EPA United States Environmental Protection Agency

Region 6 Compliance Assurance and Enforcement Division
INSPECTION REPORT

Inspection Date(s):	2/10-12/2014		
Media:	Air		
Regulatory Program(s)	Consent Decree, Civil Action SA-05-CA-0569		
Company Name:	**Valero Refining – Texas, L.P.**		
Facility Name:	**Valero Refining – Texas, L.P. Texas City Refinery**		
Facility Physical Location:	1301 Loop 197 South		
(city, state, zip code)	Texas City, TX 77590		
Mailing address:	P.O. Box 3429		
(city, state, zip code)	Texas City, TX 77592		
County/Parish:	Galveston County		
	Jolanda Allison	Staff Environmental Engineer	
	Jolanda.allison@valero.com		
FRS Number:	110032911669		
Identification/Permit Number:	O-01253, NSR-39142		
Media Number:	AFS # 4816700161		
NAICS:	324110		
SIC:	2911		
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Other Inspector(s):	NA		
Metadata Title:	Valero Refining, Texas City Refinery, Texas City, Texas, Galveston County		
Metadata Author:	US EPA Region 6 Compliance Assurance and Enforcement Division Dallas TX		
Metadata Subject:	Partial Compliance Evaluation Inspection Report		
Metadata Keywords:	refinery consent decree (CD)		
EPA Lead Inspector Signature/Date	Jim Gold Jim Gold		4/30/14
			Date 3/03/2014
Supervisor Signature/Date	Sam Tates Sam Tates		4/30/2014
			Date

Section I - INTRODUCTION

PURPOSE OF THE INSPECTION

EPA Region 6 inspectors Richard Gigger and I (Jim Gold) conducted an inspection of the Valero Refining - Texas City Refinery (VTCR). At 9:30 am on February 10, 2014, we met with Jolanda Allison, Staff Environmental Engineer for the facility, for an opening conference. I presented my credentials to Ms. Allison and informed her that this was an EPA inspection to determine compliance with the federally issued Consent Decree (Civil Action SA-05-CA-0569), which is a national priority for EPA. The inspection was a Partial Compliance Evaluation (PCE), which included an evaluation of the consent decree's (CD) four marquee issues: NO_x/SO_2 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, SO_2, 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 VTCR. Photos taken during the inspection (26) are included s Appendix 1. Sing in sheet for the opening conference is included as Appendix 2.

FACILITY DESCRIPTION

VTCR was originally built in 1908 and was acquired by Valero in 1997. VTCR has had multiple upgrades and now has the capacity to refine 250,000 barrels per day and operates as a fully integrated refinery with crude distillation, FCCU, alkylation (hydrofluoric), catalytic reforming, hydrodesulphurization, isomerization, sulfur recovery, and fuel blending. VTCR's main products are motor gasoline, diesel fuel, jet fuel, liquefied petroleum gas, and fuel oil. Crude oil is obtained primarily by ship and pipeline at the facility. Products leave the facility by pipeline, railcar, 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.

VTCR operates under a Title V permit and a New Source Review (NSR) permit.

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-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 is 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. No heaters and boilers 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. 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 6** is the recorded NO_x emission trends for the heaters and boilers equipped with NO_x Continuous Emission Monitors (CEMs) from February 2013 - February 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. There was several NOx spikes from heaters 44, 45, and 46 during start up after a major turnaround, which was completed in January of 2013. Several NO_x spikes also occurred in August of 2013 due to power loss from a third party provider.

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.

Valero has set a final, 365 day rolling average of 19 parts per million (ppm). **APPENDIX 7** is the FCCU NOx emission trends from February 2013 - February 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.

NO_x from the FCCU is controlled by ozone injection. I observed the dual ozone generators in operation. A photo of the generators is included in the **APPENDIX 1**.

Part VI, SO_2 Emission Reductions from FCCUs

Status: Complete.

Program Summary: Valero shall implement a program to reduce SO_2 emissions from their FCCUs, which shall include the installation of wet gas scrubber ("WGS") technology systems on selected FCCUs

and otherwise limiting SO_2 emissions from other FCCUs, including, in certain cases, through the use of SO_2 reducing catalyst additives and/or hydrotreating.

Appendix 8 contains a trend for FCCU SO_2 emissions from February 2013 - February 2014, which demonstrates compliance with the 25 ppm, 365 day rolling average emission limit. The FCCU is equipped with SO_2, NO_x, and O_2 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 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 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 Texas City FCCU operates in full burn mode and the regenerator stack is controlled for particulate matter by a wet scrubber. An Alternative Monitoring Plan (AMP) to monitor the FCCU wet scrubber parameters rather than an opacity monitor was approved in 2005.

APPENDIX 9 contains the FCCU CO emission trend from February 2013 - February 2014 and demonstrates compliance for the 12 months preceding the inspection. 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 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.

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

Part VIII, NSPS Applicability to SO_2 Emissions from FCCU

Status: Complete.

Program Summary: Valero shall comply with all requirements of 40 CFR Part 60, Subparts A and J for SO_2 emissions from the FCCU regenerator.

APPENDIX 8 is an SO_2 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 SO_2 CEM was properly installed and that calibration gas was of the correct concentration and up to date.

Part IX, SO_2 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 SO_2 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 10 contains a description and schematic of the four fuel gas systems. The four fuel gas systems feed into one mix drum. A fuel gas H_2S trend from February 2013 to February 2014 is included as Appendix 11which demonstrates that the 162 ppm H_2S limit imposed by NSPS is being met, with the exception of two upsets occurring August 6, 2013 and November 13, 2013. The chart shows trends for all four fuel gas systems; however, only the plant/refinery fuel gas system feeds to heaters and boilers is the NSPS compliance point. I observed that the H2S analyzer was 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.

VTCR is implementing the 6BQ compliance option of Subpart FF using upstream controls. Desalter water from the three crude units is sent to Tank 101. This water is then steam stripped in sour water strippers A58 and A158. Overheads from these two strippers are sent to stripper A49. Overheads from A49 are sent to a tail gas incinerator **(APPENDIX 12 schematics)**. A chart showing the sour water stripper operating parameters is included in **APPENDIX 13**. The chart shows the benzene concentration in the sour water stripper effluent to be below 10 ppm. VTCR is sampling the benzene effluent weekly and using an offsite laboratory for analysis. I reviewed representative analytical results of the sour water stripper inlet and outlet and found them to be consistent with the recorded data.

VTCR is using 14 carbon canister stations to control benzene emissions. I reviewed VTCR's 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 bi-weekly.The end of line sampling plan required by paragraph 164 of the CD was submitted to EPA on October 30, 2009.

I reviewed the sampling procedure and standard operating procedures (SOPs) used by the VTCR 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)

VTCR is using two separate outside laboratories to analyze benzene samples. A third party audit of Acutest Gulf Coast was conducted May 30, 2012 and a third party audit of ALS laboratory Group was conducted June 18, 2012. The findings of the audit were communicated to Valero's headquarters office in San Antonio on July 20, 2012.

Part XI, Leak Detection and Repair Program Enhancements

Status: Complete.

Program Summary: Valero shall undertake the measures listed in Part XI to enhance the VTCR'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.

VTCR uses Guardian Compliance to conduct repairs and follow-up monitoring. Guardian 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 27 components, which will require a shut down for repair. I reviewed instrument calibration logs. VTCR has implemented a mid day and the end of day drift check, as required by the CD. I noted that several instruments drifted by more than 10%; however, the drift was in the high direction, which made the data valid.

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 several process units and observed no open ended lines or valves.

Part XII, Program Enhancements RE: NSPS Subparts A and J SO_2 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 SO_2 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 uses five flares (Flares 1 – 5) subject to NSPS Subpart J.

Since the CD was entered there have been 78 reportable acid gas and hydrocarbon flaring events at VCTR. These events are recorded in the State of Texas Excess Emission Reporting System (STEERS).

According to the reports, the frequency of flaring events has been significantly reduced with the addition of the flare gas recovery system in April of 2009.

I observed no smoke or flames being emitted by the flares. I also observed the flares using a FLIR© Camera and did not observe any abnormal flaring activity (e.g. puffing or indications of incomplete combustion).

A plant wide flare gas recovery system consisting of three trains (**APPENDIX 14)** is in place that uses liquid ring compressors. A graph of compressor operation (**APPENDIX 15)** shows the system has sufficient compression and flow capacity.

VCTR operates three Claus sulfur recovery units with two incinerators (**APPENDIX 16**). The 12 hour average SO_2 emissions trends, as recorded by CEM, for the GOHT incinerator and for the South Plant incinerator are included in **APPENDIX 17**. The trends show the 250 ppm limit has not been exceeded for the 12 months prior to the inspection, with the exception of four incidents at the GOHT incinerator and one incident at the South Plant incinerator. The spikes in SO_2 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 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 Audits

VCTR has elected to conduct audits of their NSPS QQQ programs and Refinery MACT programs. The NSPS QQQ audit was performed in June of 2006 and the Refinery MACT audit was performed in February of 2006.

XIV Permitting

Status: Complete.

Appendix 18 contains excerpts from the most recently revised NSR operating permit 39142 and Title V operating permit O1253. 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. Several items were discussed during the closing conference including inserting language into the benzene sampling SOP regarding cleaning of the sampler between sample locations and that certain flaring events still need to be resolved.

Section IV – FOLLOW UP

N/A

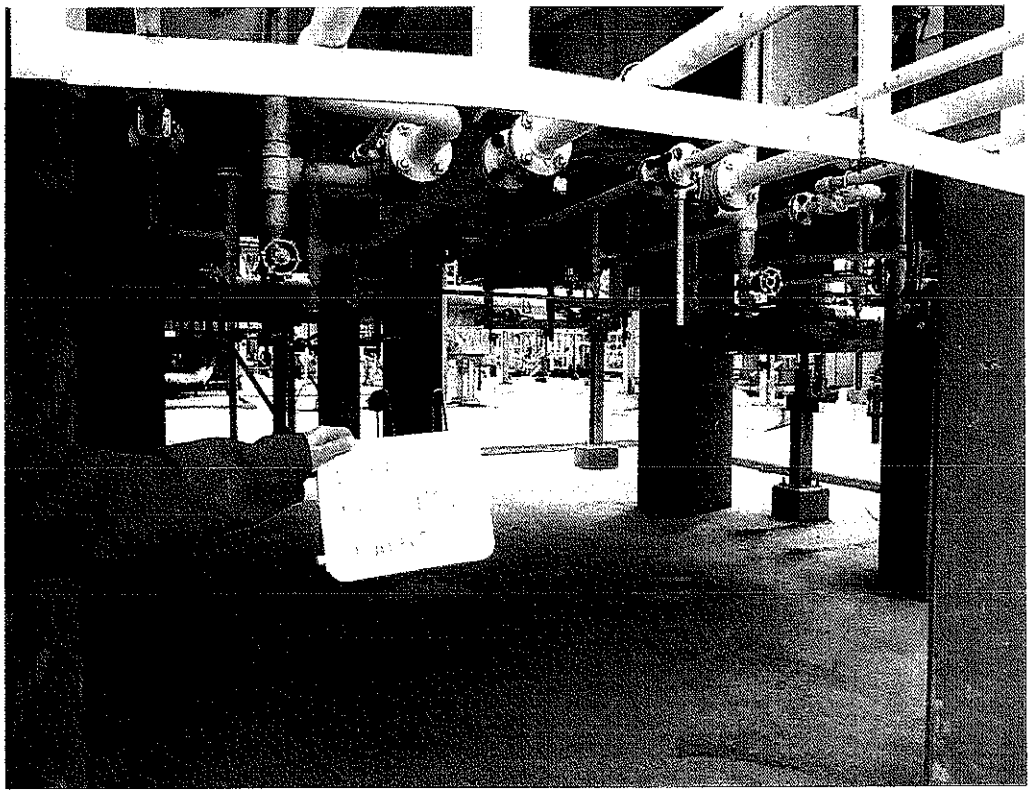
Section V – LIST OF APPENDICES

Appendix 1 - Photo Log (26 photos taken 2/10/14)
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 – NO_x emission trends
Appendix 7 - FCCU NO_x emission trend
Appendix 8 - FCCU SO_2 emission trend
Appendix 9 - FCCU CO emission trend
Appendix 10 - Refinery fuel gas diagram
Appendix 11 - Mix drum H_2S analyzer trend
Appendix 12 - BWON schematic
Appendix 13 – Strippers effluents benzene trends
Appendix 14 – Flare gas recovery system description
Appendix 15 - Flare gas recovery compressor operations chart
Appendix 16 - SRU description
Appendix 17 - SRU SO_2 emission trends
Appendix 18 - Operating permit excerpts

Appendix CBI (None)

