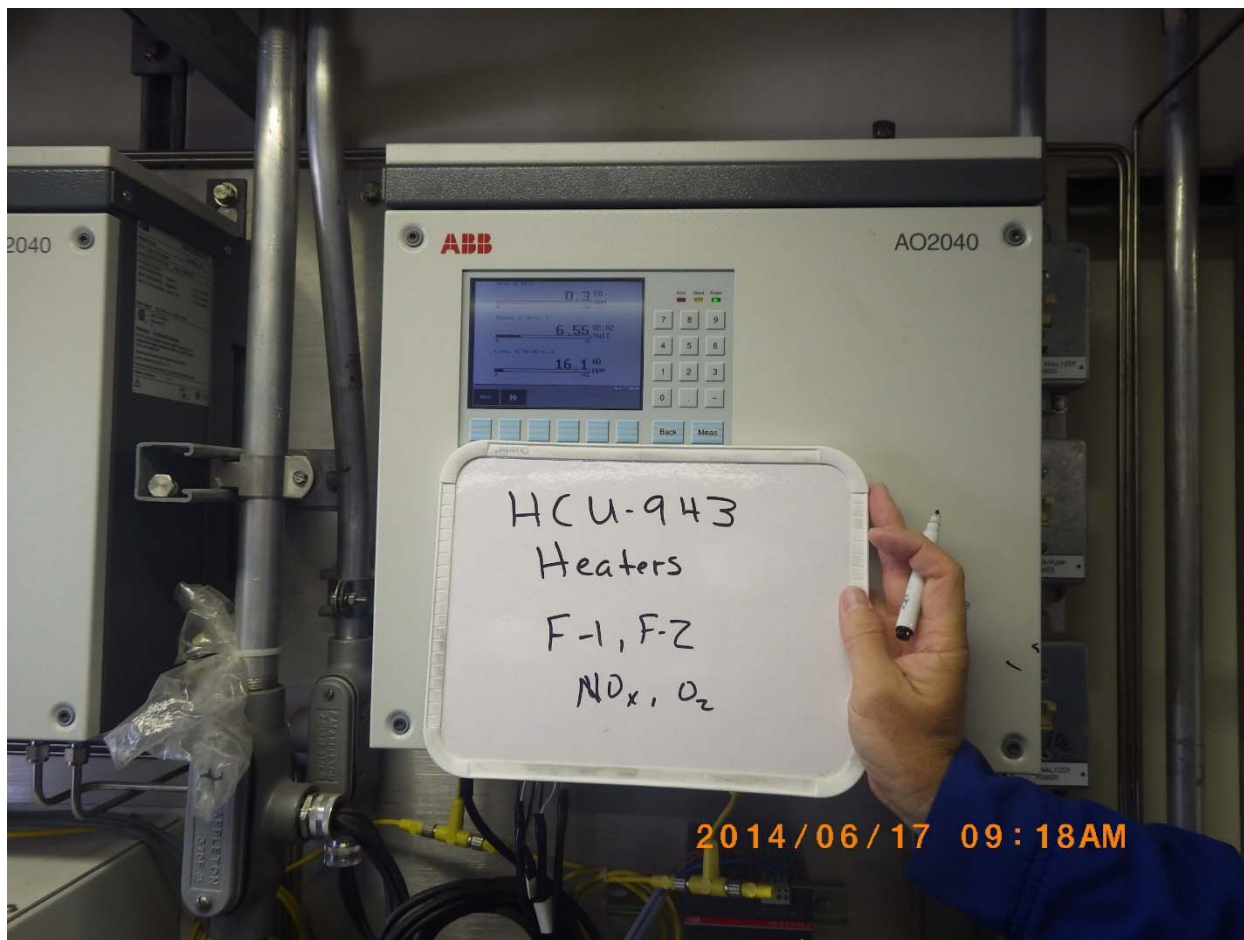


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 1

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



Hydrocracker Unit (HCU) 943 F1 and F2 heaters, combined stack

NO_x = 16.1 ppm

O₂ = 16.55 %

CO = 0.3 ppm

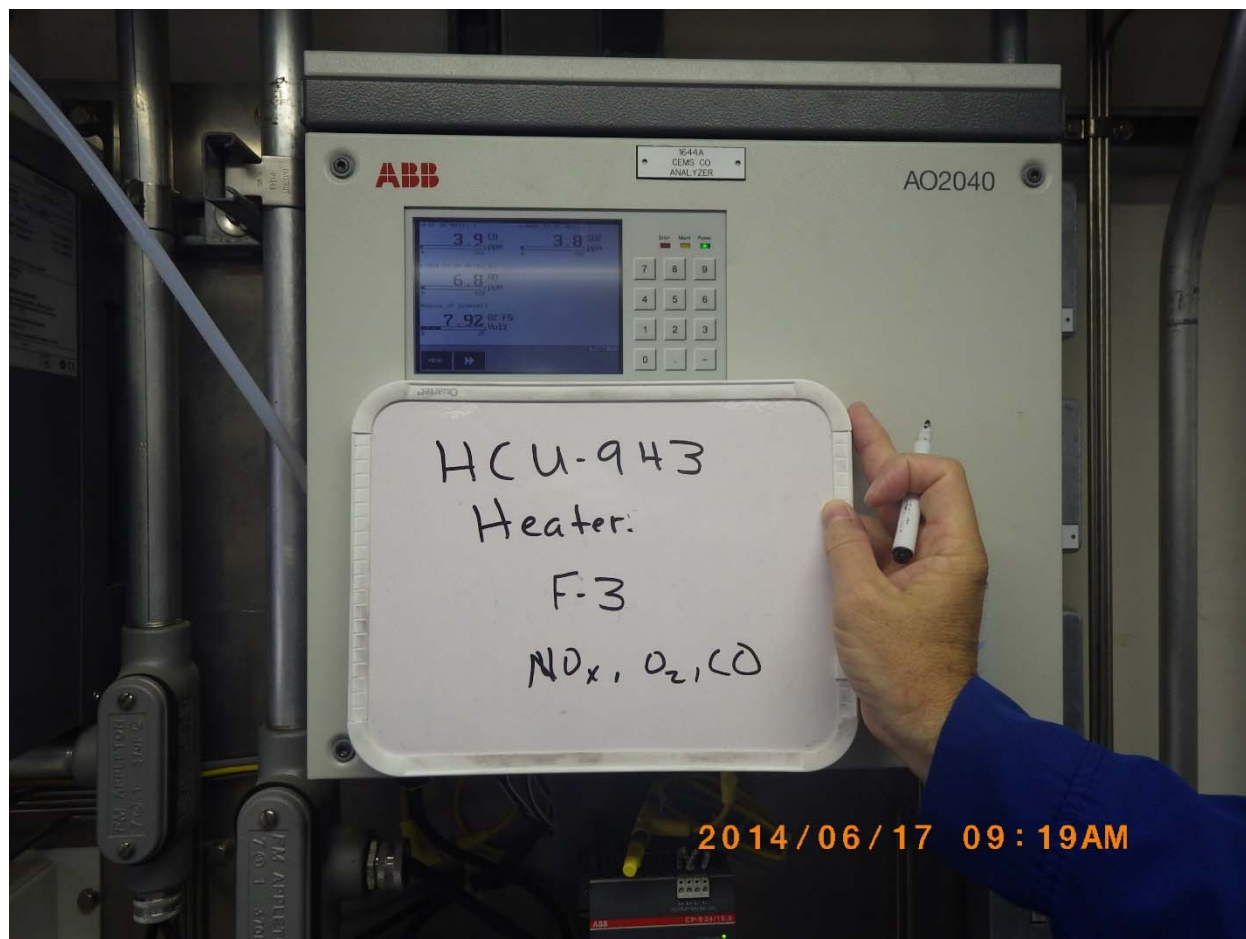


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 2

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



HCU 943 Heater F-3

NO_x = 6.8 ppm

O₂ = 7.92 %

CO = 3.9 ppm



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 3

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



Ammonia Injection equipment for HCU 943 F3 heater Selective Catalytic Reduction (SCR)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Photograph Log

Photo No. 4

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



HCU 943 F-3 heater ammonia tanks used for SCR.

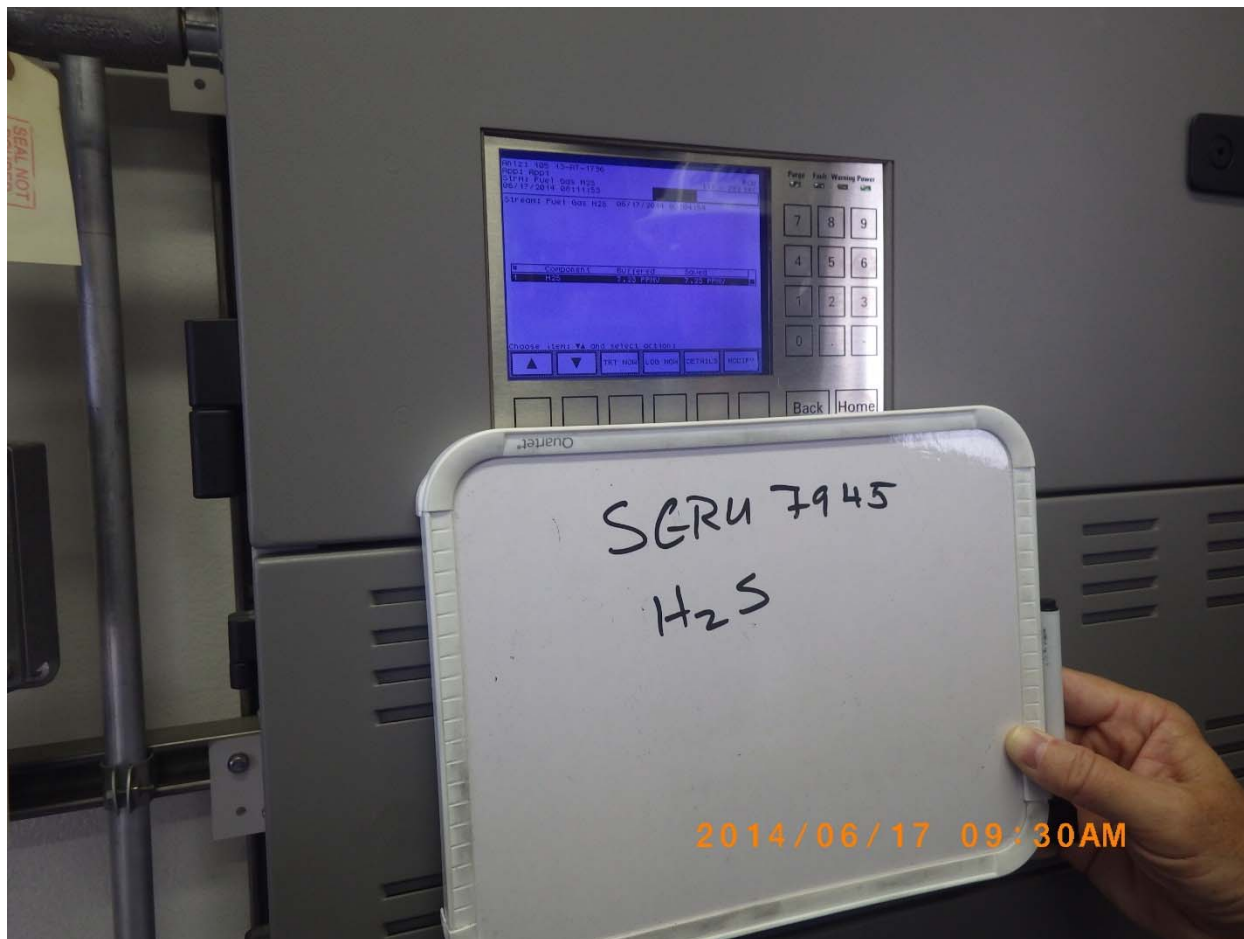


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 5

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



Saturated Gas Recovery Unit 7945

H₂S = 7.23 ppm

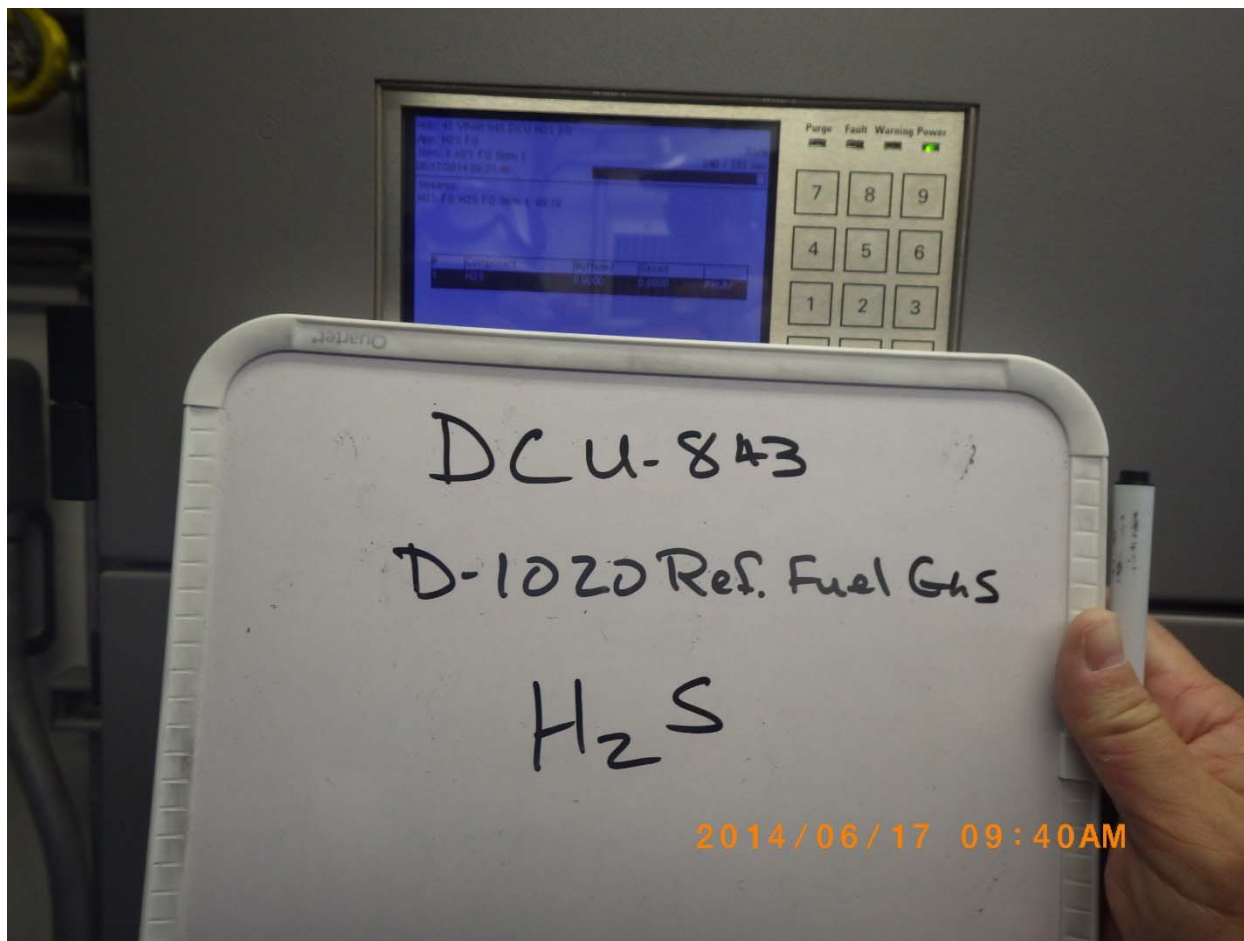


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 6

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



Delayed Coking Unit (DCU) Fuel Gas Mix Drum

H₂S = 0.0 ppm

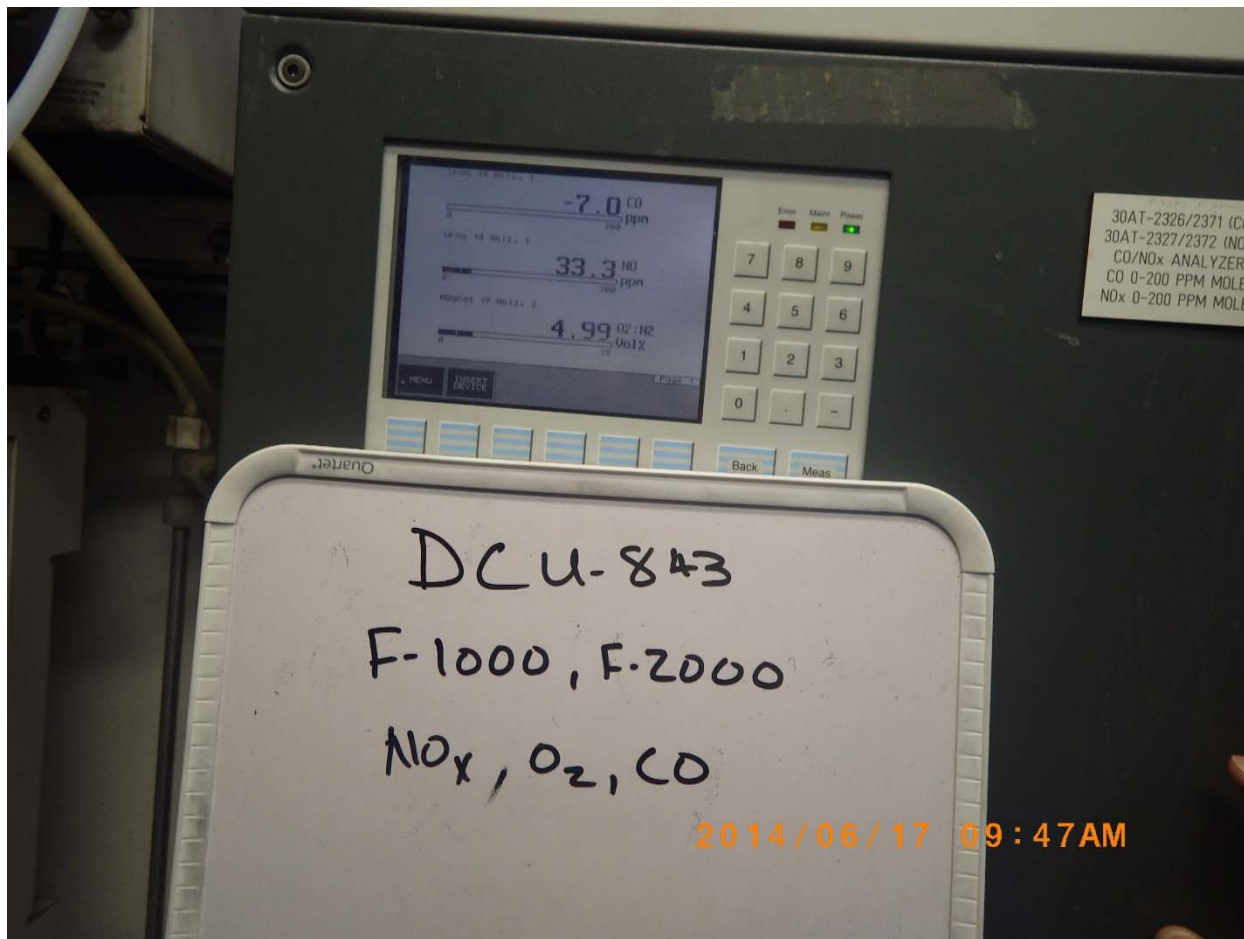


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 7

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



DCU 843 heaters F-1000 and F-2000 Shared CEMs

NO_x = 33.3 ppm

O₂ = 4.99 %

CO = -7.0 ppm

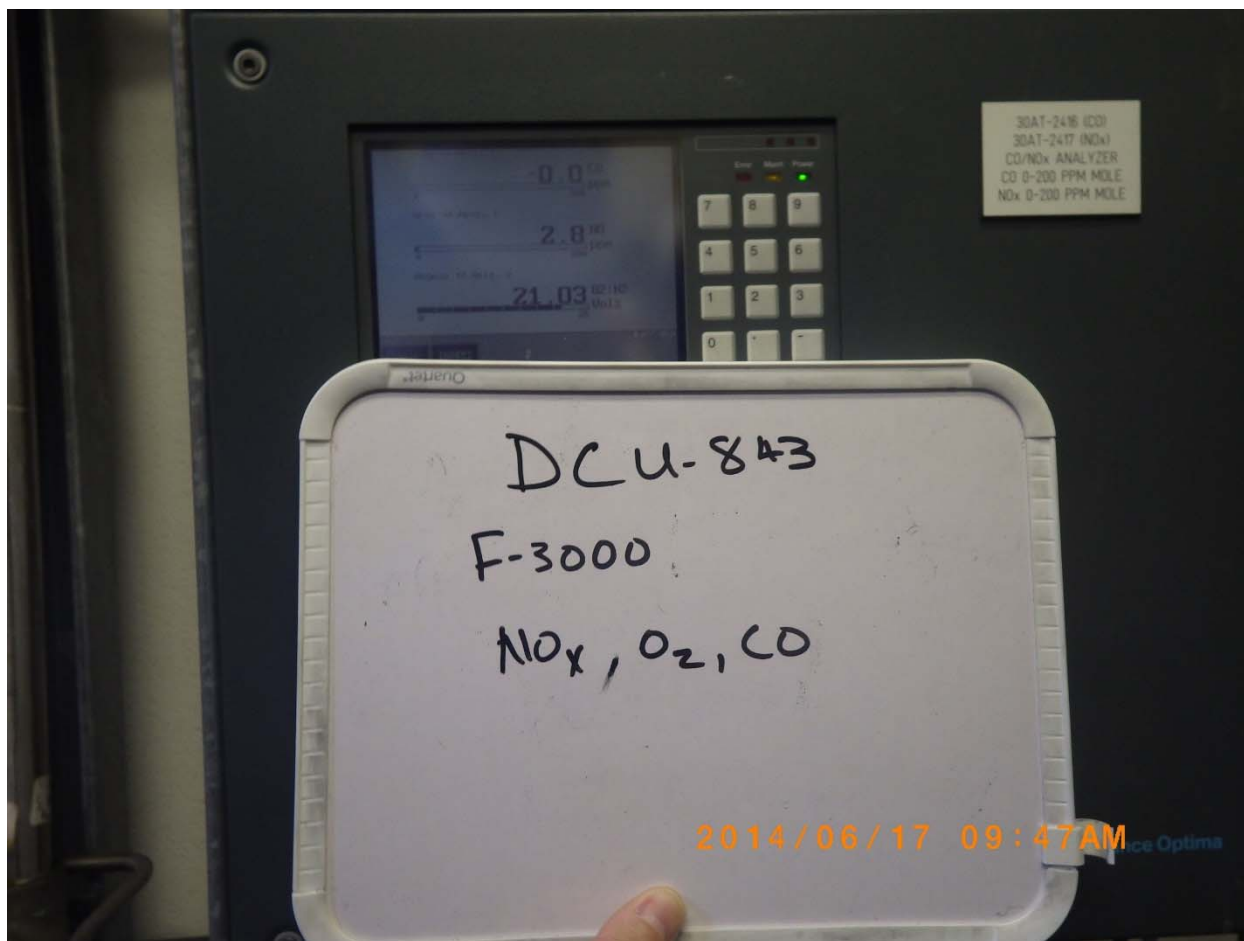


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 8

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



DCU 843 heater F-3000 (Heater shut down for maintenance)

NO_x = 2.8 ppm

O₂ = 21.03 %

CO = 0.0 ppm



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 9

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



HCU 942 heaters F-1000, F-2000, F-3000 combined stack

NO_x = 33.0 ppm

O₂ = 3.3 %

CO = 4.1 ppm



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Photograph Log

Photo No. 10

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



Underneath HCU 942 F-1000, retrofitted low NOx burners.