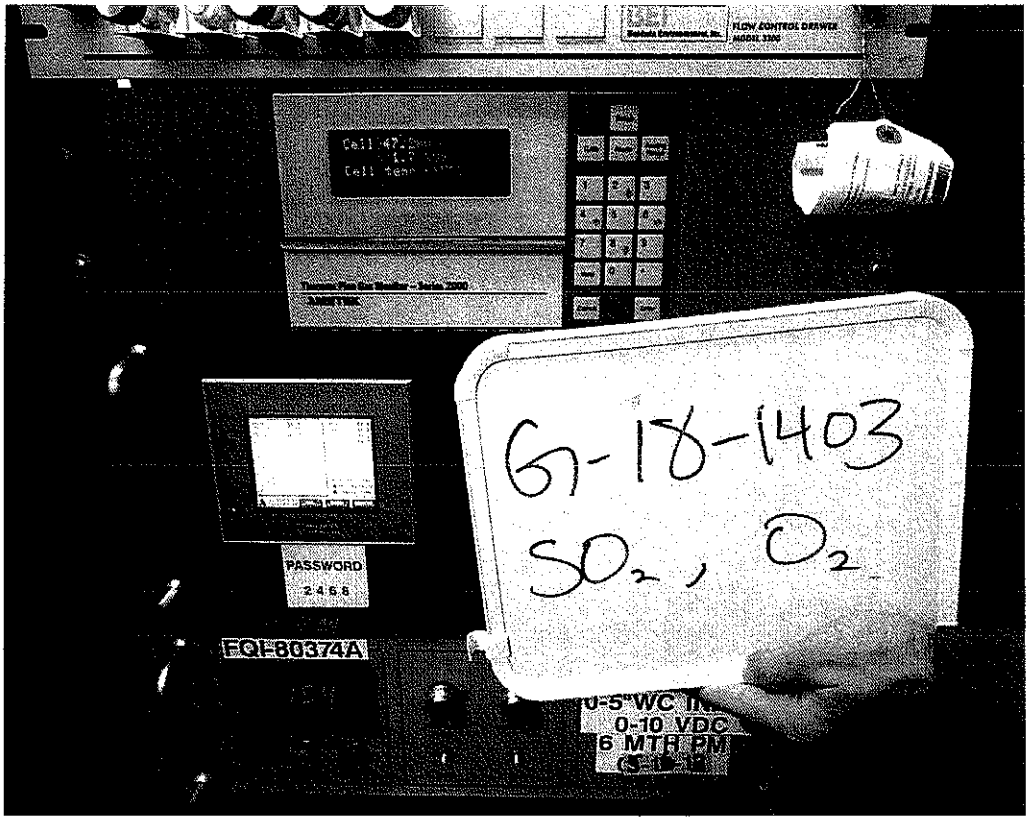
Appendix 1

Photo Log



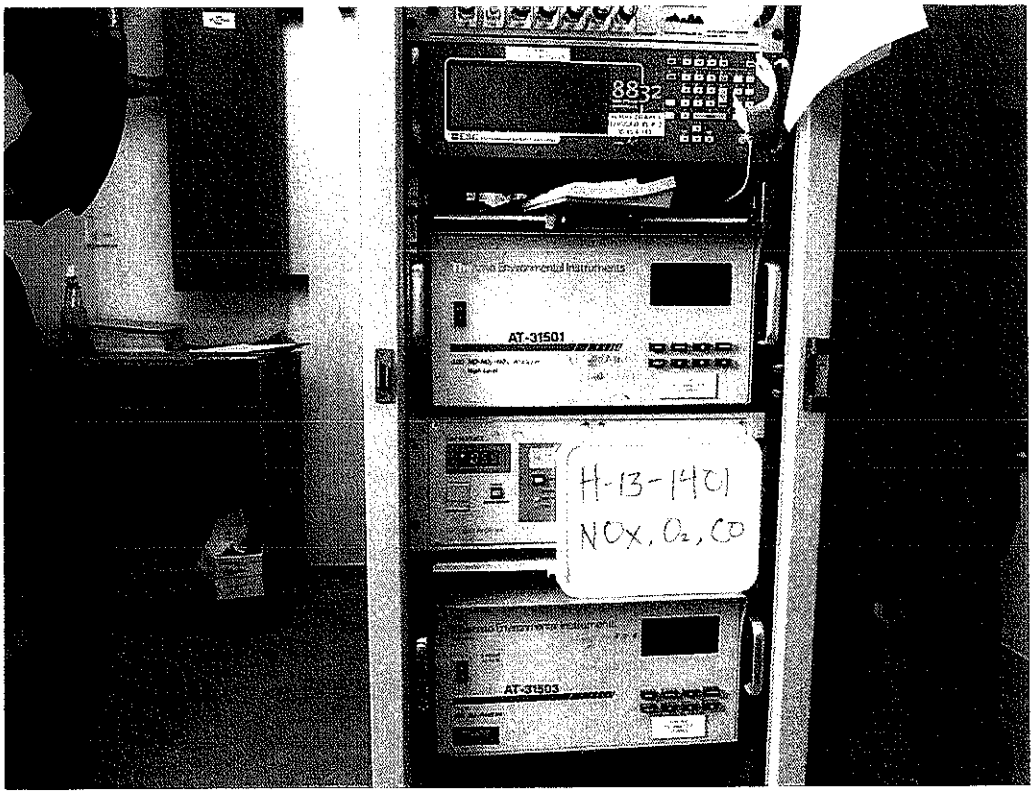
H-44 Ultra Low NOx Burners

H-44 NOx, CO, O_2 CEMS

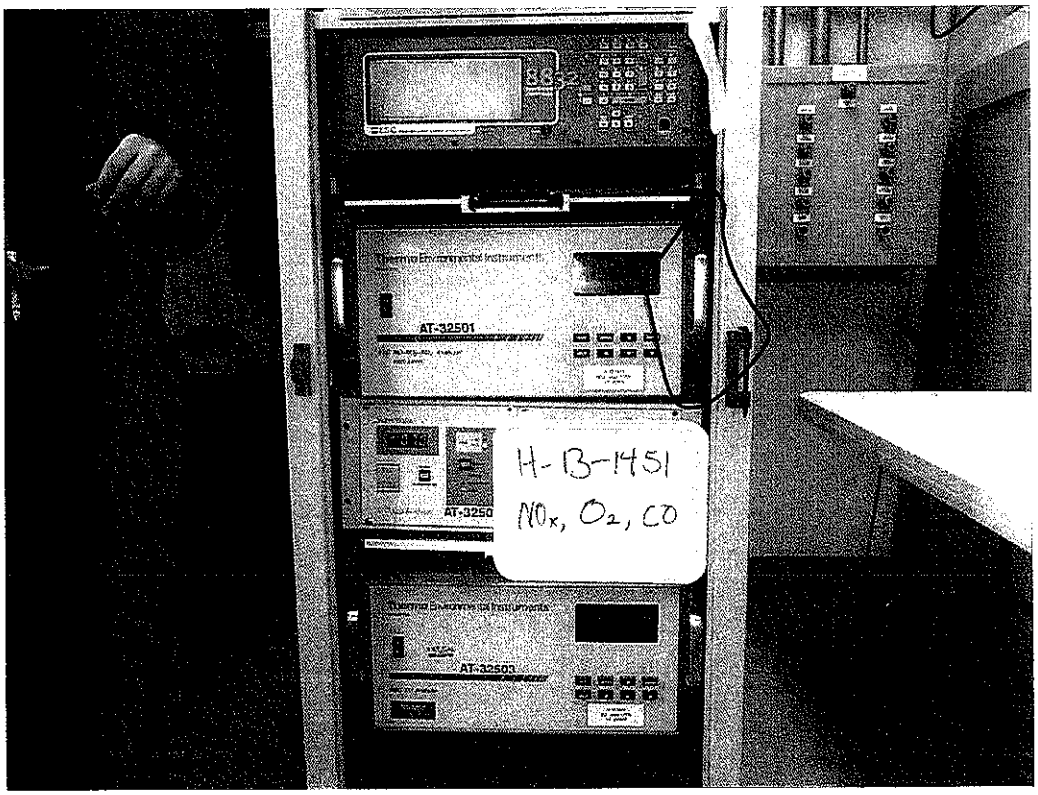


G-18-1403 SO_2, O_2 CEMS

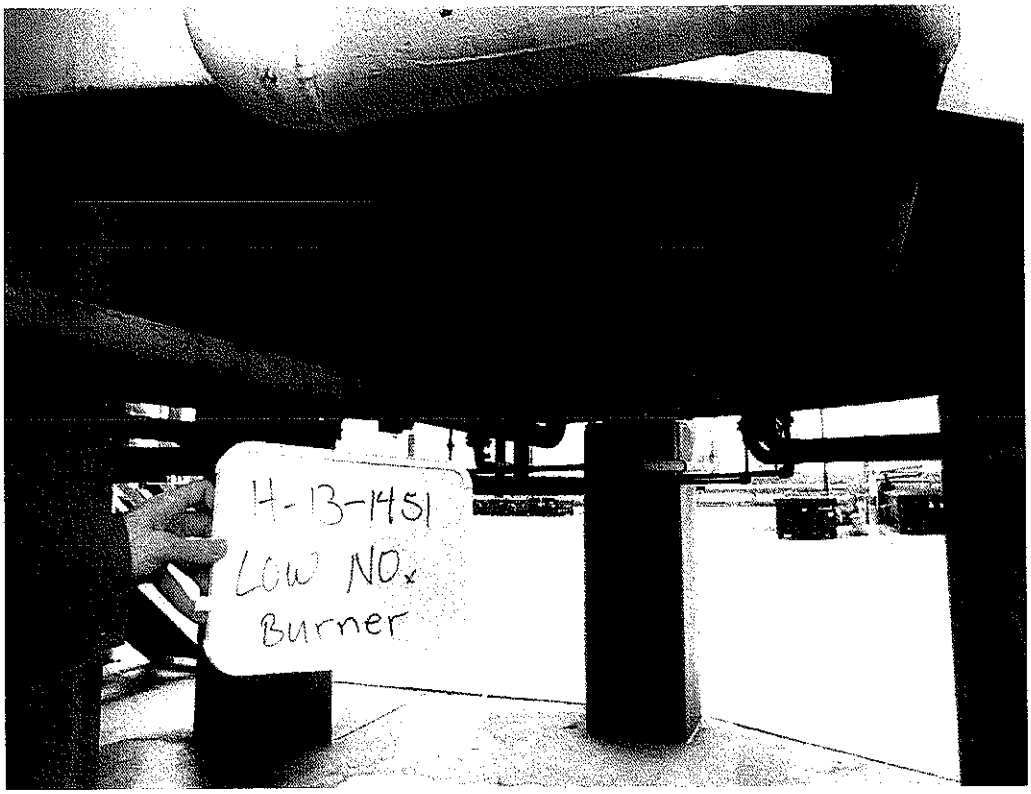
H-13-1401 CEMS Building #89



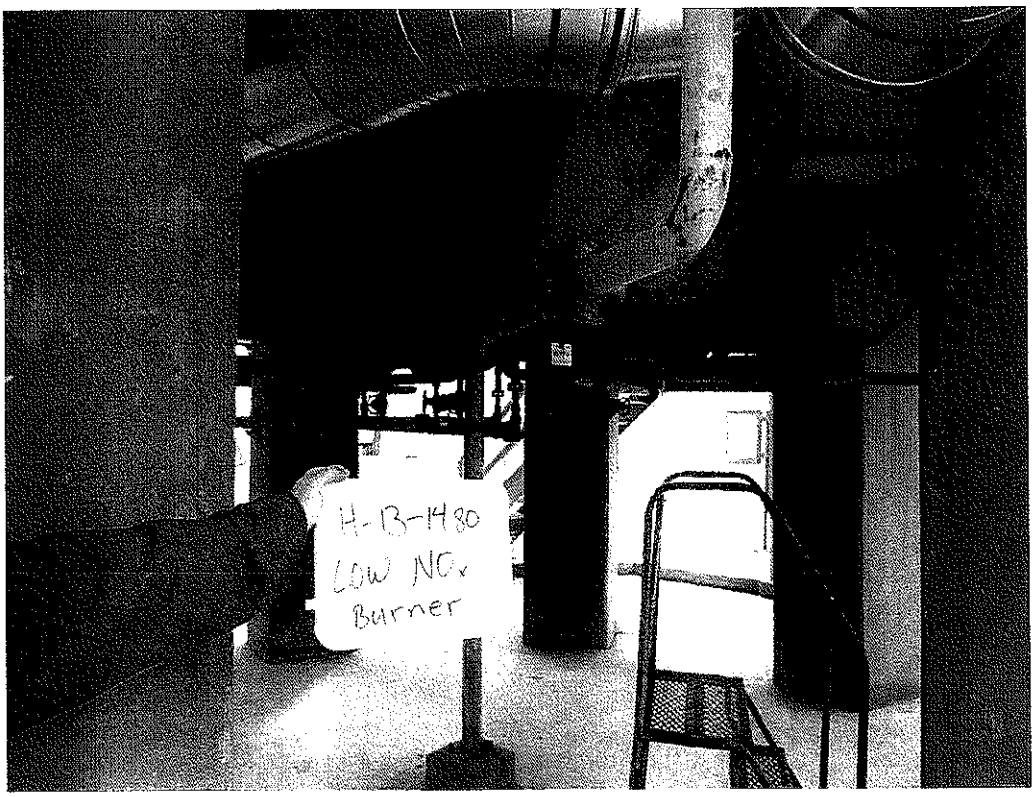
H-13-1401 NOx, O_2, CO CEMS



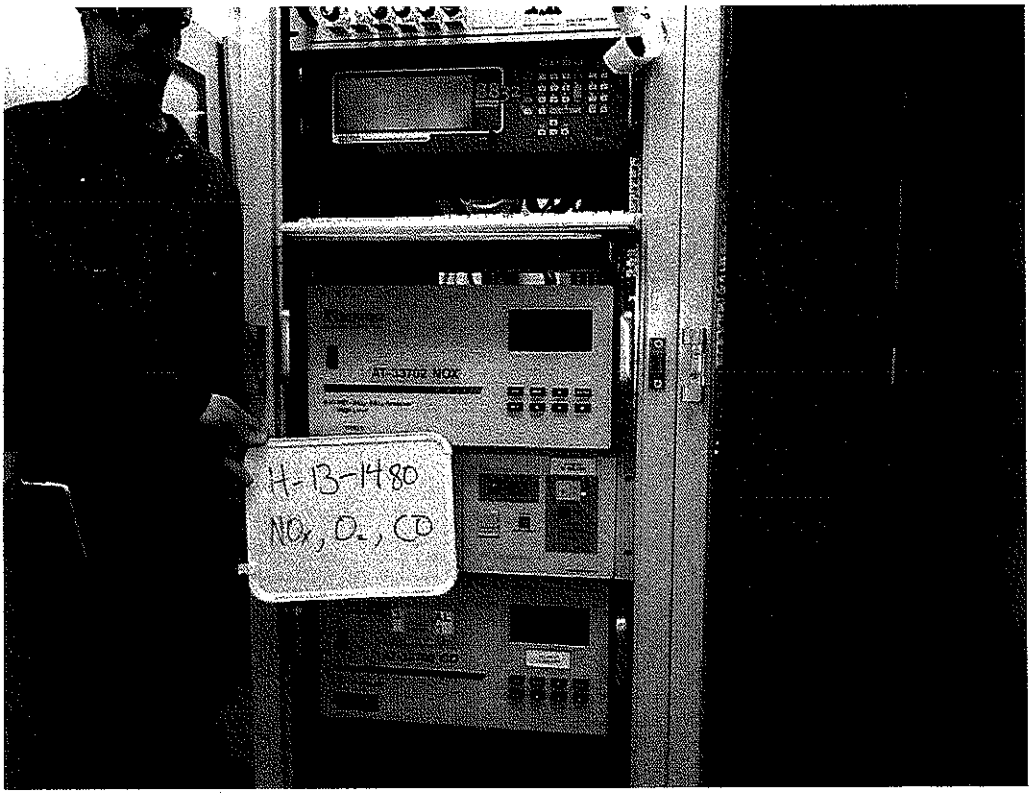
H-13-1451 NOx, O_2, CO CEMS



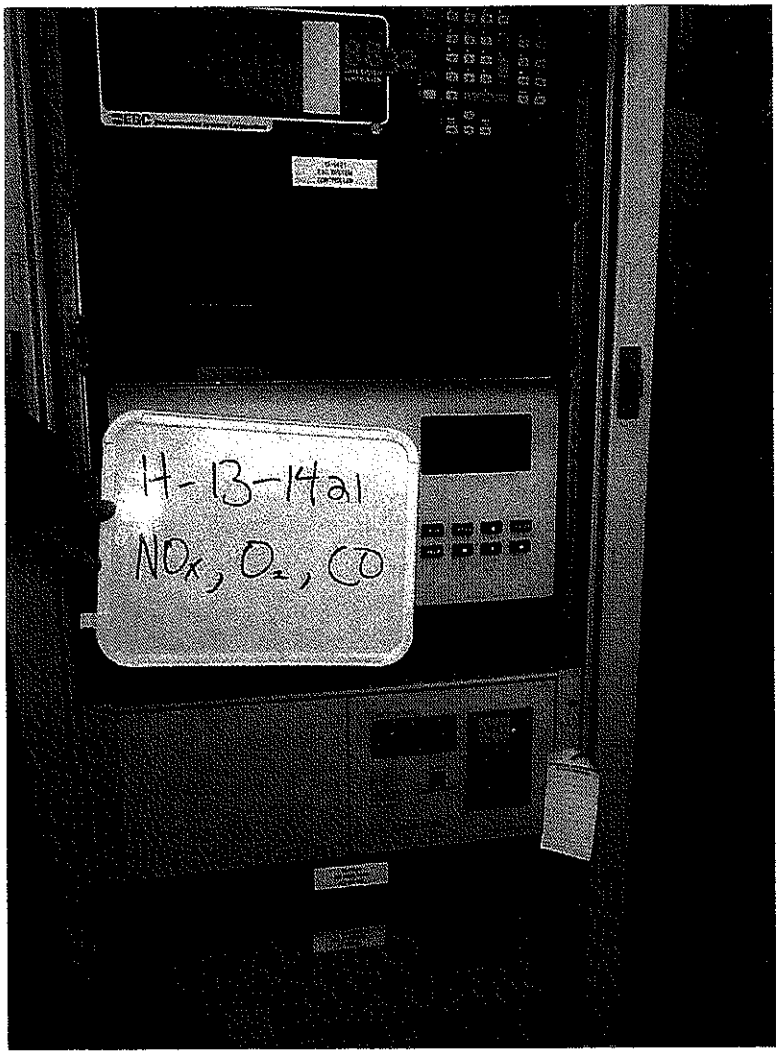
H-13-1451 Ultra Low NOx Burners



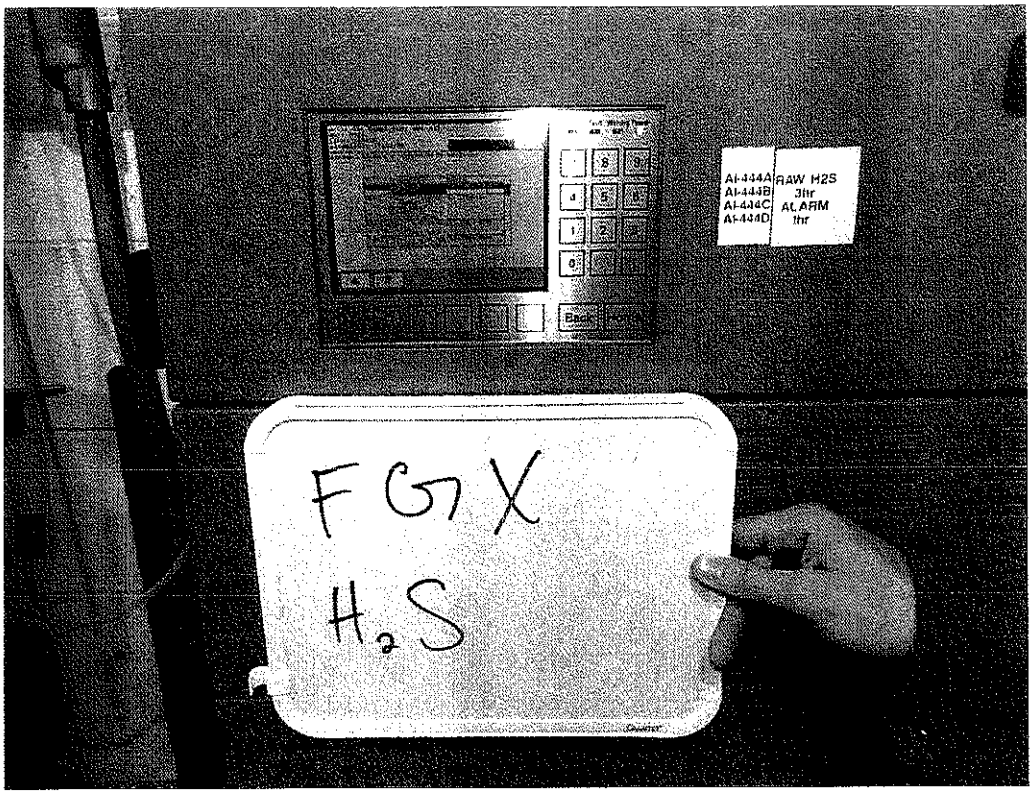
H-13-1480 Ultra Low NOx Burners



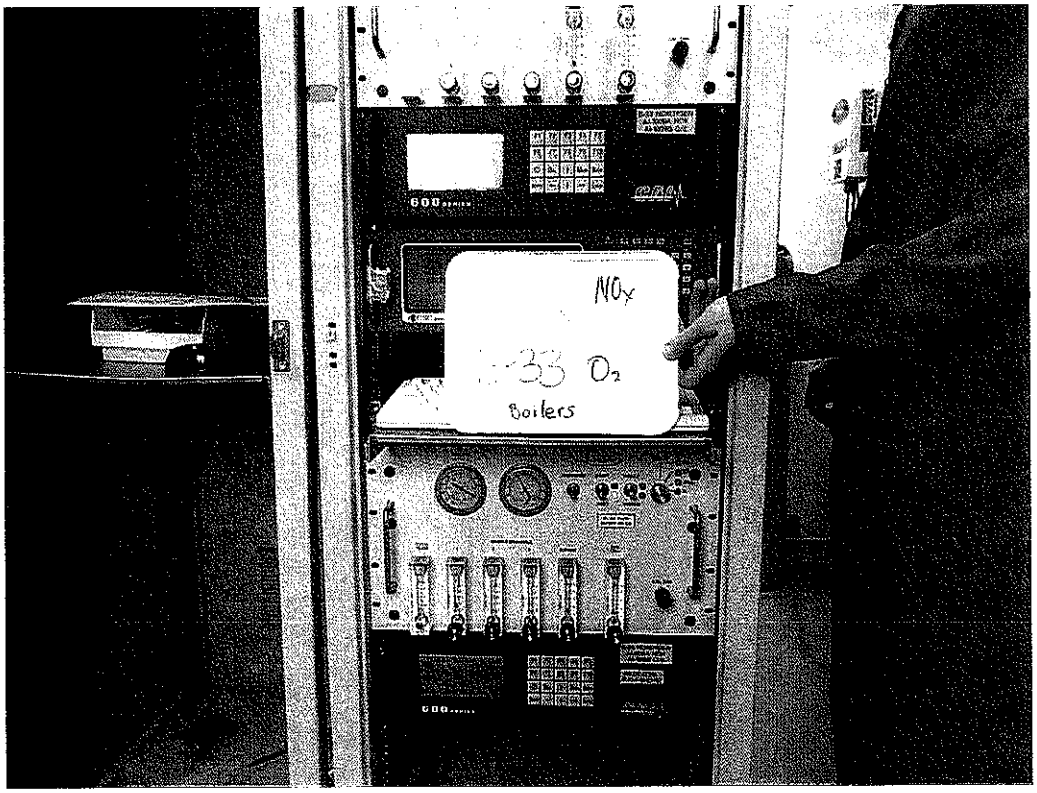
H-13-1480 NOx, O_2, CO CEMS



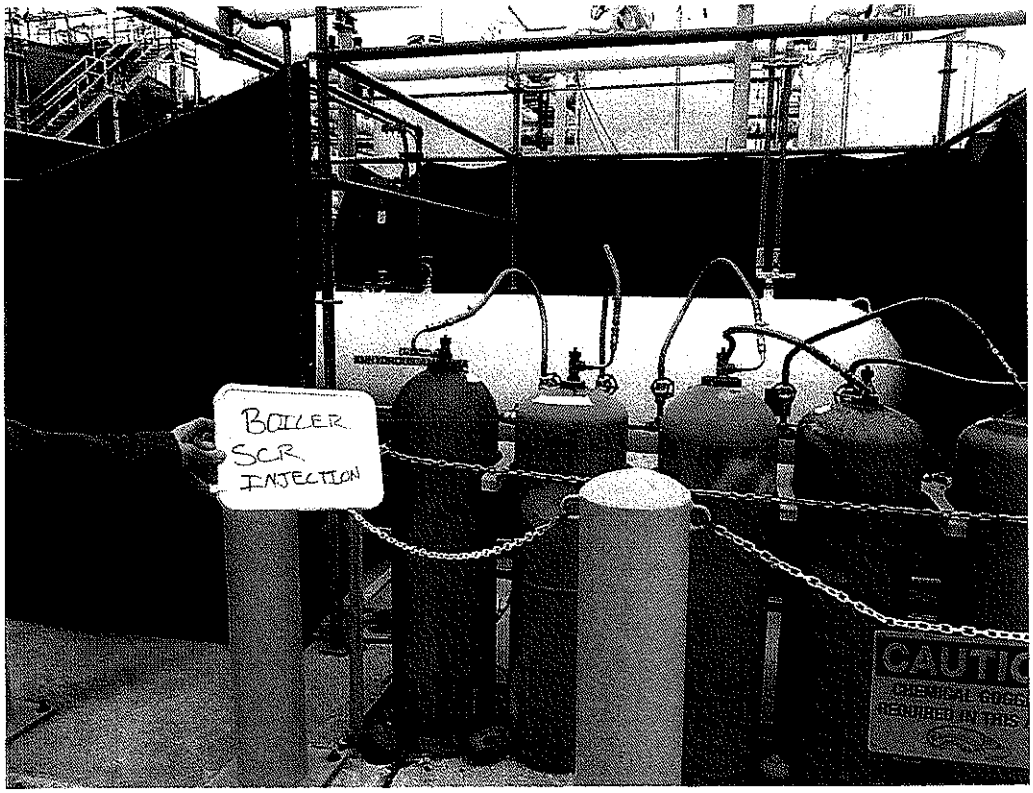
H-13-1421 NOx, O_2, CO CEMS



FGX-H_2S CEMS

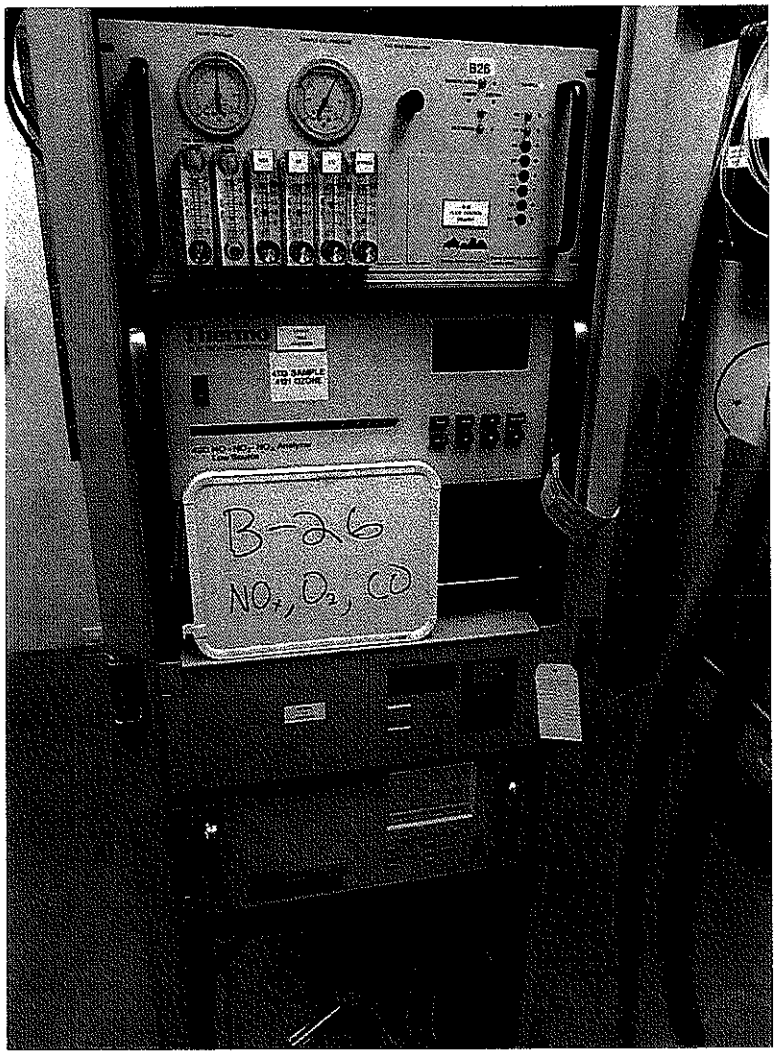


B-32 & B-33 NOx and O_2 CEMS



Boiler SCR Injection

B-27 NOx, O_2, CO CEMS

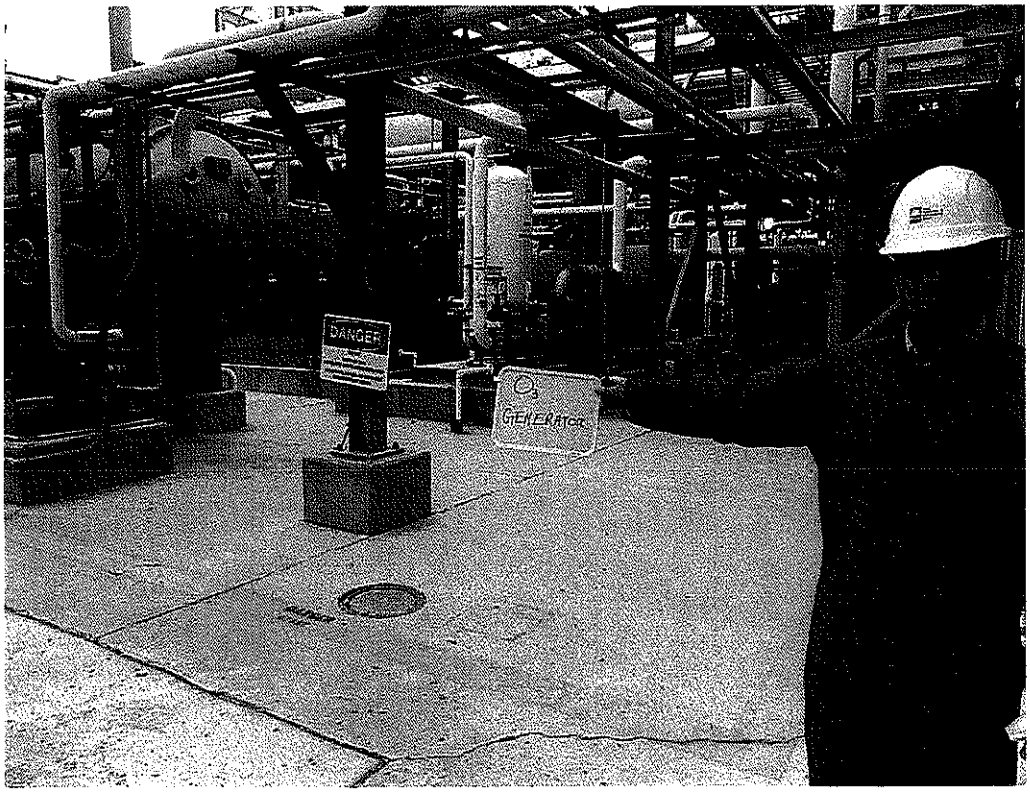


B-26 NOx, O_2, CO CEMS

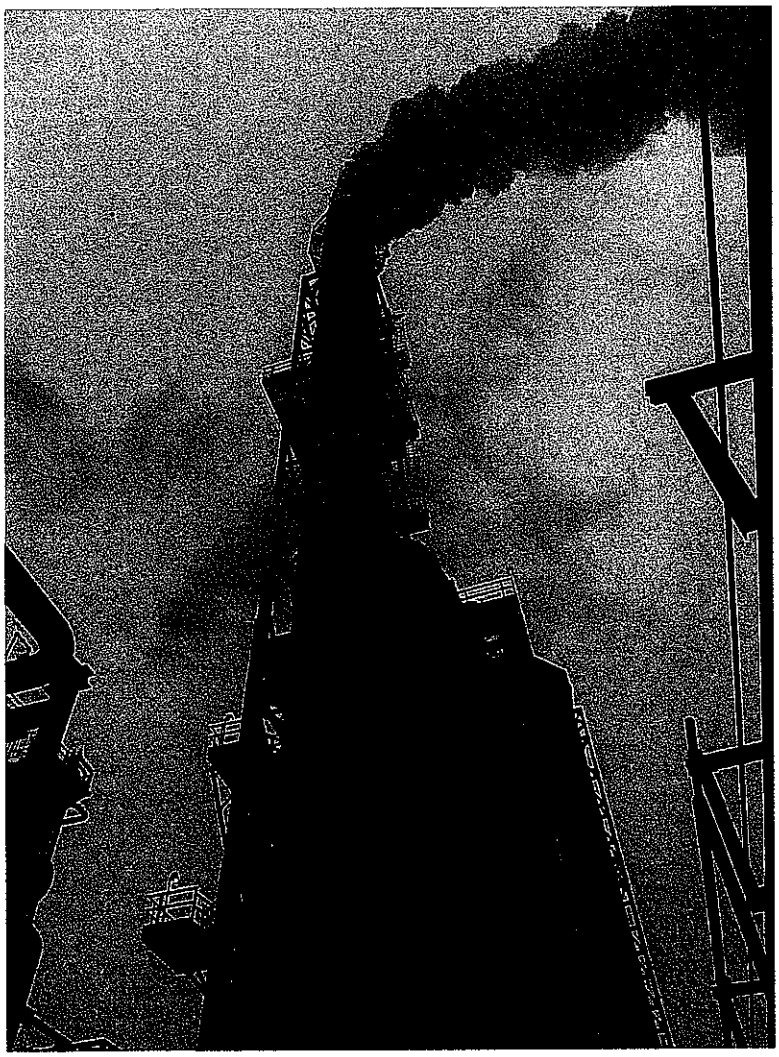
B-18 NOx, O_2, CO CEMS

H-34 CO, NOx, O_2 CEMS

FCCU NOx, SO_2, CO, O_2, CO_2 CEMS



O_3 Generator

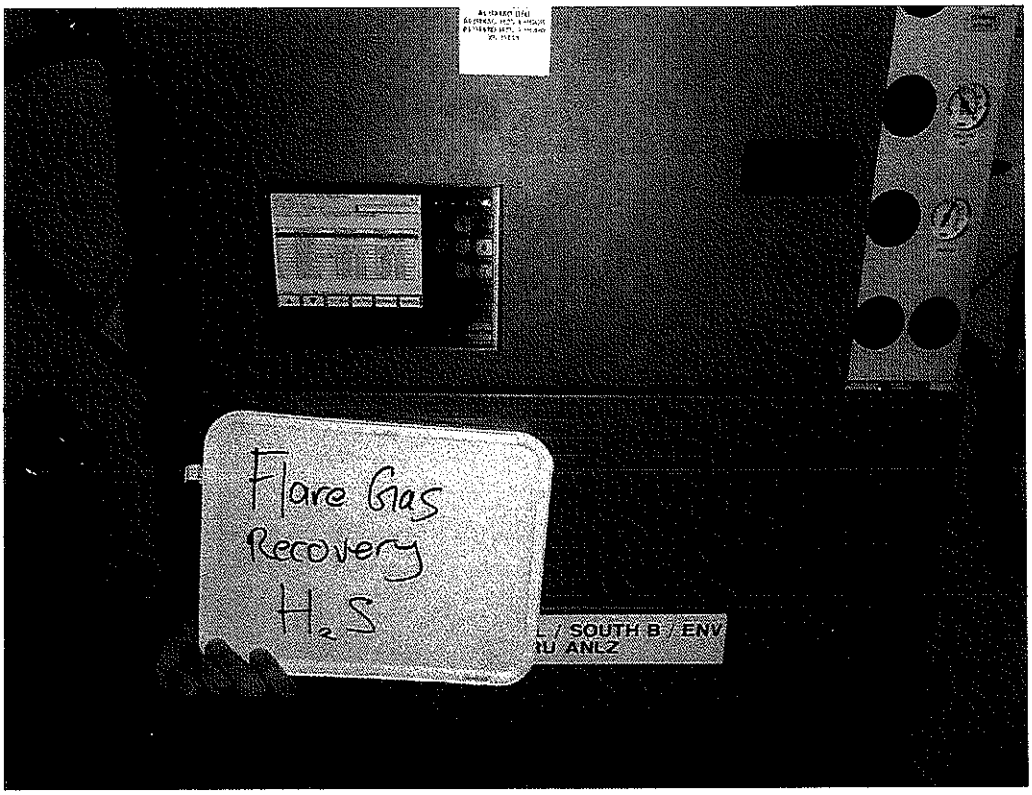


BELCO Scrubber

H-50 NOx, CO, O_2 CEMS

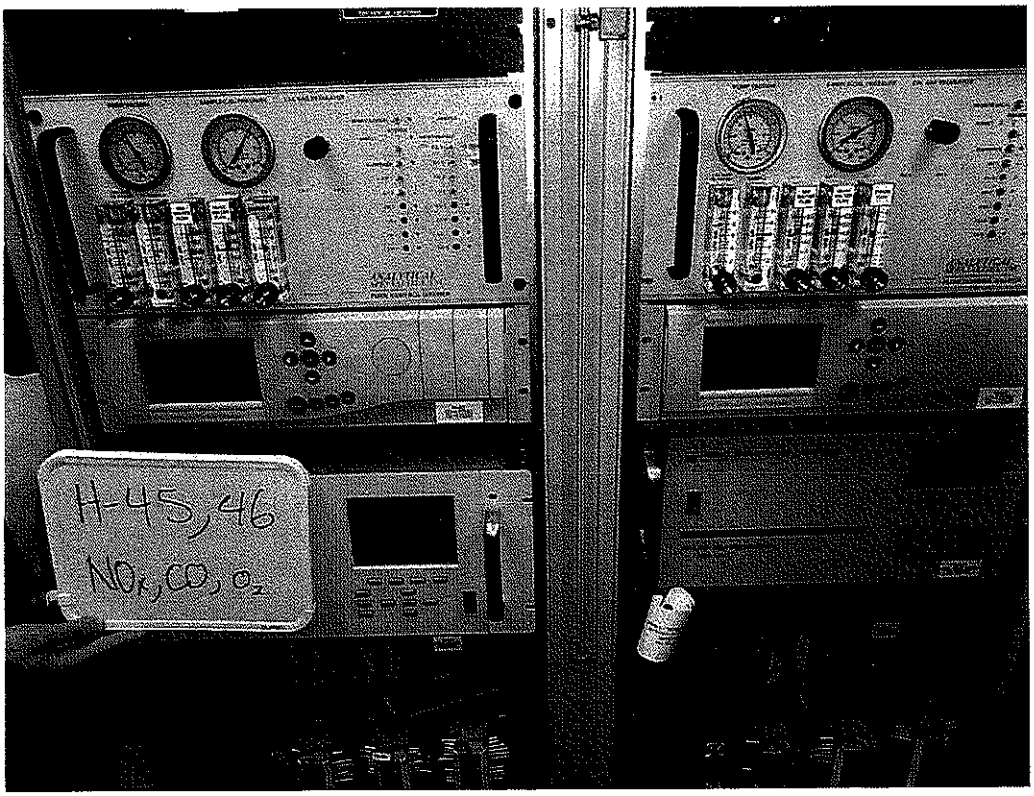
G-193 O_2, SO_2 CEMS

G-193 O_2, SO_2 CEMS

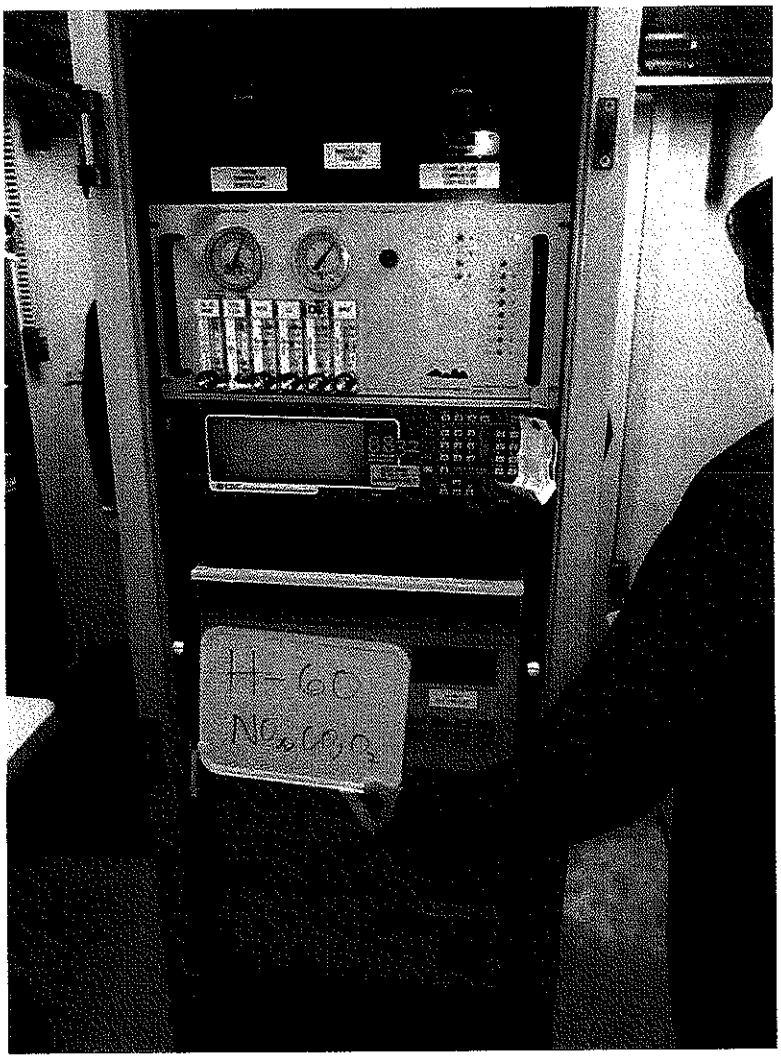


Flare Gas Recovery – H_2S CEMS

H-16/H-17 (Combined Stack) NOx, CO, O_2 CEMS

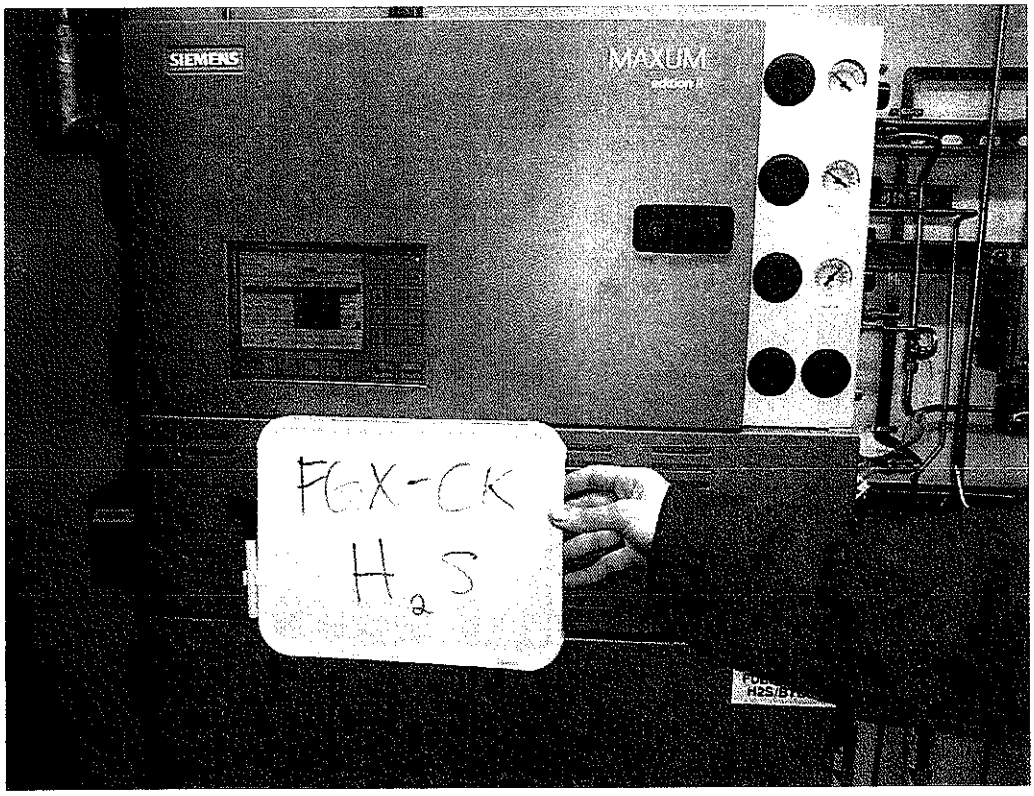


H-45 & H-46 NOx, CO, O_2 CEMS

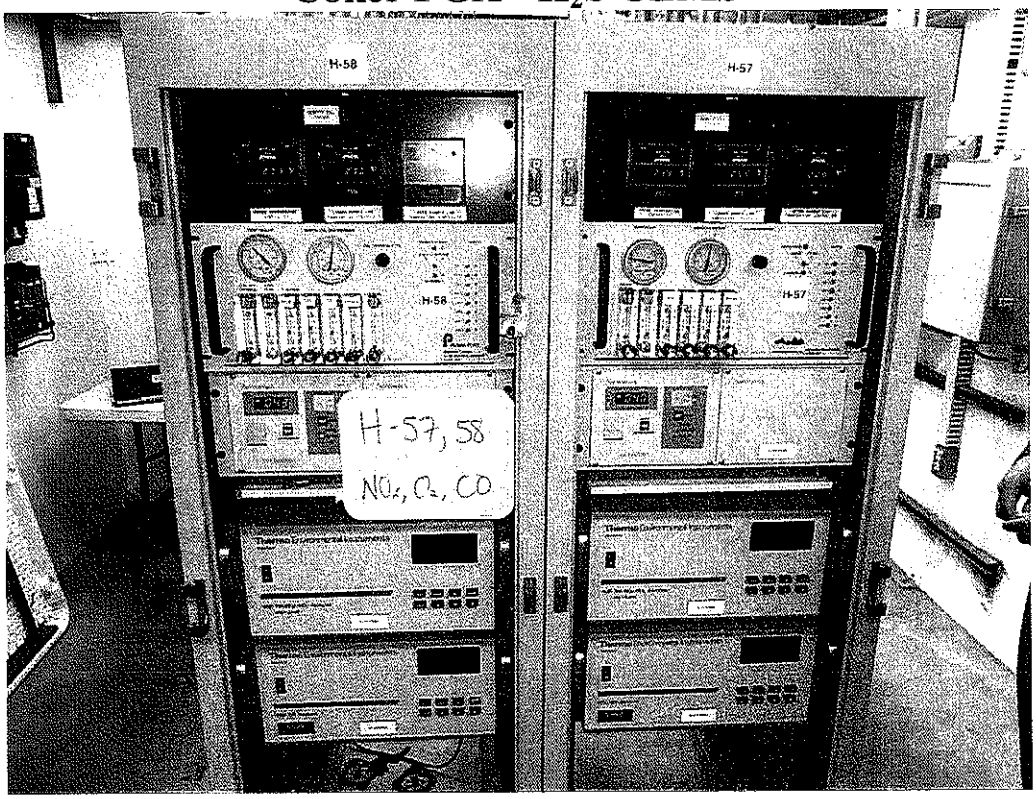


H-60 NOx, CO, O_2 CEMS

H-18, 19, 20, 21, 22, 23 (Combined Stack) NOx, O_2, CO CEMS

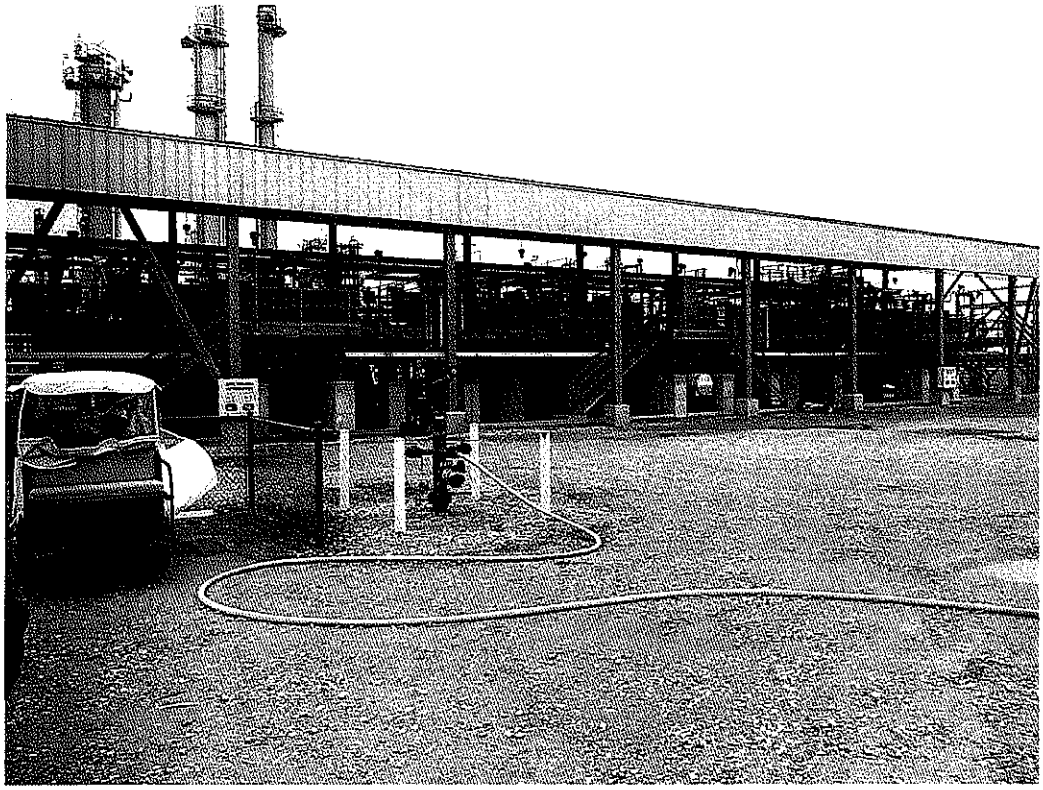


Coker FGX - H_2S CEMS

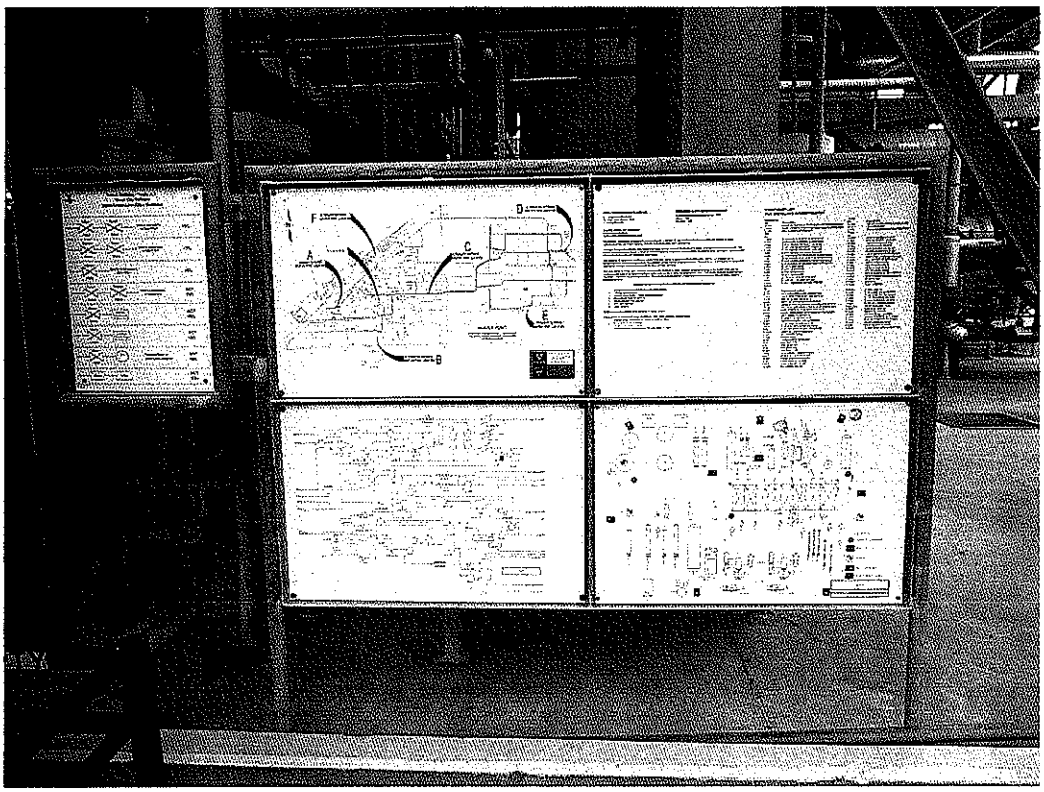


H-57 & H-58 NOx, O_2, CO CEMS

PRAXAIR Calibration Gas



Flare Gas Recovery-Compressors



Open Ended Line Sign

Appendix 2

Opening Conference sign in sheet

EPA Consent Decree Audit

	NAME	COMPANY
1	Jolanda Allison	VALERO
2	PATRICK PASSANTINO	VALERO
3	HARMAN SINGH	VALERO
4	GINO PAGANUCCI	VALERO
5	ROHAN JOSEPH	VALERO
6	Victoria Chavez	Valero
7	Grant Gutierrez	Valero
8	Jim GOLD	EPA
9	RICHARD GIGGER	EPA
10	Paul Brandes	TCEQ
11	Les Rucker	Valero
12	Nader Mawrow	TCEQ

Appendix 3

Plant wide process flow diagram

Valero Texas City Refinery Process Description

The Valero Texas City Refinery produces a diverse range of petroleum products. These products include a variety of gasolines and low-sulfur diesel and distillate oils, such as home heating oils, kerosene, and jet fuel. The design of the Valero Texas City Refinery allows the facility a great deal of flexibility in processing different grades of crude feedstock. Feedstocks are received at the facility from pipeline and marine vessels. Finished products from the facility are shipped to commercial markets via pipeline and marine vessels.