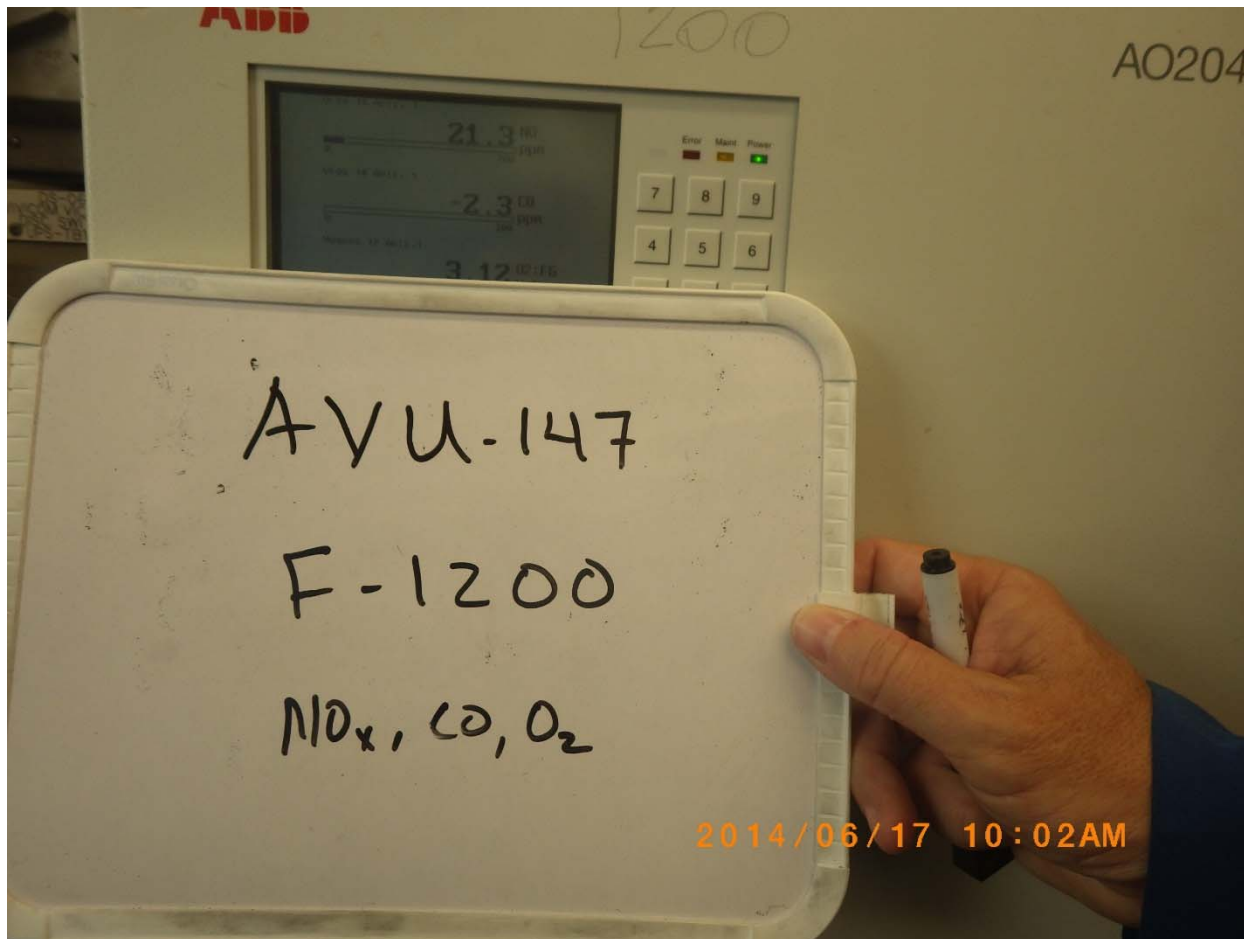


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 11

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



Atmospheric Vacuum Unit 147 Heater F-1200

NO_x = 21.3 ppm

CO = - 2.3 ppm

O₂ = 3.12 %

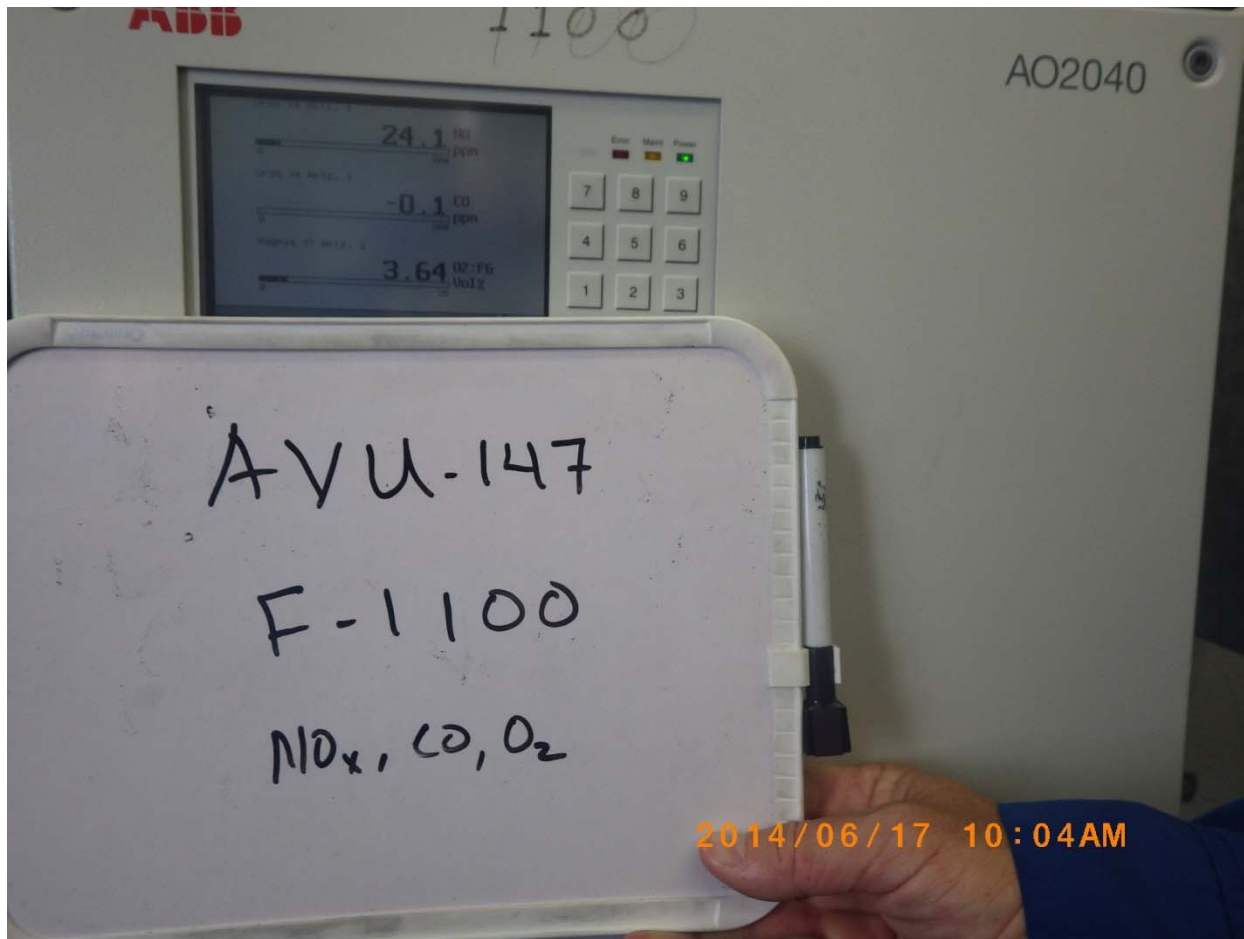


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 12

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



AVU 147 Heater F-1100

NO_x = 24.1 ppm

CO = -0.1 ppm

O₂ = 3.64 %

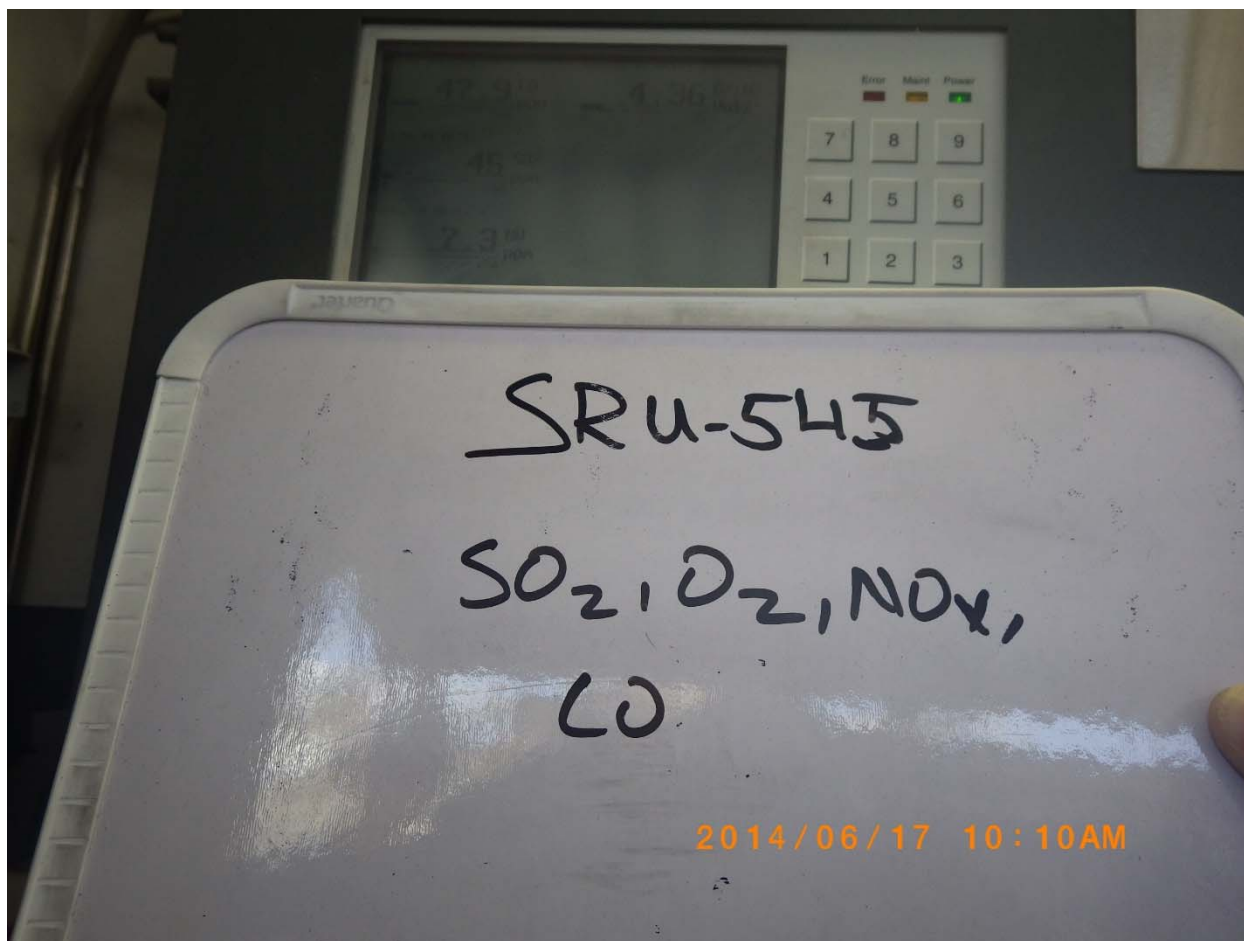


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 13

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



Sulfur Recovery Unit (SRU) 545

SO₂ = 45 ppm

O₂ = 4.36 %

NO_x = 7.3 ppm

CO = 42.9 ppm

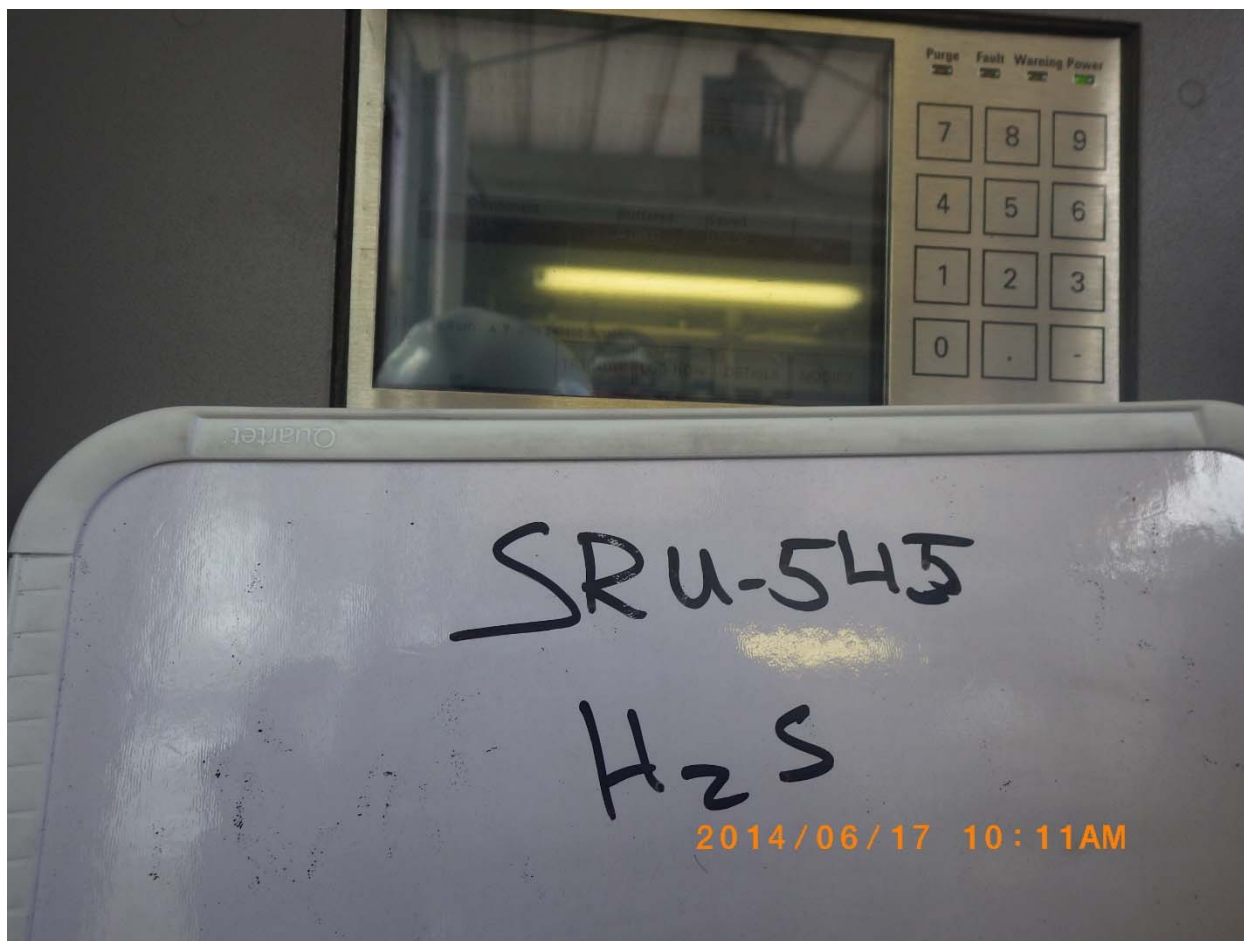


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 14

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



SRU 545

H₂S = 0.0 ppm

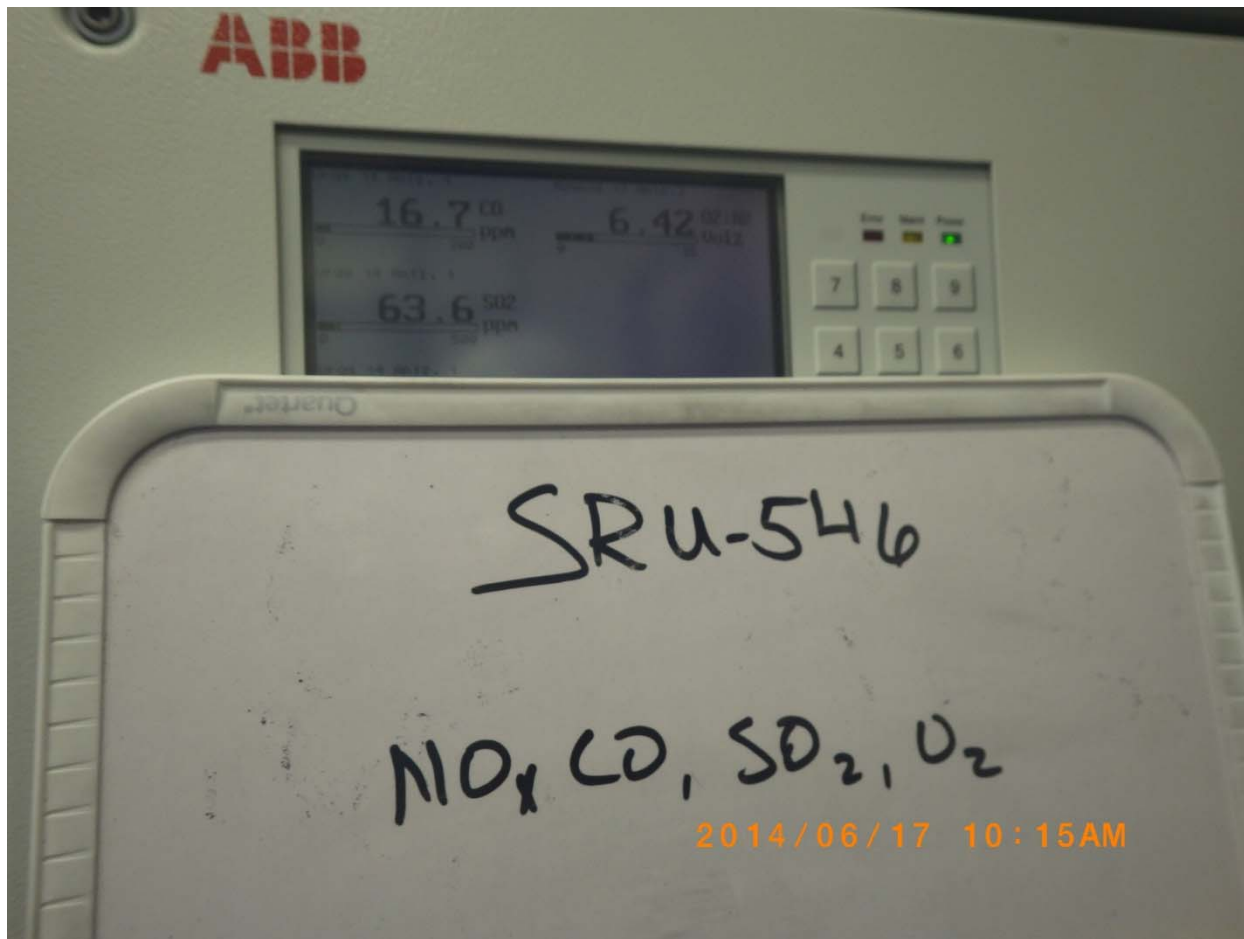


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 15

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



SRU 546

NO_x = 5. ppm

CO = 16.7 ppm

SO₂ = 63.6 ppm

O₂ = 6.42 %



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 16

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



BWON Carbon Canisters arranged in series.