To support facility operations, the Valero Texas City Refinery operates a large number of process units. Each of the process units which form a complex interrelationship with one another plays an important role in supporting facility operations. Brief process descriptions for each of the major process units at the Valero Texas City Refinery are presented below. Following these brief process unit descriptions is a succinct listing of all other, less principal, process units at the facility.

Crude Distillation Units: The *No. 3 Crude Unit* and the *No. 1 / No. 2 Topper Units* are used to heat, desalt, purify, and distill crude oil feedstocks into a multitude of product cuts, including straight-run gasoline, straight-run naphtha, kerosene, straight-run gas oil (virgin gas oil or diesel), and light gases.

Residual Vacuum Distillation Unit (RVDU): The *RVDU* is designed to recover lighter cat cracker feed material from the vacuum distillation of atmospheric tower bottoms and from deasphalted oil materials. This process is accomplished using vacuum fractionation.

Gas Oil Hydrotreater (GOHT) Unit: The *GOHT Unit* processes refinery distillation bottoms and residuum for the conversion and removal of sulfur compounds, yielding products of improved marketability and stability. Hydrogen-rich gas at high temperature is mixed with desalted feedstocks, heated, catalytically reacted, and then fractionated into a multitude of product cuts.

Residual Oil Supercritical Extraction (ROSE) Unit: The *ROSE Unit* is designed to process refinery bottoms or residuum for the recovery of cat cracker feedstock (deasphalted oil) and asphalt, thereby reducing the overall amount of bottoms material generated by the refinery process. The process involves mixing solvents, usually butanes or pentanes, with the feedstock materials and then separating the mixture into asphalt and deasphalted oil.

Fluid Catalytic Cracking Unit (FCCU): The *FCCU* is designed to catalytically "crack", or split, heavy gas oils into light off-gas materials, high octane gasoline, naphtha, fuel oil, and cutter stock material.

Alkylation Unit (Alky): The *Alky Unit* is designed to process hydrocarbons which are too light and volatile to be used in gasoline. In this process, light BB materials (butanes, butylenes, isobutane) are combined or joined together to yield a product in the gasoline boiling range called "alkylate". Hydrofluoric acid (HF) is used in the process as the catalyst for the reaction.