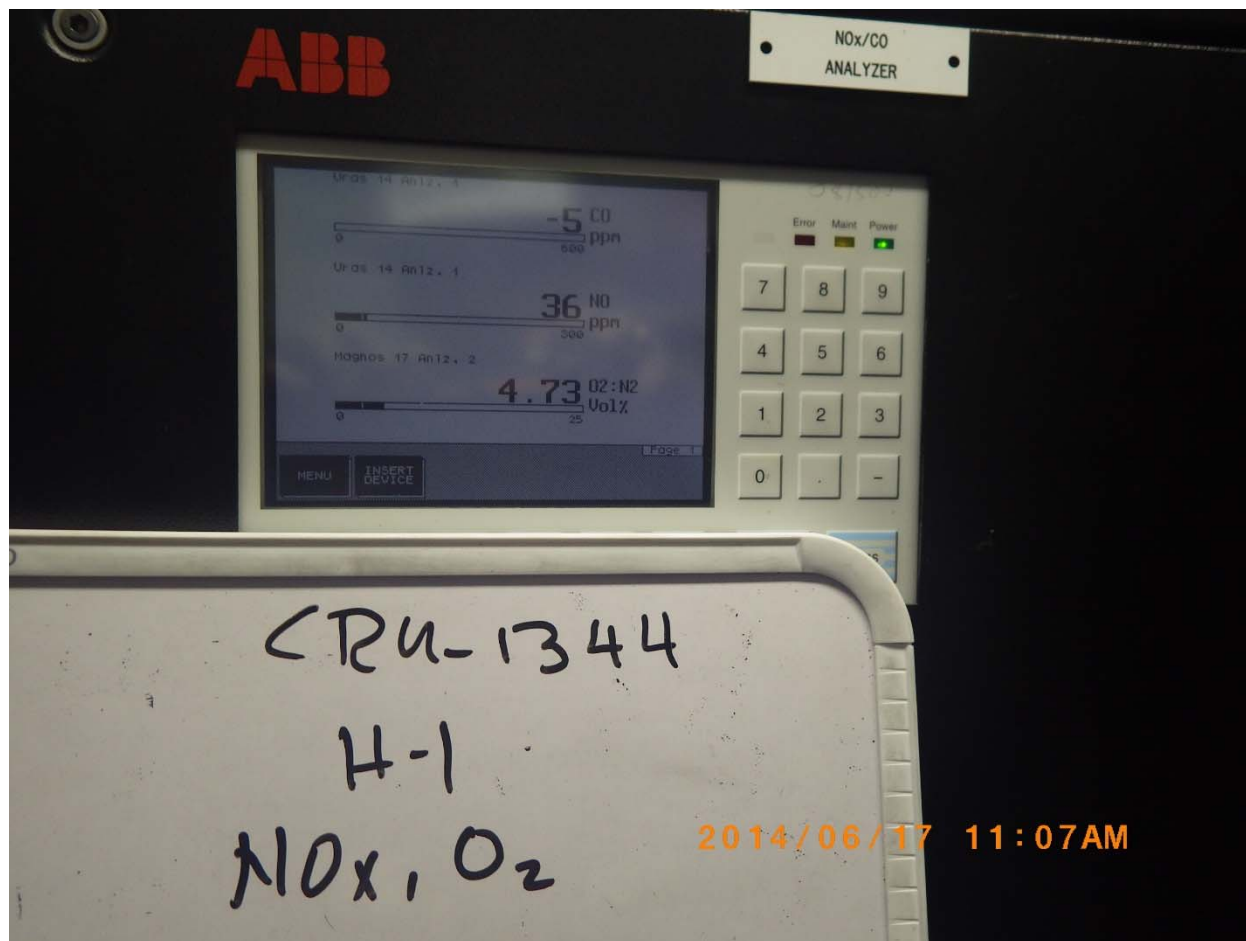


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 17

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



Catalytic Reforming Unit (CRU) 1344 Heater 1

NO_x = 36 ppm

O₂ = 4.73 ppm

CO = -5.0 ppm

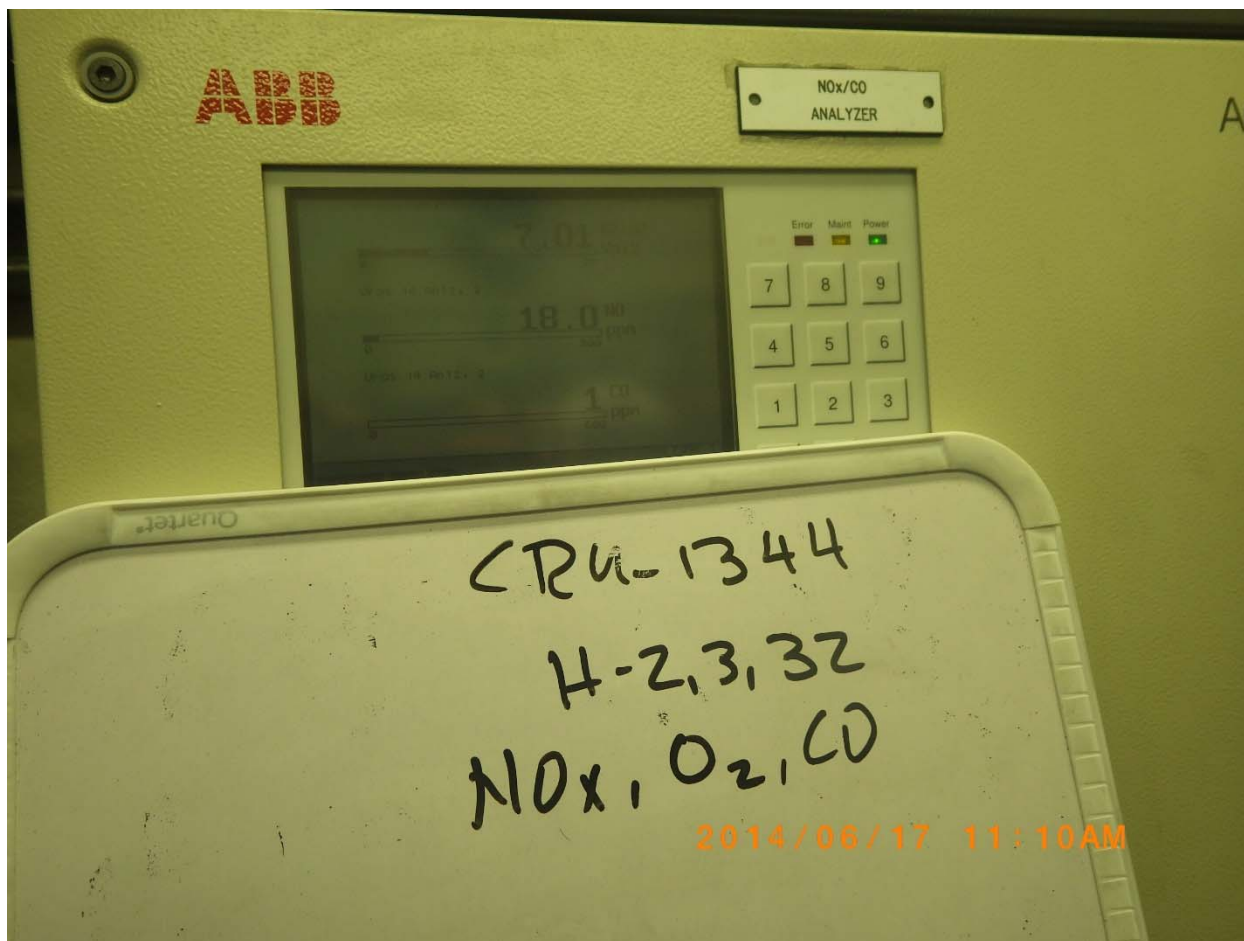


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 18

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



CRU 1344 Heaters 2, 3, 32 Combined Stack

NO_x = 18.0 ppm

O₂ = 7.01 ppm

CO = 1.0 ppm

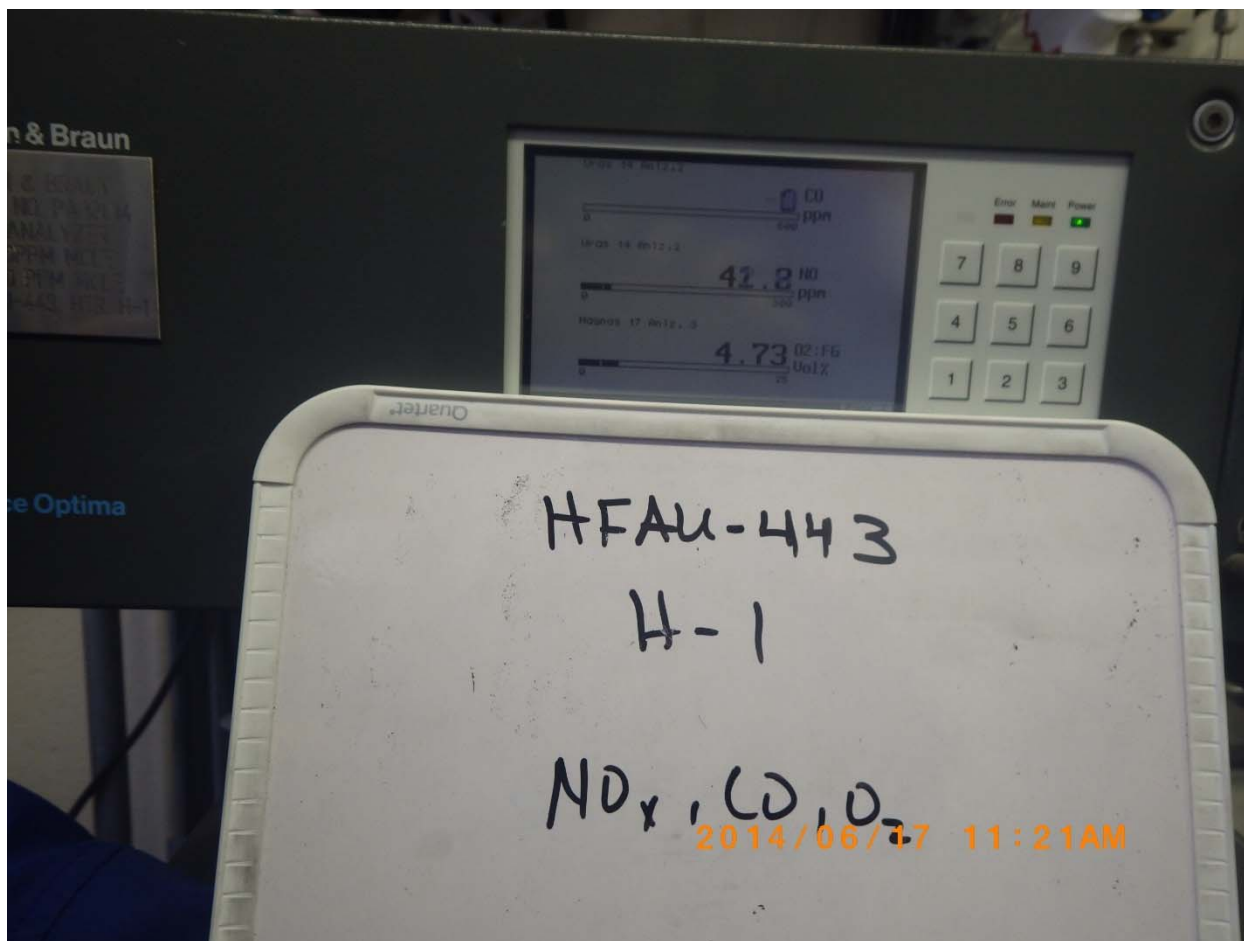


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 19

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



Hydrofluoric Acid Unit (HFAU) 443 Heater 1

NO_x = 42.8 ppm

CO = 0.0 ppm

O₂ = 4.73 %

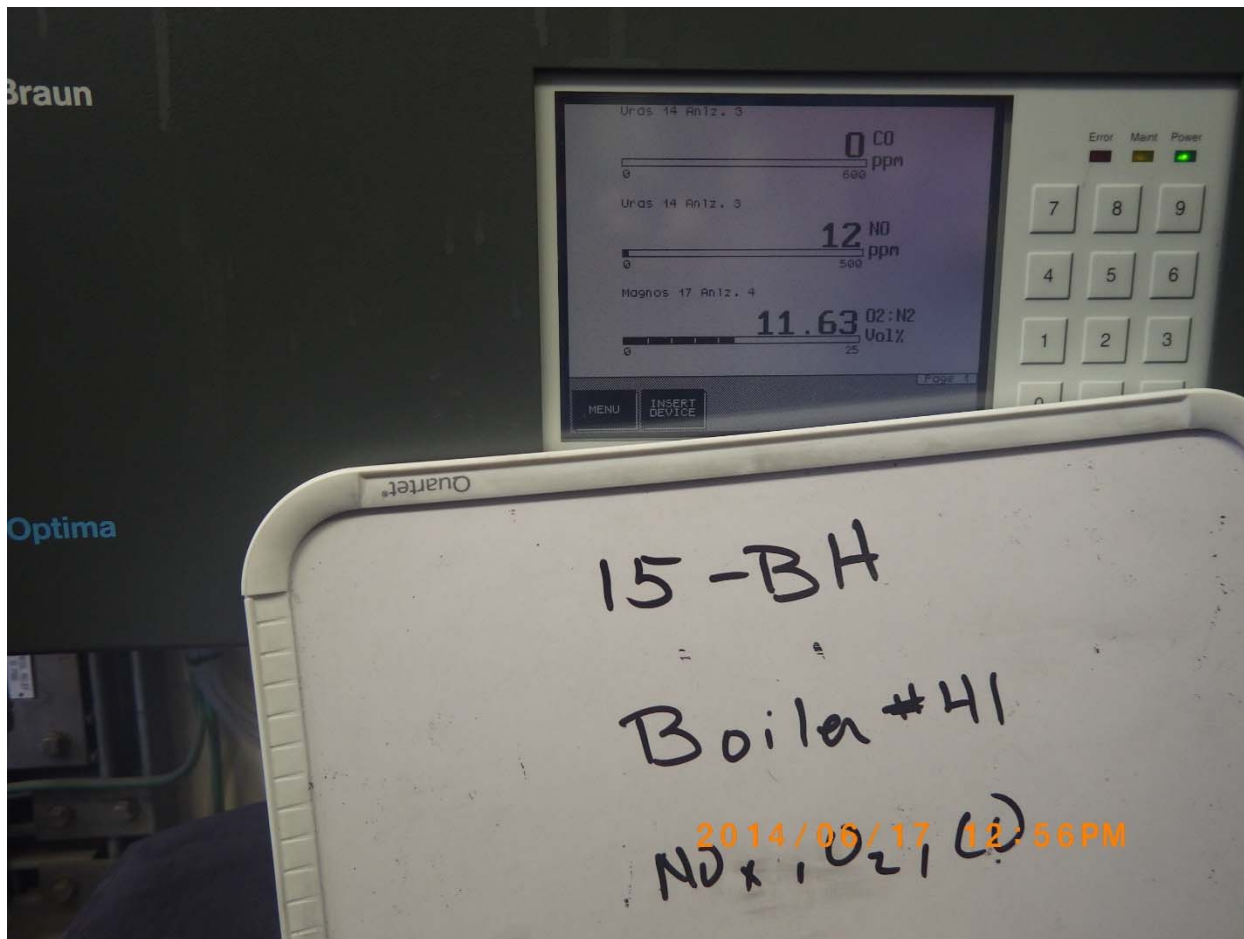


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 20

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



Boiler House (BH 15) Boiler 41

NO_x = 12.0 ppm

O₂ = 11.63 ppm

CO = 0.0 ppm

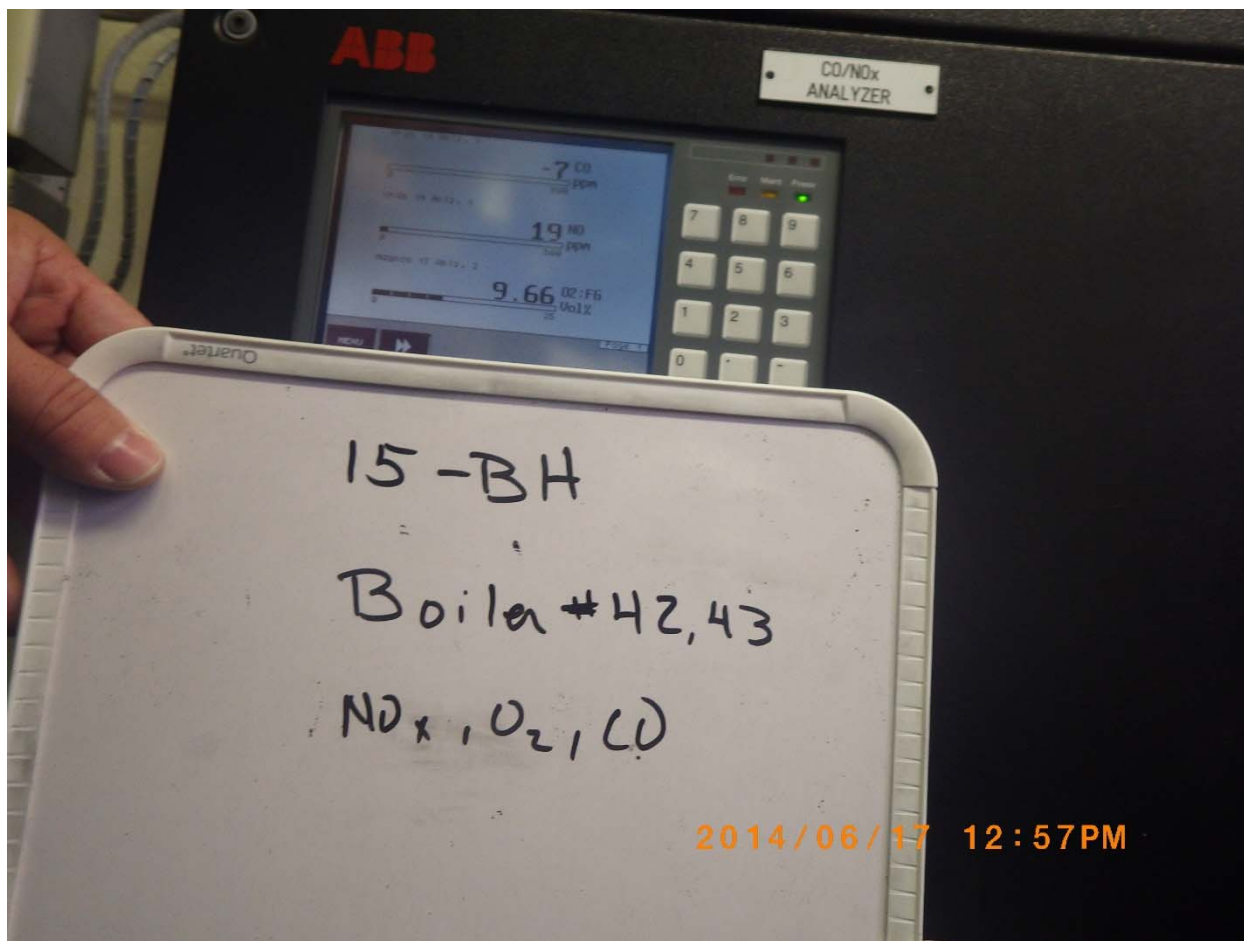


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 21

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



BH 15 Boilers 42 and 43 combined

NO_x = 19.0 ppm

O₂ = 9.66 %

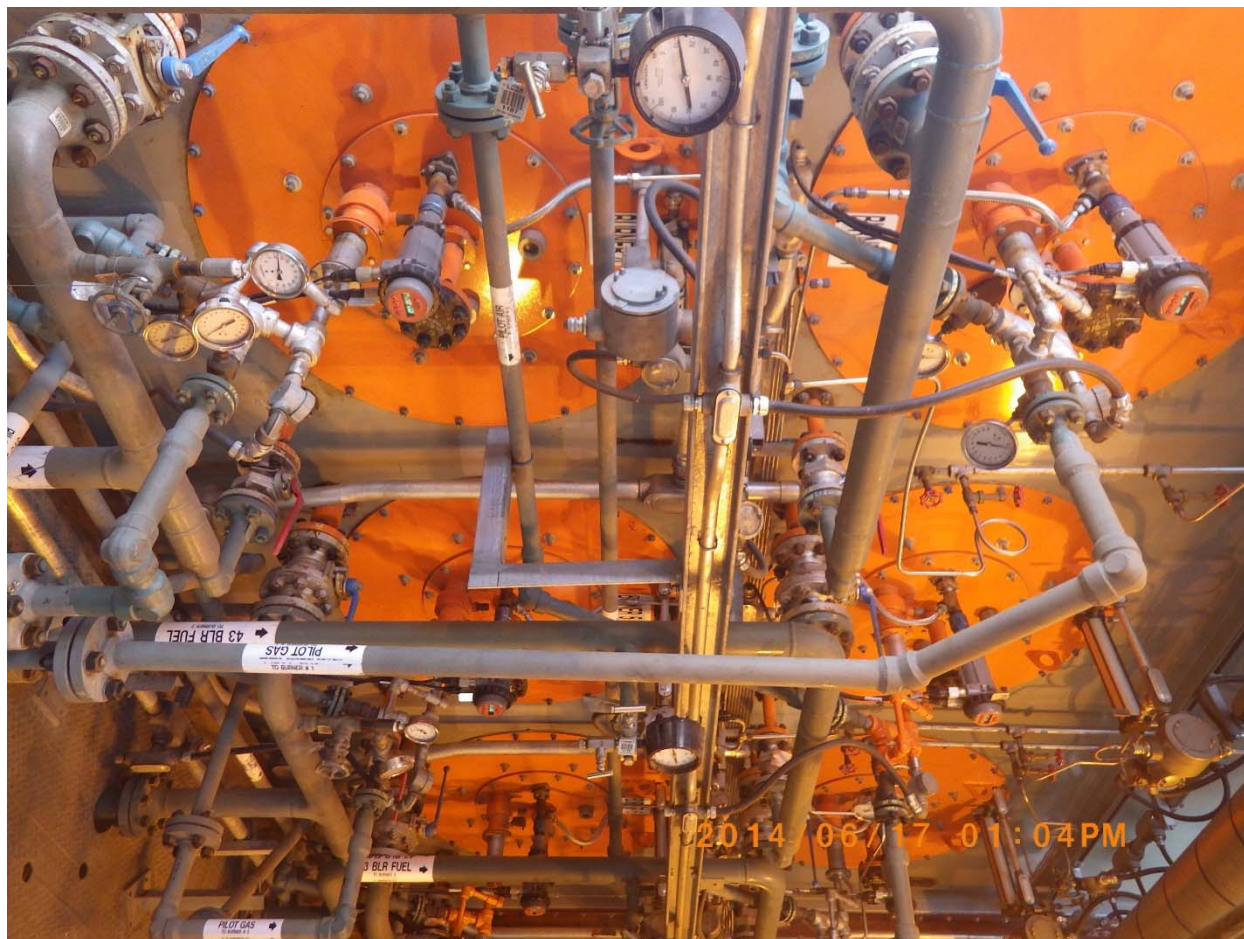
CO = -7.0 ppm



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Photograph Log

Photo No. 22

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



Boiler House 15 Boiler 43 LoNO_x burners

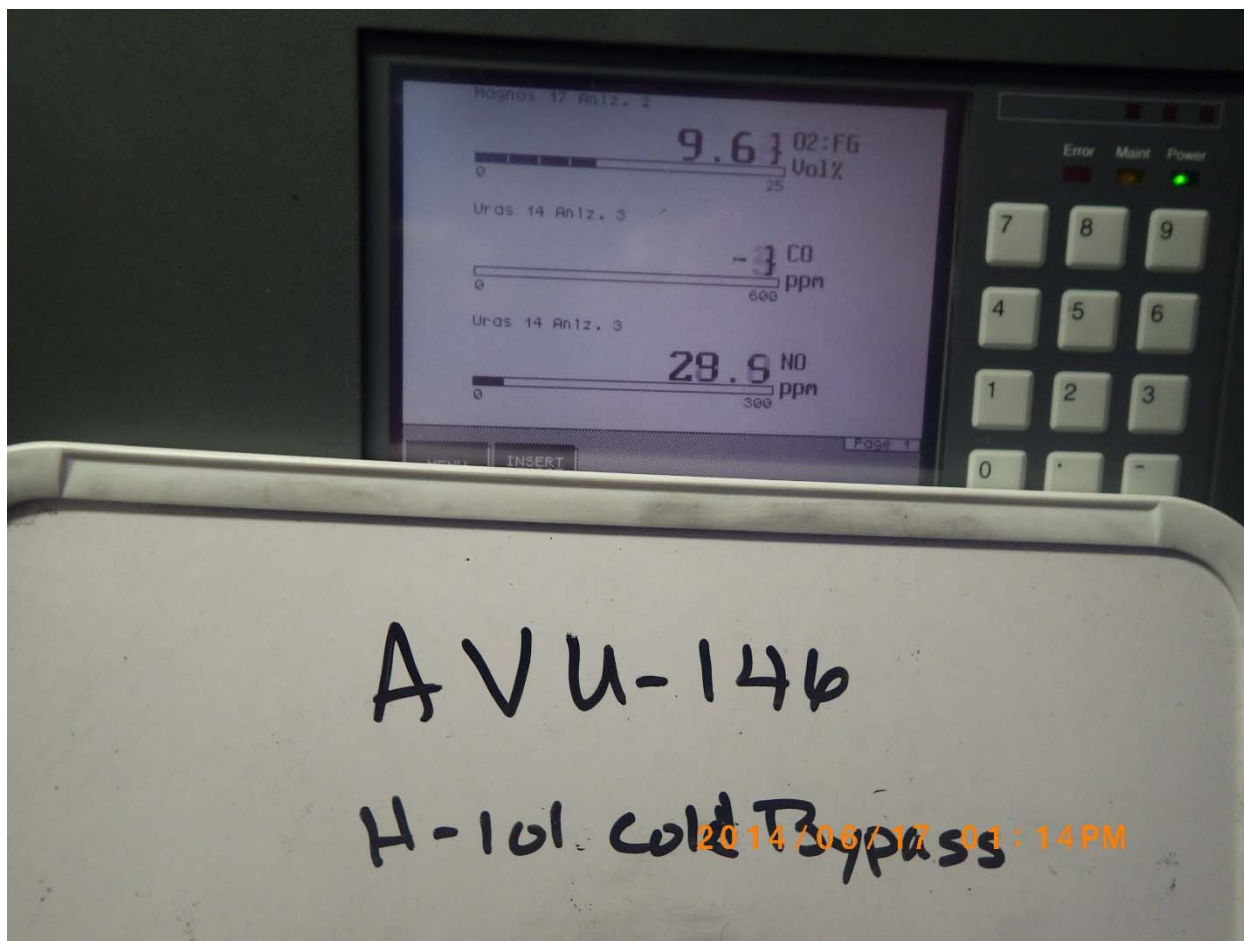


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 23

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



AVU 146 Heater 101 cold bypass

NO_x = 28.5 ppm

CO = - 3.0 ppm

O₂ = 9.61 %

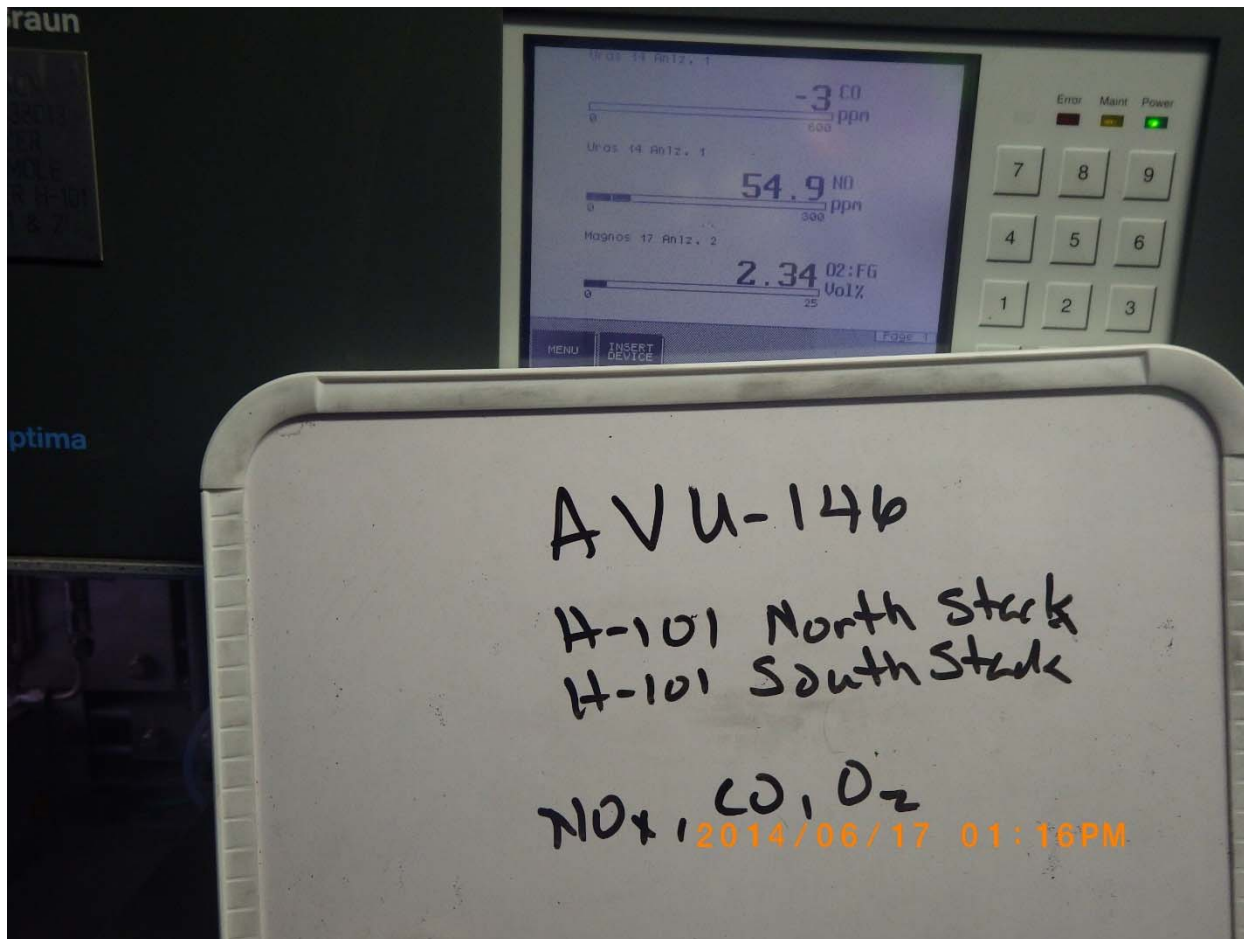


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 24

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



AVU 146 Heater 101 North and South Stacks Combined

NO_x = 54.9 ppm

CO = -3.0 ppm

O₂ = 2.34 %

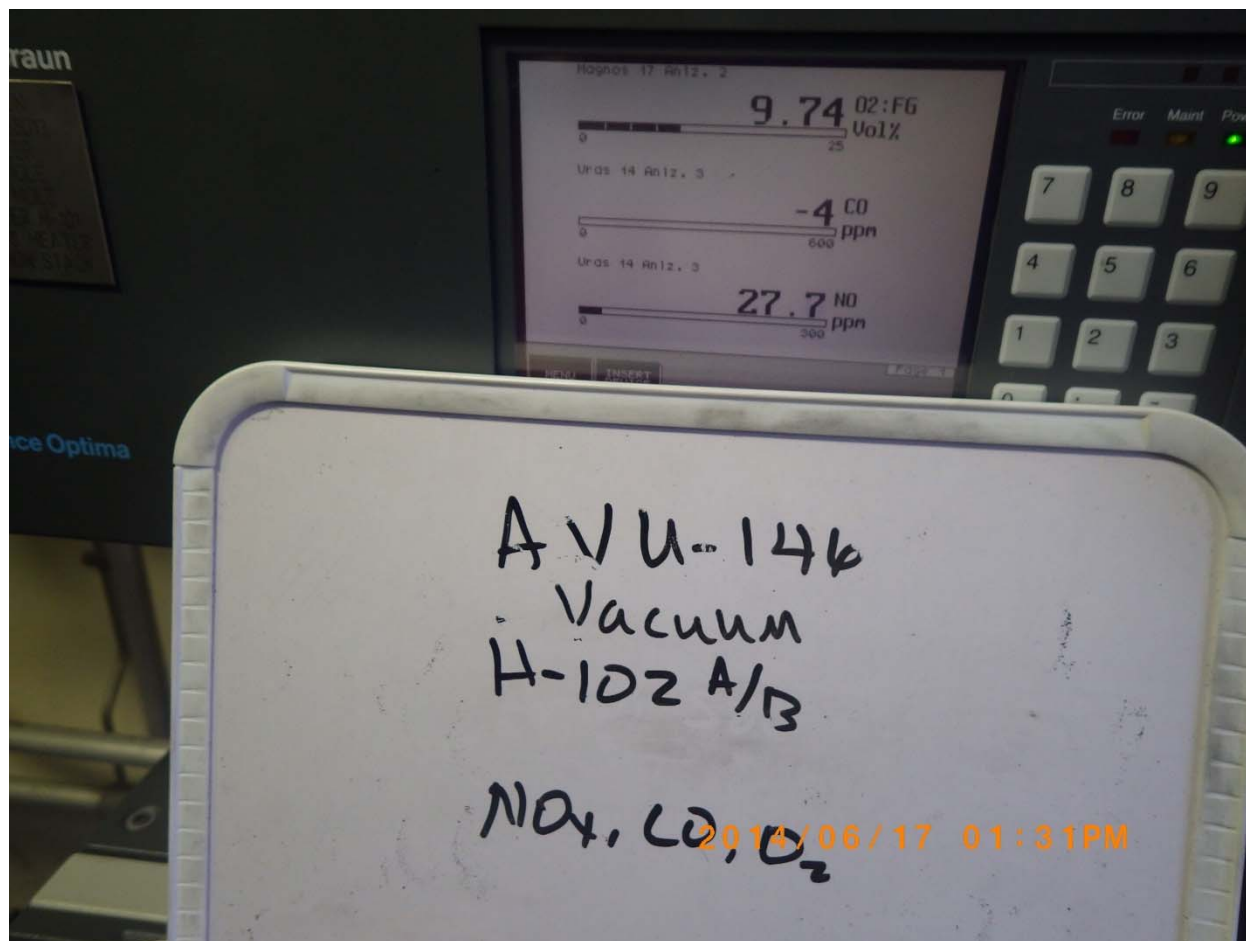


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 25

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



AVU 146 Heaters A and B combined

$\text{NO}_x = 27.7 \text{ ppm}$

$\text{CO} = -4.0 \text{ ppm}$

$\text{O}_2 = 9.74\%$

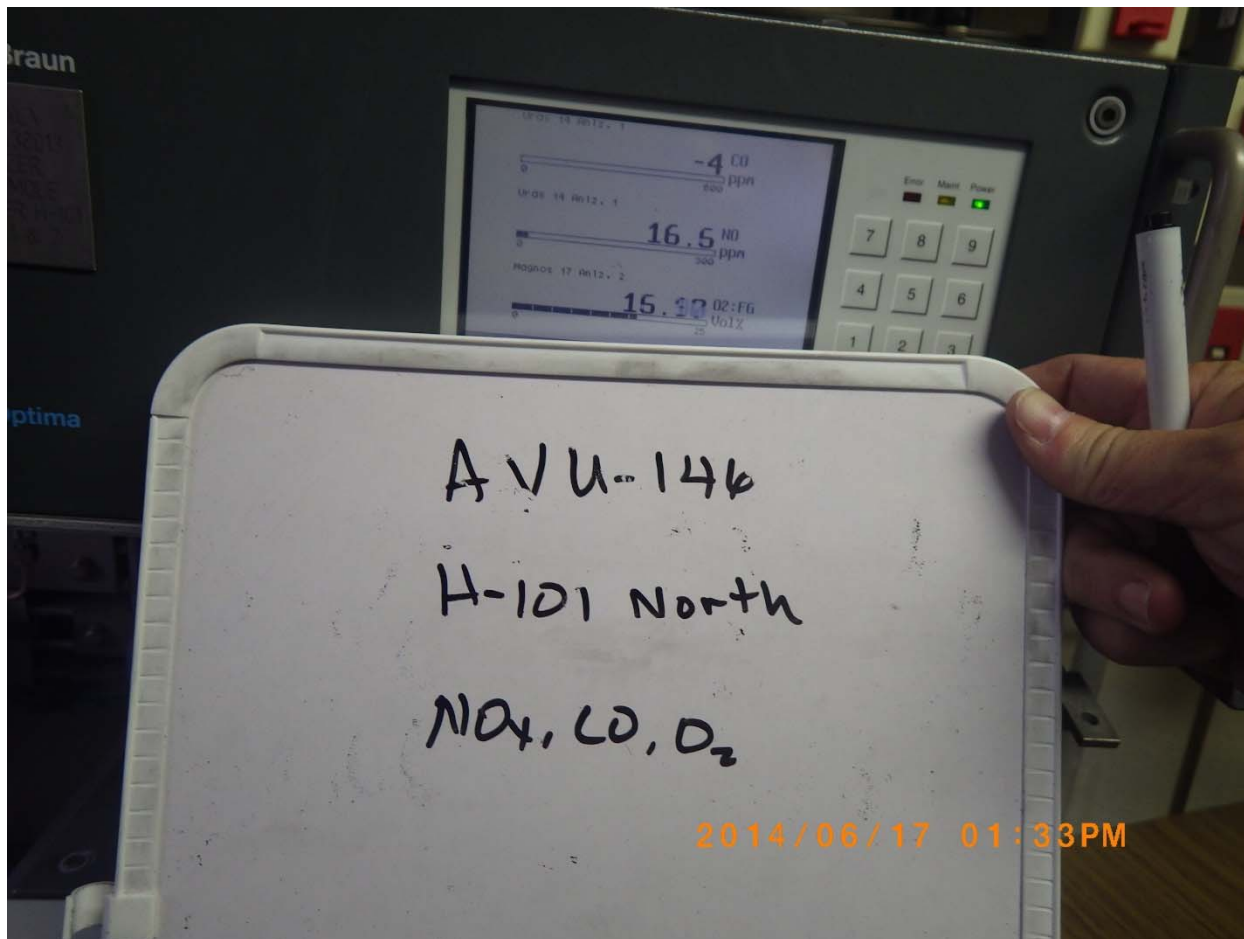


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 26

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



AVU 146 Heater 101 North Stack

NO_x = 16.5 ppm

CO = -4.0 ppm

O₂ = 15.32 %



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 27

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



Fluidized Catalytic Cracking Unit (FCCU) 1241 Wet Gas Scrubber (WGS)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 28

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



Calibration Gasses for Leak Detection and Repair monitoring instruments.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 29

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



Flare Gas Recovery System (FGR) 7042 compressors (3)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 30

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



FGR 7043 compressors (2)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 31

Location: Valero Port Arthur refinery		
City: Port Arthur	County/Parish: Jefferson	State: Texas



Community Health Center

Appendix 2

Opening Conference sign in sheet



For: _____ Date: _____
Subject: _____ By: _____

Cynthia M. Drake - Valero Env. Specialist

Tal Logback Valero - Corporate

Robin Hill Valero Port Arthur Env. Eng.

Sanjay Sampath Valero Port Arthur Env. Eng.

BRET Duplant VALERO Port Arthur Env. Eng.

Patrick Gonzales Valero Port Arthur Env. Eng.

Mike Hammersmith Valero Port Arthur Manager Oper.
Env. Integration
Jason Haynes Valero Port Arthur Staff Env.
Engineer

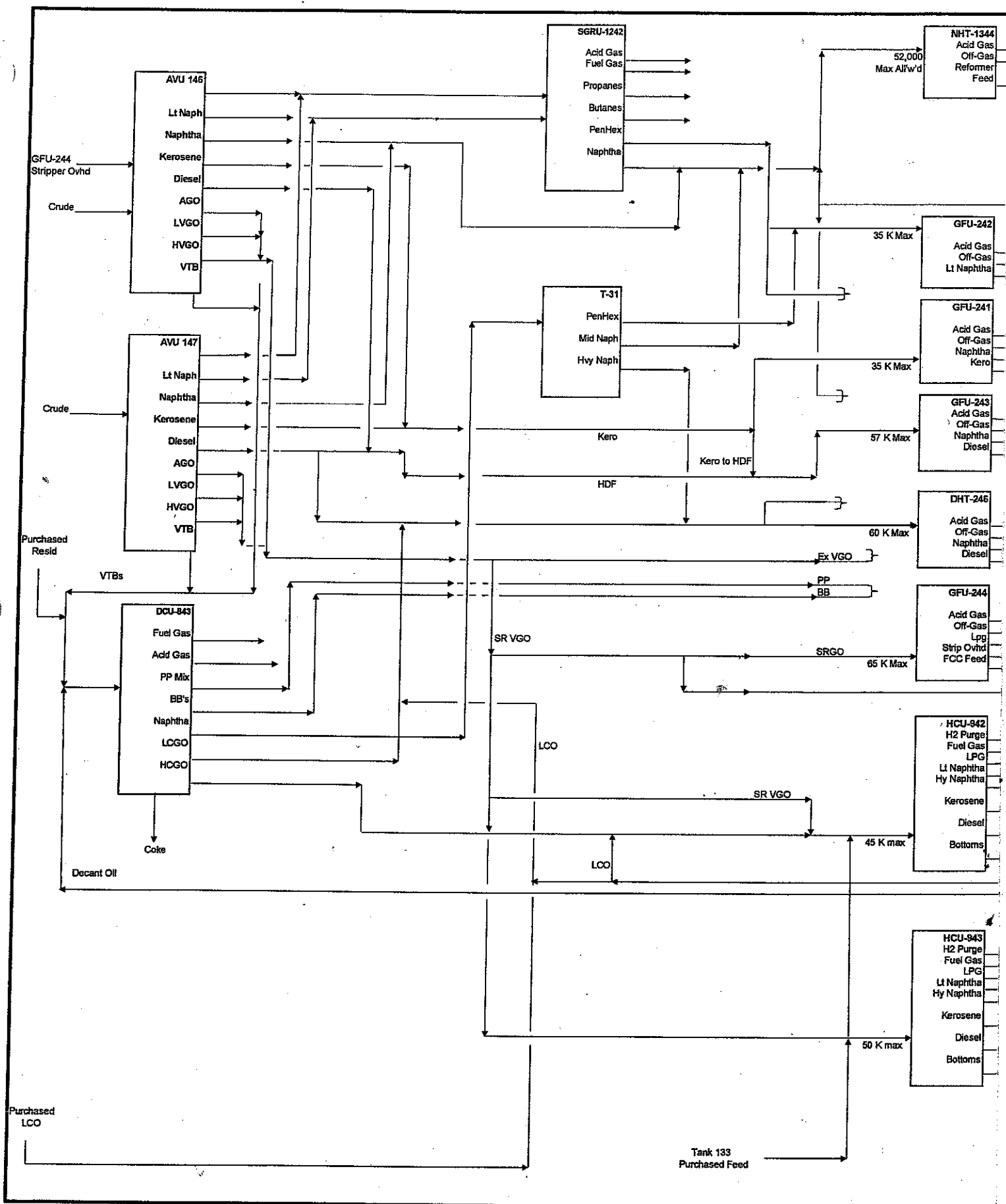
Paula Labrecque Valero PA Refinery Env. Manager

TODD LOPEZ VALERO PA Refinery HSE DIRECTOR

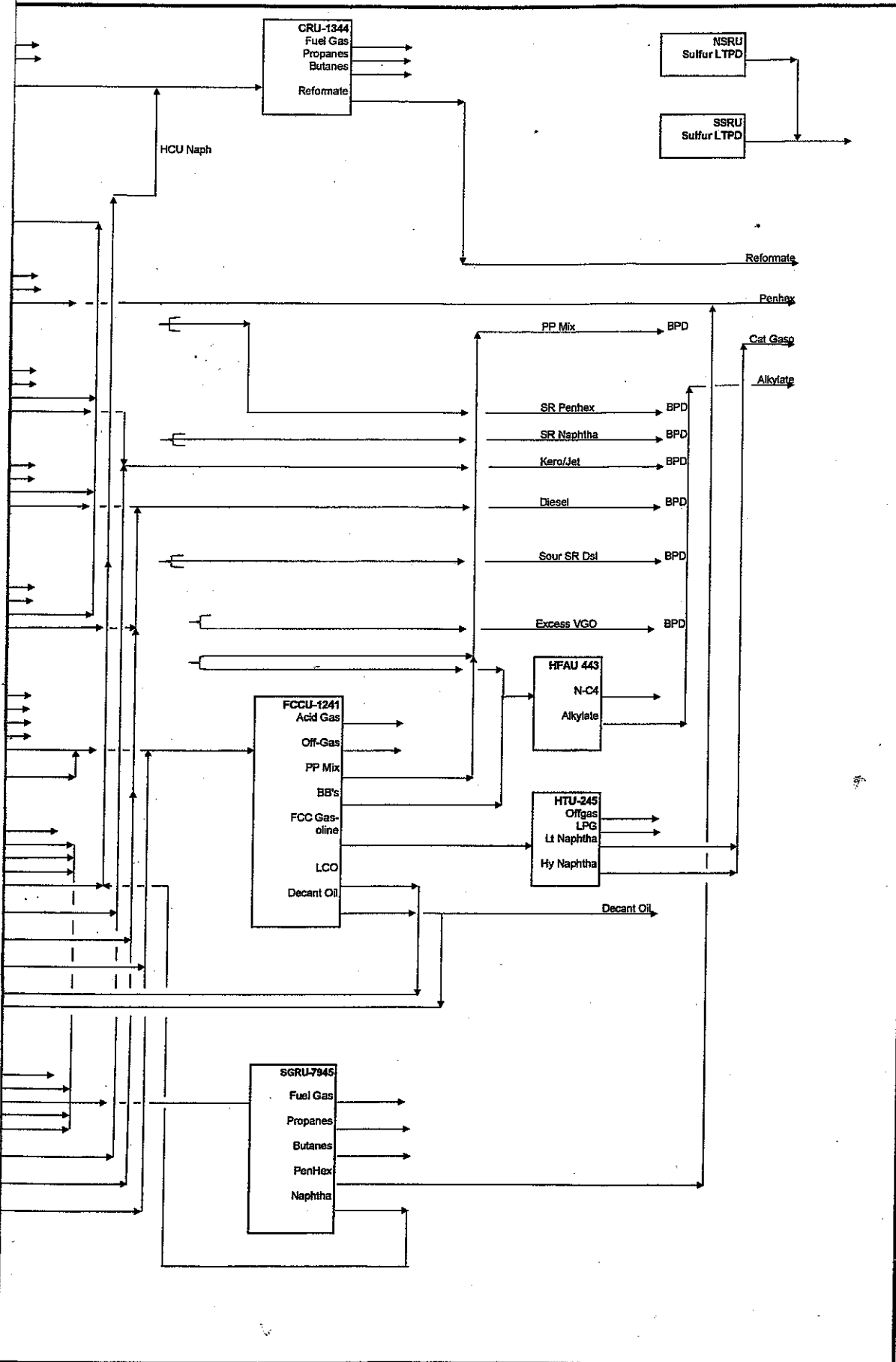
Jim GOLD U.S. EPA

Appendix 3

Plant wide process flow diagram



implified Block Flow Diagram



Appendix 4

CD Implementation Chart

**Premcor Refining Group Inc.; Port Arthur Refinery
EPA Consent Decree Implementation**

CD Program	Paragraph	Description	Action Item Note	Status
04: Heaters and Boilers NOx	15	Annual Heater/Boiler Update Report	A report to EPA that updates the Appendix B heater/boiler list as required by Paragraph 15 is submitted to EPA each year. The last report was submitted in March 2014.	Completed
04: Heaters and Boilers NOx	16	Heater @ 0.06 NOx Compliance Plan	A draft plan to comply with the Interim System-Wide Weighted Average of 0.060 lb/MMBtu NOx for covered heaters and boilers was submitted.	Completed
04: Heaters and Boilers NOx	17	System Wide Heater 0.06 NOx Limit	The Port Arthur refinery submitted a permit application to accept NOx lb/MMBtu limits consistent with the interim system-wide NOx average of 0.060 lb/MMBtu.	Completed
04: Heaters and Boilers NOx	20	System Wide Heater 0.044 NOx Limit	A draft plan to comply with the Interim System-Wide Weighted Average of 0.044 lb/MMBtu NOx for covered heaters and boilers was submitted.	Completed
04: Heaters and Boilers NOx	27	Interim Compliance Demo. Rpt. for Heat/Boiler NOx	A report demonstrating compliance with the Interim Heater and Boiler NOx limit of 0.060 lb/MMBtu was submitted.	Completed
04: Heaters and Boilers NOx	27	Final Compliance Demo. Rpt. for Heat/Boiler NOx	A report demonstrating compliance with the Final Heater and Boiler NOx limit of 0.044 lb/MMBtu was submitted.	Completed
04: Heaters and Boilers NOx	30	Heater CEMS CGA/RATA	Quarterly CGA's are conducted and a RATA is conducted once every three years for NOx CEMS on covered heaters and boilers.	Ongoing
04: Heaters and Boilers NOx	17a.	Early 0.044 lb/MMBtu for Select Heaters	Install controls at a minimum of three Covered Heaters and Boilers to achieve a NOx emission rate of no greater than 0.044 lbs-NOx/MMBtu by December 31, 2011. At least one of the three controlled will have a heat input capacity in excess of 150 MMBtu/hr. - 1. AVU-147 heater H101. 396 MMBTU/hr. 0.040 lb NOx/MMBTU. 2. AVU-147 heater H102. 228 MMBTU/hr. 0.040 lb NOx/MMBTU. 3. HCU-942 heaters F1300/F1000 (combined stack). Installed low NOx burner tips. Preliminary stack test on 12/8/11 = 0.032 lb NOx/MMBTU.	Completed
04: Heaters and Boilers NOx	29.a.	Checklist: Heater/Boiler >150 MMBtu/hr CEMS	Install NOx CEMS on covered heaters/boilers with a heat input capacity greater than 100 MMBtu/hr that have NOx permit limits of less than 0.06 lb/MMBtu	Completed
04: Heaters and Boilers NOx	29.c.	Checklist Heater/Boiler (<100 MMBtu/hr) Stack Test	For covered heaters/boilers with a heat input capacity less than 100 MMBtu/hr and a permit limit of less than 0.06 lb/MMBtu, conduct stack testing to demonstrate compliance with the permit limit.	Completed
05: FCCU NOx	53	Interim FCCU NOx System Wide Average	A report demonstrating compliance with the Interim FCCU NOx System-Wide Average of 69.2 ppmvd was submitted.	Completed
05: FCCU NOx	55	Final FCCU NOx System Wide Average	A report demonstrating compliance with the Interim FCCU NOx System-Wide Average of 33.4 ppmvd was submitted.	Completed
05: FCCU NOx	61	FCCU NOx CEMS Certification	Certified NOx and O2 CEMS are in place on the FCCU.	Completed
05: FCCU NOx	62	Quarterly FCCU NOx CEMS CGA	Quarterly CGA's are conducted on the FCCU NOx CEMS. A RATA is conducted at least once every three years.	Ongoing
05: FCCU NOx	53.a.	Interim FCCU NOx Permit Incorporation	A permit application was submitted to TCEQ to amend Permit 6825A/PSD-TX-49 Special Condition 12 to add new 365-day rolling average NOx limit of 70 ppm at FCCU-1241.	Completed
05: FCCU NOx	55.a.	Final FCCU NOx Permit Incorporation	A permit alteration to NSR Permit 6825A submitted 12/17/2013 to add final FCC NOx limits.	Completed
06: FCCU SO2	89	FCCU SO2 CEMS Certification	Certified SO2 & O2 CEMS installed on the FCCU scrubber stack Spring 2005.	Completed
06: FCCU SO2	90	Quarterly FCCU SO2 CEMS CGA	The refinery conducts a CGA on the FCCU SO2 CEMS each calendar quarter during which a RATA is not performed and a RATA at least once every three years.	Ongoing
06: FCCU SO2	83.b.	FCCU SO2 Emission Limit	The FCCU Wet Gas Scrubber complies with SO2 concentration emission limits of 25 ppmvd, measured as a 365-day rolling average, and 50 ppmvd, measured as a 7-day rolling average, both at 0% O2.	Ongoing
07: FCCU CO, Opacity, and PM	94	New FCCU CO Emission Limit	The FCCU complies with a CO emission limit of 500 ppmvd at 0% O2 measured as a 1-hr block average.	Ongoing
07: FCCU CO, Opacity, and PM	95	FCCU PM Emission Limit	The FCCU complies with a PM limit of 1 lb/1000 lb coke burned measured as a 1-hr average over 3 performance test runs using Test Method 5B or 5F.	Ongoing
07: FCCU CO, Opacity, and PM	101	FCCU CO RATA	A RATA is conducted on FCCU CO CEMS at least once every 3 years.	Ongoing
07: FCCU CO, Opacity, and PM	101	FCCU CO CEMS Certification	The FCCU is equipped with a certified CO CEMS.	Completed
07: FCCU CO, Opacity, and PM	101	Quarterly FCCU CO CEMS CGA	A CGA is conducted on FCCU CO CEMS each calendar quarter during which a RATA is not performed.	Ongoing