Distillate Hydrotreater Units: The *Distillate Hydrotreater (DHT) Unit* is designed to process cracked or straight run gas oil stocks for the conversion and removal of sulfur compounds, yielding products of improved odor, stability, and color. Hydrogen-rich gas is mixed at high pressure with the distillate feedstocks. The mixture is heated and catalytically reacted, and the resulting liquid distillate stream is fed to a stripper column for the removal of residual hydrogen sulfide and any light-end components.
The *Middle Distillate Hydrotreater (MDHT) Unit* is designed to process kerosene and gas oil stocks for the conversion and removal of sulfur compounds. This process is similar to that described for the Distillate Hydrotreater Unit.

Naphtha Reformer Unit: The *No. 2 Reformer Unit* is designed to convert high-sulfur, low-octane naphthas into virtually sulfur-free high octane gasolines called "reformate" and "platformate", respectively. These processes are accomplished by first catalytically reacting the mercaptan sulfur in the naphtha feedstocks with hydrogen recycle gas at high temperatures to remove the sulfur compounds. The second step involves the conversion of sulfur-free, low-octane naphtha into high octane reformate and platformate gasolines via catalytic reaction and flash drum separation. On a semi-continuous basis, spent catalyst from the processes is regenerated by burning off adhered carbon at high temperatures.

Gasoline Desulfurization Unit (GDU): The *GDU* is to desulfurize FCCU gasoline and take isopentane (C5's) from the Deisopentanizer overhead while minimizing the amount of olefin saturation.

Penex Unit: The *Penex Unit* is designed to convert low octane straight run gasoline from the crude units into a higher octane gasoline blending component. The first section is the Dehexanizer, which splits the C6's and lighter as overhead product for the Penex. The second section is the Deisopentanizer, which splits the C4's and lighter as overhead product. The third section is the Hydrotreating section, is designed to react hydrogen with the mercaptan sulfur contained in the gasoline, to form H_2S and sulfur-free straight run gasoline. The fourth section of the Penex unit is designed to convert this sulfur-free straight run gasoline into a higher-octane component called "isomerate".

Propylene Purification Unit (PPU): The *PPU* is designed to remove small amounts of methanes and ethanes from a mixture of mostly propane and propylene (P-P mix), and then to separate the remaining P-P mix into two individual products, high grade propane and propylene.

Light Ends Recovery Unit (LRU): The *LRU* is designed to recover propane, butane, and pentane that would normally end up in plant fuel gas, and return a residue gas stream comprised mainly of methane, ethane, and hydrogen back to the plant fuel system.

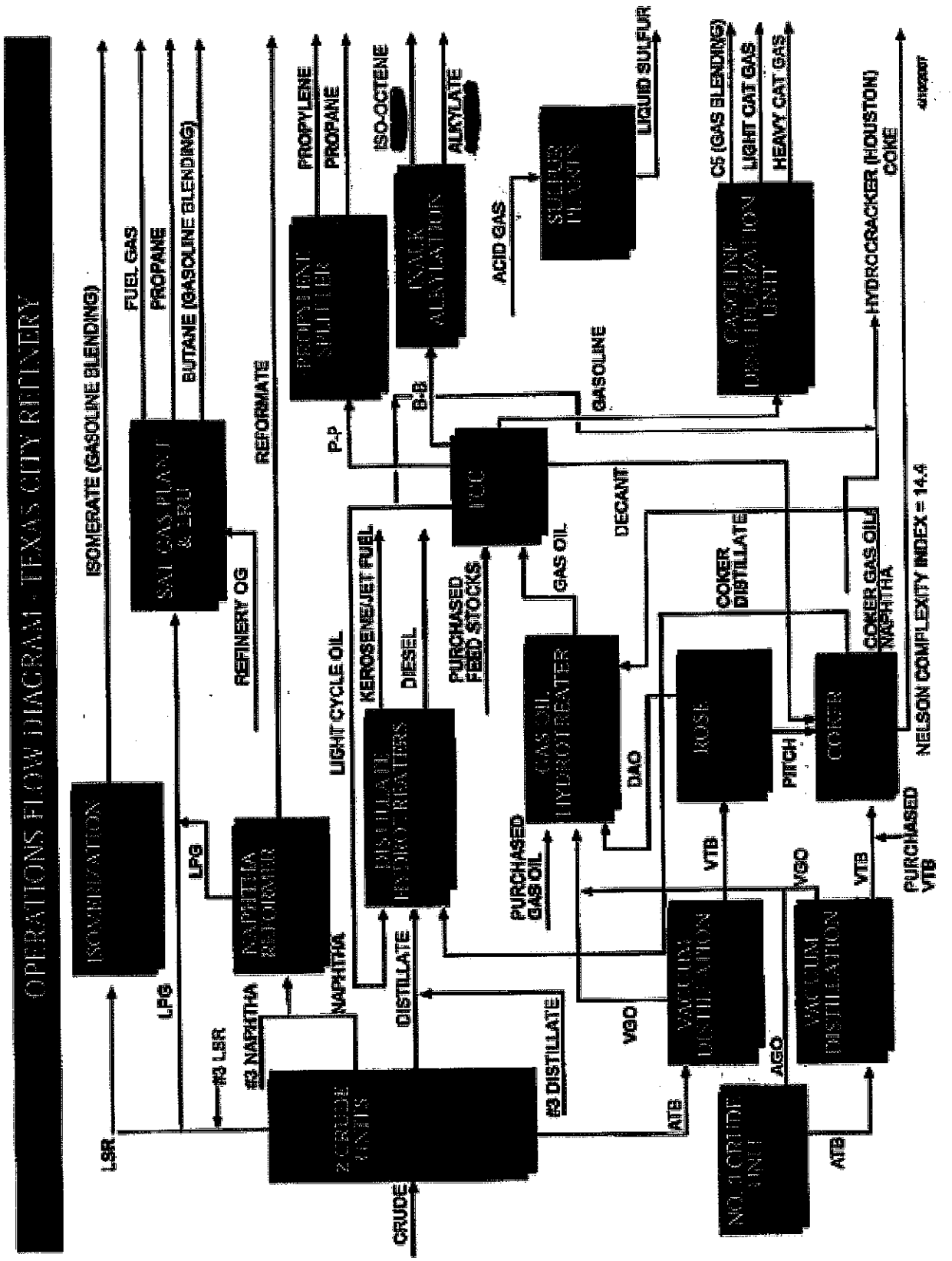
Saturates Gas Plant (Sats Gas): The primary purpose of the *Sats Gas Plant* is to recover methane, ethane, propane, isobutane and normal butane from the dehexanizer overhead and the topping unit off gas streams. The secondary purpose is to debutanize or stabilize the straight run gasoline before it is sent to the Penex Unit.

Treaters Unit: The *Treaters Unit* is designed to remove mercaptans (sulfur) and H_2S from BB (butane/isobutane), normal butane, P-P mix, diesel, and C_3 streams before being sent to downstream units for further processing or product storage.

Delayed Coking Unit (DCU): The *DCU* is designed to increase the liquid product yield from the "bottom of the barrel " that remains from other processes in the refinery. The DCU processes a feed composed of rose pitch from the ROSE Unit, VTB's from the No. 3 Crude Unit, and FCCU slurry from the FCCU. The DCU also processes refinery waste sludge.

To support refinery operations, the Valero Texas City Refinery operates a number of other, less principal, process units. These units provide purification, sulfur recovery, product blending, and other functions critical to support overall refinery operations. Presented below is a listing of these less principal process units.

- Amine Unit
- No. 3 Sulfur Recovery Unit (SRU)
- No. 2 Tail Gas Unit (TGU)
- Pressure Swing Absorption (PSA) Unit
- FCC Gas Con Unit
- GOHT Amine Units
- GOHT Sulfur Recovery Units (No. 1 & No. 2 SRU)
- Sour Water Stripper (SWS) Units
- GOHT Tail Gas Unit (No. 1 TGU)
- Fuel Gas Mixing Drum
- Wastewater Treatment Unit
- Utilities Unit


OPERATIONS FLOW DIAGRAM - TEXAS CITY REFINERY
ISOMERATE (GASOLINE BLENDING)
FUEL GAS
PROPANE
BUTANE (GASOLINE BLENDING)
REFORMATE
PROPYLENE
PROPANE
ISO-OCTENE
ALKYLATE
ACID GAS
LIQUID SULFUR
C5 (GAS BLENDING)
LIGHT CAT GAS
HEAVY CAT GAS
HYDROCRACKER (HOUSTON)
COKE
NELSON COMPLEXITY INDEX = 14.4
ISOMERIZATION
SAT GAS PLANT & LRU
REFORMER
PROPYLENE SPLITTER
ISO-OCTANE ALKYLATION
SULFUR PLANTS
GASOLINE DESULFURIZATION UNIT
FCC
NAPHTHA HYDROTREATER
DISTILLATE HYDROTREATERS
GAS OIL HYDROTREATER
COKER
VACUUM DISTILLATION
VACUUM DISTILLATION
NO. 1 CRUDE UNIT
2 CRUDE UNITS
LSR
LPG
#3 LSR
#2 NAPHTHA
NAPHTHA
DISTILLATE
#3 DISTILLATE
ATB
VGO
AGO
LIGHT CYCLE OIL
KEROSENE/JET FUEL
DIESEL
PURCHASED FEED STOCKS
GAS OIL
DECANT
GASOLINE
P-P
B-B
DAO
PURCHASED GAS OIL
COKER DISTILLATE
COKER GAS OIL
NAPHTHA
PITCH
PURCHASED VTB
CRUDE

Appendix 4

CD implementation chart

Valero Refining-Texas

Texas City Refinery

Valero Consent Decree Implementation

CD Section	Category	Status	Title	Action Item Note	Resolution Note
IV: Heaters and Boilers	15	Completed	Annual Heater Report	Compile refinery Heater and Boiler annual update report information and submit to corporate.	Emailed Heater and Boiler annual update to EPA.
IV: Heaters and Boilers	16	Completed	Heater @ 0.06 NOx Compliance Plan	Submit compliance plan information to corporate for Interim System-Wide Weighted Average of 0.060 lb/MMBtu NOx for covered heaters and boilers.	The requested information was submitted to EPA.
IV: Heaters and Boilers	17	Completed	System Wide Heater 0.06 NOx Limit	Install NOx control technologies or otherwise limit NOx emissions on covered heaters and boilers such that the system-wide weighted average NOx emissions are no greater than 0.060 lb/MMBtu as outlined in Interim Compliance Plan.	NOx emission limits have been established for affected heaters and boilers to maintain system wide compliance with 0.060 lbs/MMBTU.
IV: Heaters and Boilers	20	Completed	System Wide Heater 0.044 NOx Limit	Submit compliance plan information to corporate for Final System-Wide Weighted Average of 0.044 lb/MMBtu NOx for covered heaters and boilers.	Information was submitted to EPA with changes to the Texas City Refinery heaters and boilers.
IV: Heaters and Boilers	21	Completed	System Wide Heater 0.044 NOx Limit	Install NOx control technologies or otherwise limit NOx emissions on covered heaters and boilers such that the system wide weighted average NOx emissions are no greater than 0.044 lb/MMBtu as outlined in final Compliance Plan.	NOx control technologies or NOx emissions limits are in place at the Valero Texas City Refinery such that the system wide weighted average NOx emissions are no greater than 0.044 lb/MMBtu as outlined in final Compliance Plan.
IV: Heaters and Boilers	27	Completed	Interim Compliance Demo. Rpt. for Heat/Boiler NOx	Submit report to corporate for compliance with the Interim Heater and Boiler NOx limit of 0.060 lb/MMBtu.	NOx emission limits established for affected heaters and boilers to maintain system wide compliance with 0.060 lbs/MMBTU were submitted to EPA.
IV: Heaters and Boilers	27	Completed	Final Compliance Demo. Rpt. for Heat/Boiler NOx	Submit report to corporate for compliance with the Interim Heater and Boiler NOx limit of 0.044 lb/MMBtu.	NOx emissions and emission factor data for covered heaters/boilers are included in the attached spreadsheet.
IV: Heaters and Boilers	29.(a)	Completed	Heater/Boiler (>150 MMBtu/hr) CEMS Installation	Complete CEMS installations on all Heaters and Boilers greater than 150 MMBtu/hr that have added NOx controls or have committed to <0.060 lb/MMBtu without additional controls.	No new heaters or boilers >150 MMBtu/hr were installed during the 4th quarter of 2011.
IV: Heaters and Boilers	29.(a)	Completed	Checklist: Heater/Boiler >150 MMBtu/hr CEMS	If new NOx controls added to Heaters/Boilers >150 MMBtu, verify that CEMS were installed within 180 days of start-up.	No new NOx controls were added to existing sources after date of lodging. B-28 NOx CEMS began operation upon startup of the source.
IV: Heaters and Boilers	29.(b)	Completed	Heater/Boiler (100	Complete CEMS or PEMS installations on all Heaters and Boilers greater than 100 MMBtu/hr, but less than 150 MMBtu/hr that have added NOx controls or have committed to <0.060 lb/MMBtu without additional controls.	No new heaters or boilers less than or equal to 150 MMBtu/hr and >100 MMBtu/hr were installed during the 4th quarter of 2011.
IV: Heaters and Boilers	29.(b)	Completed	Checklist: Heater/Boiler 100	If new NOx controls added to Heaters/Boilers greater than 100 MMBtu/hr, but less than 150 MMBtu/h, verify that CEMS were installed within 180 days of start-up.	No new NOx controls added to Heater/Boilers greater than 100 MMBtu/hr, but less than 150 MMBtu/hr. (Note: All sources in that capacity range have existing CEMS.)
IV: Heaters and Boilers	29.(c)	Completed	Heater and Boiler (<100 MMBtu/hr) Stack Test	Complete initial stack test on covered heaters and boilers less than or equal to 100 MMBtu/hr and 40 MMBtu/hr that have added NOx controls or have committed to	No new heaters or boilers less than or equal to 100 MMBtu/hr and >40 MMBtu/hr were installed during the 4th quarter of 2011.
IV: Heaters and Boilers	29.(c)	Completed	Checklist Heater/Boiler (<100 MMBtu/hr) Stack Test	If new NOx controls added to Heaters/Boilers 40 MMBtu/hr, verify that stack test were conducted within 180 days of start-up. Attach copy of stack test summary.	Reformer Heaters H-20 and H-21 had burner upgrades in February of 2006. The heaters share a common stack along with Heaters H-18, H-19, H-22, and H-23. (There is a CEMS on the common stack.) The Reformer Heaters are scheduled to be stack tested in April of 2006. (Note: The heaters are not capable of operating independently, so they will all be firing during the test.)

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CD Section	Category	Status	Title	Action Item Note	Resolution Note
IV: Heaters and Boilers	30	Completed & Ongoing	Checklist: Heater CEMS CGA/RATA	Verify, for CEMS installed to comply with paragraph 29, the required Cylinder Gas Audit (CGA) or RATA has was completed. See most recent Annual Update Report for a list of covered heaters and boilers. CGAs are required quarterly (except for the quarter when a RATA is performed) and RATAs at least once every three years. Attach summary of RATA or CGA.	The 1st quarter 2006 CGA for the Reformer Heaters' CEMS is attached. (Note: It is Texas City's practice to perform a CGA every quarter on each of its CEMS and a RATA annually.)
V. FCCU NOx	37	Completed	FCCU Lot Ox Installation	Complete installation and subsequent operation of Lot Ox system to reduce NOx emissions from FCCU to comply with FCCU NOx limit of 20 ppmvd, measured as a 365-day rolling average, and 40 ppmvd measured as a 7-day rolling average, both at 0% O2. Exceedances of these limits must be reported in IMPACT.	The LoTox system to reduce NOx emissions from the FCCU was installed and in operation prior to December 31, 2007.
V. FCCU NOx	37	Completed & Ongoing	Checklist: FCCU NOx Emission Limit	Confirm for the last quarter that all exceedances of the FCCU NOx concentration emission limits were inputted into IMPACT. The FCCU NOx emission concentration limit is 20 ppmvd, measured as a 365-day rolling average, and 40 ppmvd measured as a 7-day rolling average, both at 0% O2.	There were no FCCU NOx emission limit exceedances during the past quarter.
V. FCCU NOx	53	Completed	Interim FCCU NOx System Wide Average	Submit information to corporate that demonstrates compliance with the Interim FCCU NOx System-Wide Average of 69.2 ppmvd. Compliance demonstration report must include the information specified in paragraph 53.(a.) - (c.).	The FCCU consent decree NOx limits have been incorporated into the Valero Texas City Refinery's Title V and Flexible Permits. The pages confirming these limits have been attached.
V. FCCU NOx	53.(a.)	Completed	FCCU NOx Permit Incorporation	Submit application to establish federally enforceable NOx concentration emission limit for FCCU of 20 ppmvd, measured as a 365-day rolling average, and 40 ppmvd measured as a 7-day rolling average, both at 0% O2. (CD paragraph 37)	This application was submitted on December 19, 2007.
V. FCCU NOx	55	Completed	Final FCCU NOx System Wide Average	Submit information to corporate that demonstrates compliance with the final FCCU NOx System-Wide Average of 33.4 ppmvd. Compliance demonstration report must include the information specified in paragraph 55.(a.) - (c.).	NOx emissions and emission factor data are included in the attached spreadsheet.
V. FCCU NOx	61.(j.)	Completed	FCCU NOx CEMS Certification	Install and Certify FCCU NOx and O2 CEMS. Attach copy of certification report	FCCU NOx and O2 CEMS installed and certified.
V. FCCU NOx	62	Completed & Ongoing	Quarterly FCCU NOx CEMS CGA	Conduct CGA on FCCU NOx CEMS each calendar quarter during which a RATA is not performed.	This practice was already in place. See attached CGA results from August 2005.
VI. FCCU SO2	81	Completed	New FCCU SO2 Emission Limit	FCCU Wet Gas Scrubber must comply 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. Exceedances of these limits must be reported in IMPACT.	Began compliance with FCCU SO2 emission limits. (See attached CEMS report.)
VI. FCCU SO2	81	Completed & Ongoing	Checklist: FCCU SO2 Emission Limit	Confirm for the last quarter that all exceedances of the FCCU SO2 concentration emission limits were inputted into IMPACT. The emission concentration limits are 25 ppmvd, measured as a 365-day rolling average, and 50 ppmvd, measured as a 7-day rolling average, both at 0% O2.	There were no FCCU SO2 exceedances during the first quarter of 2006.
VI. FCCU SO2	89.(k)	Completed	FCCU SO2 CEMS Certification	Install and Certify FCCU SO2 and O2 CEMS. Attach certification.	FCCU SO2 and O2 CEMS have been installed and certified.