**Premcor Refining Group Inc.; Port Arthur Refinery
EPA Consent Decree Implementation**

CD Program	Paragraph	Description	Action Item Note	Status
07: FCCU CO, Opacity, and PM	104	FCCU Opacity AMP application	Completed. AMP for opacity submitted to EPA in lieu of COMS due to interference from scrubber August 2005, revised December 2005. AMP has not been approved.	Completed
07: FCCU CO, Opacity, and PM	345	FCCU PM BACT Limit Option	Port Arthur did not accept the optional 0.5 lbs per 1000 lbs of coke burn PM limit to obtain NSR liability release.	Completed
07: FCCU CO, Opacity, and PM	346	FCCU CO BACT Limit Option	Port Arthur did not accept the optional 100 ppmvd rolling 365-day average CO limit to obtain NSR liability release.	Completed
08: FCCU SO2 NSPS	107.c.	NSPS J Compliance for FCCU	NSPS A & J are applicable requirements for the FCCU in the facility's Title V permit.	Completed
09: Heaters and Boilers SO2 NSPS	113	Fuel Oil Combustion Prohibition	The current Title V permit limits heaters and boilers to gaseous fuel only.	Ongoing
09: Heaters and Boilers SO2 NSPS	115	NSPS J Compliance for Heaters and Boilers	All covered Heaters and Boilers are subject to NSPS A and J as such requirements apply to fuel gas combustion devices.	Completed
09: Heaters and Boilers SO2 NSPS	119	Fuel Gas AMP	PAR did submit new AMP request (MRU-7542 vent to Flare 13) and new monitoring exemption request (DCU-843 MEROX Treater overhead to Flare 23) to US EPA on 11/20/2009 for vent gases combusted in flares.	Completed
09: Heaters and Boilers SO2 NSPS	121	Fuel Gas H2S CEMS Certification	The two fuel gas H2S CEMS were in operation prior to the CD and operating per NSPS A and J. Paragraph 121 satisfied. CEMS certified in 2001.	Completed
09: Heaters and Boilers SO2 NSPS	121	Fuel Gas H2S CEMS RATA	RATA's on H2S CEMS are conducted at least once every 3 years.	Ongoing
10: Benzene NESHAP	132	Amended TAB Report	Amended 2006 TAB was submitted.	Completed
10: Benzene NESHAP	134	BWN Compliance Plan	Corrective Action Plan was submitted.	Completed
10: Benzene NESHAP	135	BWN TAB Corrective Action EPA NOD Response	No requests received from EPA this period.	Completed
10: Benzene NESHAP	138	Single Carbon Canister Monitoring	If used, single carbon canister installations are monitored on a daily basis.	Ongoing
10: Benzene NESHAP	139	Single Carbon Canister Brkthru Replace	If used, single canisters operated by VLO are monitored per paragraph 139	Ongoing
10: Benzene NESHAP	140	EPA Carbon Canister Report	Two copies of carbon canister report were submitted to EPA.	Completed
10: Benzene NESHAP	141	Carbon Canister Breakthrough Definition	A definition of 100 ppm VOC/ 5 ppm benzene "breakthrough" for dual carbon canister systems used to control emissions in accordance with BWN provisions has been implemented.	Ongoing
10: Benzene NESHAP	142	Dual Carbon Canister Monitoring	Carbon breakthrough monitoring is conducted in accordance with §61.354(d).	Ongoing
10: Benzene NESHAP	143	Dual Carbon Canister Changeouts	Carbon canister replacements are conducted in compliance with X.143.(a) -- (c).	Ongoing
10: Benzene NESHAP	146	BWN Annual Review Program	Process changes are reviewed, and the BWON DACT spreadsheet is updated to include a new waste streams.	Ongoing
10: Benzene NESHAP	152	Annual Benzene TAB Spill Review	Spills are documented and tracked.	Ongoing
10: Benzene NESHAP	153	Annual BWN Sampler Training	Port Arthur conducts annual training of BWN samplers (Valero employees and contractors) per developed program.	Ongoing
10: Benzene NESHAP	154	Refresher SOP Training for BWN Control Equipment	Port Arthur conducts operator "refresher" training on standard operating procedures for BWN control equipment every 3 years.	Ongoing
10: Benzene NESHAP	154	Develop SOP for BWN Control Equipment	Port Arthur completed the development of standard operating procedures for all BWN control equipment. These standard operating procedures must be included in initial training for new operators.	Completed
10: Benzene NESHAP	156	Develop SOP for BWN Control Equipment	Port Arthur completed the development of standard operating procedures for all BWN control equipment. These standard operating procedures were included in initial training for new operators.	Completed
10: Benzene NESHAP	156	Complete Initial SOP Training for BWN Ctrl Equip.	Port Arthur completed initial training program for operators regarding standard operating procedures for BWN control equipment.	Completed
10: Benzene NESHAP	158	Slop Oil Schematics	Port Arthur developed schematics reflecting the movements of waste/slop/off-spec oil streams within the refinery.	Completed
10: Benzene NESHAP	161	Annual Slop Movement Documentation	The quantity of waste/slop/off-spec oil movements for benzene waste streams is documented through the Annual Downstream Confirmation of the TAB, routine waste shipping, operation records, and modifications to the EOL schematic.	Ongoing
10: Benzene NESHAP	164	BWN EOL Sampling Plan	An end of line sampling plan was developed and submitted to EPA.	Completed
10: Benzene NESHAP	165	Quarterly EOL Sampling	Port Arthur conducts quarterly end of line sampling and benzene quantification.	Ongoing
10: Benzene NESHAP	168	EOL Corrective Action Plan	If quarterly EOL results indicates exceedance of the annual target, a corrective action plan is submitted to EPA.	Ongoing

**Premcor Refining Group Inc.; Port Arthur Refinery
EPA Consent Decree Implementation**

CD Program	Paragraph	Description	Action Item Note	Status
10: Benzene NESHAP	176	Enhanced NESHAP FF Quarterly Report	Port Arthur includes in the 61.357(d)(6) and (7) quarterly reports the additional information listed in X.176.(i.) - (iii.). If EOL exceeds quarterly target but annual target is expected to be met, explain in this report.	Ongoing
13: Elective Refinery MACT I Audits	279	MACT 1 Audit Notification	Notice was submitted to EPA of the decision to perform a MACT I audit at the Port Arthur refinery within 90 days of date of lodging.	Completed
10: Benzene NESHAP	124.b.	BWN 6BQ Compliance	Comply with the 2 Mg compliance option upon completion of all corrective actions identified in the BWON audit report. If actions are not complete, update IMPACT due date to correspond to latest corrective action date	Completed
10: Benzene NESHAP	172.a.	Implement BWN Water Seal Inspections	Implemented monthly visual inspections of controlled BWON drains.	Completed
10: Benzene NESHAP	172.c.	Implement BWN Conservation Vent Inspections	Port Arthur sewer system has no conservation vents.	Ongoing
10: Benzene NESHAP	172.d.	Quarterly Oil/water Separator Monitoring	Initiated "no detectable emissions" monitoring of oil/water separators.	Ongoing
11: Leak Detection and Repair	185	LDAR Compliance Plan	A refinery specific plan for compliance with applicable LDAR regulations has been established and implemented. The plan contains the information specified in 185.(1.) - (6.).	Completed
11: Leak Detection and Repair	186	LDAR Training Program	An LDAR training program has been implemented at the refinery in accordance with the requirements specified in 186.(1.) - (4.).	Completed
11: Leak Detection and Repair	199	200 ppm Initial Attempt for Valves	A 200 ppm "initial attempt" at repair on all valves has been established.	Ongoing
11: Leak Detection and Repair	205	LDAR Electronic Database	An electronic database is used for storing and reporting LDAR data	Ongoing
11: Leak Detection and Repair	206	LDAR Dataloggers	Dataloggers and/or electronic data collection devices are used during all LDAR monitoring.	Ongoing
11: Leak Detection and Repair	207	LDAR Monitoring QA/QC Procedures	A procedure to ensure QA/QC review of all data generated by LDAR monitoring technicians has been implemented.	Ongoing
11: Leak Detection and Repair	208	LDAR Management Position	A written LDAR Program, including an LDAR management position, has been developed and implemented.	Ongoing
11: Leak Detection and Repair	209	New LDAR Equipment Tracking Program	The Management of Change (MOC) program is used by the Environmental Department to ensure that new sources added to the Refinery are incorporated into the LDAR program.	Ongoing
11: Leak Detection and Repair	211	Begin Daily LDAR Drift Assessments	Daily calibration drift assessments started 10/01/07.	Ongoing
11: Leak Detection and Repair	212	LDAR Chronic Leaker Program	A Chronic Leaker Replacement Program has been initiated.	Ongoing
11: Leak Detection and Repair	213	LDAR Delay of Repair Procedures	A Delay of Repair Procedure has been implemented.	Completed
11: Leak Detection and Repair	195	500 ppm Valve Monitoring	A 500 ppm leak definition and quarterly monitoring for all of the valves in LL or Vap. Service has been implemented. For valves over 500 ppm implement first attempt within 5 days.	Ongoing
11: Leak Detection and Repair	196	2000 ppm Pump Monitoring	A 2000 ppm leak definition and monthly monitoring for all pumps in LL has been implemented. For pumps over 2000 ppm implement first attempt within 5 days. For leaks between 2000 and the most stringent existing applicable leak definition, final repair is due 30 days after monitoring.	Ongoing
11: Leak Detection and Repair	214.a.	Submit LDAR Compliance Plan	A copy of the Written Refinery-Wide LDAR Program was submitted to EPA, to EPA Region 6.	Completed
11: Leak Detection and Repair	214.b.	LDAR Data Collection Certification	A certification that the refinery utilizes electronic data collection devices during LDAR monitoring was submitted.	Completed
11: Leak Detection and Repair	215.a.	January 2008 LDAR Certifications	The information specified in 215.(a.)iii, v, and vi. was included as part of the first semiannual NSPS and MACT LDAR report due after the CD was entered.	Completed
11: Leak Detection and Repair	215.a.	July 2008 LDAR Certifications and Info.	The information specified in 215.(a.)ii, iii, and vii. Was included as part of the semiannual NSPS and MACT LDAR report due after the CD was entered.	Completed
11: Leak Detection and Repair	215.a.	LDAR New Equip. Tracking Program Certification	The certification specified in 215.(a.)iv. was included as part of the first semiannual NSPS and MACT LDAR report due after the CD was entered.	Completed
11: Leak Detection and Repair	215.b.	Enhanced NSPS/MACT LDAR Semi-Annual Report	The information specified in 215.(b.). is included as part of the semiannual NSPS and MACT LDAR report.	Ongoing
12: Corrective Action	245A.(1)a.	DCU 843 UPS Upgrade	AFE PA08-906688. DCU-843 Redundant UPS. Completed 11/15/09.	Completed

**Premcor Refining Group Inc.; Port Arthur Refinery
EPA Consent Decree Implementation**

CD Program	Paragraph	Description	Action Item Note	Status
12: Corrective Action	245A.(1)b.	DCU 843 Cycle Task Schedule	For the coker's current cycle and for any subsequent cycle, a task schedule similar to Foster Wheeler's task schedule for the 18-hour cycle on the Delayed Coker 843 Wet Gas Compressor had been developed.	Completed
12: Corrective Action	245A.(2)a.	SGRU 1242 Control System Retrofit	An advanced compressor surge and molecular weight control systems on the existing SGRU 1242 Sats Gas Compressor was completed.	Completed
12: Corrective Action	245A.(2)b.	SGRU 1242 Compressor control/DCS Integration	The SGRU 1242 Sats Gas Compressor control system was integrated with the unit distributed control system.	Completed
12: Corrective Action	245A.(3)a.	Install Redundant Nozzle/Level Ind. on D-1250	Redundant nozzles/level transmitter/indication were installed on D-1250 Cold LP Separator OH KO Drum.	Completed
12: Corrective Action	245A.(3)b.	Relocate high level alarm on D1260	The level alarm on D1260 product stripper reflux drum was relocated.	Completed
12: Corrective Action	245A.(3)c.	Install Redundant Nozzle/Level Ind. on D-1260	Redundant nozzles/level transmitter/indication on D-1260 product stripper reflux drum were installed.	Completed
12: Corrective Action	245A.(3)d.	Differential Pressure Transmitters on T-1530	Differential pressure transmitters across dP indicator on T-1530 at HCU 942 were installed.	Completed
12: Corrective Action	245A.(3)e.	Redundant Pressure Indication on D-1290	Redundant pressure indication on D-1290 Fractionator Feed Flash Drum (stripper bottoms) at HCU 942 were installed.	Completed
12: Corrective Action	245A.(3)f.	Install Redundant Nozzle/Level Ind. on D-6850	Redundant nozzles/level transmitter/indication on D-6850 C3/C4 Amine Settler were installed.	Completed
12: Corrective Action	245A.(3)g.	Install Redundant Nozzle/Level Ind. on T-6880	Redundant nozzles/level transmitter/indication on T-6880 Coker Sponge Absorber were installed.	Completed
12: Corrective Action	245A.(3)h.	Automate Purge on T-101	An automate purge on T-101 Pump-around at ATU 7841 was installed.	Completed
12: Corrective Action	245A.(4)	Install Oil Skimming on T-4002	Oil skimming was installed on T-4002 spent amine.	Completed
12: Corrective Action	245A.(5)	Revamp D-102 Amine/Oil Coalescer	The D-102 Amine/Oil Coalescer at ATU 7841 was revamped.	Completed
12: Flaring Devices SO2 NSPS	234	Good Air Pollution Control Practices	"Good Air Pollution Control Practices" including during periods of startup, shutdown, and/or malfunction, have been adapted.	Completed
12: Flaring Devices SO2 NSPS	237	Flare Compliance Plan	Compliance Plan for Flaring Devices submitted 12/11/09.	Completed
12: Flaring Devices SO2 NSPS	238	2009 Flare Gas Recovery Comp. Install	Flare gas recovery system FGRU-7043, serving Flares 15, 18 & 20, started on 12/21/2010. Flare 13 is utilizing an AMP to comply with the Consent Decree.	Completed
12: Flaring Devices SO2 NSPS	239	NSPS J Compliance Certification for Flares	Compliance per paragraph 261 was certified with one of the four compliance methods listed in paragraph 235 with acceptance of NSPS applicability for each of the flaring devices as listed in App N.	Completed
12: Flaring Devices SO2 NSPS	240	Flare Performance Testing	Flare testing pursuant to §60.8 and §60.18 was conducted at Flare 13.	Completed
12: Inv. & Rpt. for Flaring Incidents	242	Begin RCFA for Flaring/TGI Incidents	RCFA reports are now being generated and submitted to U.S. EPA within 60 days of all affected flaring events.	Ongoing
12: Investigation and Reporting	241A.a.	CERCLA/EPCRA Audit Report	The CERCLA/EPCRA Compliance Review Report was submitted on 12/27/07. A PDF of the report is attached.	Completed
12: Investigation and Reporting	241A.b.	Update CERCLA/EPCRA Reporting Procedures	CERCLA/EPCRA release reporting procedures have been revised to ensure future compliance.	Completed
12: Investigation and Reporting	241A.c.	CERCLA/EPCRA Training	SAIC conducted CERCLA/EPCRA training for the environmental compliance staff.	Completed
12: Sulfur Recovery Plant (SRP) SO2 NSPS	221	SRP NSPS J Compliance	Achieved at all sulfur recovery units since 2005. Compliance with MACT UUU achieved simultaneously (rule overlap between UUU and J). CEMS or appropriate monitors results continuously tracked for assurance purposes.	Completed
12: Sulfur Recovery Plant (SRP) SO2 NSPS	226	Sulfur Pit Atm. Vent Prohibition	All routine sulfur pit emissions at the Port Arthur refinery were already routed to the tail gas incinerators prior to the Consent Decree.	Completed
12: Sulfur Recovery Plant (SRP) SO2 NSPS	229	SRP PMO Plan	SRP PMO Plan was developed and submitted including historical acid gas flaring info. contained in 229.A.	Completed
12: Sulfur Recovery Plant (SRP) SO2 NSPS	228.a.	ClausTrains Installation	Completed startup September 2006	Completed
12: Sulfur Recovery Plant (SRP) SO2 NSPS	228.b.	Amine Flash Drums' Revamp	New/larger rich amine flash drum F-405 at GFU-241/242 placed into service by Operations on 10/29/2009. Includes new flash drum, rich amine pumps, slop oil pumps, filters and instrumentation.	Completed
12: Sulfur Recovery Plant (SRP) SO2 NSPS	228.c.	Install GFU 243 Amine Drum	New rich amine flash drum at GFU-243 placed into service by Operations on 10/27/2009.	Completed
13: Elective Refinery MACT I Audits	278	MACT 1 Audit Report	The corrective action report was submitted to EPA.	Completed

**Premcor Refining Group Inc.; Port Arthur Refinery
EPA Consent Decree Implementation**

CD Program	Paragraph	Description	Action Item Note	Status
14: Permit Incorporation	291	Permit Application for FCCU SO2 Emission Limit	Complete	Completed
14: Permit Incorporation	291	Fuel Oil Combustion Permit Application	The current Title V permit limits Port Arthur heaters and boilers to gaseous fuel only.	Completed
14: Permit Incorporation	291	Title V Permit App. for SRP NSPS J Requirements	Title V Permit O-01498 already identifies NSPS Subparts A & J as applicable requirements for the refinery sulfur recovery units.	Completed
14: Permit Incorporation	291	Title V Permit Application for FCCU SO2 NSPS J.	Title V Permit O-01498 already identifies NSPS Subparts A & J as applicable requirements for the refinery FCC Unit.	Completed
14: Permit Incorporation	291	FCC NOx CEMS Permit Incorporation	N/A. Already a requirement of Flex Permit special condition 36.B.	Completed
14: Permit Incorporation	292	Title V Permit App. for NSPS J for Flares	Submitted minor modification applications to TCEQ for the Refinery Title V Permit and the HOUP Title V Permit.	Completed
14: Permit Incorporation	292	Permit App. for Interim Heater/Boiler NOx Limit	Application to alter NSR Permit 6825A to add new consent decree interim NOx limit (lb/MM BTU) submitted to TCEQ 12/23/2011.	Completed
14: Permit Incorporation	292	Permit App. for Final Heater/Boiler NOx Limit	Application to alter NSR Permit 6825A to add final consent decree limits submitted to TCEQ 12/17/2013.	Completed
14: Permit Incorporation	292	Title V Permit App. for NSPS J for Flares	Incorporation of NSPS J requirements for all flares listed in Appendix N was done by an Application for Minor Modification of Title V Site Operating Permit. Applications were submitted for Permit Nos. O-1498 and O-2229 on October 9, 2009. Copies of the applications are attached.	Completed
14: Permit Incorporation	292	Title V Permit App. for Heaters/Boilers NSPS J	NSPS J is already shown in the Port Arthur Title V permit as an applicable requirement for all fuel gas combustion devices.	Completed
14: Permit Incorporation	292	Permit Application for FCCU CO Emission Limit	Complete. The current NSR permit already incorporates the 500 ppm CO limit by reference. NSR 6825A currently states that the permit holder shall comply with 40 CFR 60 Subparts A & J, as well as 40 CFR 63 Subparts A & UUU which limit CO emissions at FCCUs at 500 ppm @ 0%O2...	Completed
14: Permit Incorporation	292	Permit Application for FCCU PM Emission Limit	Complete. The current NSR permit already incorporates the PM limit by reference. NSR 6825A currently states that the permit holder shall comply with 40 CFR 60 Subparts A & J, as well as 40 CFR 63 Subparts A & UUU which limit PM emissions at FCCUs to 1 lb/1000 lb coke burned.	Completed
14: Permit Incorporation	292	Permit Application for FCCU Opacity Limit	Not applicable. A wet gas scrubber was installed to control opacity/particulate from the FCC regenerator, negating the use of COMS. An alternative monitoring plan (AMP) request submitted to EPA in 2005 to use (in lieu of COMS) Agglo Filter Module (Venturi Section) pressure drop and scrubber liquid-to-air ratio. Response pending from EPA.	Completed
15: Emission Reduction Credits	302	Annual Emission Credit Report	The refinery submits EPA annual reports regarding the generation and use of emission reduction credits	Completed
16: General Recordkeeping/Reporting	308	Annual CD Progress Report	Semi-annual "Progress Reports" containing information specified in 308.(a.) thru (e.) are submitted to EPA.	Completed
19: Supplemental Environmental Projects	316.a.(1)	Community-Based Health Project	A Statement of Work ("SOW"), including a schedule for the completion, was submitted to EPA for the Community-Based Health Project.	Completed
19: Supplemental Environmental Projects	316.a.(2)	Submit SOW for Air Monitoring Project	A Statement of Work ("SOW"), including a schedule, and an estimated cost for the acquisition and operation of a mobile air monitoring van for the Jefferson County Local Emergency Planning Committee (LEPC), was submitted to EPA.	Completed
19: Supplemental Environmental Projects	316.a.(2)	Complete Air Monitoring Project	Payment of \$53,845.64 by letter to Jefferson County Local Emergency Planning Commission via Jeff. County Office of Emergency Mgmt. dated 08/27/2010 for purchase and outfitting the air monitoring vehicle pursuant to the EPA-approved SOW.	Completed
19: Supplemental Environmental Projects	316.a.(3)	Submit SOW for School Shelter-in-Place Project	A Statement of Work ("SOW"), including a schedule, and an estimated cost for each shelter-in-place system to be installed at the Booker T. Washington Elementary School and Memorial 9th Grade Center School in Port Arthur, was submitted to EPA.	Completed
19: Supplemental Environmental Projects	316.a.(3)	Complete School Shelter-in-Place Project	Funding for the required projects tendered to Port Arthur Independent School District on 02/17/2010 (Wilson Technology Theme School) and on 05/06/2010 (Washington Elementary School).	Completed
19: Supplemental Environmental Projects	316.a.(4)	Housing Emission Reduction Project	\$50,000 was deposited into an escrow account established by Premcor for the purpose of providing new low-NOx natural gas or electric water heaters to replace existing higher emitting water heaters in low-income housing in the Port Arthur area.	Completed

Premcor Refining Group Inc.; Port Arthur Refinery
EPA Consent Decree Implementation

CD Program	Paragraph	Description	Action Item Note	Status
19: Supplemental Environmental Projects	316.a.(5)	VOC Reduction Project	AFE PA06-582036 - GFU-241 RELIEF VALVES TO FLARE completed 12/22/2008 at \$5.85MM.	Completed

Appendix 5

List of Heaters and Boilers

Port Arthur Refinery Consent Decree-Affected Heaters and Boilers

Refinery	Source Name	Source Description	NOx Control	Status (July 11, 2014)
Port Arthur	AVU-146-H1	Atmos Crude Unit No. 146 H-101	Low-NOx Burners	Operational
Port Arthur	AVU-146-H2	Vac Crude Unit No. 146 H-102A	Low-NOx Burners	Operational
Port Arthur	AVU-147-H101	Atmos Crude Unit No. 147 HTR-1	Low-NOx Burners	Operational
Port Arthur	AVU-147-H102	Atmos Crude Unit No. 147 HTR-2	Low-NOx Burners	Operational
Port Arthur	GRU-241-H1	Gulfing Unit No. 241 B-101	Low-NOx Burners	Operational
Port Arthur	GRU-242-H2	Gulfing Unit No. 242 B-201	Low-NOx Burners	Operational
Port Arthur	GRU-243-H1	Gulfing Unit No. 243 B-301	Low-NOx Burners	Operational
Port Arthur	HFAU-443-H1	HF Alkylation Unit No. 443 H-1	Low-NOx Burners	Operational
Port Arthur	DCU-843-H1	DCU No. 843 H-1000	Low-NOx Burners	Operational
Port Arthur	DCU-843-H2	DCU No. 843 H-2000	Low-NOx Burners	Operational
Port Arthur	DCU-843-H3	DCU No. 843 H-3000	Low-NOx Burners	Operational
Port Arthur	HCU-942-H1	HCU No. 942 F-1000	Low-NOx Burners	Operational
Port Arthur	HCU-942-H2	HCU No. 942 F-1300	Low-NOx Burners	Operational
Port Arthur	HCU-943-H1	HCU Reactor 1 Furnace	Low-NOx Burners	Operational
Port Arthur	HCU-943-H2	HCU Reactor 2 Furnace	Low-NOx Burners	Operational
Port Arthur	HCU-943-H3	HCU Fractionator Feed Furnace	Low-NOx Burners + Selective Catalytic Reduction	Operational
Port Arthur	CRU-1344-H1	CRU No. 1344 H-1	Low-NOx Burners	Operational
Port Arthur	CRU-1344-H-33	CRU No. 1344 H-33	Low-NOx Burners	Operational
Port Arthur	CRU-1344-H-32	CRU No. 1344 H-32	Low-NOx Burners	Operational
Port Arthur	CRU-1344-H-2	CRU No. 1344 H-2	Low-NOx Burners	Operational
Port Arthur	CRU-1344-H-3	CRU No. 1344 H-3	Low-NOx Burners	Operational
Port Arthur	BH15-41	Boiler House No. 15 BLR 41	Low-NOx Burners + Flue Gas Recirculation	Operational
Port Arthur	BH15-42	Boiler House No. 15 BLR 42	Low-NOx Burners + Flue Gas Recirculation	Shut down for low-NOx burner + flue gas recirculation retrofit
Port Arthur	BH15-43	Boiler House No. 15 BLR 43	Low-NOx Burners + Flue Gas Recirculation	Operational
Port Arthur	BH16-31	Boiler House No. 16 BLR 31	Low-NOx Burners	Shut down on 1/28/14
Port Arthur	BH16-32	Boiler House No. 16 BLR 32	Low-NOx Burners	Shut down on 1/29/14
Port Arthur	BH16-33	Boiler House No. 16 BLR 33	Low-NOx Burners	Shut down on 1/30/14
Port Arthur	BH19-1	Boiler House No. 19 BLR 1	Low-NOx Burners + Selective Catalytic Reduction	Under construction
Port Arthur	BH19-2	Boiler House No. 19 BLR 2	Low-NOx Burners + Selective Catalytic Reduction	Under construction
Port Arthur	BH19-3	Boiler House No. 19 BLR 3	Low-NOx Burners + Selective Catalytic Reduction	Under construction

Appendix 6

List of CEMs Required by CD

Valero / Premcor Port Arthur Refinery
 114 CAA Consent Decree CEMS List
 16-Jun-14

Order Number	Unit	Source	CEMS Analyzer
✓ 1	DCU-843	D-1020 Refinery Fuel Gas	H2S
✓ 2	DCU-843	F1000	O2, NOx
✓ 3	DCU-843	F2000	O2, NOx
✓ 4	DCU-843	F3000	O2, NOx
✓ 5	HCU-942	F-1000, 2000, 3000 ¹³⁰⁰ (shared stack)	O2, NOx
✓ 6	AVU-147	F-1100	O2, NOx
✓ 7	AVU-147	F-1200	O2, NOx
✓ 8	SRU-545	SCOT 3 TGI	O2, SO2
✓ 9	SRU-546	SCOT 4 TGI	O2, SO2
✓ 10	HCU-943	F-1, F-2 (shared stack)	O2, NOx
✓ 11	HCU-943	F-3	O2, NOx
✓ 12	SGRU 7945	D-1502 Refinery Fuel Gas	H2S
✓ 13	1344 CRU	H-1 Heater	O2, NOx
✓ 14	1344 CRU	H-2,3 & 32 Heaters (shared stack)	O2, NOx
✓ 15	HFAU-443	H-1 Heater	O2, NOx
✓ 16	15 BH	41 Boiler ^{NOx?}	O2, NOx
✓ 17	15 BH	5.2 ETO 42 Boiler "	O2, NOx
✓ 18	15 BH	43 Boiler '	O2, NOx

Valero / Premcor Port Arthur Refinery
 114 CAA Consent Decree CEMS List
 16-Jun-14

Order Number	Unit	Source	CEMS Analyzer
✓ 19	AVU-146	H-101 Atmospheric Heater South ²	O2, NOx
✓ 20	AVU-146	H-101 Atmospheric Heater North ¹	O2, NOx
✓ 21	AVU-146	H-101 Cold By-pass	O2, NOx
✓ 22	AVU-146	H-102A-B Vacuum Heater	O2, NOx
✓ 23	FCCU 1241	Wet Gas Scrubber	O2, CO, NOx, SO2
✓ 24	Gas Dispatcher (Office 54)	DR-124 Refinery Fuel Gas	H2S
25	SRU-543	SCOT 1 TGI	O2, SO2
✓ 26	SRU-544	402 SCOT 2 TGI	O2, SO2

Appendix 7

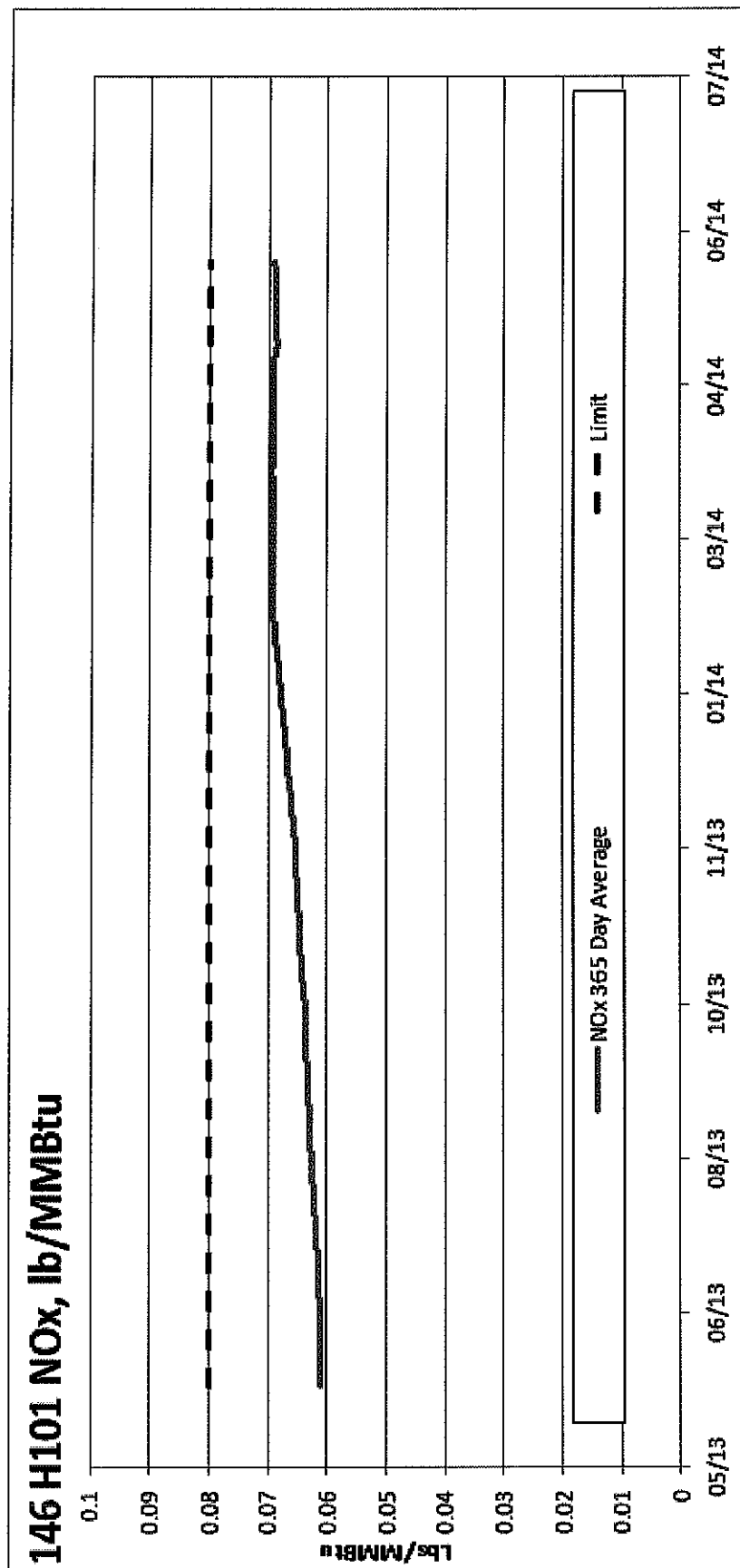
Heaters and Boilers NO_x Emissions Trend