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CD Section	Category	Status	Title	Action Item Note	Resolution Note
VI. FCCU SO2	90	Completed	FCCU SO2 RATA	Conduct RATA on FCCU SO2 CEMS at least once every 3 years.	RATAs are conducted annually on the FCCU CEMS. The most recent RATA was completed in March of 2008.
VI. FCCU SO2	90	Completed & Ongoing	Quarterly FCCU SO2 CEMS CGA	Conduct a CGA on the FCCU SO2 CEMS each calendar quarter during which a RATA is not performed.	Conducted CGA during 4th quarter of 2005
VII. FCCU CO, Opacity, and PM	94	Completed	New FCCU CO Emission Limit	Comply with FCCU CO emission limit of 500 ppmvd at 0% O2 measured as a 1-hr block average. Exceedances of these limits must be reported in IMPACT.	Texas City began complying with the FCCU CO emission limit of 500 ppmvd at 0% O2 in May of 2002.
VII. FCCU CO, Opacity, and PM	94	Completed & Ongoing	Checklist: FCCU CO Emission Limit	Confirm for the last quarter that all exceedances of the FCCU CO concentration emission limits were inputted into IMPACT. The FCCU CO emission limit is 500 ppmvd at 0% O2 measured as a 1-hr block average.	May 22, 2006 was the effective date for tracking FCCU CO exceedances in IMPACT. There were no FCCU CO exceedances between the effective date and the end of the 2nd quarter of 2006.
VII. FCCU CO, Opacity, and PM	94	Completed & Ongoing	Checklist: FCCU CO Emission Limit	Confirm for the last semi-annual period that all exceedances of the FCCU CO concentration emission limits were entered into IMPACT. The FCCU CO emission limit is 500 ppmvd at 0% O2 measured as a 1-hr block average.	These events were entered into IMPACT.
VII. FCCU CO, Opacity, and PM	95	Completed	FCCU PM Emission Limit	Comply with FCCU 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. Exceedances of these limits must be reported in IMPACT.	Texas City is complying with the FCCU PM limit of 1 lb/ 1000 lb coke. Initial compliance testing for FCCU PM limit was completed in October of 2002.
VII. FCCU CO, Opacity, and PM	96	Completed	New FCCU Opacity Limit	Comply with 30% Opacity limit, except for one 6-min average opacity reading in any one hour period according to applicable requirements in NSPS A and J or comply with AMP. Install and certify a COMS or monitor opacity per approved AMP.	Texas City is complying with the 30% opacity limit through the alternative monitor parameters set in its AMP. Texas City's FCCU opacity AMP was approved on May 20, 2005.
VII. FCCU CO, Opacity, and PM	96	Completed & Ongoing	Checklist: FCCU PM Limit	Confirm for the last quarter that all exceedances of the FCCU PM emission limit were inputted into IMPACT. The PM limit is 1 pound per 1,000 pounds of coke burned (front half only according to Method 5B or 5F, as appropriate).	There were no FCCU PM emission limit exceedances during the past quarter.
VII. FCCU CO, Opacity, and PM	101	Completed	FCCU CO CEMS Certification	Install and certify FCCU CO CEMS, monitor CO per AMP, or obtain CO monitoring waiver. Attach certification.	Initial certification of Texas City's FCCU CO CEMS was completed in October of 2002.
VII. FCCU CO, Opacity, and PM	101	Completed	FCCU CO RATA	Conduct RATA on FCCU CO CEMS at least once every 3 years.	RATAs are conducted annually on the FCCU CEMS. The most recent RATA was completed in March of 2008.
VII. FCCU CO, Opacity, and PM	101	Completed & Ongoing	Quarterly FCCU CO CEMS CGA	Conduct a CGA on the FCCU CO CEMS each calendar quarter during which a RATA is not performed.	This practice is already in place for the NOx, CO, and SO2 CEMS on the FCCU at Texas City.
VII. FCCU CO, Opacity, and PM	104	Completed	FCCU Opacity AMP application	Submit complete FCCU Opacity Alternative Monitoring Plan application.	The Valero Texas City Refinery received approval for its FCCU Opacity Alternative Monitoring Plan on May 20, 2005.
VIII. FCCU SO2 NSPS	107.(k.)	Completed	NSPS J Compliance for FCCU	Comply with all requirements of NSPS A and J as such provisions relate to SO2 emissions from FCCU Regenerators. Exceedances of these limits must be reported in IMPACT.	The FCCU scrubber is already complying with 50 ppmvd SO2 NSPS J standard on a 7-day rolling average.
VIII. FCCU SO2 NSPS	107.(k.)	Completed & Ongoing	Checklist: NSPS J FCCU SO2 Emission Limit	Confirm for the prior quarter that all exceedances of the FCCU NSPS J SO2 emission limit was reported in IMPACT.	There were no FCCU NSPS J SO2 exceedances during the first quarter of 2006.
IX: Heaters and Boilers SO2 and NSPS	113	Completed	Fuel Oil Combustion Prohibition	Discontinue use of Fuel Oil Combustion in heaters and boilers.	Heaters and boilers are not capable of firing fuel oil

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CD Section	Category	Status	Title	Action Item Note	Resolution Note
IX: Heaters and Boilers SO2 and NSPS	115	Completed	NSPS J Compliance for Heaters and Boilers	Heaters and Boilers must comply with NSPS A and J as such requirements apply to fuel gas combustion devices. Heaters and Boilers listed in Appendix O must comply with NSPS A and J as such requirements apply to fuel gas combustion devices by December 31, 2010.	Heaters and Boilers comply with NSPS A and J and are listed in the Title V Permit special conditions. AMPs were submitted in November of 2007 for select streams being combusted.
IX: Heaters and Boilers SO2 and NSPS	118	Completed	NSPS J Compliance for Heaters and Boilers (App. O)	Heaters and Boilers listed in Appendix O must comply with NSPS A and J as such requirements apply to fuel gas combustion devices by December 31, 2010.	Heaters 28, 57, and 58 are in compliance with NSPS Subpart A and J.
IX: Heaters and Boilers SO2 and NSPS	119	Completed	Fuel Gas AMP	If needed, submit NSPS J Heater and Boiler fuel gas SO2 Alternative Monitoring Plan.	Alternative Monitoring Plans were submitted for NSPS J Heater and Boiler fuel gas SO2 compliance, as necessary.
IX: Heaters and Boilers SO2 and NSPS	121	Completed	Fuel Gas H2S CEMS Certification	Install and certify fuel gas H2S CEMS. Attach certification.	The initial certification on the Plant Fuel Gas H2S CEMS was performed in January, 1992. The initial certification on the Coker Fuel Gas H2S CEMS was performed on January 27, 2004. Annual RATA certifications have been performed since these initial certifications.
IX: Heaters and Boilers SO2 and NSPS	121	Completed & Ongoing	Fuel Gas H2S CEMS RATA	Conduct RATA on H2S CEMS at least once every 3 years.	RATAs are performed annually on H2S CEMS. The most recent RATAs occurred on the Plant and Coker Fuel Gas systems on 02/22/2007 and 02/26/2007.
IX: Heaters and Boilers SO2 and NSPS	121	Completed & Ongoing	Quarterly H2S CEMS CGA	Conduct a CGA on H2S CEMS each calendar quarter during which a RATA is not performed.	CGAs were performed on the Valero Texas City Plant Fuel Gas and Coker Fuel Gas H2S CEMS during each quarter in which a RATA is not performed. The most recent CGAs were performed on 12/20/07.
X. Benzene NESHAP	124.(1.)	Completed & Ongoing	BWN 6BQ Compliance	Comply with the BWN 6 BQ compliance option by June 30, 2005.	Continued compliance with BWN 6 BQ compliance option.
X. Benzene NESHAP	134	Completed	BWN Compliance Plan	If necessary, submit a plan that identifies with specificity the compliance strategy and schedule to come into compliance with BWON control option. Submit 2 copies of the plan to each of the following: EPA; applicable EPA Region, and applicable State agency.	The compliance plan for Texas city was submitted on 3/28/2006.
X. Benzene NESHAP	135	Completed	BWN TAB Corrective Action EPA NOD Response	If necessary submit to EPA a revised plan that responds to all identified deficiencies. Response is due 60 days after request from EPA.	NA. Valero Texas City did not receive a request for revisions from the EPA.
X. Benzene NESHAP	137	Completed & Ongoing	Checklist: Single Carbon Canister Prohibition	For previous quarter, confirm no single carbon canisters on new units and new installations where a carbon canister is used as a control device under the Benzene Waste NESHAP.	There were no single carbon canister systems in use during the previous quarter.
X. Benzene NESHAP	138	Completed	BWN Existing Dual Carbon Canister Installation	Complete installation of primary/secondary carbon canisters and operate them in series (except for short-term operations). This applies to carbon canister systems used to control emissions on equipment that requires control pursuant to the Benzene Waste NESHAP.	Completed installation of secondary carbon canisters where required.
X. Benzene NESHAP	138	Completed & Ongoing	Checklist: Single Carbon Canister Monitoring	For previous quarter, confirm daily monitoring for single carbon canister installations. For all canisters operated for short-term operations as part of a single canister system, monitor for breakthrough (any reading of VOCs above background) on a daily basis.	There were no single carbon canister systems in use during the previous quarter.

CD Section	Category	Status	Title	Action Item Note	Resolution Note
X. Benzene NESHAP	139	Completed & Ongoing	Checklist: Single Carbon Canister Breakthrough Replace	For previous quarter, verify that when necessary single canisters were replaced upon breakthrough. Where single canisters are utilized for short term operations to control emissions on equipment that requires control pursuant to the BWN provisions, replace canister when breakthrough (any reading of VOCs above background) is determined within 8 hours or 24 hours as applicable according to its historical replacement interval.	There were no single carbon canister systems in use during the previous quarter.
X. Benzene NESHAP	140	Completed	EPA Carbon Canister Report	Submit two copies of carbon canister report to EPA. Report must include the information specified in paragraphs X.140.(a.) - (f.).	Carbon canister report was submitted.
X. Benzene NESHAP	141	Completed	Carbon Canister Breakthrough Definition	Implement definition of 100 ppm VOC/ 5 ppm benzene "breakthrough" for dual carbon canister systems used to control emissions in accordance with BWN provisions. Notify corporate which option is chosen.	Implemented new breakthrough definition for BWN carbon canister monitoring.
X. Benzene NESHAP	142	Completed	Implement Dual Carbon Canister Monitoring	Implement breakthrough monitoring for existing dual carbon canister systems according to the frequency specified in §61.354(d) (but in no event less frequently than once per month), or alternatively at least once on each operating weekday.	Began enhanced carbon monitoring.
X. Benzene NESHAP	142	Completed & Ongoing	Checklist: Dual Carbon Canister Monitoring	For previous quarter, verify that breakthrough monitoring for dual carbon canister systems occurred according to the frequency specified in §61.354(d) (but in no event less frequently than once per month), or alternatively at least once on each operating weekday.	Breakthrough monitoring was completed for dual carbon canister systems.
X. Benzene NESHAP	143	Completed & Ongoing	Checklist: Dual Carbon Canister Breakthrough Replace	For previous quarter, verify replacement of original secondary carbon canister with a fresh carbon canister when breakthrough between the primary and secondary canister is detected according to the provisions in paragraphs X.143.(a.) - (c.).	Completed carbon canister replacements as necessary.
X. Benzene NESHAP	144	Completed & Ongoing	Checklist: Carbon Supply	For previous quarter, verify that there is a "reasonable supply" of fresh carbon and carbon canisters onsite.	The inventory of carbon canisters was verified and the Warehouse maintains a minimum number in inventory. The SAP system initiates order for additional canisters to maintain a reasonable inventory.
X. Benzene NESHAP	146	Completed & Ongoing	BWN Annual Review Program	Review refinery process changes annually to ensure that all new benzene waste streams are included in each Refinery's waste stream.	Process changes that would impact benzene waste streams were reviewed.
X. Benzene NESHAP	152	Completed	Annual spill review for benzene TAB	Annually review benzene containing spills for TAB impact/reporting.	Environmental personnel review spill report forms as they are submitted for NESHAP FF impact.
X. Benzene NESHAP	153	Completed	Develop Annual BWN Sampler Training	Develop annual training program for BWN samplers (Valero employees and contractors).	BWN sampler training program was developed. (See attached.)
X. Benzene NESHAP	153	Completed	Annual BWN Sampler Training	Complete annual training of BWN samplers (Valero employees and contractors) per developed program.	Annual training of BWN samplers was completed.
X. Benzene NESHAP	154	Completed	Develop SOP for BWN Control Equipment	Complete the development of standard operating procedures for all BWN control equipment. These standard operating procedures must be included in initial training for new operators.	SOPs for BWN control equipment were completed.

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CD Section	Category	Status	Title	Action Item Note	Resolution Note
X. Benzene NESHAP	154	Completed	Complete Initial SOP Training for BWN Ctrl Equip.	Complete initial training program for operators regarding standard operating procedures for BWN control equipment.	A BWN control equipment SOP training module was created in the Top Class training program. As of 12/20/06, all of the operations personnel on active duty had completed the module. (There were two operations employees who were on vacation as of 12/20/06. They will complete the module upon their return to work.)
X. Benzene NESHAP	154	Completed & Ongoing	Refresher SOP Training for BWN Control Equipment	Conduct operator "refresher" training on standard operating procedures for BWN control equipment every 3 years.	Operator training was conducted throughout the year and is documented on the 2009 report that is being attached to this action item.
X. Benzene NESHAP	158	Completed	Slop Oil Schematics	Develop and certify schematics reflecting the movements of waste/slop/off-spec oil streams within the refinery and provide to EPA by June 30, 2005.	Waste/slop/off-spec oil schematics submitted to EPA
X. Benzene NESHAP	158	Completed & Ongoing	Checklist: Slop Oil Schematic Review	Review schematics reflecting the movements of waste/slop/off-spec oil streams within the refinery. If any changes were made last quarter, update and submit two copies (with certification) to EPA.	There were no changes that would necessitate revisions to schematics during the last quarter.
X. Benzene NESHAP	161	Completed & Ongoing	Annual Slop Movement Documentation	Document the quantity of waste/slop/off-spec oil movements for benzene waste streams for preceding year.	These records are maintained throughout the year.
X. Benzene NESHAP	164	Completed	BWN EOL Sampling Plan	Develop and submit to EPA end of line (EOL) sampling plan by June 30, 2005.	EOL sampling plan submitted to EPA.
X. Benzene NESHAP	165	Completed & Ongoing	Quarterly EOL Sampling	Conduct quarterly end of line sampling (see items X.165.-X.169.) and benzene quantification.	Completed EOL sampling and benzene quantification
X. Benzene NESHAP	166	Completed & Ongoing	Checklist: EOL Sampling Plan Review	If changes occurred during the last quarter in processes, operations, or other factors to cause the approved sampling locations and approved methods for determining flow calculations to no longer provide an accurate measure of the refinery's EOL benzene quantity, submit 2 copies of a revised EOL sampling plan to EPA for approval.	There were no changes during the last quarter that would necessitate any revisions to the EOL Sampling Plan.
X. Benzene NESHAP	168	Completed	Checklist: EOL Corrective Action Plan	If quarterly EOL results indicates exceedance of the annual target, submit two copies of corrective action plan to EPA.	Quarterly EOL did not indicate an exceedance, so it was not necessary to submit a corrective action plan.
X. Benzene NESHAP	172.(a.)	Completed	Implement BWN Water Seal Inspections	Implement monthly visual inspections of water traps that are controlled under the BWN provisions.	This visual inspection practice is in place as part of the NSPS QQQ inspection program.
X. Benzene NESHAP	172.(a.)	Completed & Ongoing	Checklist: BWN Water Seal Inspections	For the previous quarter, verify monthly visual inspections of water traps that are controlled under the BWN provisions.	Inspections have been completed.
X. Benzene NESHAP	172.(b.)	Completed	Mark Storm Water Drains	Identify and mark all segregated storm water drains.	All segregated storm drains have been marked and identified.
X. Benzene NESHAP	172.(c.)	Completed	Implement BWN Conservation Vent Inspections	Implement weekly visual inspections occurred of conservation vents/indicators on process sewers required to be controlled per Benzene Waste NESHAP. Reset any vents where leaks are detected.	Began weekly visual inspections of BWN conservation vents/indicators.
X. Benzene NESHAP	172.(c.)	Completed & Ongoing	Checklist: BWN Conservation Vent Inspections	For the previous quarter, verify that weekly visual inspections occurred of conservation vents/indicators on process sewers required to be controlled per Benzene Waste NESHAP. Reset any vents where leaks are detected.	Weekly visual inspections were completed.

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X. Benzene NESHAP	172.(d.)	Completed & Ongoing	Quarterly Oil/water Separator Monitoring	Conduct quarterly monitoring in accordance with the "no detectable emissions" provisions for oil/waters separators in §61.347.	This quarterly monitoring was conducted.
X. Benzene NESHAP	176	Completed & Ongoing	Enhanced NESHAP FF Quarterly Report	Include in § 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. Maintain records supporting quarterly EOL quantity calculations, including methodology and data used to identify and calculate flow.	Included CD required information in 3rd quarter 2005 61.357 report.
XI. Leak Detection and Repair	185	Completed	LDAR Compliance Plan	Develop and maintain a refinery specific plan for compliance with applicable LDAR regulations. The plan must contain the information specified in 185.(1.) - (6.).	A refinery specific LDAR compliance plan has been developed and will be maintained.
XI. Leak Detection and Repair	186	Completed	Annual LDAR Training	Conduct annual training for LDAR employees.	Annual training for LDAR employees was completed on February 22, 2012.
XI. Leak Detection and Repair	186	Completed & Ongoing	LDAR Training Program	Implement LDAR training program at the refinery in accordance with the requirements specified in 186.(1.) - (4.).	Implementation of the LDAR training program has commenced.
XI. Leak Detection and Repair	186.(1.)	Completed & Ongoing	Checklist: LDAR Training. for Newly-assigned employees.	For the previous quarter, confirm initial training for newly-assigned LDAR employees. If training required, attach documentation.	All LDAR employees have received training. See attached sign in sheet.
XI. Leak Detection and Repair	186.(2.)	Completed & Ongoing	Annual LDAR Training	Conduct annual training for LDAR employees.	Annual training was completed on 3/21/06.
XI. Leak Detection and Repair	186.(3.)	Completed	Begin Initial O&M Personal LDAR Training	Begin initial training of Operations and Maintenance personnel (including contract personnel) on aspects of the refinery's LDAR program that pertain to their job duties. Add requirement to new employee/contractor training program.	Texas City began having LDAR training sessions with Operations and Maintenance personnel in July of 2005 (see attached training sign in sheets). The training followed the LDAR section in the 2005 Texas City Environmental Compliance Handbook. Texas City now has a Power Point based LDAR training presentation.
XI. Leak Detection and Repair	186.(4.)	Completed & Ongoing	Refresher O&M Personnel LDAR Training	Refresher training for Operations and Maintenance Personnel (including contract personnel) on LDAR.	Refresher training is conducted annually for all Operations and Maintenance Personnel (including contract personnel) on LDAR by means of a computer based training (CBT).
XI. Leak Detection and Repair	195	Completed & Ongoing	500 ppm Valve Monitoring	Implement 500 ppm leak definition and quarterly monitoring for all valves in LL or gas vapor service. For valves over 500 ppm implement first attempt within 5 days. For leaks between 500 and the most stringent existing applicable leak definition, final repair is due 30 days after monitoring.	This practice has been implemented at Texas City.
XI. Leak Detection and Repair	196	Completed & Ongoing	2000 ppm Pump Monitoring	Implement 2000 ppm leak definition and monthly monitoring for all pumps in LL or gas vapor service. 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.	This practice has been implemented at Texas City.
XI. Leak Detection and Repair	199	Completed & Ongoing	200 ppm Initial Attempt for Valves	Implement "Initial attempt" at repair on all valves monitored with a reading greater than 200 ppm of VOCs.	The new initial attempt rule was implemented in LeakDAS.
XI. Leak Detection and Repair	205	Completed & Ongoing	LDAR Electronic Database	Implement and maintain an electronic database for storing and reporting LDAR data	Continued using electronic database for storing and reporting LDAR data.
XI. Leak Detection and Repair	206	Completed & Ongoing	LDAR Dataloggers	Implement the use of dataloggers and/or electronic data collection devices during all LDAR monitoring.	The use of dataloggers has been implemented.