Emissions Trends

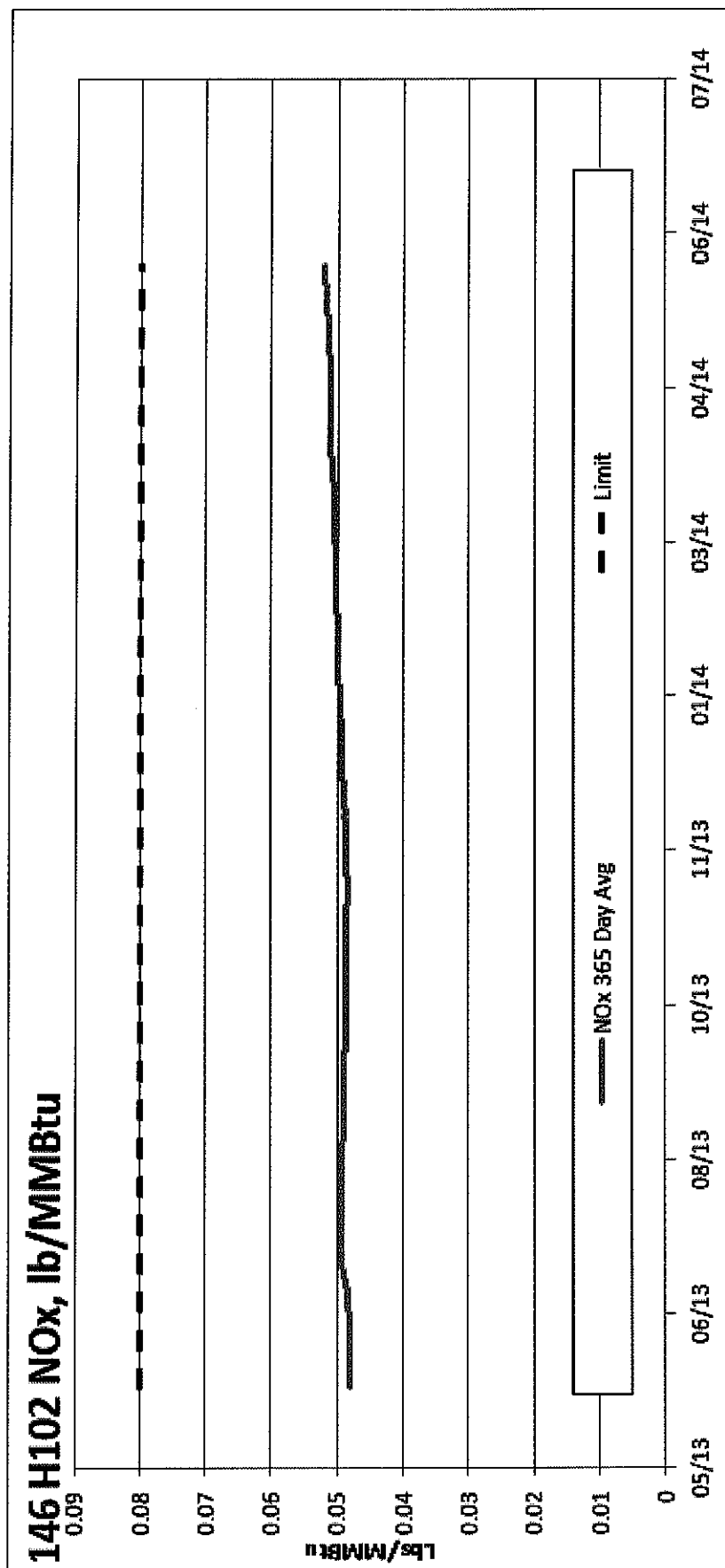
EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU

Valero Port Arthur Refinery

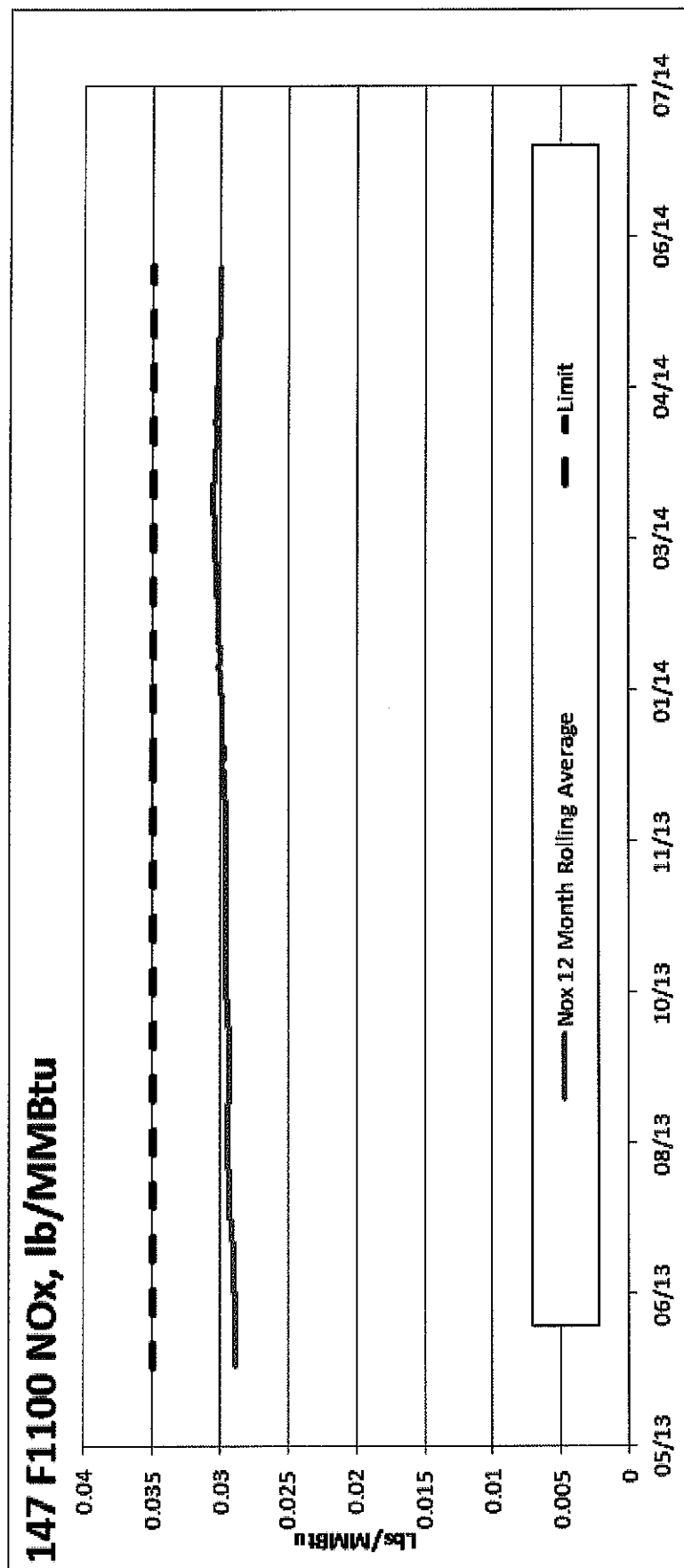
June 1, 2013 - June 1, 2014



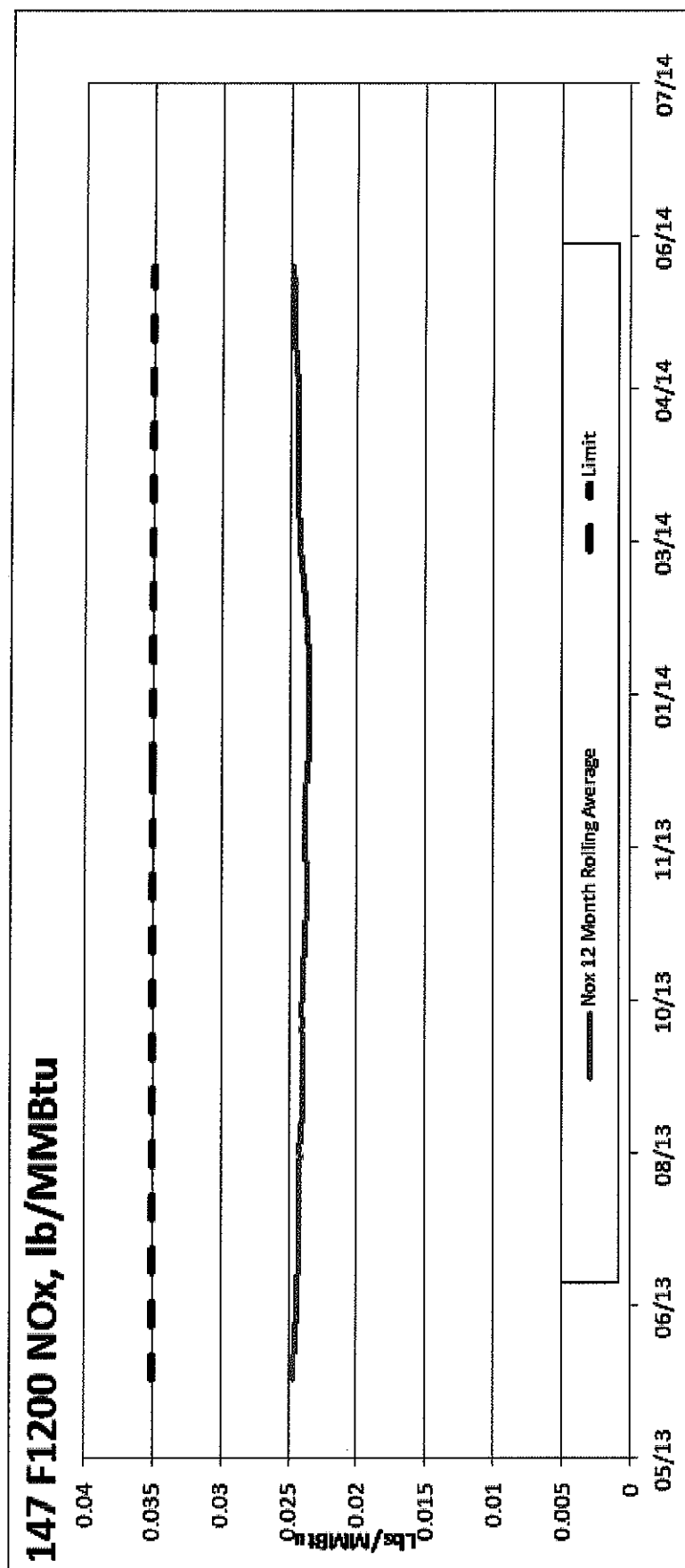
Emissions Trends
 EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU
Valero Port Arthur Refinery
 June 1, 2013 - June 1, 2014



Emissions Trends
 EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU
Valero Port Arthur Refinery
 June 1, 2013 - June 1, 2014



Emissions Trends
 EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU
Valero Port Arthur Refinery
 June 1, 2013 - June 1, 2014

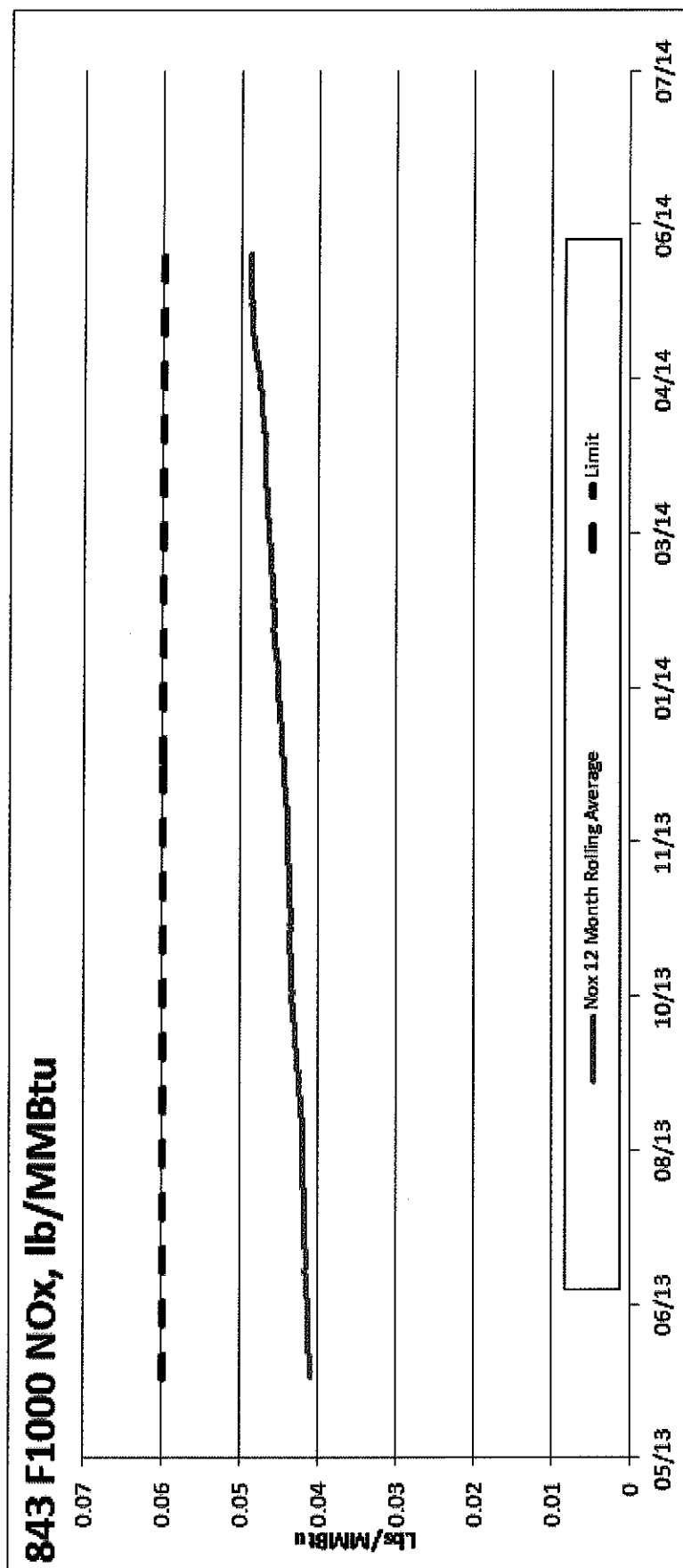


Emissions Trends

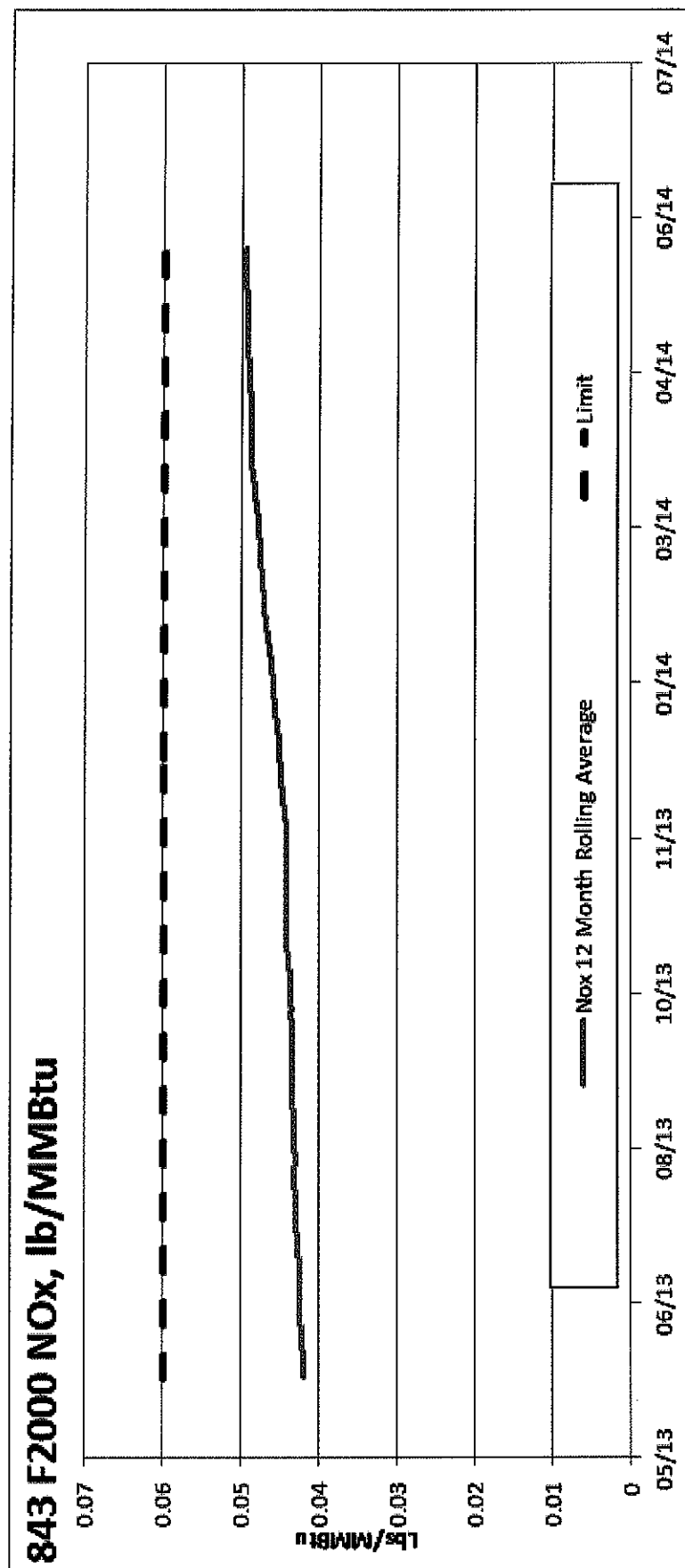
EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU

Valero Port Arthur Refinery

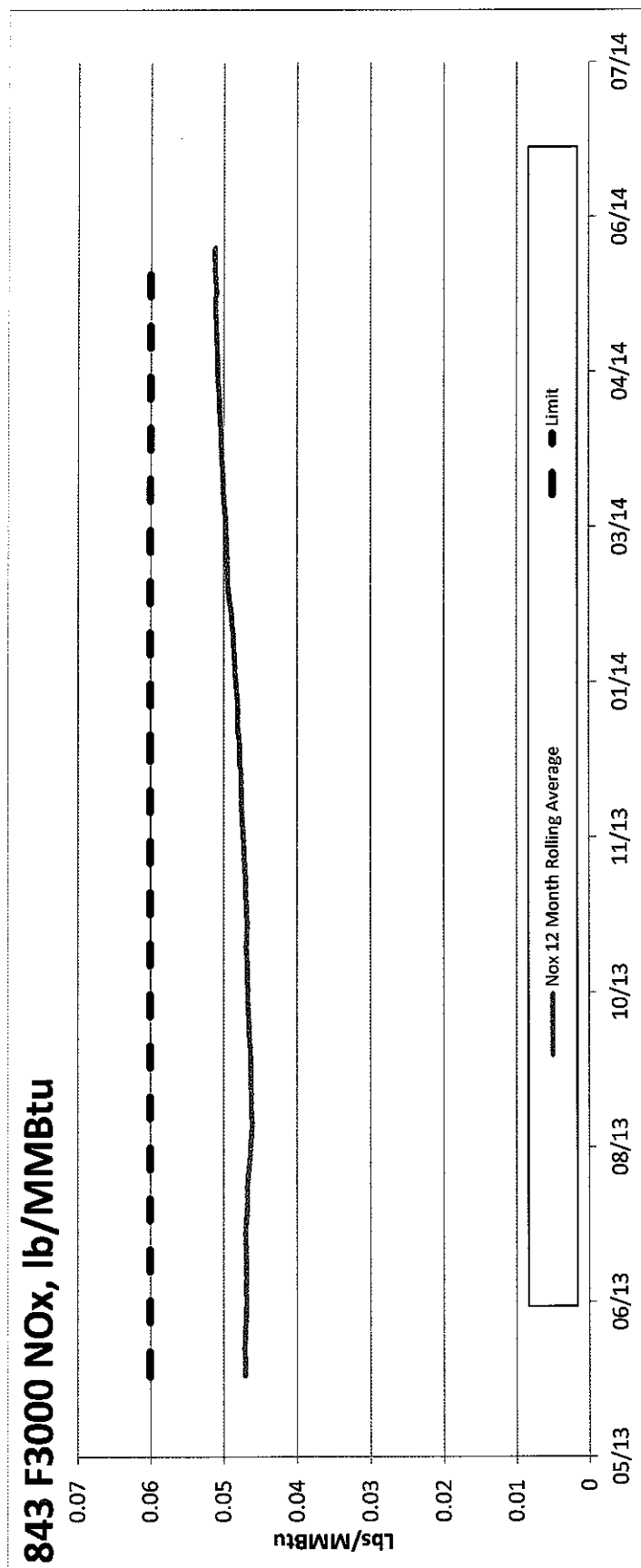
June 1, 2013 - June 1, 2014



Emissions Trends
 EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU
Valero Port Arthur Refinery
 June 1, 2013 - June 1, 2014



Emissions Trends
 EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU
Valero Port Arthur Refinery
 June 1, 2013 - June 1, 2014



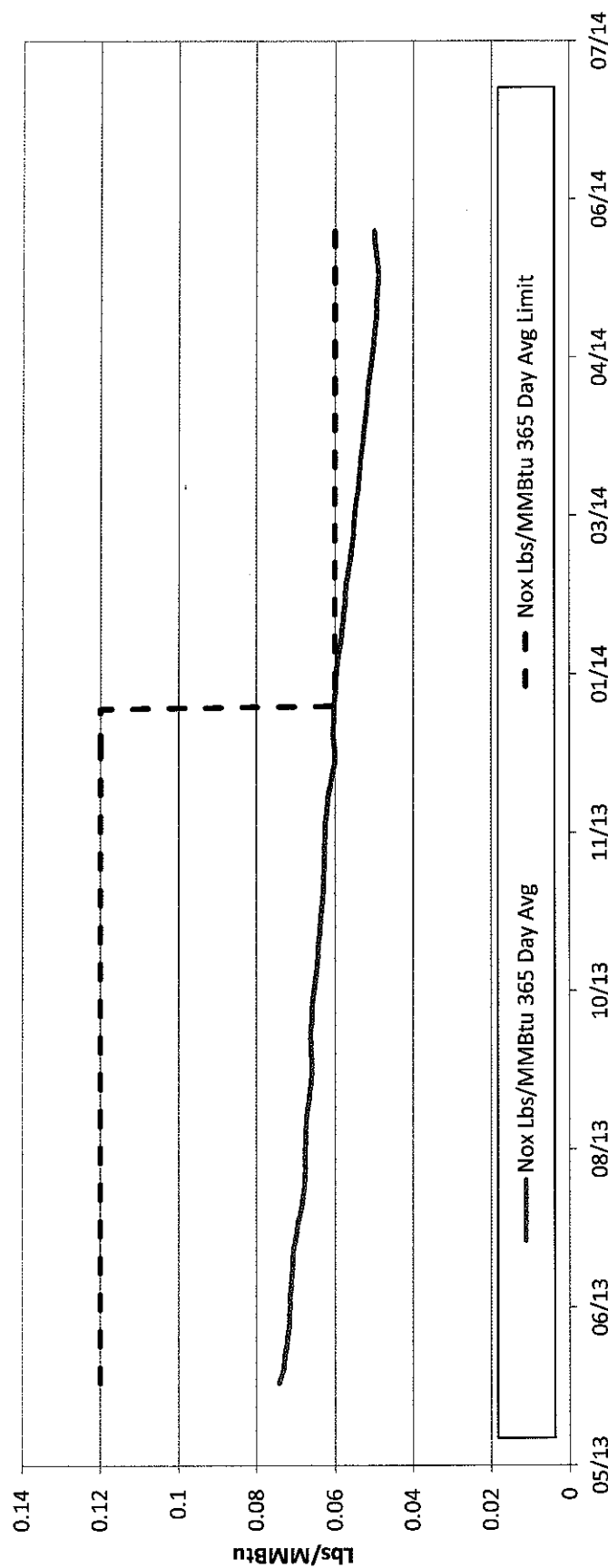
Emissions Trends

EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU

Valero Port Arthur Refinery

June 1, 2013 - June 1, 2014

BH 15-41 Nox 365 Day Average

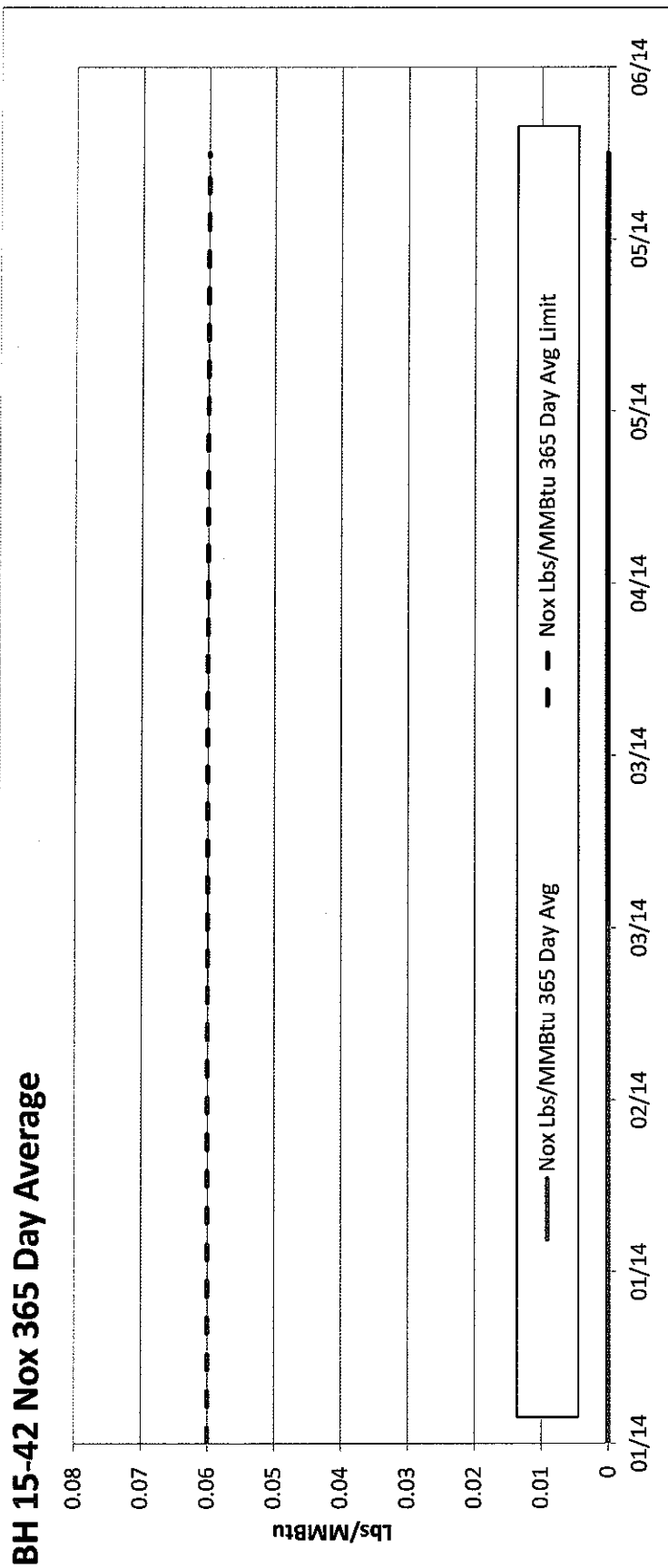


Emissions Trends

EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU

Valero Port Arthur Refinery

June 1, 2013 - June 1, 2014



Affected Source under 114 CD, effective January 2014

Shutdown for Low-NOx Burner + Flue Gas

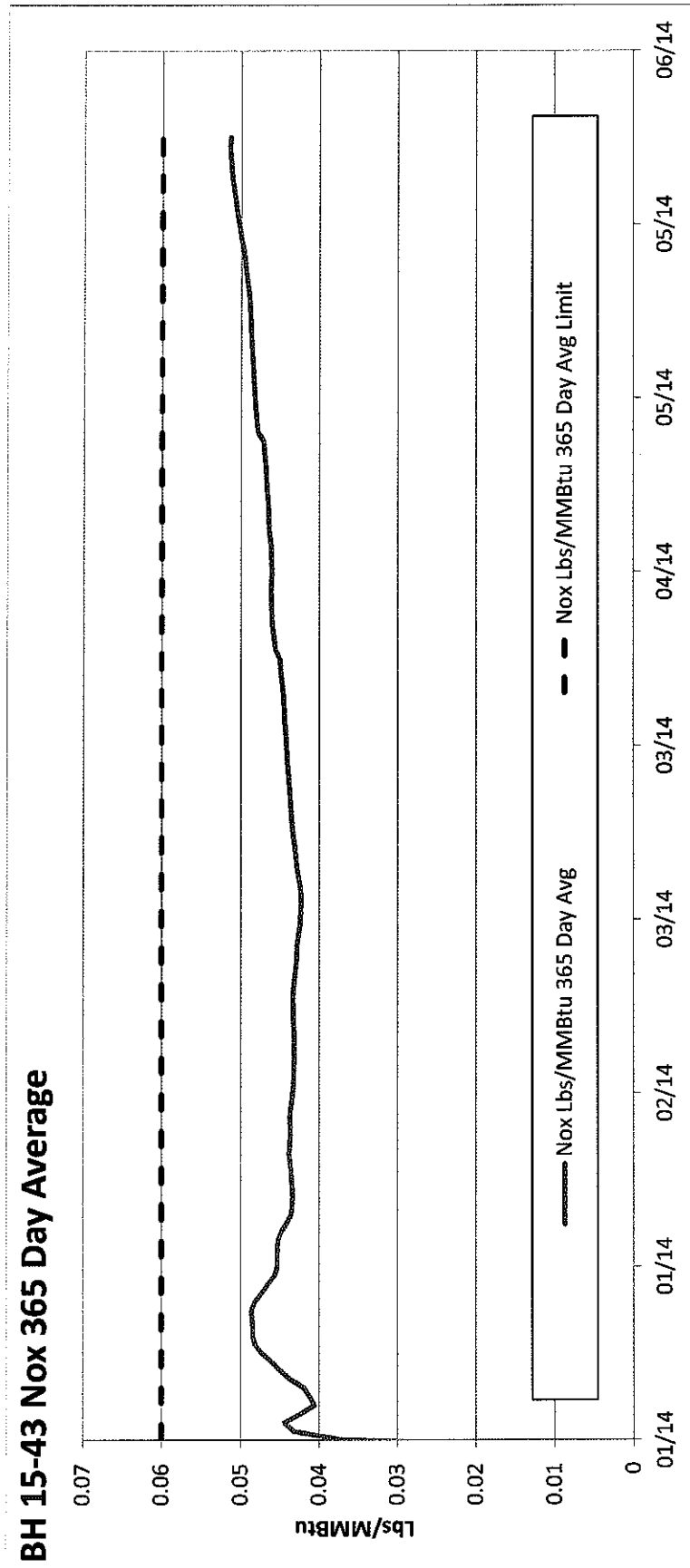
Recirculation Retrofit

Emissions Trends

EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU

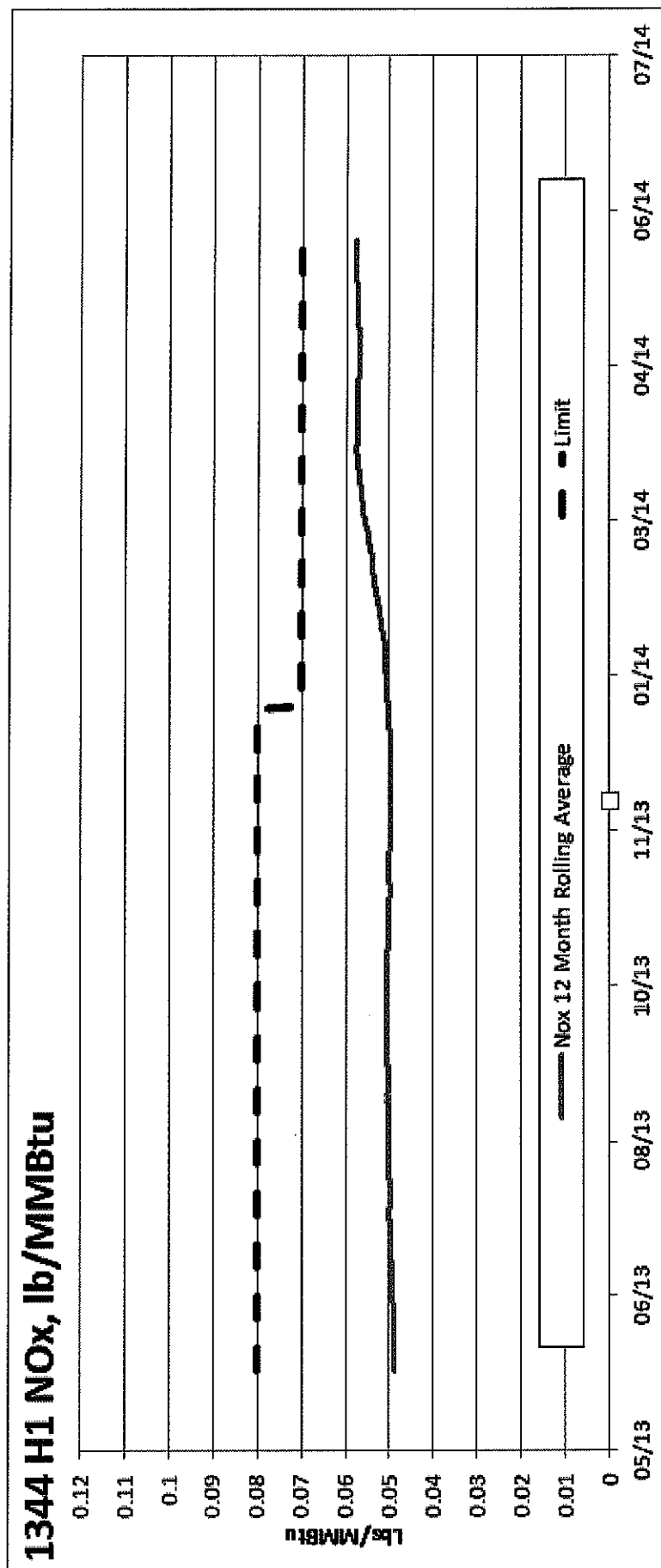
Valero Port Arthur Refinery

June 1, 2013 - June 1, 2014



Affected Source under 114 CD, effective January 2014

Emissions Trends
 EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU
Valero Port Arthur Refinery
 June 1, 2013 - June 1, 2014

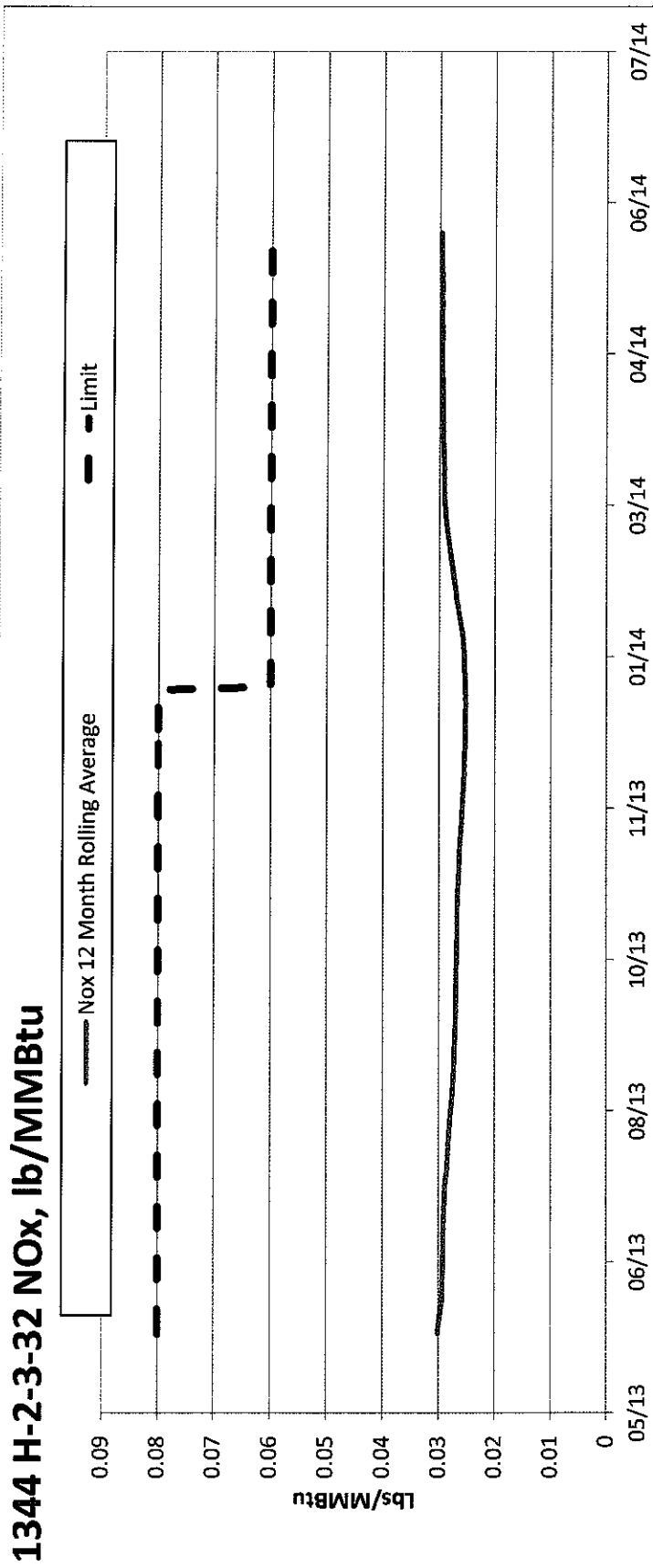


Emissions Trends

EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU

Valero Port Arthur Refinery

June 1, 2013 - June 1, 2014

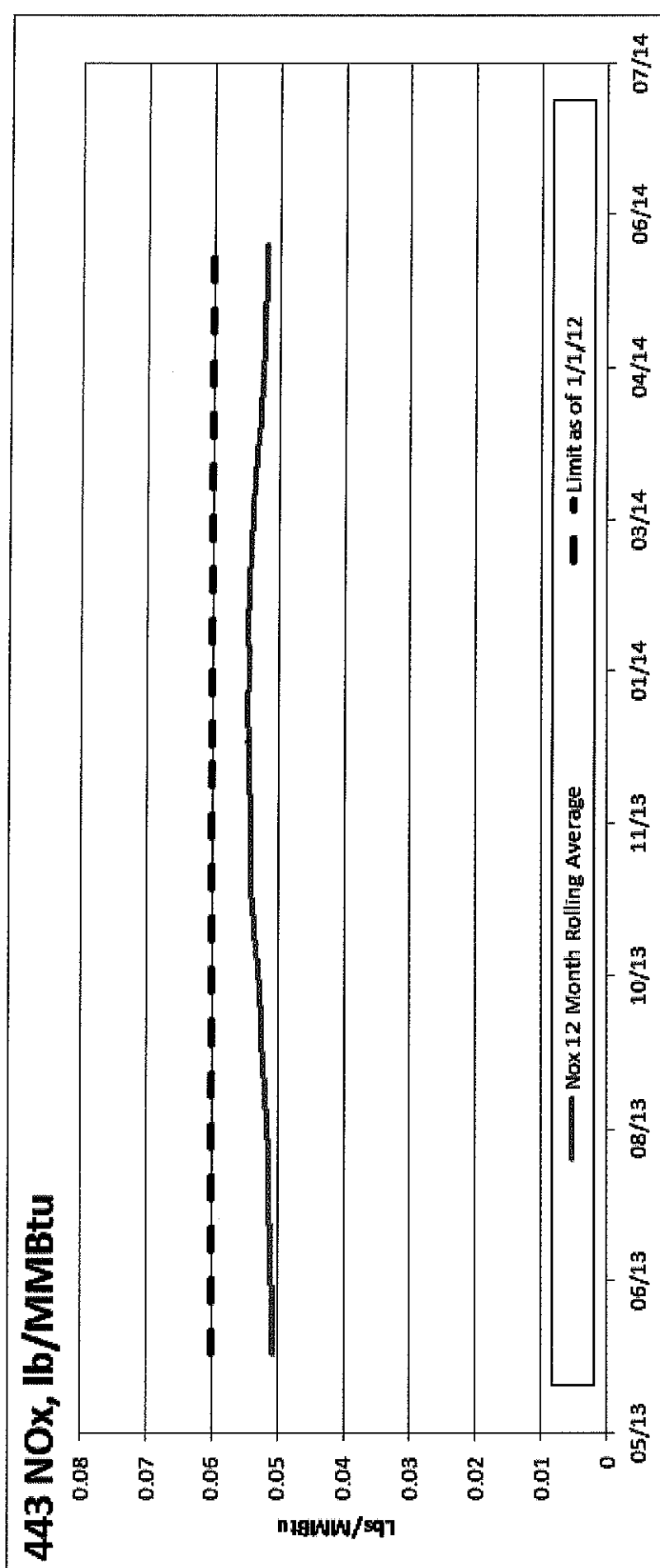


Emissions Trends

EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU

Valero Port Arthur Refinery

June 1, 2013 - June 1, 2014

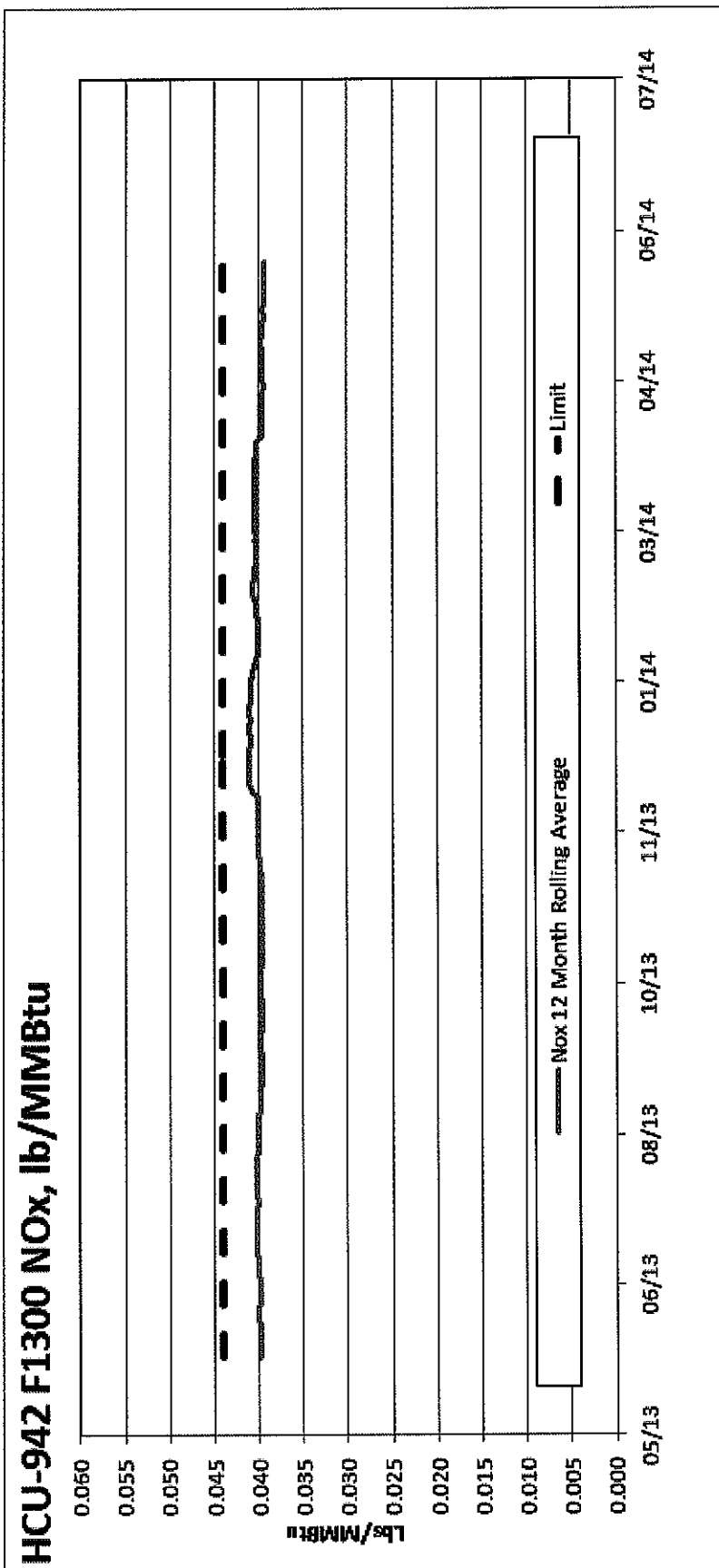


Emissions Trends

EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU

Valero Port Arthur Refinery

June 1, 2013 - June 1, 2014



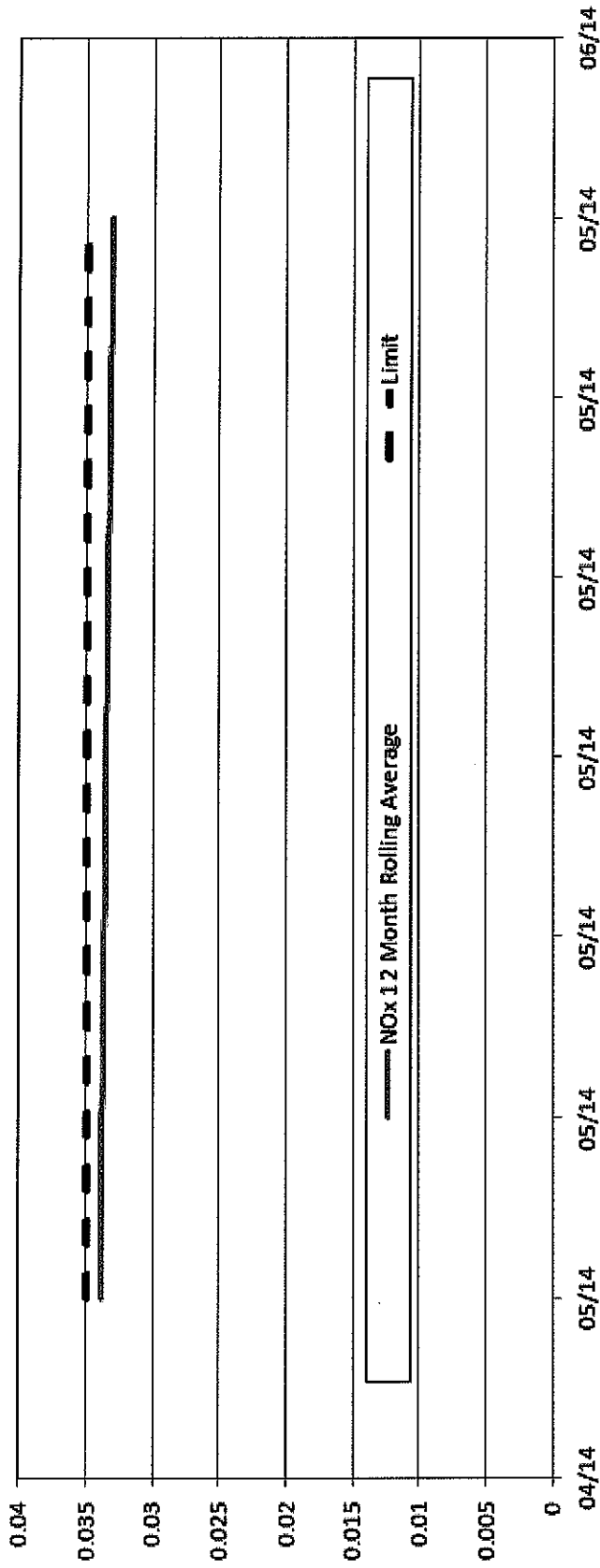
Emissions Trends

EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU

Valero Port Arthur Refinery

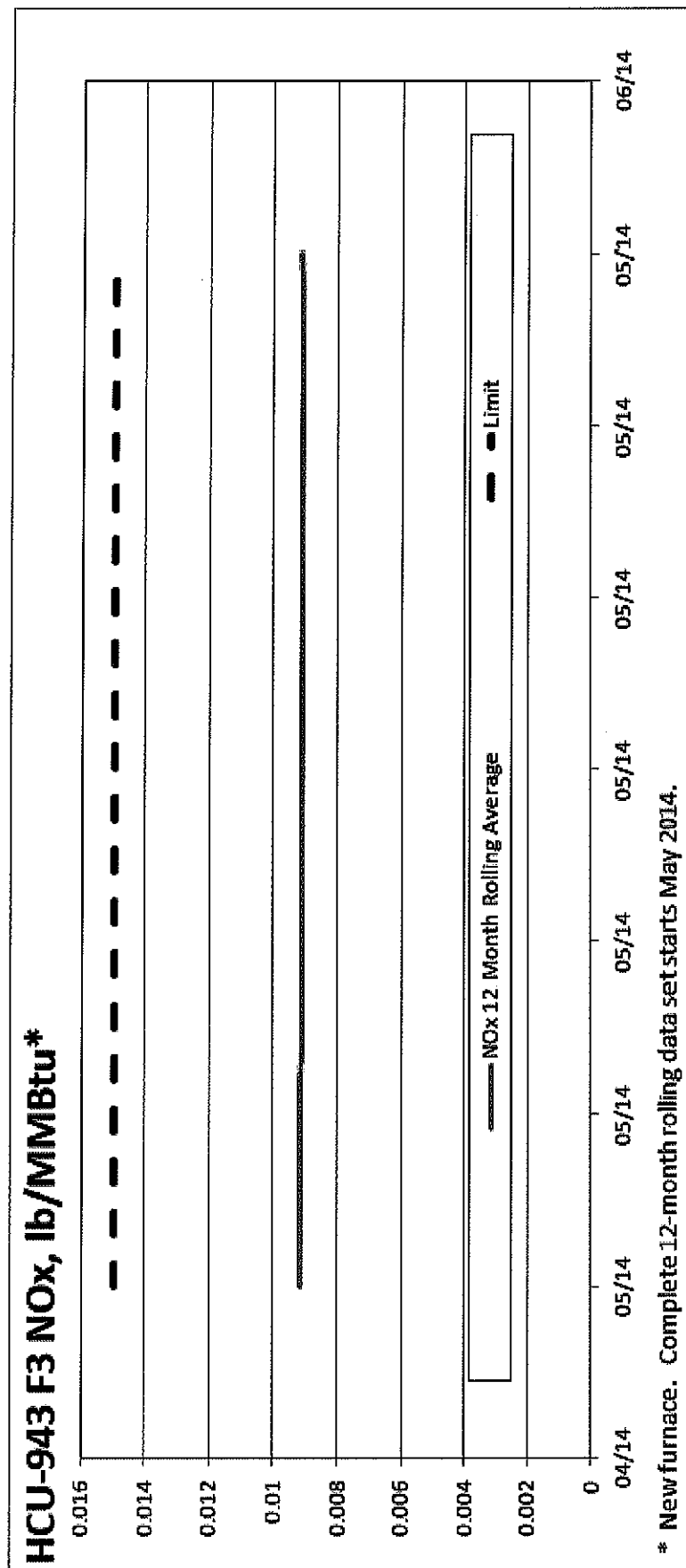
June 1, 2013 - June 1, 2014

HCU-943 F1 & F2 NOx, lb/MMBtu*



* New furnace. Complete 12-month rolling data set starts May 2014.

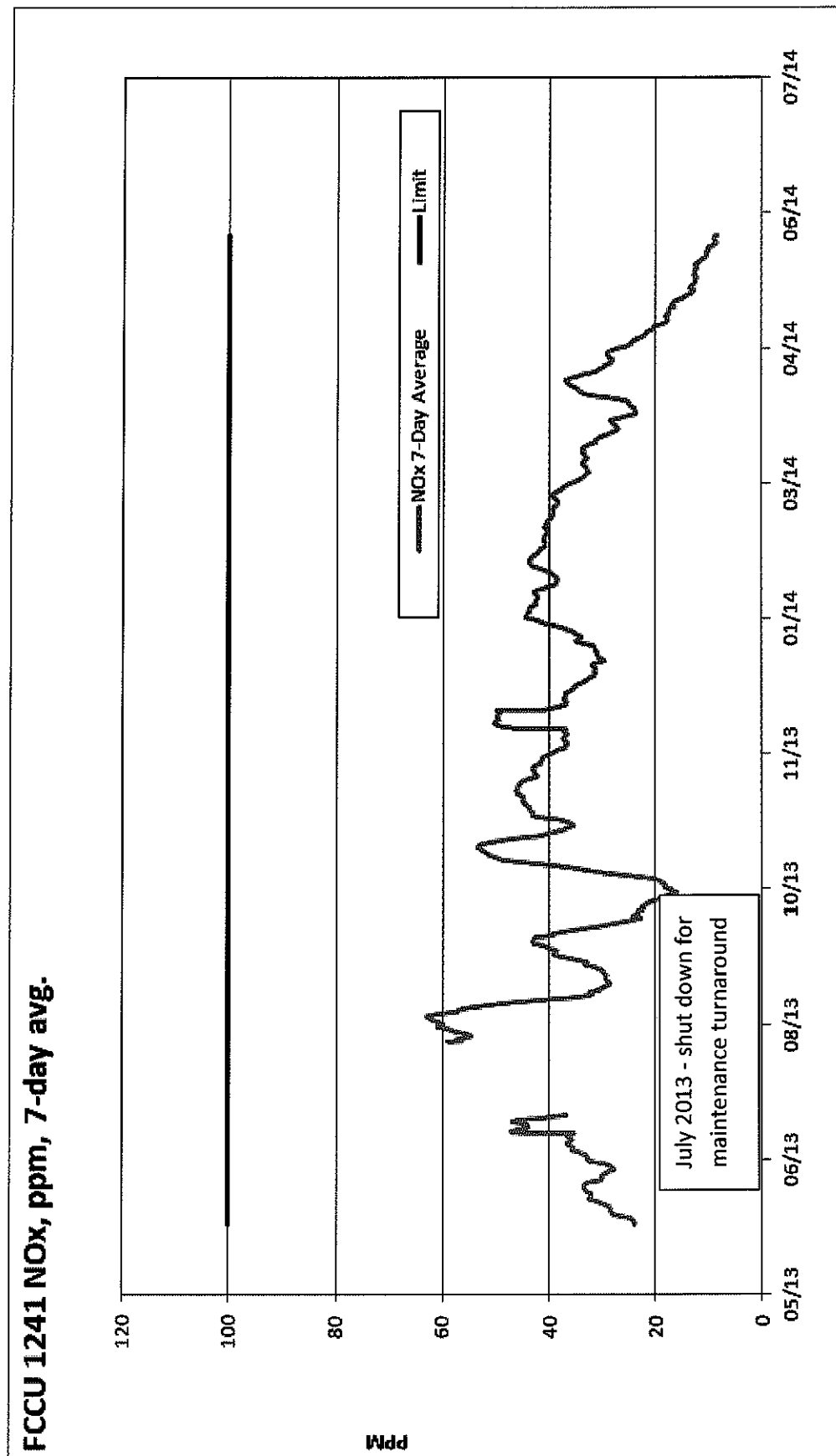
Emissions Trends
EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU
Valero Port Arthur Refinery
June 1, 2013 - June 1, 2014



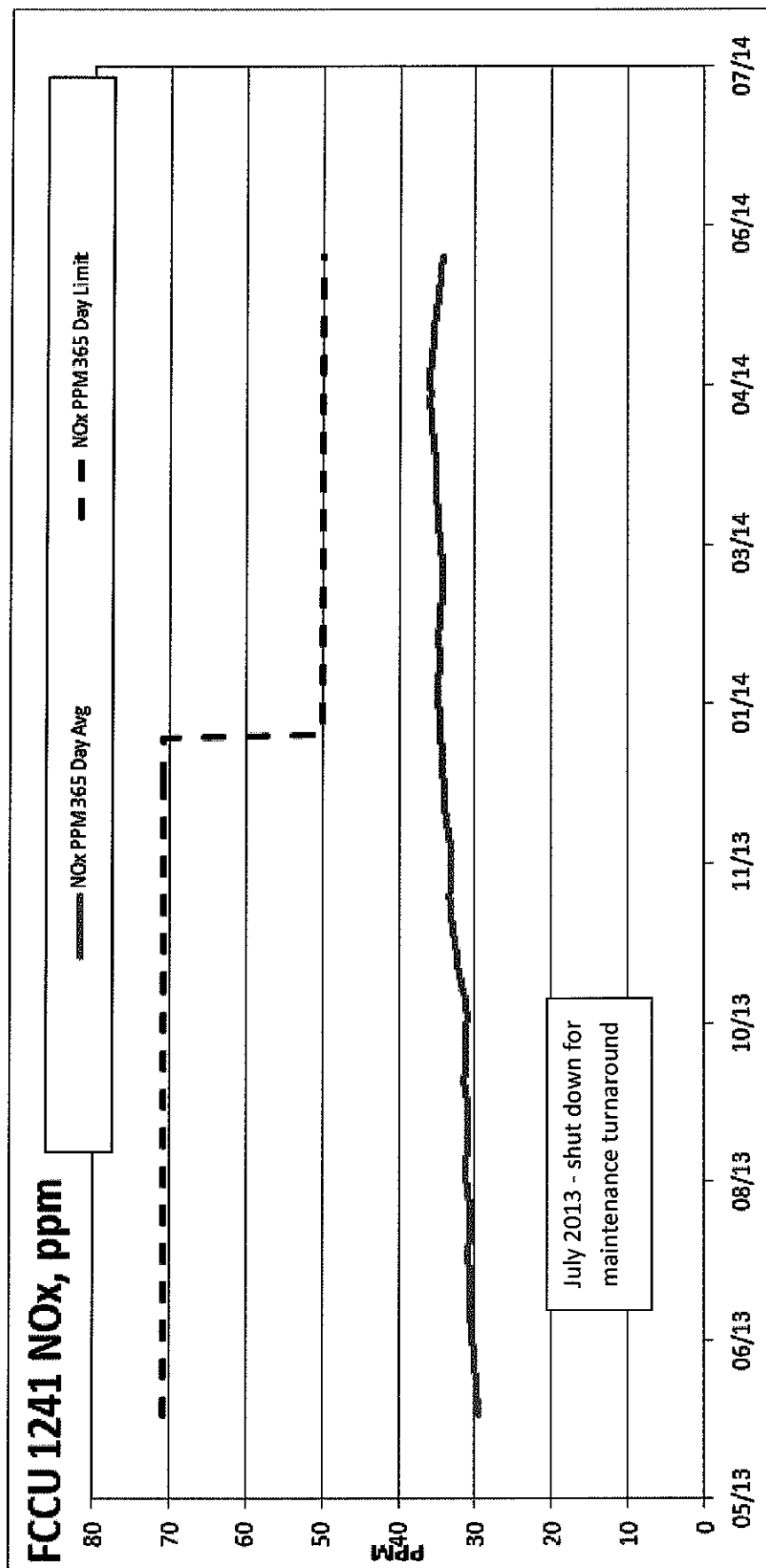
Appendix 8

FCCU NO_x Emission Trend

Emissions Trends
 EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU
Valero Port Arthur Refinery
 June 1, 2013 - June 1, 2014



Emissions Trends
 EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU
Valero Port Arthur Refinery
 June 1, 2013 - June 1, 2014

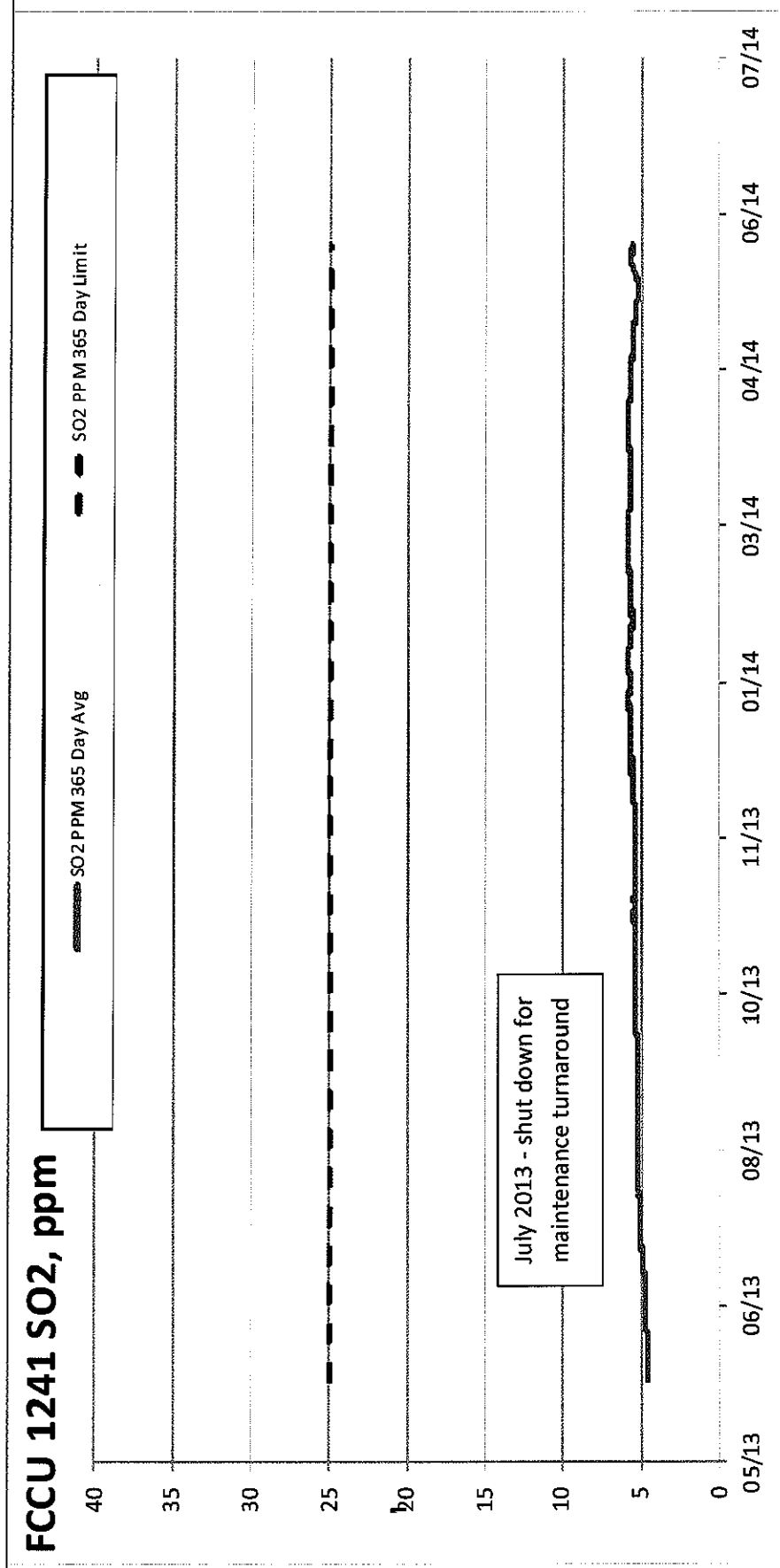


Appendix 9

FCCU SO₂ Emission Trend

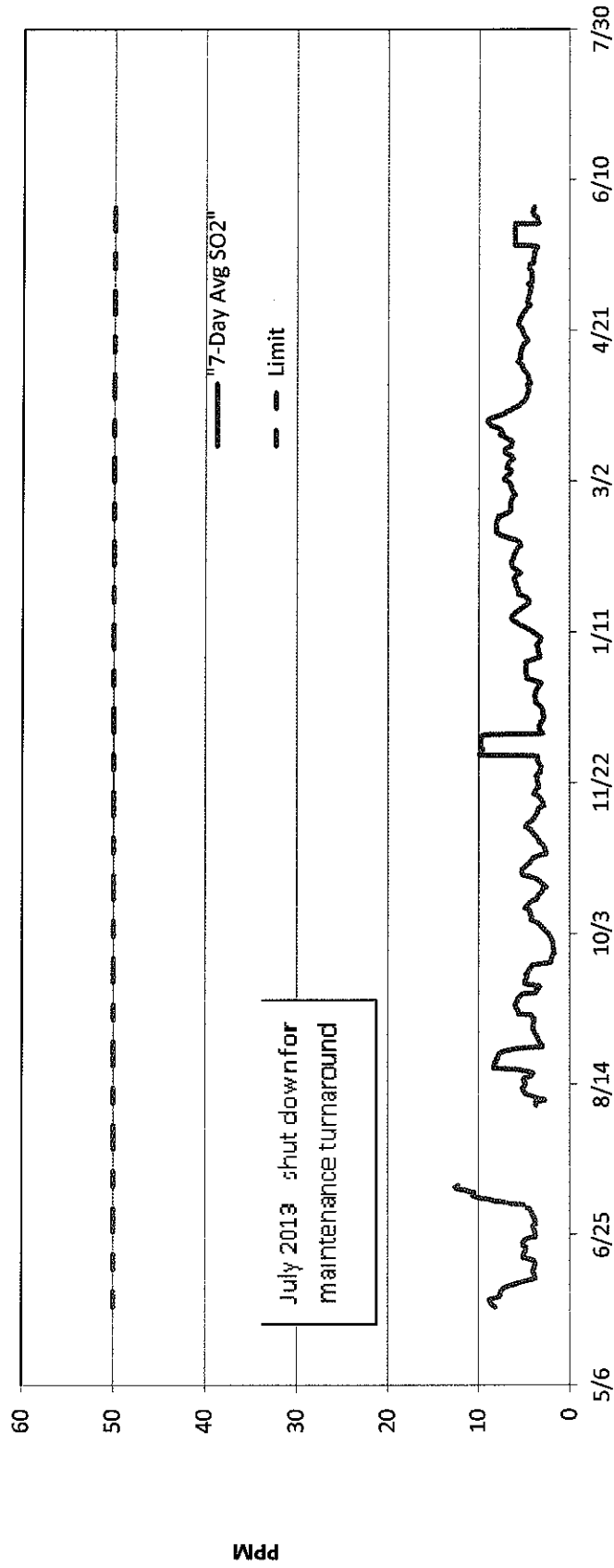
Emissions Trends

EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU
Valero Port Arthur Refinery
June 1, 2013 - June 1, 2014



Emissions Trends
 EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU
Valero Port Arthur Refinery
 June 1, 2013 - June 1, 2014

FCCU 1241 SO₂, ppm, 7-day avg.