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CD Section	Category	Status	Title	Action Item Note	Resolution Note
XI. Leak Detection and Repair	207	Completed & Ongoing	LDAR Monitoring QA/QC Procedures	Develop and implement a procedure to ensure QA/QC review of all data generated by LDAR monitoring technicians.	LDAR QAQC procedure is in place
XI. Leak Detection and Repair	207.(2.)	Completed & Ongoing	Quarterly LDAR Monitoring QA/QC	Perform quarterly QA/QC review of monitoring data per the procedures in the LDAR QA/QC Plan.	Monitoring data for 1st quarter 2006 was reviewed per the procedures in the LDAR QA/QC plan.
XI. Leak Detection and Repair	208	Completed & Ongoing	LDAR Management Position	Maintain LDAR Management Position and Establish a program that will hold LDAR personnel accountable for LDAR performance.	LDAR Management position established. Program established to hold all LDAR personnel accountable for LDAR performance
XI. Leak Detection and Repair	208	Completed & Ongoing	Accountable LDAR Personnel	Verify that the LDAR personnel accountability list is still accurate. Update if necessary.	LDAR personnel accountability list has been updated with Patrick Passantino as the Environmental Manager
XI. Leak Detection and Repair	208	Completed & Ongoing	Accountable LDAR Personnel	Verify that the LDAR personnel accountability list is still accurate. Update if necessary.	The personnel accountability list was updated on 8/29/2013.
XI. Leak Detection and Repair	209	Completed & Ongoing	New LDAR Equipment Tracking Program	Establish a tracking program to ensure that new equipment is integrated into the LDAR program.	The Management of Change process identifies new equipment for the LDAR program.
XI. Leak Detection and Repair	211	Completed & Ongoing	Begin Daily LDAR Drift Assessments	Begin daily Calibration Drift Assessments of LDAR monitoring equipment and the remonitoring if required.	Began daily Calibration Drift Assessments of LDAR monitoring equipment and the remonitoring.
XI. Leak Detection and Repair	211	Completed & Ongoing	Checklist: LDAR Calibration Drift Assessments	For the previous quarter, verify daily Calibration Drift Assessments of LDAR monitoring equipment and the remonitoring if required.	Daily calibration drift assessments of LDAR equipment were completed for the 1st quarter of 2006.
XI. Leak Detection and Repair	212	Completed & Ongoing	LDAR Chronic Leaker Program	Develop and Implement Chronic Leaker Replacement Program.	Developed and implemented Chronic leaker replacement program
XI. Leak Detection and Repair	213	Completed & Ongoing	LDAR Delay of Repair Procedures	Implement the Delay of Repair Procedures in 213.(a.) and (b.).	Implemented the Delay of Repair Procedures.
XI. Leak Detection and Repair	214.(a.)	Completed	Submit LDAR Compliance Plan	Submit a copy of each of the Written Refinery-Wide LDAR Program to EPA, to the appropriate EPA Region (2 copies), and to the appropriate State agency (2 copies).	Texas City submitted the Written Refinery-Wide LDAR Plan on 4/26/06.
XI. Leak Detection and Repair	214.(b.)	Completed	LDAR Data Collection Certification	Certify that all Refineries utilizes electronic data collection devices during LDAR monitoring. Include with submission of Written Refinery-Wide LDAR Program.	The certification statement was included with the submittal of the Refinery Wide LDAR Program.
XI. Leak Detection and Repair	215.(a.)	Completed	January 2006 LDAR Certifications	Include, as part of the semiannual NSPS and MACT LDAR report, the information specified in 215.(a.)iii, v, and vi.	Semi-annual report contained the details required above. (See attachment.)
XI. Leak Detection and Repair	215.(a.)	Completed	July 2006 LDAR Certifications and Info.	Include, as part of the semiannual NSPS and MACT LDAR report, the information specified in 215.(a.)i, ii, and vii. Documentation is included with semi-annual report required under 215.(b).	The required information was included in the semiannual LDAR report.
XI. Leak Detection and Repair	215.(a.)	Completed	LDAR New Equip. Tracking Program Certification	Include, as part of the semiannual NSPS and MACT LDAR report, the certification specified in 215.(a.)iv. Documentation is included with semi-annual report required under 215.(b).	The information required under 215(a) was submitted with the 1st semiannual report. The information required under 215(b) was included in the 2nd Half 2006 LDAR report.
XI. Leak Detection and Repair	215.(b.)	Completed & Ongoing	Enhanced NSPS/MACT LDAR Semi-Annual Report	Include, as part of the semiannual NSPS and MACT LDAR report, the information specified in 215.(b.).	The required information was included in the 1st Half 2006 LDAR report.
XII.B: Sulfur Recovery Plants SO2 NSPS	221	Completed & Ongoing	SRP NSPS J Compliance	Comply with NSPS J as such requirements apply to SRPs. Exceedances of these limits must be reported in IMPACT.	Complied with applicable NSPS J requirements for SRPs. See attached CEMS printouts.
XII.B: Sulfur Recovery Plants SO2 NSPS	224	Completed & Ongoing	SRP TGI NSPS J Report	Monitor and report upon tail gas emissions from SRP stacks according to applicable NSPS A and J requirements. AG Flaring devices identified in Appendix K are not subject to this requirement.	NSPS J SRP semi-annual report was submitted.
XII.B: Sulfur Recovery Plants SO2 NSPS	226	Completed	Sulfur Pit Atm. Vent Prohibition	Eliminate SRP sulfur pit emissions to atmosphere or re-route sulfur pit emission such that they are included as part of the SRU SO2 emissions subject to NSPS J.	Texas City's sulfur pit emissions have been routed to the front ends of the SRU reaction furnaces.

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XII.B: Sulfur Recovery Plants SO2 NSPS	229	Completed	SRP PMO Plan	Complete SRP PMO Plan and submit historical acid gas flaring info. contained in 229.A.	Texas City's SRP PMO Plan was submitted on 12/28/06.
XII.C: Flaring Devices SO2 NSPS	234	Completed	Good Air Pollution Control Practices	Adopt "Good Air Pollution Control Practices" including during periods of startup, shutdown, and/or malfunction.	Continued use of good air pollution control practices. Affected facilities including associated air pollution control equipment are maintained and operated in a manner consistent with good air pollution control practices for minimizing emissions. Determination of acceptable operating and maintenance procedures are based on monitoring results, opacity observations, review of operating and maintenance procedures, and inspections in accordance with 40 CFR §60.11(d).
XII.C: Flaring Devices SO2 NSPS	237	Completed	Flare Compliance Plan	Submit a Compliance Plan for Flaring Devices. For each flare, certify compliance (per paragraph 261) with CD paragraph 235, or certify that flare gas recovery compressor(s) (235a option) will be installed by 12/31/2008.	A Flare Compliance Plan was submitted on December 14, 2007 in accordance with the CD.
XII.C: Flaring Devices SO2 NSPS	238	Completed	2007 Flare Gas Recovery Comp. Install	As applicable, complete flare gas recovery compressor installation and operation for flares committed to in 2007.	An extension was granted for the flare gas recovery project until April 30, 2009. The flare gas recovery system was commissioned on April 27, 2009.
XII.C: Flaring Devices SO2 NSPS	239	Completed	NSPS J Compliance Certification for Flares	Certify compliance (per paragraph 261) with one of the four compliance methods listed in paragraph 235 and accept NSPS applicability for the flaring devices in Appendix N.	Compliance certification for all five of the flares at the Valero Texas City Refinery was submitted on December 30, 2011.
XII.C: Flaring Devices SO2 NSPS	240	Completed	Flare Performance Testing	Perform §60.18 performance tests on all flares using paragraph 235(b) or (d) compliance option.	The Texas City Refinery is using compliance plan 235(a) for all five flares. therefore, this requirement is not applicable.
XII.C: Flaring Devices SO2 NSPS	240	Completed	Flare Performance Testing	Perform §60.18 performance tests on all flares using paragraph 235(b) or (d) compliance option.	N/A. The Valero Texas City Refinery installed a flare gas recovery system in accordance with paragraph 235(a). Paragraph 235(b) and (d) compliance options were not used.
XII.D-H: Investigation & Reporting for Flaring	242	Completed & Ongoing	Begin RCFA for Flaring/TGI Incidents	Submit a "Root Cause Failure Analysis" report to EPA Regional Office within 60 days after an Acid Gas Flaring Incident, Tail Gas Flaring Incident, or Hydrocarbon Flaring Incident. The report must include the information specified in paragraph 242.(1.) - (9.), as applicable. When incidents occur report in IMPACT.	Began the submittal of RCFA reports.
XII.D-H: Investigation & Reporting for Flaring	242	Completed & Ongoing	Checklist: Flaring/TG Incident Reporting	Confirm that all RCFAs where completed and submitted for Acid Gas Flaring, Hydrocarbon Flaring, and Tail Gas Incidents.	All RCFAs due through the 1st quarter of 2006 were completed and submitted by their due date.
XIII.B: NSPS QQQ Audits	270	Completed	NSPS QQQ Audit Notification	If electing to conduct NSPS QQQ Audit, submit notice to EPA within 90 days of date of lodging.	Submitted notice to conduct NSPS QQQ audit to EPA (see attachment)
XIII.B: NSPS QQQ Audits	273	Completed	NSPS QQQ Audit Report	Submit QQQ Audit Report. Final QQQ Audit Report must be certified by the responsible official according to the language provided in paragraph 274.	The QQQ Audit Report was submitted as required.
XIII.C: Refinery MACT 1 Audits	278	Completed	MACT 1 Audit Notification	If electing to conduct MACT I Audit, submit notice to EPA within 90 days of date of lodging.	Submitted notice to conduct MACT I audit to EPA (see attachment)
XIII.C: Refinery MACT 1 Audits	281	Completed	MACT 1 Audit Report	Submit Final MACT I Audit Report specified in paragraph 281 to EPA and appropriate State Agency. Audit Report must be certified by the responsible official according to the language provided in paragraph 274.	The final MACT I Audit report was submitted as required.

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CD Section	Category	Status	Title	Action Item Note	Resolution Note
XIV. Permitting	291	Completed	Permit Application for FCCU SO2 Emission Limit	Submit permit application to include FCCU SO2 emission limits of 25 ppmvd - 365 day and 50 ppmvd - 7day in NSR permit. (CD paragraph 81)	Permit application to incorporate FCCU SO2 limits was submitted.
XIV. Permitting	291	Completed	FCCU NOx CEMS Permit Incorporation	If necessary, submit NSR permit application to require the use of a NOx and O2 CEMS on the FCCU (paragraph 61).	Not required as NOx and O2 CEMS on the FCCU are already included in the Special Conditions of our Flexible Permit.
XIV. Permitting	291	Completed	FCCU SO2 CEMS Permit Incorporation	If necessary, submit NSR permit application to require the use of an SO2 CEMS on the FCCU (paragraph 89).	Not required as SO2 CEMS on the FCCU is already a condition in our flexible permit.
XIV. Permitting	291	Completed	Heater/Boiler NOx CEMS Permit Incorporation	If necessary, submit NSR permit applications to require the use of a NOx CEMS and/or PEMS for applicable heaters and boilers (paragraph 29).	Heater and Boiler NOx limits have already been incorporated into NSR permit 39142.
XIV. Permitting	291	Completed	NSPS J FCCU SO2 Permit Incorporation	If necessary, submit NSR permit application to declare NSPS Subpart J applicability for SO2 emissions from the FCCU (paragraph 107).	A flexible permit alteration request was submitted to the TCEQ on July 28, 2006 to incorporate NSPS J applicability for the FCCU at the Texas City refinery in accordance with consent decree requirements.
XIV. Permitting	291	Completed	NSPS J Flare Permit Incorporation	If necessary, submit NSR permit application to declare NSPS Subpart J applicability for at least one flare listed in Appendix N (paragraph 231).	Flare 1-5 are already listed in Title V Permit O1253 as having applicability to Subpart J and are listed in the Unit Summary Table.
XIV. Permitting	291	Completed	NSPS J Heater/Boiler Permit Incorporation	If necessary, submit NSR permit application to declare NSPS Subpart J applicability for affected heaters and boilers. Heaters and boilers listed in Appendix O are not required until a later date (paragraph 115).	Heaters and Boilers are already listed in Title V Permit O1253 as having applicability to Subpart J and are listed in the Unit Summary Table.
XIV. Permitting	291	Completed	NSPS J Heater/Boiler Permit Incorporation	If necessary, submit NSR permit application to declare NSPS Subpart J applicability for heaters and boilers listed in Appendix O (paragraph 118).	NSPS J has already been included in NSR permit. All sources have also been incorporated into Title V Permit or have an application submitted.
XIV. Permitting	291	Completed	NSPS J SRP Permit Incorporation	If necessary, submit NSR permit application to declare NSPS Subpart J applicability for sulfur recovery plants (paragraph 221).	A flexible permit alteration request was submitted to the TCEQ on July 28, 2006 to incorporate NSPS J applicability for the sulfur recovery plants at the Texas City refinery is accordance with consent decree requirements.
XIV. Permitting	291	Completed	NSPS J FCCU CO/Opacity/PM Permit Incorporation	If necessary, submit NSR permit application to declare NSPS Subparts A and J applicability for CO, opacity and particulate emissions from the FCCU (CD paragraph 96).	Submitted Flexible Permit Alteration to incorporate NSPS J applicability to FCCU & SRUs.
XIV. Permitting	291	Completed	NSPS J Flare Permit Incorporation	If necessary, submit NSR permit application to declare NSPS Subpart J applicability for remaining flares listed in Appendix N (paragraph 231).	NSPS J applicability is already listed the Title V Permit No. O-01253.
XIV. Permitting	292	Completed	Fuel Oil Combustion Permit Application	If implicit prohibition does not exist, submit permit application to exclude use of Fuel Oil Combustion in heaters and boilers. (CD paragraph 113)	This is not necessary for Texas City, as the refinery's flexible permit is based on combustion of refinery fuel or natural gas. See attached permit special condition 50.
XIV. Permitting	292	Completed	Title V Permit Application for FCCU SO2 NSPS J.	If necessary, submit Title V application to incorporate NSPS J requirements for FCCU SO2 emissions.	September 1, 2005 Title V permit contains the NSPS J requirements applicable to Texas City's FCCU. (See attached excerpt from permit.)
XIV. Permitting	292	Completed	Title V Permit App. for SRP NSPS J Requirements	If necessary, submit Title V application to incorporate NSPS J requirements for sulfur recovery plants (SRP).	September 1, 2005 Title V permit contains the NSPS J requirements applicable to Texas City's SRPs. (See attached excerpt from permit.)
XIV. Permitting	292	Completed	Title V Permit App. for Heaters/Boilers NSPS J	If necessary, submit Title V application to incorporate NSPS J requirements for Heaters and Boilers. Heaters and Boilers listed in Appendix O are not required until a later date.	These sources are already covered in our Title V permit via a special condition. As such, no permit revision application is necessary.
XIV. Permitting	292	Completed	Title V Permit App. for NSPS J for Flares	If necessary, submit Title V application to incorporate NSPS J requirements for all flares listed in Appendix N.	NSPS J requirements have already been included in the Title V permit for all flares listed in Appendix N.

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XIV. Permitting	292	Completed	Permit Application for FCCU NOx Emission Limit	Submit permit application to limit FCCU NOx emissions to < 20 ppmvd, measured as a 365-day rolling average, and 40 ppmvd, measured as a 7-day rolling average. (CD paragraph 37)	An application was submitted on December 19, 2007 to incorporate FCCU NOx limits.
XIV. Permitting	292	Completed	Permit App. for Interim Heater/Boiler NOx Limit	Submit permit application(s) to establish heater and boiler NOx emission limit in lb/MMBtu from all greater than 40 MMBtu/hr to those set in the plan to comply with the interim system wide average of 0.06 lb/MMBtu. (CD paragraph 17)	Permit applications were submitted to include the Texas City requirements established to comply with NOx system wide average of 0.060 lb/MMBTU into our flexible permit and Title V permit.
XIV. Permitting	292	Completed	Title V Permit App. for Heaters NSPS J (App. O)	If necessary, submit Title V application to incorporate NSPS J requirements for Heaters and Boilers listed in Appendix O.	NSPS J applicability is already included in our Title V Permit O1253. As such, no permit application is required.
XIV. Permitting	292	Completed	Permit App. for Final Heater/Boiler NOx Limit	Submit permit application(s) to establish heater and boiler NOx emission limit in lb/MMBtu from all greater than 40 MMBtu/hr to those set in the plan to comply with the final system wide average of 0.044 lb/MMBtu. (CD paragraph 21)	A permit application was submitted to incorporate final CD heater and boiler NOx emission limits
XIV. Permitting	292	Completed	Title V Permit App. for NSPS J for Flares	If necessary, submit Title V application to incorporate NSPS J requirements for all flares listed in Appendix N.	NSPS J requirements for all flares are already included in Tile V Permit O-01253.
XV. Emission Reduction Credit	302	Completed & Ongoing	Annual Emission Credit Report	Submit to EPA annual reports regarding the generation and use of emission reduction credits	Report was sent out on 1/31/06.
XVI. General Recordkeeping/Reporting	308	Completed & Ongoing	Annual CD Progress Report	Prepare and submit "Progress Report" with the information specified in 308.(a.) thru (e.). Also include any new hydrocarbon flaring device.	The progress report was submitted on 4/26/06.
XIX. Supplemental Environmental Projects	317.a.vi.	Completed	SEP - SOW for Vehicle Emission Reductions	Submit Statement of Work (SOW) to EPA proposing how $300,000 will be spent on vehicle emission reductions	Texas City's Statement of Work was submitted on 12/27/06.
XIX. Supplemental Environmental Projects	317.a.vi.	Completed	Complete SEPs	Complete implementation of all SEPs and each approved SOW	SOWs were revised on July 7, 2010 and information on completion will be included in the next semiannual progress report.
XXIV. Effect of Settlement	345	Completed	FCCU PM BACT Limit Option	Submit optional permit application to accept 0.5 lbs per 1000 lbs of coke burn PM limit to obtain NSR liability release.	As of December 30, 2011, no permit application has been submitted to accept 0.5 lbs per 1000 lbs of coke burn PM limit to obtain NSR liability release.
XXIV. Effect of Settlement	346	Completed	FCCU CO BACT Limit Option	Submit optional permit application to accept 100 ppm rolling 365-day average CO limit to obtain NSR liability release.	As of December 30, 2011, no permit application has been submitted to accept 100 ppm rolling 365-day average CO limit to obtain NSR liability release.