Appendix 10

FCCU CO Emission Trend

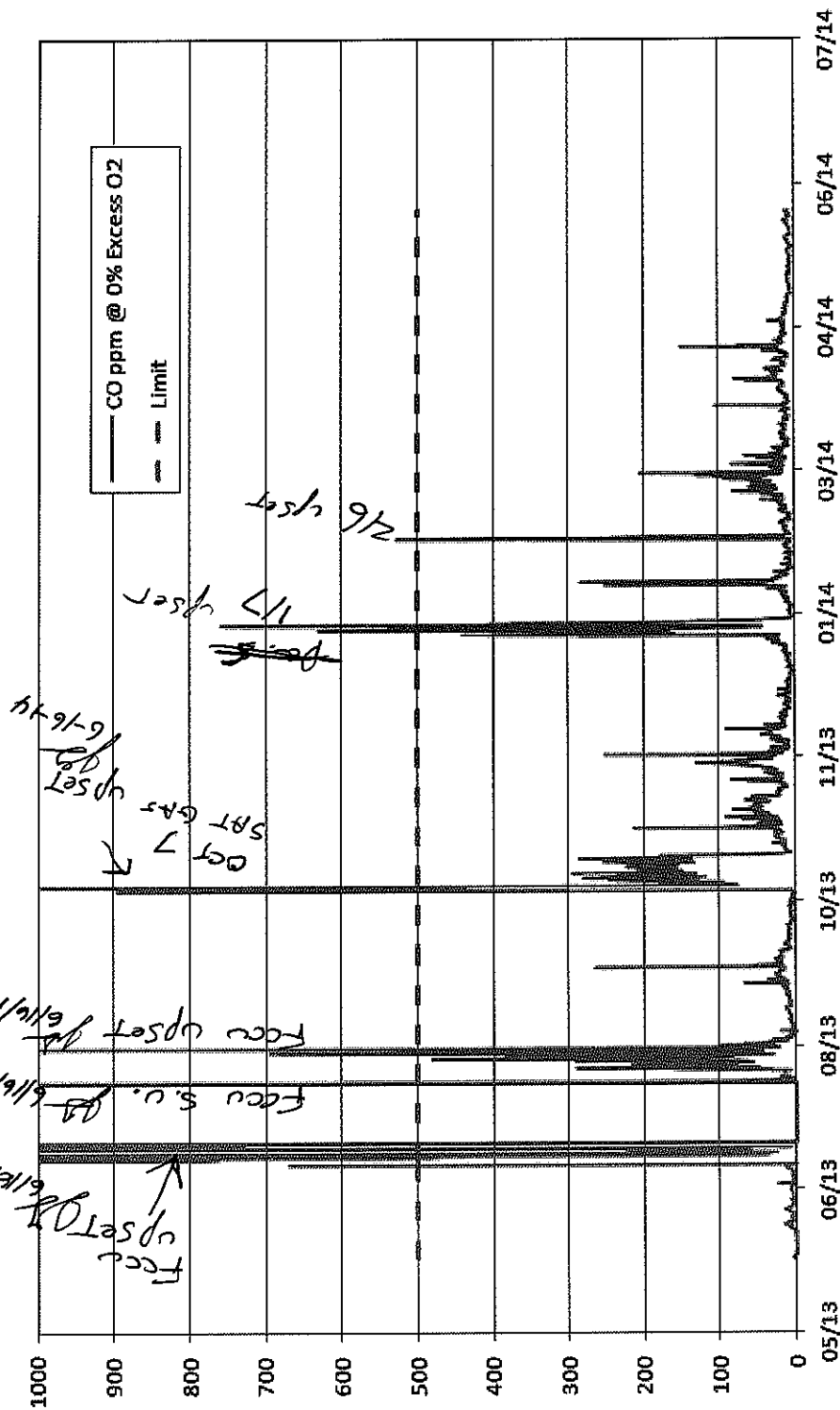
Emissions Trends

EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU

Valero Port Arthur Refinery

June 1, 2013 - June 1, 2014

FCCU 1241 CO, ppm Corrected to 0% Excess O₂, 1-hour avg.



July 2013 - shut down for maintenance turnaround

FCC WGS CO Exceedances - 2014 (YTD)

Valero Premcor Port Arthur Refinery

Date:

6/16/2014

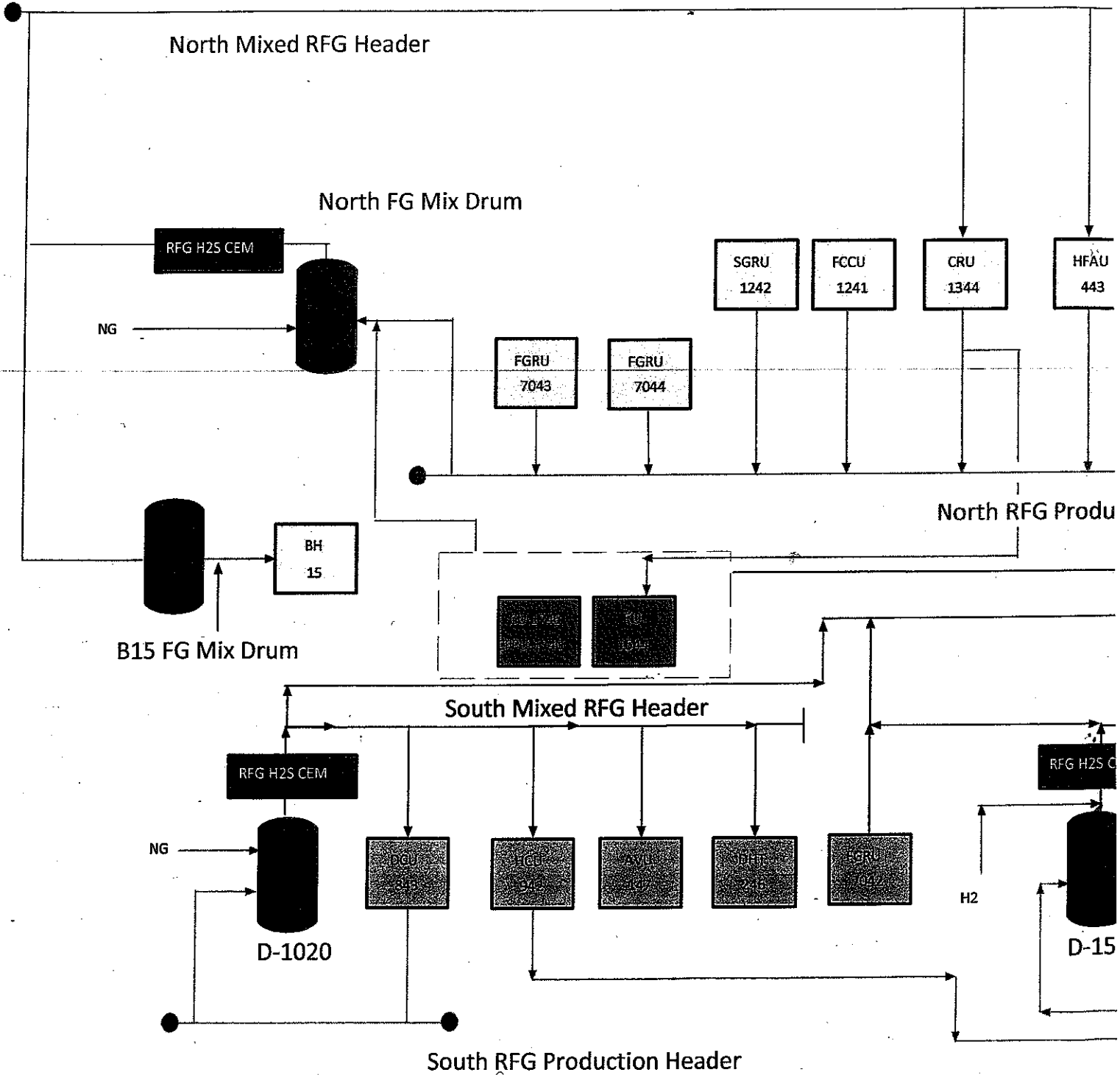
Date	Cause	Corrective Actions
1/7/2014 4:00	Incomplete combustion while running at reduced rates.	Combustion promoter was added and regen risers temperature was increased 2 degrees.
2/6/2014 9:00	The FCC regenerator bed temperature dropped while lowering feed rates to manage yard wet gas during the shutdown of compressor K-2300 at SGRU-1242.	Operations made adjustment to the air rings and reactor stripping steam to increase regenerator bed temperature.

Appendix 11

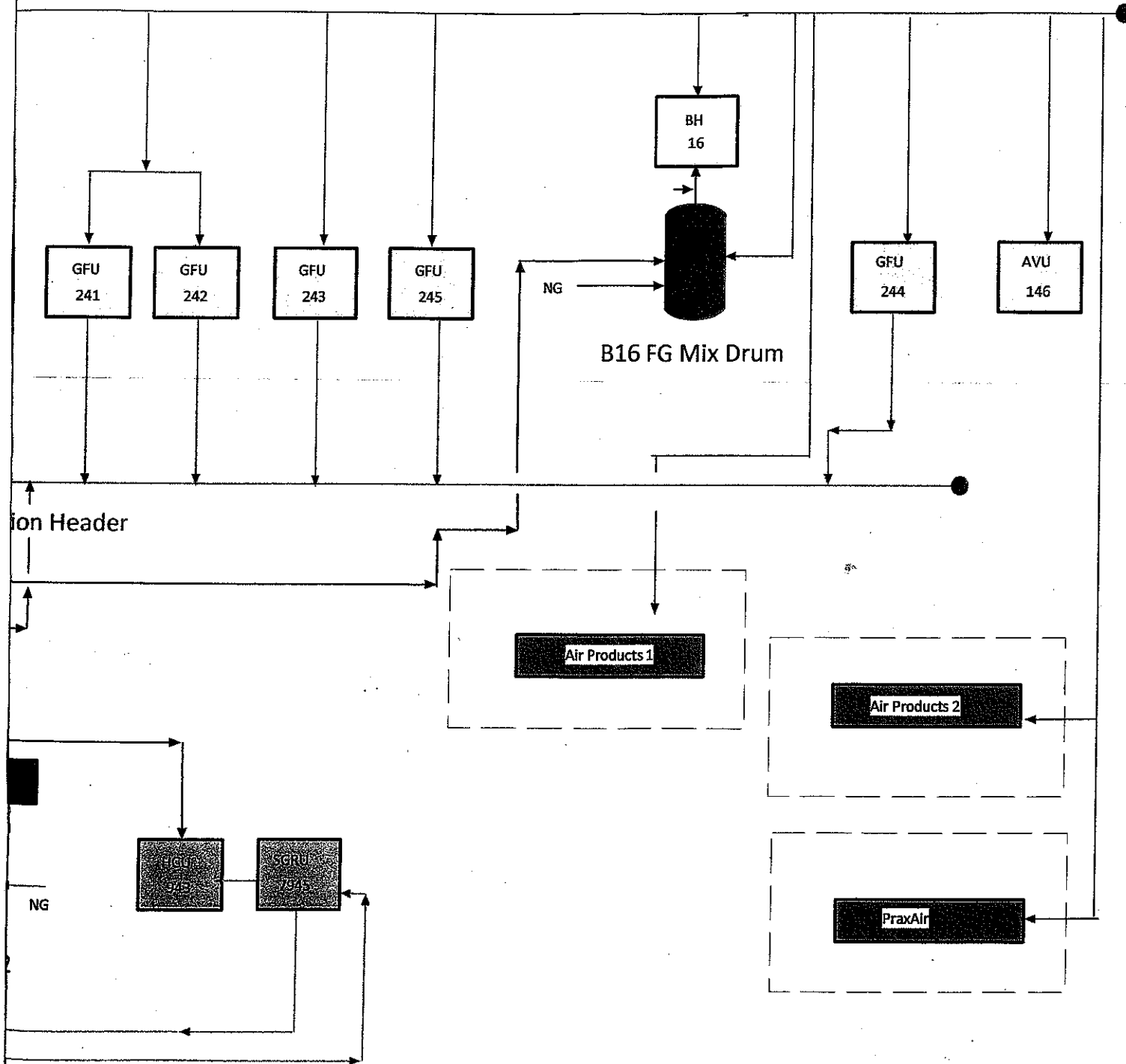
Refinery Fuel Gas System Diagram

Refinery Fuel Gas Simplified

Valero Port Arthur Refinery



d Flow Diagram refinery



Appendix 12

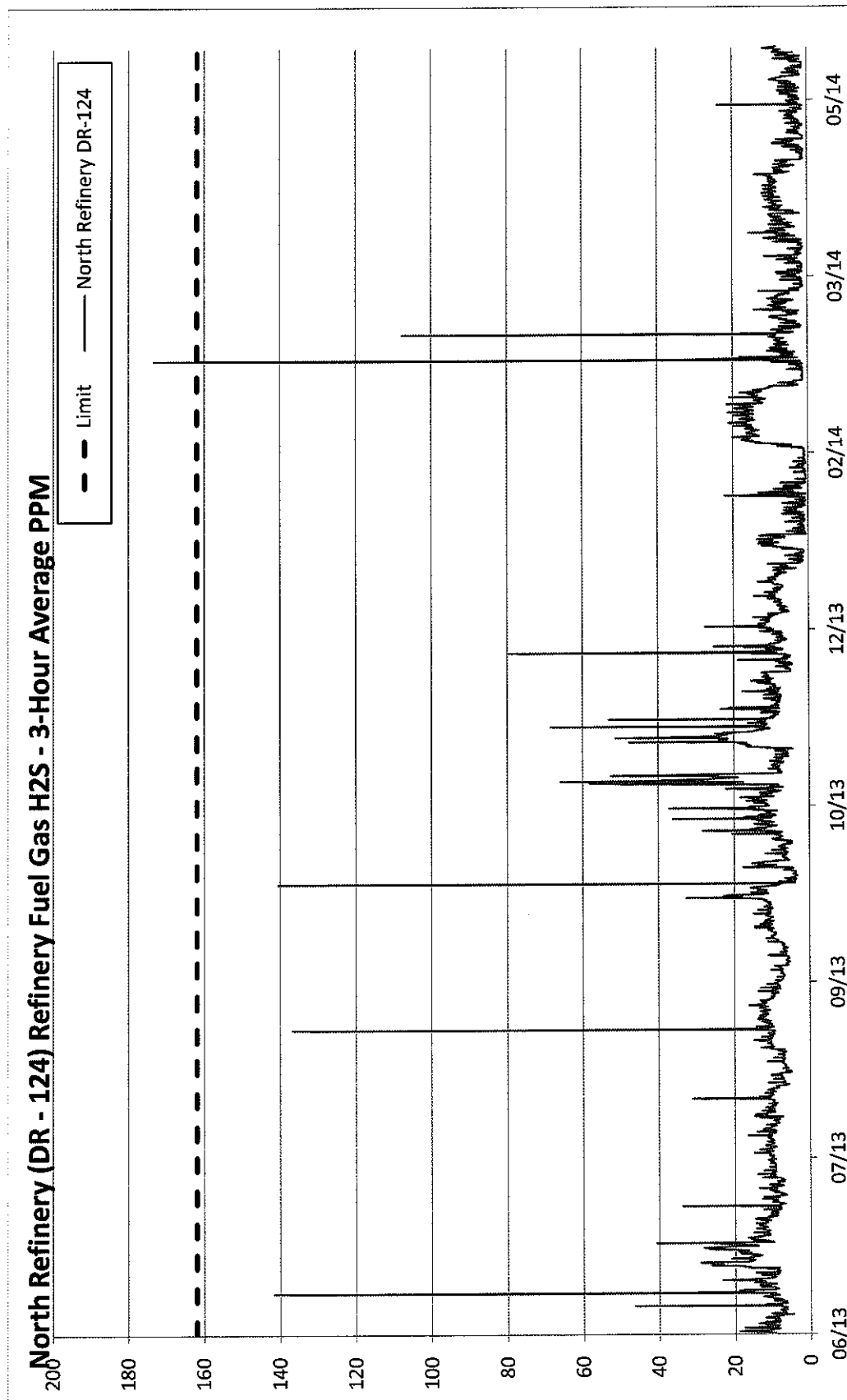
Fuel Gas H₂S Trends

Emissions Trends

EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU

Valero Port Arthur Refinery

June 1, 2013 - June 1, 2014

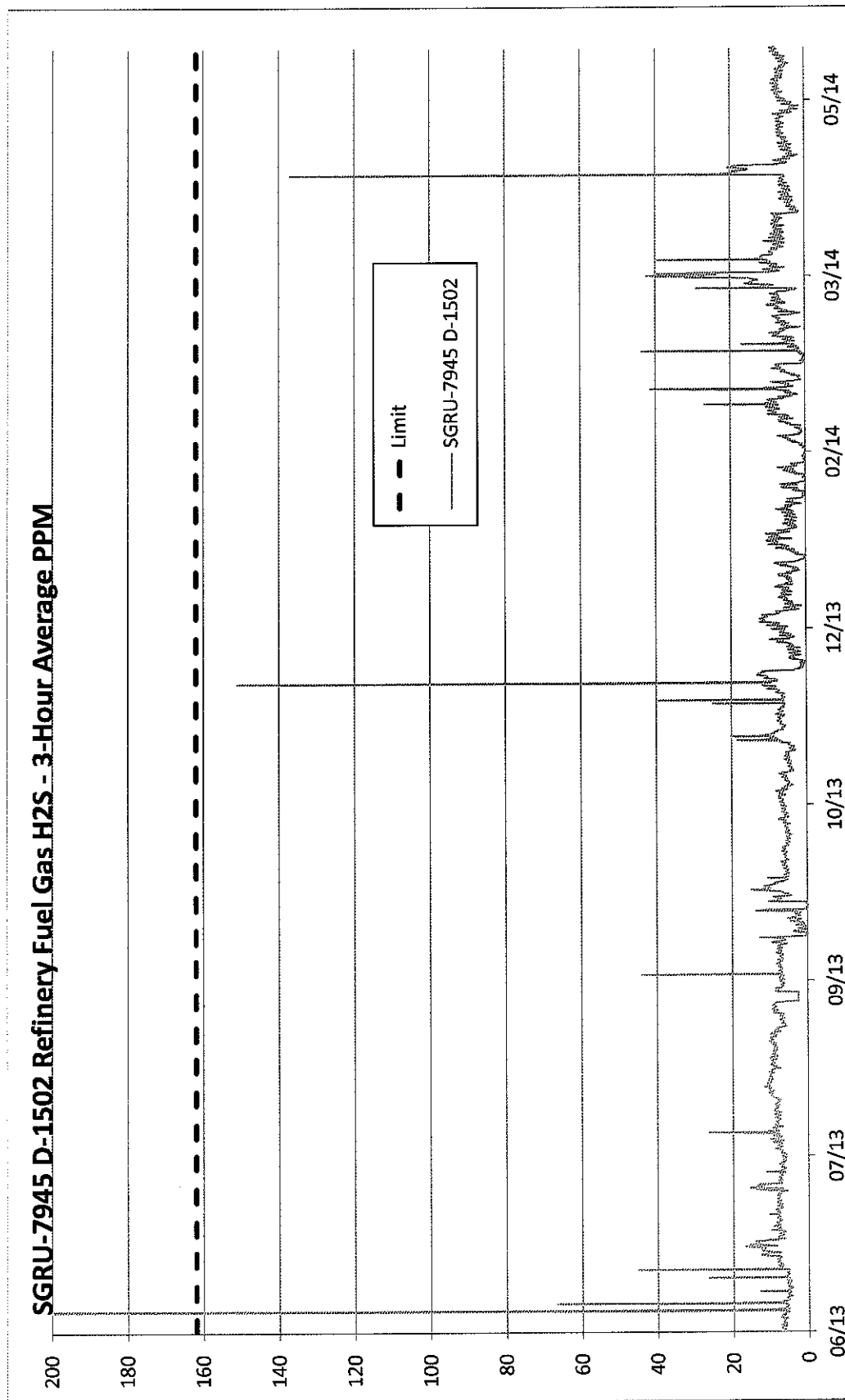


Emissions Trends

EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU

Valero Port Arthur Refinery

June 1, 2013 - June 1, 2014

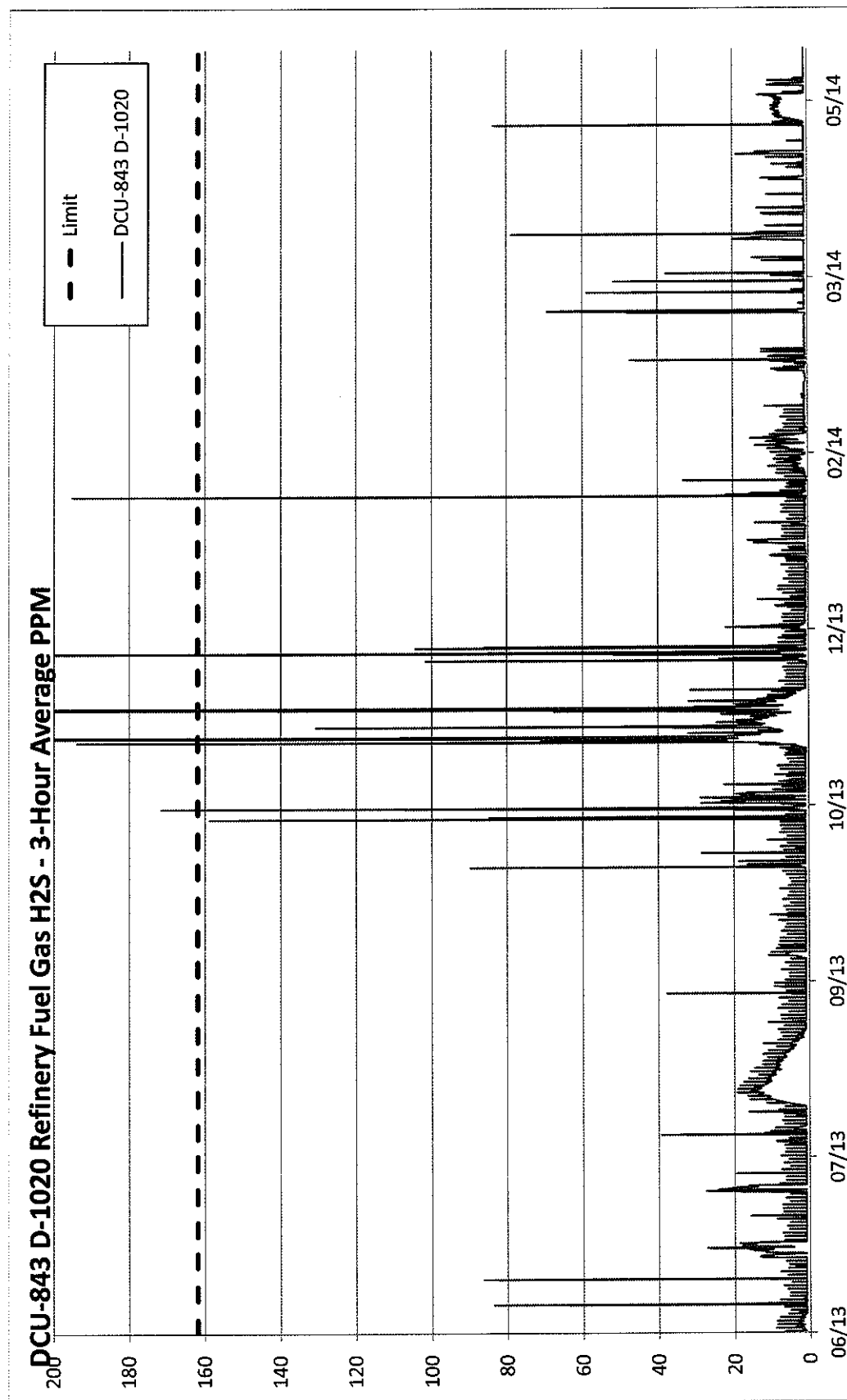


Emissions Trends

EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU

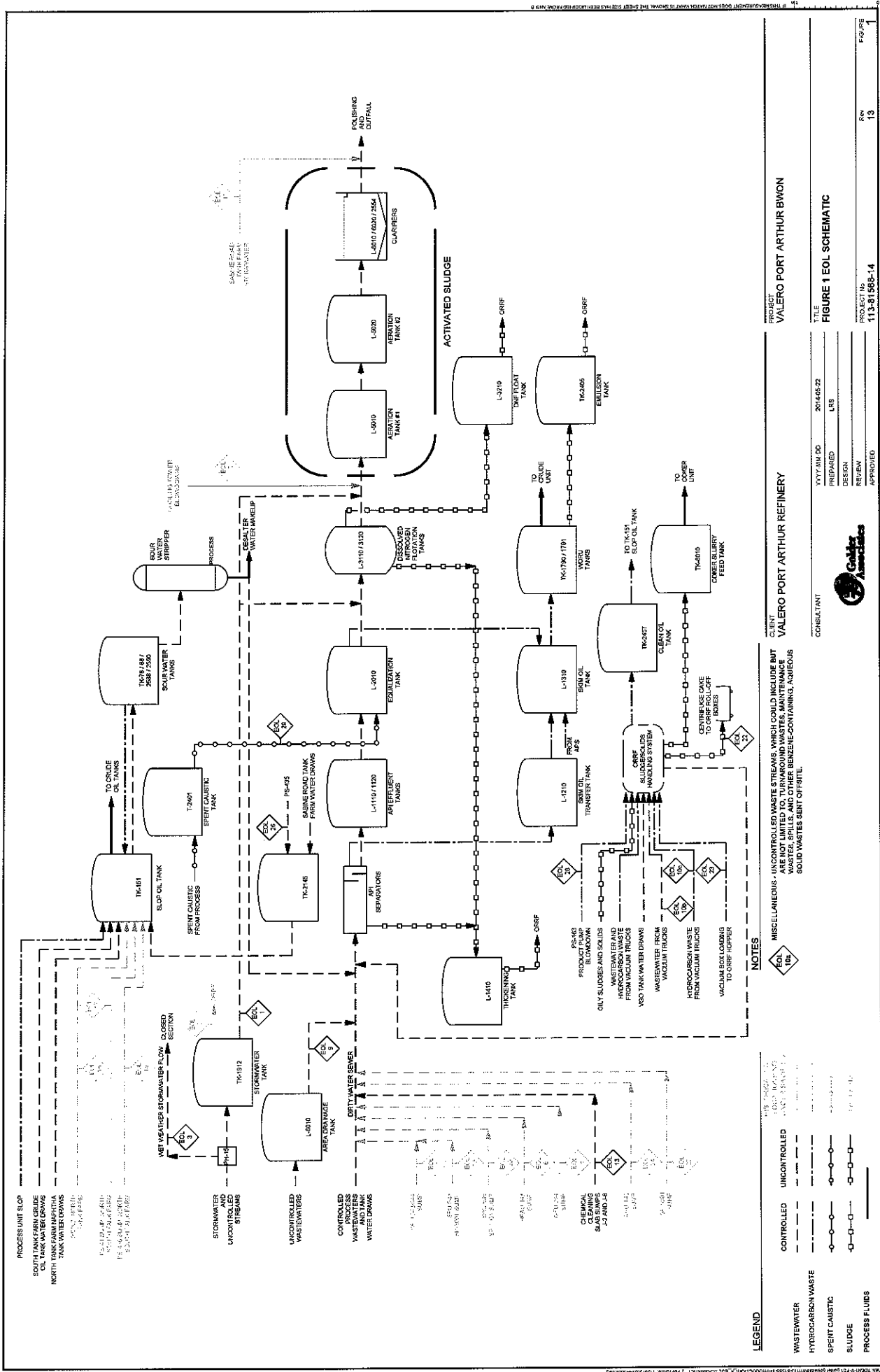
Valero Port Arthur Refinery

June 1, 2013 - June 1, 2014



Appendix 13

BWON Schematic



Appendix 14

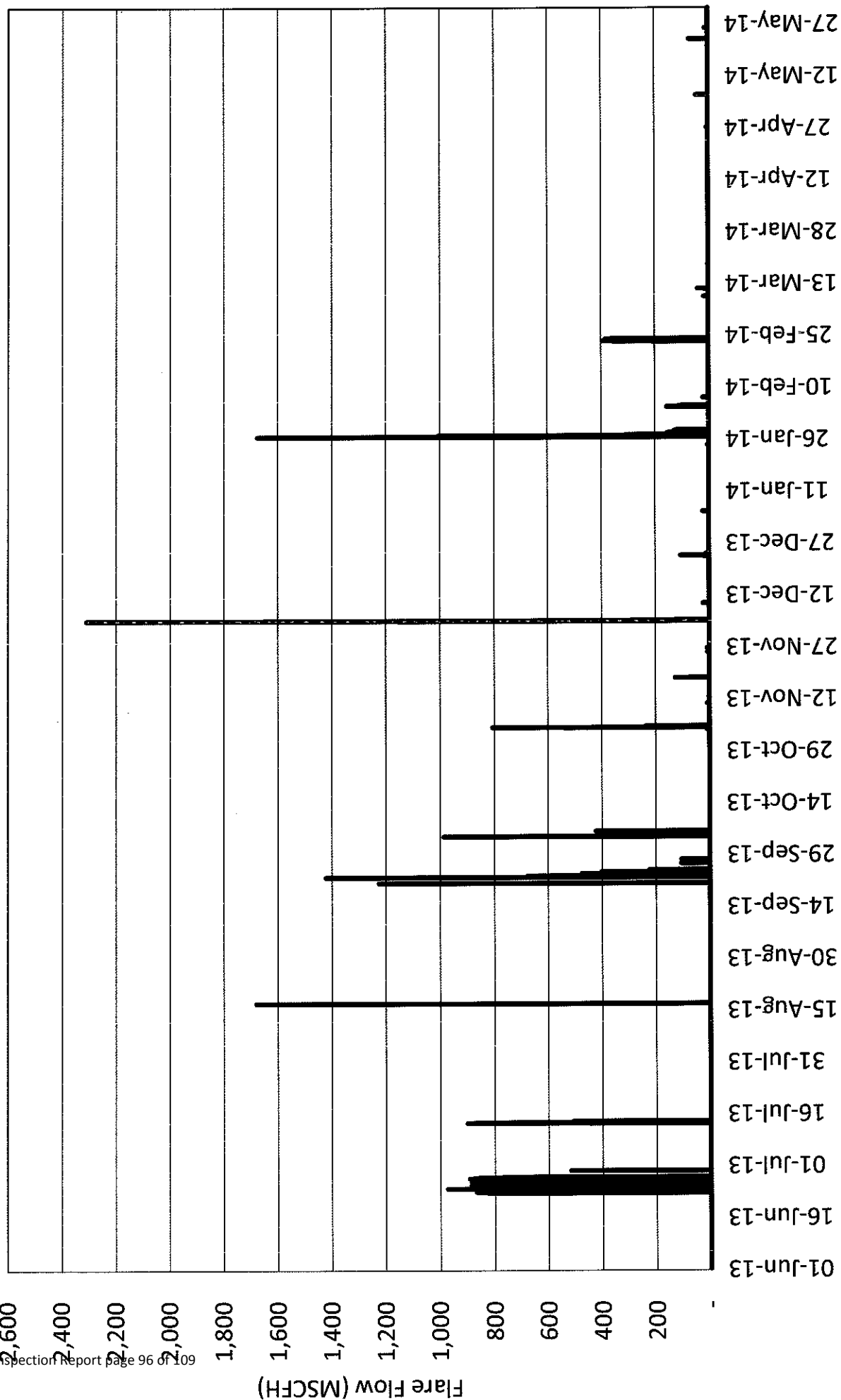
BWON Carbon Canisters

Locations
D-108 @ HCU-943
PS J-8 @ WORU
PS-1215 @ AVU-147
PS-162 @ NSTF
PS-1650 @ HCU-942
PS-236 @ GFU 243
PS-274 @ #4 BATH HOUSE
PS-3650 @ DHT-246
PS-402 @ DOCKS
PS-403 @ DOCKS
PS-404 @ DOCKS
PS-405 @ DOCKS
PS-406 @ DOCKS
PS-427 (359) @ CRU-1344
PS-434 @ NSTF
PS-435 @ SRTF
PS-436 @ LAB
PS-439 @ TK-5
PS-441 @ AVU-146
PS-449 @ FCCU-1241
PS-451 @ FCCU-1241
PS-457 (8400) @ SGRU-1242
PS-4600 @ DCU-843
PS-475 @ TK-2900
PS-476 @ RSU-1747
PS-6400 @ GHU-245
PS-8050 @ APS
SC-1907 @ SGRU-7945
TK 8010 @ DCU-843

Appendix 15

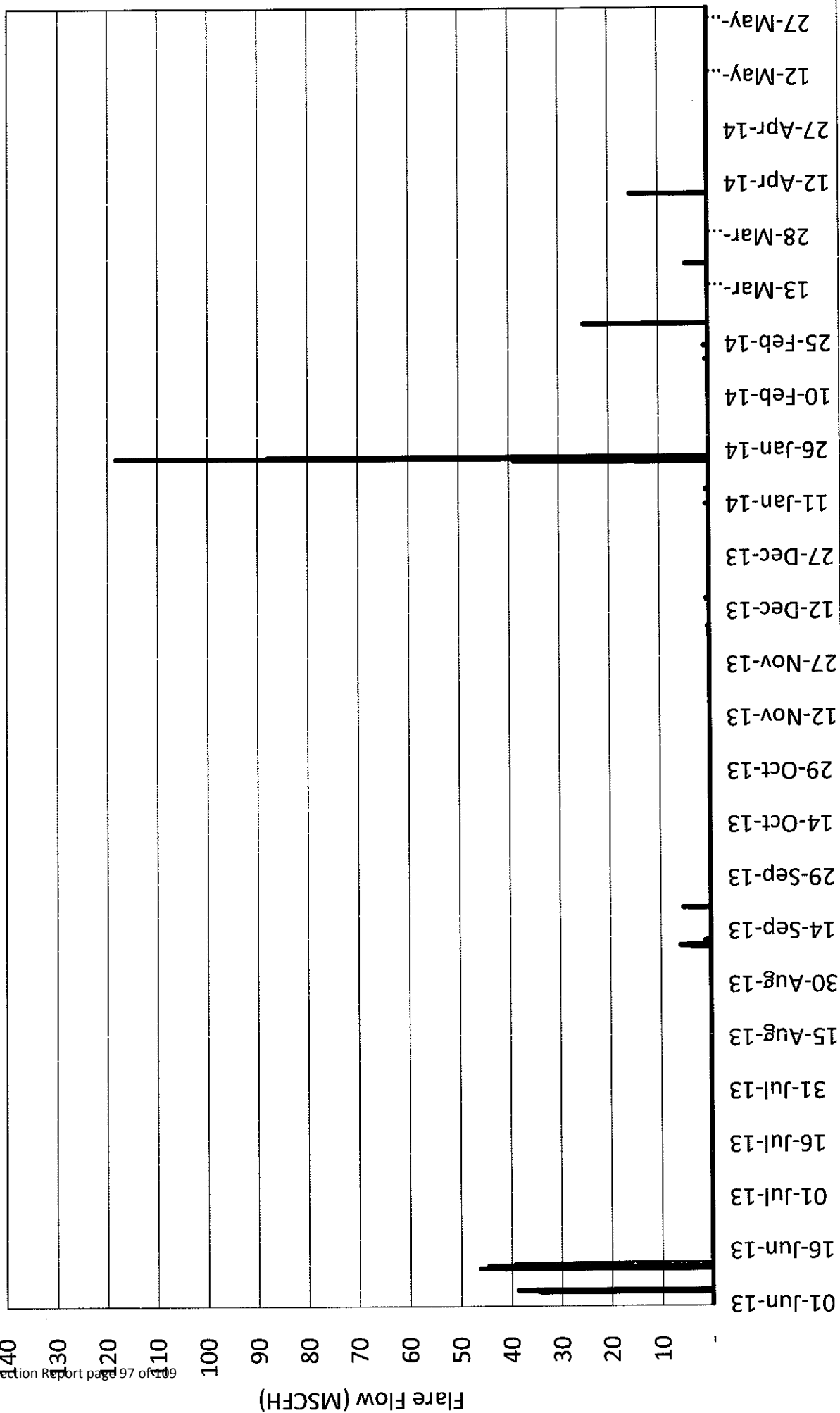
Flare Gas Recovery Gas Flows

FGRU 7042

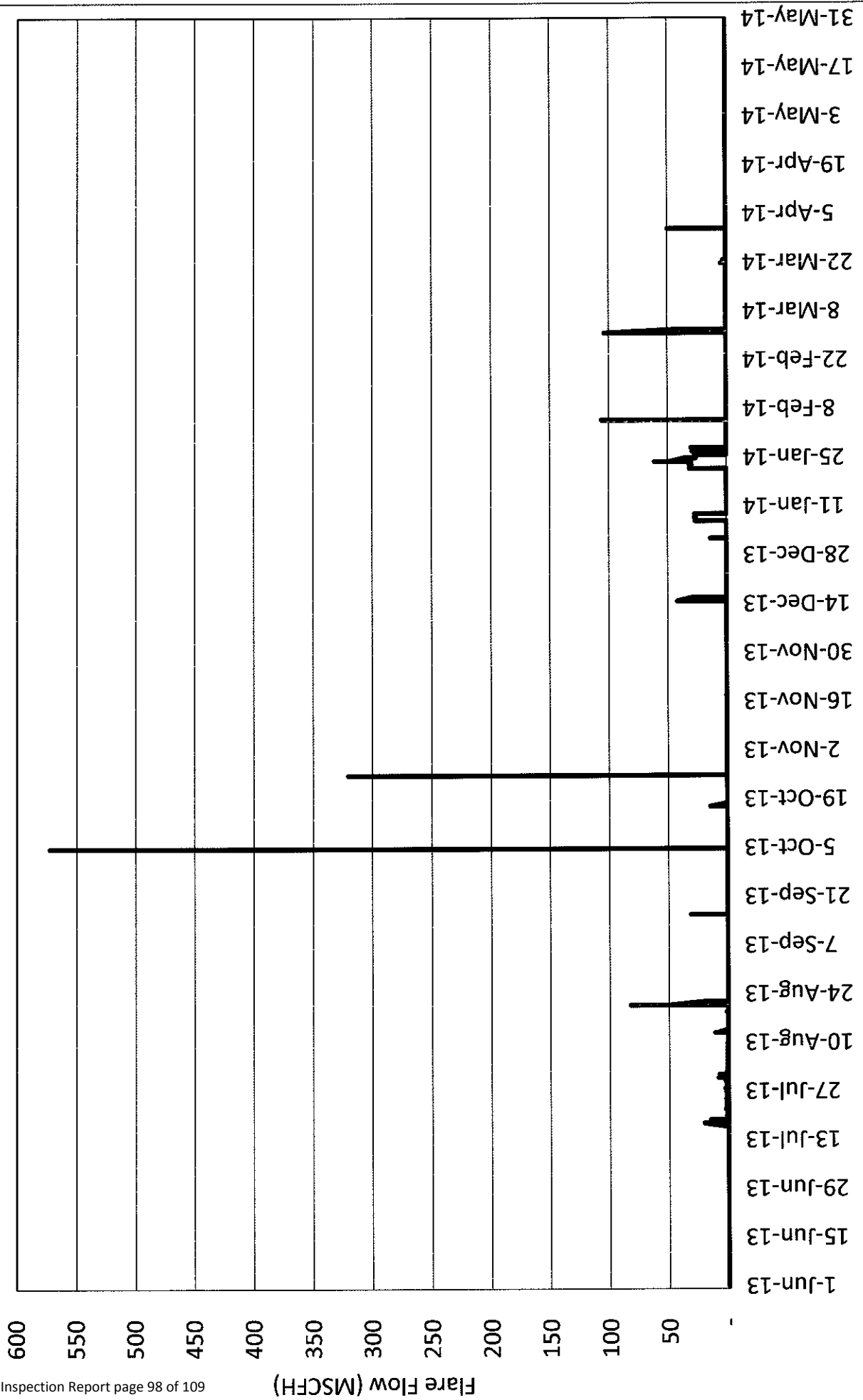


FGRU 7043

EPA Inspection Report page 97 of 109



FGRU 7044



Appendix 16

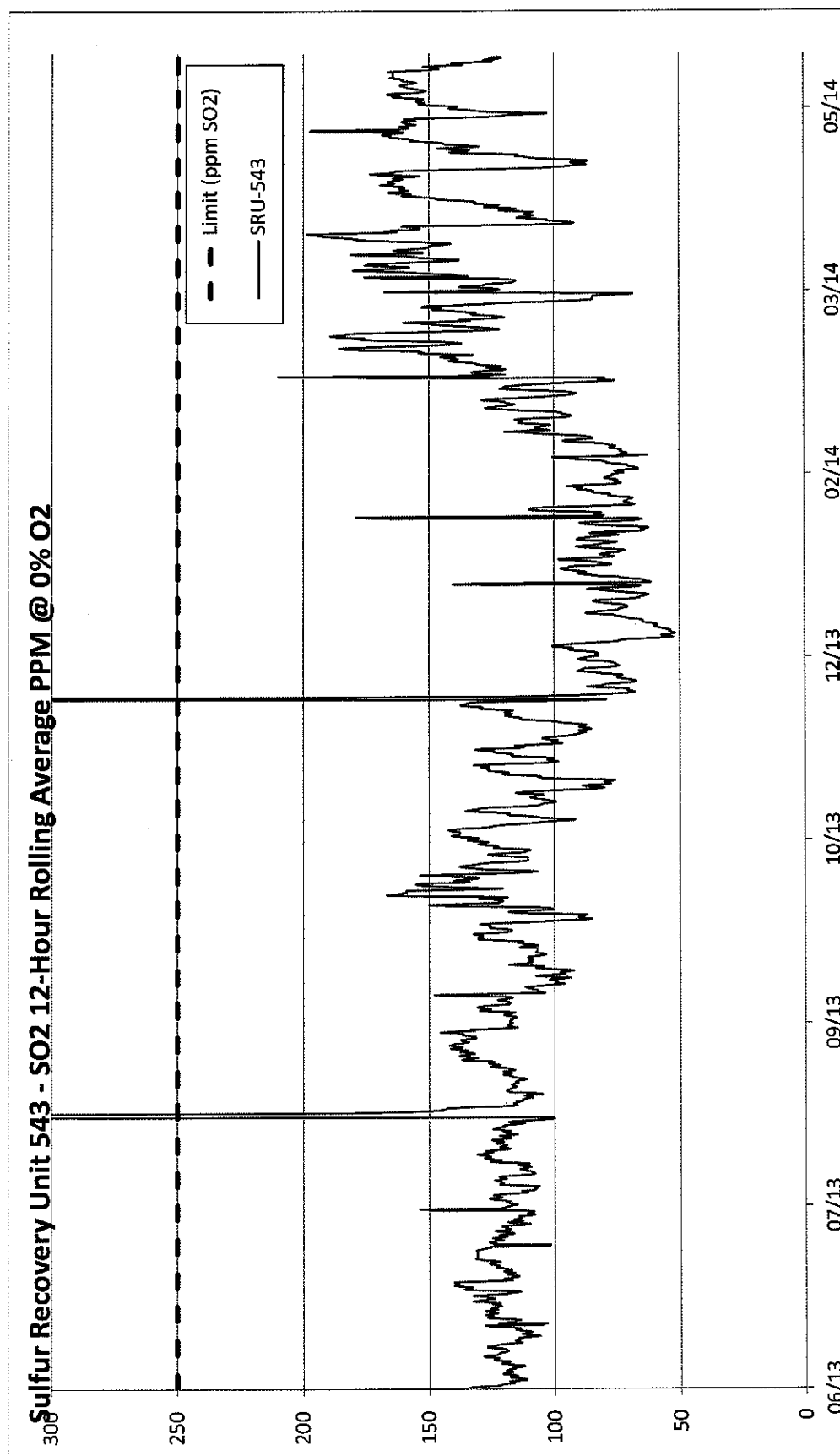
SRU SO₂ Emissions Trends

Emissions Trends

EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU

Valero Port Arthur Refinery

June 1, 2013 - June 1, 2014

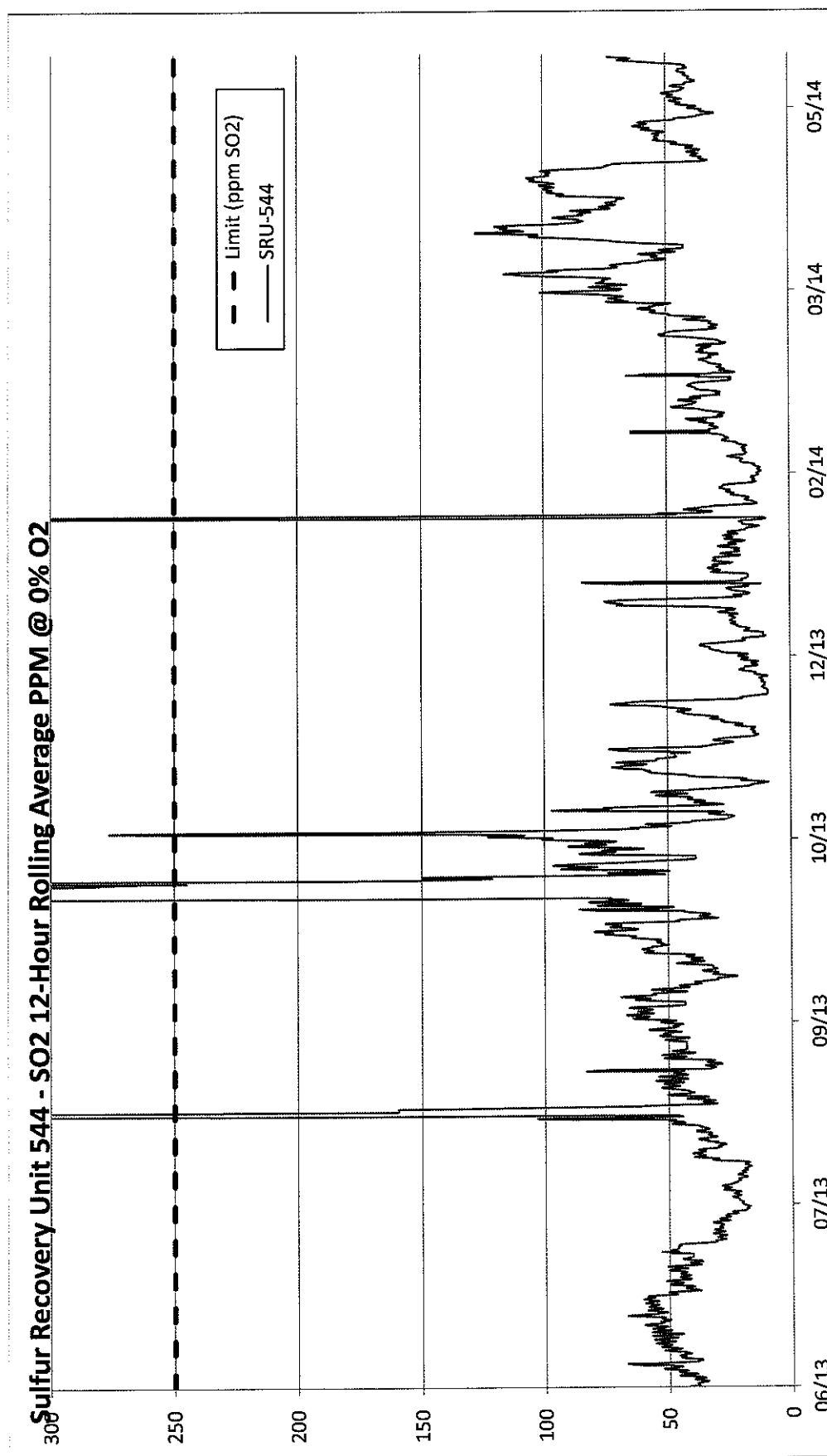


Emissions Trends

EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU

Valero Port Arthur Refinery

June 1, 2013 - June 1, 2014

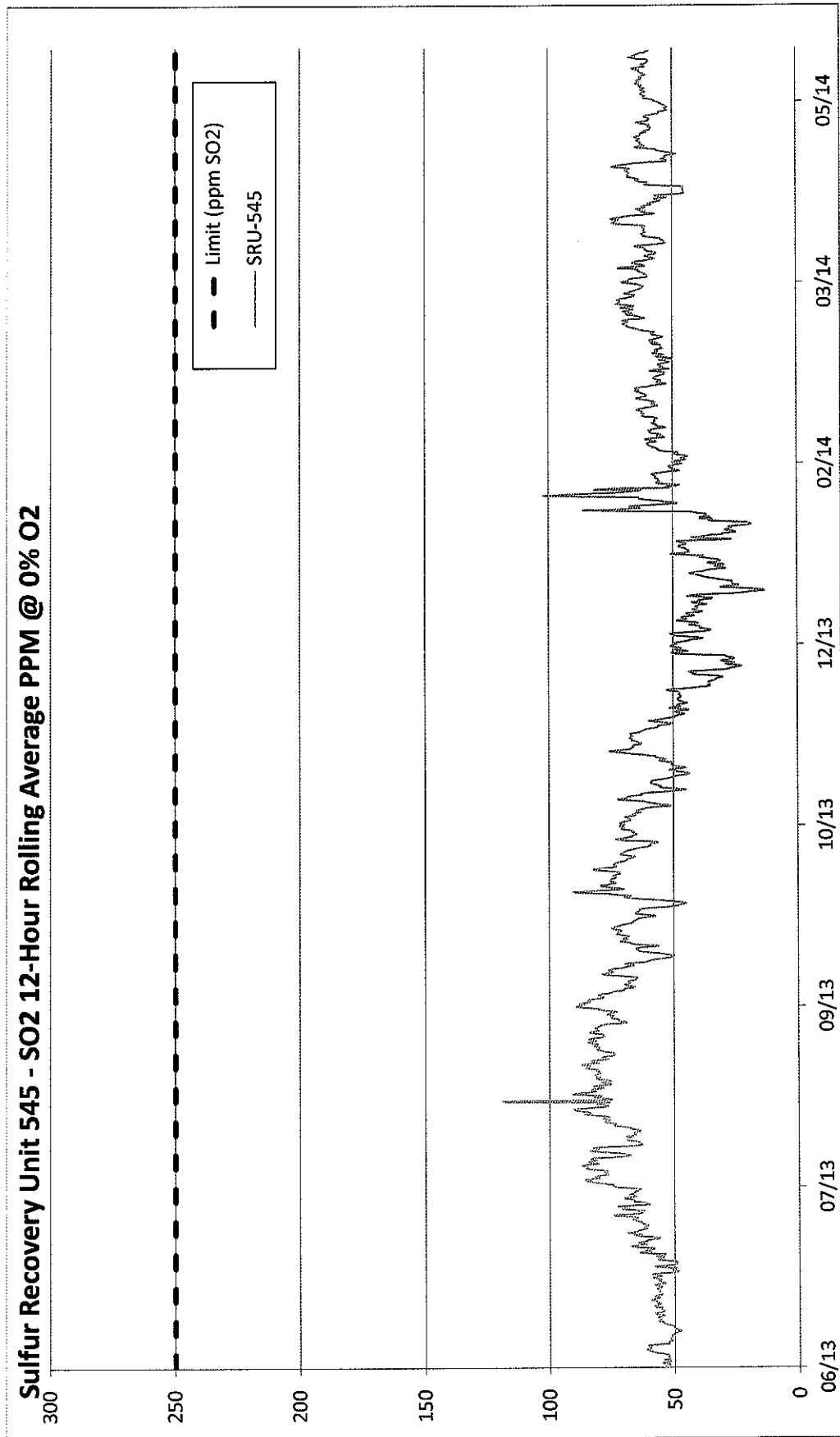


Emissions Trends

EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU

Valero Port Arthur Refinery

June 1, 2013 - June 1, 2014

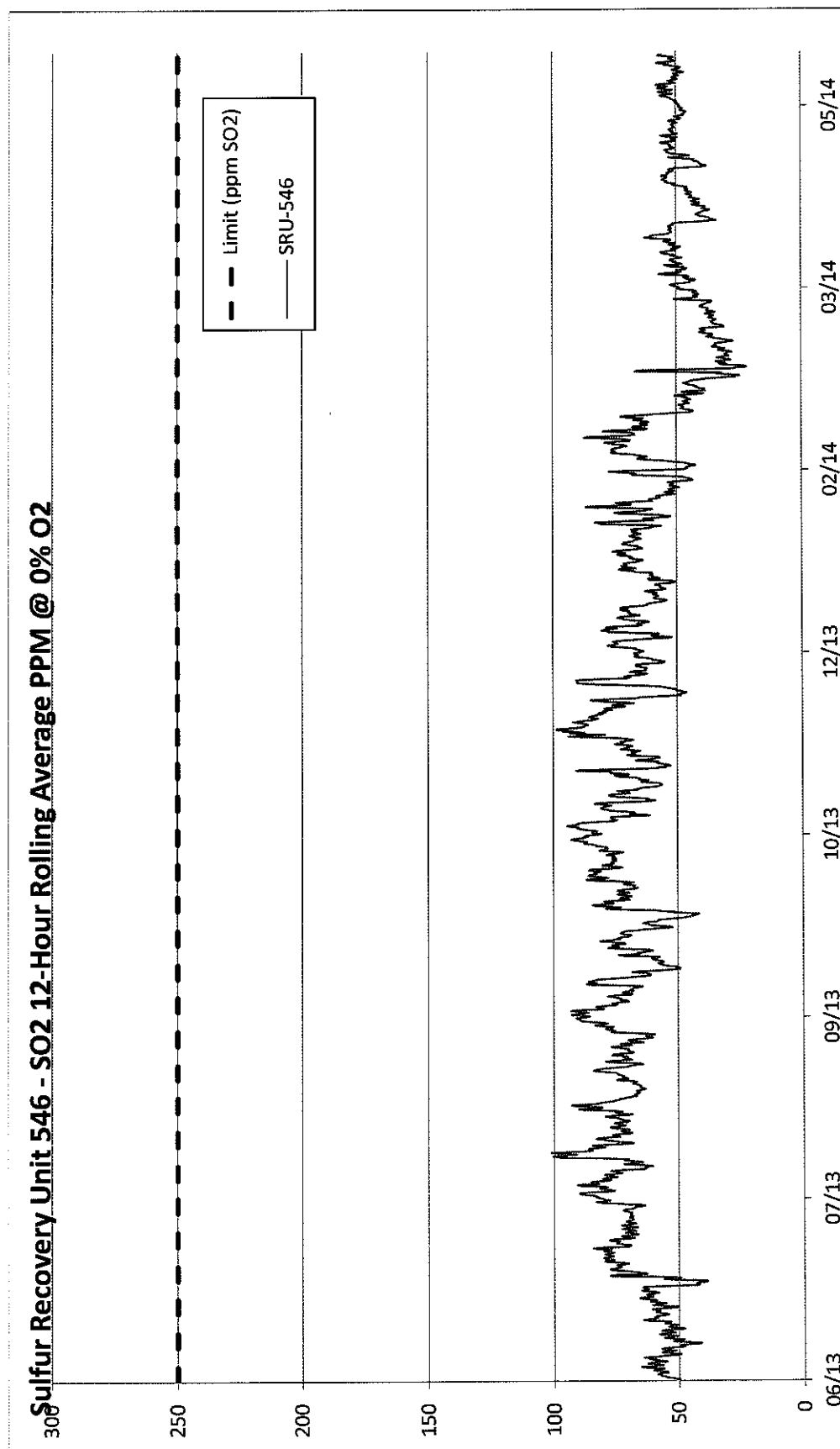


Emissions Trends

EPA 114 Consent Decree-Affected Heaters, Boilers, Sulfur Recovery Units, and FCCU

Valero Port Arthur Refinery

June 1, 2013 - June 1, 2014



Appendix 17

Operating permit excerpts

SPECIAL CONDITIONS

Permit Numbers 6825A, PSDTX49, and N65

Page 6

- B. The marine loading operations for compounds having a vapor pressure of greater than or equal to 0.5 psia at 100°F are subject to the following controls:
 - (1) Vapors from marine loading shall be collected and routed to the marine vapor combustor.
 - (2) The marine vessels loaded shall be leak tight. This shall be ensured by passing an annual vapor tightness test as required by 40 CFR § 63.565(c) (September 19, 1995) or 40 CFR § 61.304(f) (October 17, 2000) for determination of cargo tank pressurization. A copy of each marine vessel's certification shall be kept on file by the marine terminal for a minimum of two years.
- C. Inspection for visible liquid leaks, visible fumes, and significant odors resulting from VOC transfer operations shall be conducted during each transfer by the owner or operator of the VOC loading and unloading operation.
- D. If a liquid leak is detected during the loading operation and cannot be repaired immediately (for example, by tightening a bolt or packing gland), then the transfer operation shall cease until the leak is repaired.
- E. All shore-based equipment is subject to the piping fugitive emissions monitoring requirements of Special Condition No. 46. Shore-based equipment includes (but is not limited to) all equipment such as loading arms, pumps, meters, shutoff valves, relief valves, and other piping and valves between the marine loading facility and the vapor recovery system and between the marine loading facility and the associated land-based storage tanks. **(03/09)**

Fluidized Catalytic Cracking Unit (FCCU)

- 12. Emissions from the FCCU Wet Gas Scrubber (Emission Point No. [EPN] E-01-WGS) shall not exceed the following:
 - A. Opacity of shall not exceed 20 percent averaged over a six-minute period, as determined by a certified observer using EPA Test Method 9.
 - B. The SO₂ concentration from the FCCU to the atmosphere shall be no greater than 25 ppmvd measured as a 365-day rolling average and 50 ppmvd measured as a 7-day rolling average, both at 0 percent O₂. **(EPA Consent**

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Decree) (07/08)

- C. The NO_x concentration from the FCCU to the atmosphere shall be no greater than 50 ppmvd measured as a 365-day rolling average and 100 ppmvd measured as a 7-day rolling average both at 0 percent O₂. The beginning date of the averaging periods for these limits is January 1, 2014. **(EPA Consent Decree) (3/14)**
13. The FCCU Wet Gas Scrubber liquid flow rate shall be continuously monitored and be maintained at levels greater than the minimum one-hour average value observed value in the last satisfactory stack test performed in accordance with Special Condition No. 40. The liquid-to-air ratio and pressure drop across the Agglo Filtering Modules shall also be continuously monitored and be maintained greater than the minimum one hour average value observed in the last satisfactory stack test performed in accordance with Special Condition No. 40.

The flow rates and pressures shall be recorded every six minutes as six-minute averages. Each flow and pressure monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, or at least annually, whichever is more frequent, and shall be accurate to within 2 percent of span or 5 percent of the design value.

Quality-assured (or valid) data must be generated when the FCCU is operating except during the performance of a daily zero and span check. Loss of valid data due to periods of monitor break down, out-of-control operation (producing inaccurate data), repair, maintenance, or calibration may be exempted provided it does not exceed 5 percent of the time (in minutes) that the FCCU operated over the previous rolling 12-month period. The measurements missed shall be estimated using engineering judgement and the methods used recorded. **(02/08)**

Cooling Towers

14. Cooling Towers shall be monitored as follows:
- A. The VOC associated with cooling tower water shall be monitored monthly with an air stripping system meeting the requirements of the TCEQ Sampling Procedures Manual, Appendix P (dated January 2003 or a later edition) or an approved equivalent sampling method. The monitoring results, cooling water flow rate, and maintenance activities on the cooling water system shall be recorded.
- B. The cooling water for Cooling Tower Nos. CT-136A, CT-136B, CT-366, CT-432

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- A. They shall be operated with no visible emission, except for those periods described in 30 TAC § 111.111(a)(1)(E).
- B. With the exception of the period prior to initial stack testing required by Special Condition No. 40, the heaters for atmospheric and Vacuum Crude Unit 147 (AVU-147) and Diesel Hydrotreating Unit 246 (DHT-246) shall each maintain nitrogen oxide (NO_x) emissions less than or equal to 0.035 lb/MMBtu on a daily average.
- C. The NO_x and carbon monoxide (CO) emissions from Hydrocracker Unit 943 Reactor 1 and 2 Furnaces shall not exceed the following, with the exception of the period prior to initial stack testing required by Special Condition No. 40:
- 0.035 lb NO_x/MMBtu on an hourly average,
100 ppmvd CO hourly average (corrected to 3 percent O₂), and
50 ppmvd CO annual average (corrected to 3 percent O₂).
- D. NO_x and CO emissions from Hydrocracker Unit 943 Fractionator Feed Furnace (E-02-943) shall not exceed the following, with the exception of the period prior to initial stack testing required by Special Condition No. 40:
- 0.015 lb NO_x/MMBtu on an hourly average,
100 ppmvd CO hourly average (corrected to 3 percent O₂), and
50 ppmvd CO annual average (corrected to 3 percent O₂).
- E. Per EPA Consent Decree No. SA-05-CA-0569-RF, Valero has implemented a program to reduce NO_x emissions from certain refinery heaters and boilers with firing rates greater than 40 MMBtu/hr by committing to an interim system-wide (all the Valero refineries included in EPA Consent Decree No. SA-05-CA-0569-RF) weighted average NO_x emission limit of 0.06 lb/MMBtu. The NO_x emission limits (in lb/MMBtu at the fuel higher heating value [HHV] for a 365 day rolling average) for the following heaters and boilers authorized by this permit required to be monitored with a CEMS per the consent decree are identified in the table below. The heaters and boilers shall not exceed the individual emissions limitation.

EPN	Unit Name	Description	NO _x Limit ¹
E-01-147	AVU147	AVU No. 147 F-1100	0.035
E-02-147	AVU147	AVU No. 147 F-1200	0.035

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EPN	Unit Name	Description	NOx Limit ¹
E-01-942 ²	HCU942	HCU No. 942 F-1300 Fractionator Feed Furnace and F-1000 First Stage Reactor Furnace	0.044
E-01-943	HCU943	HCU 943 Reactor 1 Furnace	0.035
		HCU 943 Reactor 2 Furnace	0.035
E-02-943	HCU943	HCU 943 Fractionator Feed Furnace	0.015

¹ - in lb/MMBtu, HHV, 365 day rolling average

² - Two of the 3 heaters that exhaust through this stack are subject to the consent decree and compliance will be demonstrated with combined stack CEMS.(3/14)

The consent decree also specifies NOx emission limits (in lb/MMBtu, HHV) for the following heaters and boilers authorized by this permit. The heaters and boilers shall not exceed the individual emissions limitation.

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EPN	Unit Name	Description	NO _x Limit ¹
E-01-146	AVU146	AVU No. 146 H-101	0.08
E-02-146	AVU146	AVU No. 146 H-102A	0.08
	AVU146	AVU No. 146 H-102B	0.08
E-01-241	GFU241	Gulfining Unit No. 241 B-101	0.045
E-01-242	GFU242	Gulfining Unit No. 242 B-201	0.065
E-01-243	GFU243	Gulfining Unit No. 243 B-301	0.05
E-01-443	HFAU443	HF Alkylation Unit No. 443 H-1	0.06
E-01-843	DCU843	DCU No. 843 F-1000	0.06
E-02-843	DCU843	DCU No. 843 F-2000	0.06
E-03-843	DCU843	DCU No. 843 F-3000	0.06
E-01-1344	CRU1344	CRU No. 1344 Heater H-1	0.07
E-02-1344	CRU1344	CRU No. 1344 Heater H-33	0.04
E-03-1344	CRU1344	CRU No. 1344 Heaters H-2 and H-32	0.06
E-01-BH 15	BH15	Boiler House 15 BLR 41	0.06
E-02-BH 15	BH15	Boiler House 15 BLR 42	0.06
E-03-BH 15	BH15	Boiler House 15 BLR 43	0.06

¹ - in lb/MMBtu, HHV (3/14)

25. Fuel gas for the combustion sources covered under this permit shall meet the following requirements:
- A. FCCU 1241 Heaters B-103A (EPN E-01-1241) and B-103B (EPN E-02-1241) shall be fired with fuel gas containing no more than 5 grains of total sulfur per 100 dscf.
 - B. The composition and the level of H₂S treatment of the fuel gas stream from Chevron/CPC's EU1544, routed to Premcor's Boiler House 16, and identified as EU1544, shall be as described in Table 4 of the permit modification application dated November 2000.
 - C. The fuel gas for all other combustion sources constructed, modified or reconstructed prior to April 30, 2007, shall be limited to no more than 10 grains total sulfur per 100 dscf (160 ppmv) on a one hour rolling average.