Appendix 5

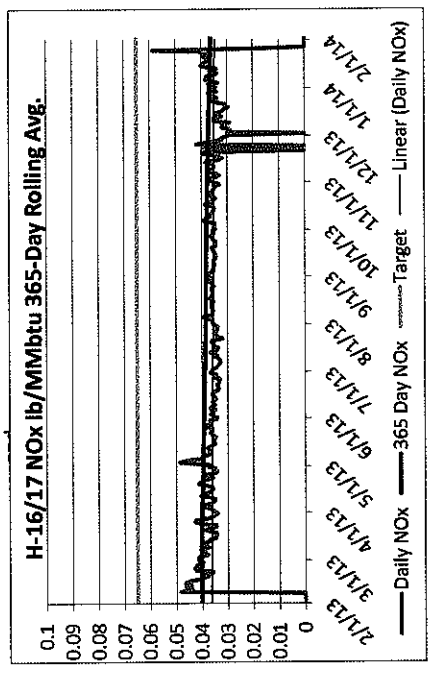
Updated list of heaters and boilers

Consent Decree Heaters and Boilers NOx Control Technology

Heater/Boiler ID	EPN	Description	NOx Control Technology	NOx CEMS?
B-18	EB-18	Utilities Boiler	Ultra Low NOx Burners	Yes
B-26	EB-26	Utilities Boiler	Selective Catalytic Reduction	Yes
B-27	EB-27	Utilities Boiler	Selective Catalytic Reduction	Yes
B-32	EB-32	Utilities Boiler	Selective Catalytic Reduction	Yes
B-33	EB-33	Utilities Boiler	Selective Catalytic Reduction	Yes
H-16	EH-16/17	No. 3 Crude Heater	Ultra Low NOx Burners	Yes
H-17	EH-16/17	No. 3 Crude Heater	Ultra Low NOx Burners	Yes
H-18	EH-REF2	No. 2 Reformer Heater	Conventional	Yes
H-19	EH-REF2	No. 2 Reformer Heater	Conventional	Yes
H-20	EH-REF2	No. 2 Reformer Heater	Ultra Low NOx Burners	Yes
H-21	EH-REF2	No. 2 Reformer Heater	Ultra Low NOx Burners	Yes
H-22	EH-REF2	No. 2 Reformer Heater	Ultra Low NOx Burners	Yes
H-23	EH-REF2	No. 2 Reformer Heater	Conventional	Yes
H-28	EH-28	Alkylation Heater	Ultra Low NOx Burners	Yes
H-29	EH-29	RVDU Heater	Low NOx Burners	No
H-31	EH-31/32	MDHT Heater	Conventional	No
H-32	EH-31/32	MDHT Heater	Conventional	No
H-34	EH-34	Vacuum Tower Charge Heater	Ultra Low NOx Burners	Yes
H-44	EH-44	Rose Heater	Ultra Low NOx Burners	Yes
H-45	EH-45	Toppers Heater	Ultra Low NOx Burners	Yes
H-46	EH-46	Toppers Heater	Ultra Low NOx Burners	Yes
H-50	EH-50	DHT Heater	Ultra Low NOx Burners	Yes
H-57	EH-57	Coker Heater	Low NOx Burners	Yes
H-58	EH-58	Coker Heater	Low NOx Burners	Yes
H-60	EH-60	GDU Heater	Ultra Low NOx Burners	Yes
H-13-1401	EH-13-1401	GOHT Hydrotreater Furnace Heater	Ultra Low NOx Burners	Yes
H-13-1421	EH-13-1421	GOHT Fractionator Heater	Ultra Low NOx Burners	Yes
H-13-1451	EH-13-1421	GOHT Hydrotreater Furnace Heater	Ultra Low NOx Burners	Yes
H-13-1480	EH-13-1480	GOHT Feed Prep Heater	Ultra Low NOx Burners	Yes

Appendix 6

NO_x emissions trends


H-16/17 NOx lb/MMbtu 365-Day Rolling Avg.
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
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2/1/13
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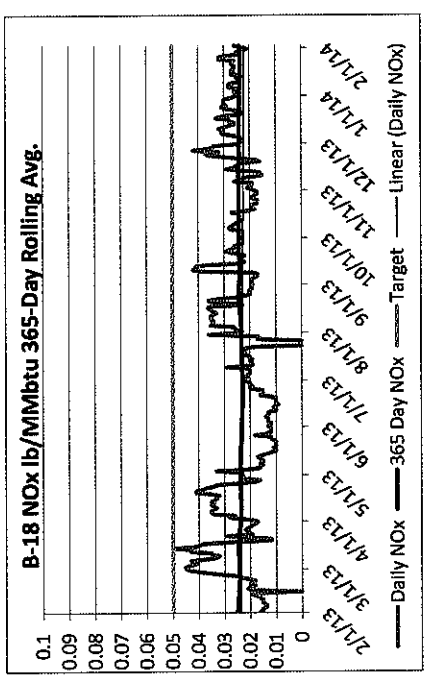
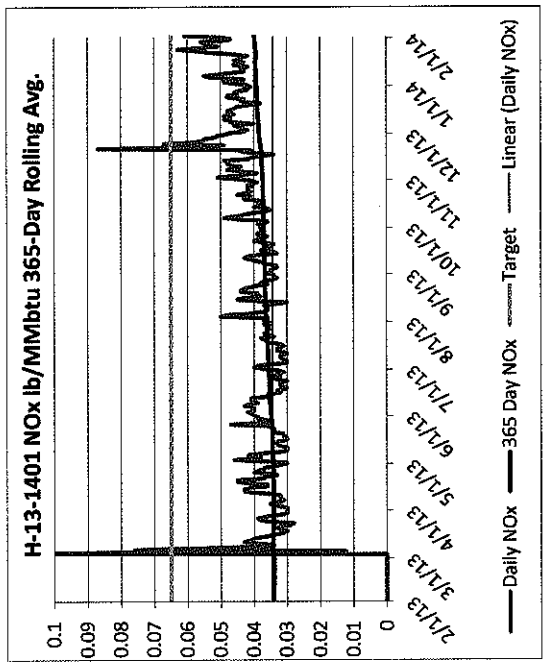
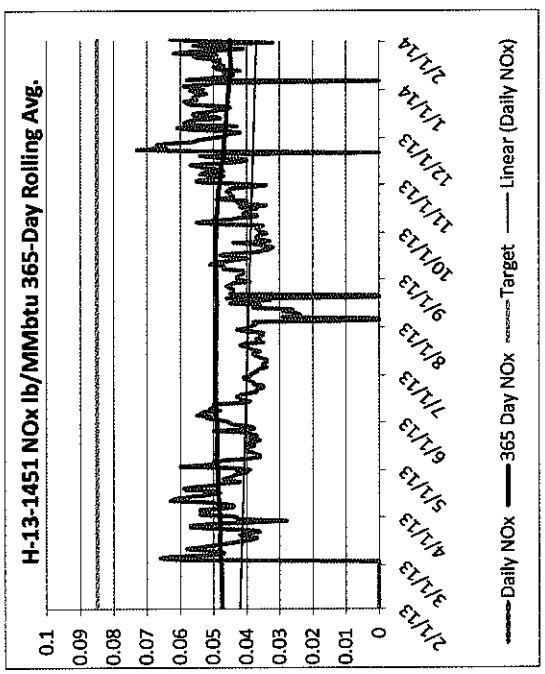
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)

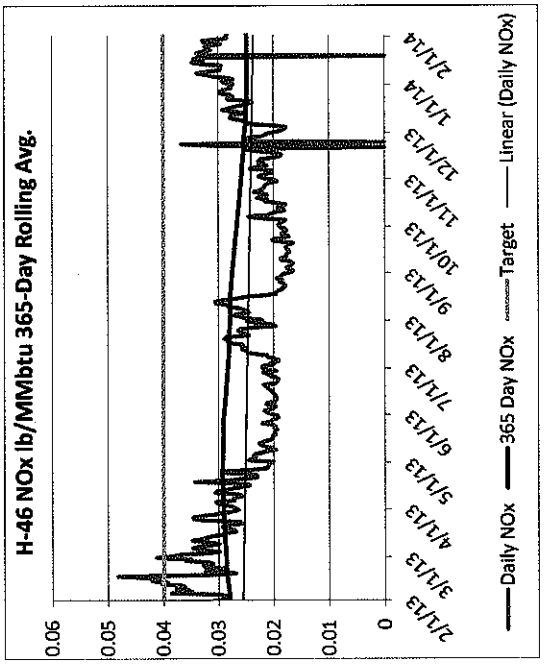

B-18 NOx lb/MMbtu 365-Day Rolling Avg.
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
2/1/13
3/1/13
4/1/13
5/1/13
6/1/13
7/1/13
8/1/13
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)

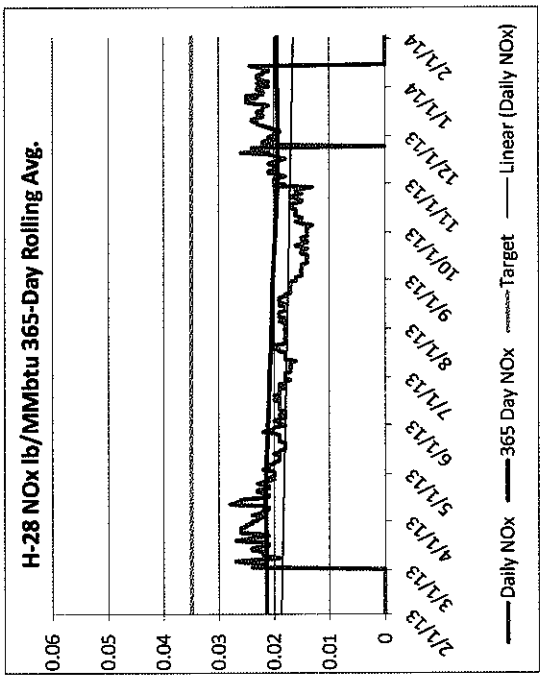
H-44 NOx lb/MMbtu 365-Day Rolling Avg.
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
2/1/13
3/1/13
4/1/13
5/1/13
6/1/13
7/1/13
8/1/13
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)

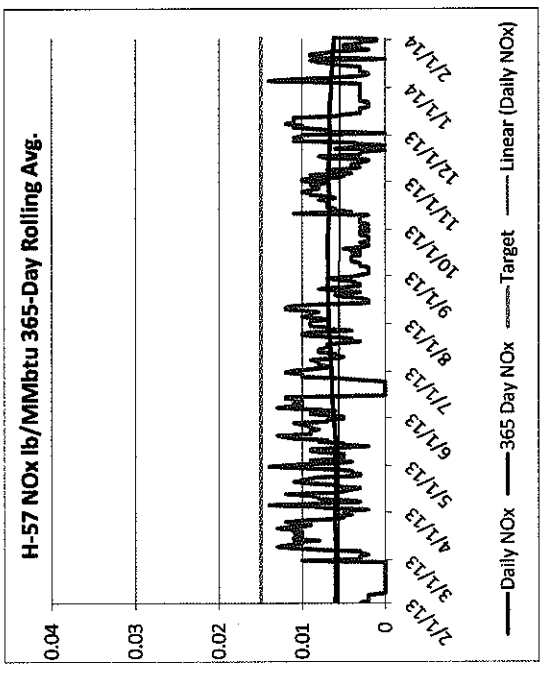
H-45 NOx lb/MMbtu 365-Day Rolling Avg.
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
2/1/13
3/1/13
4/1/13
5/1/13
6/1/13
7/1/13
8/1/13
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)

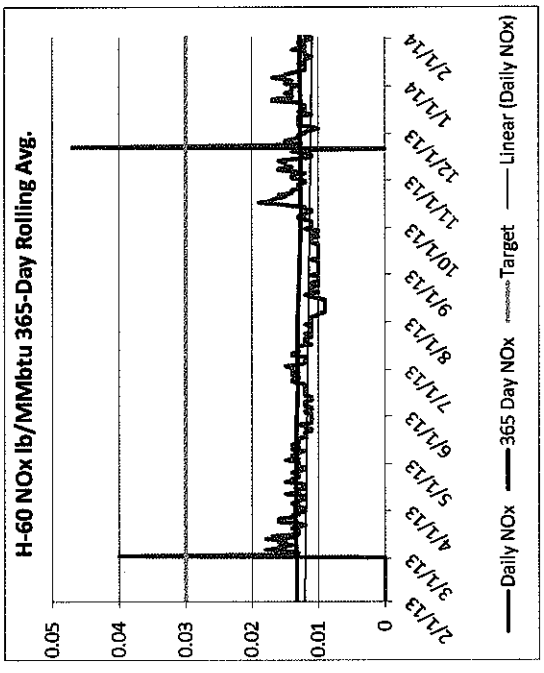

H-13-1401 NOx lb/MMbtu 365-Day Rolling Avg.
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
2/1/13
3/1/13
4/1/13
5/1/13
6/1/13
7/1/13
8/1/13
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)

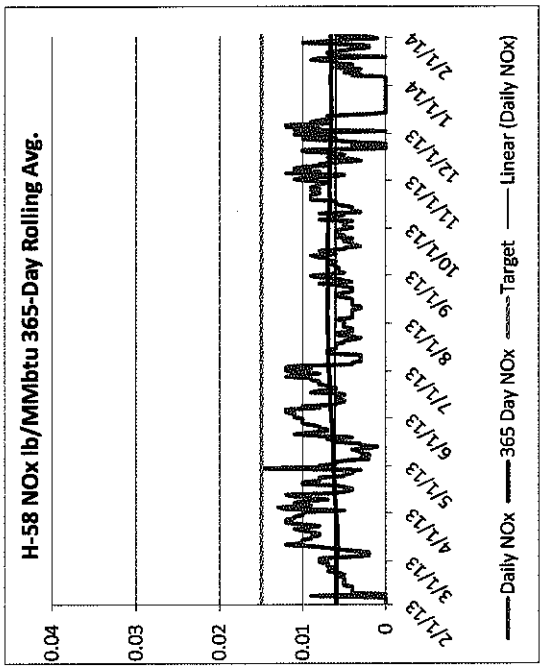

H-13-1451 NOx lb/MMbtu 365-Day Rolling Avg.
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
2/1/13
3/1/13
4/1/13
5/1/13
6/1/13
7/1/13
8/1/13
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)

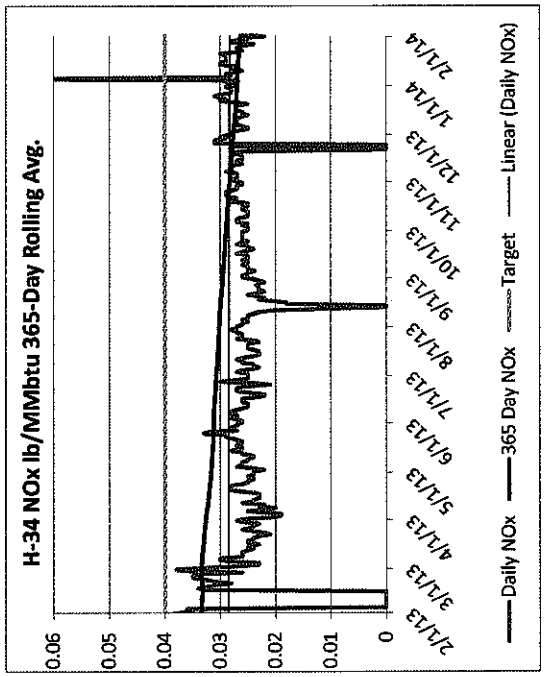

H-46 NOx lb/MMbtu 365-Day Rolling Avg.
0.06
0.05
0.04
0.03
0.02
0.01
0
2/1/13
3/1/13
4/1/13
5/1/13
6/1/13
7/1/13
8/1/13
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)

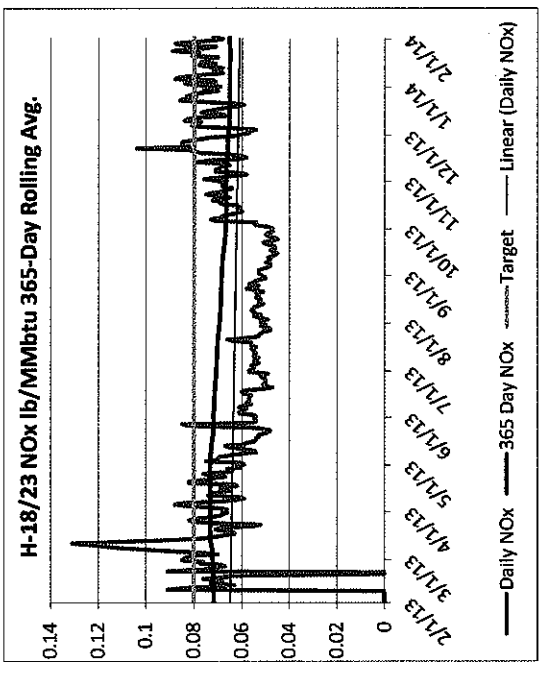

H-28 NOx lb/MMbtu 365-Day Rolling Avg.
0.06
0.05
0.04
0.03
0.02
0.01
0
2/1/13
3/1/13
4/1/13
5/1/13
6/1/13
7/1/13
8/1/13
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)

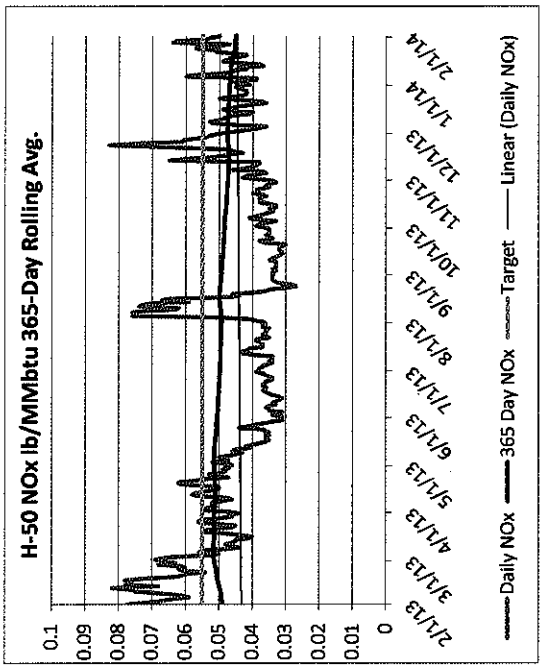

H-57 NOx lb/MMbtu 365-Day Rolling Avg.
0.04
0.03
0.02
0.01
0
2/1/13
3/1/13
4/1/13
5/1/13
6/1/13
7/1/13
8/1/13
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)

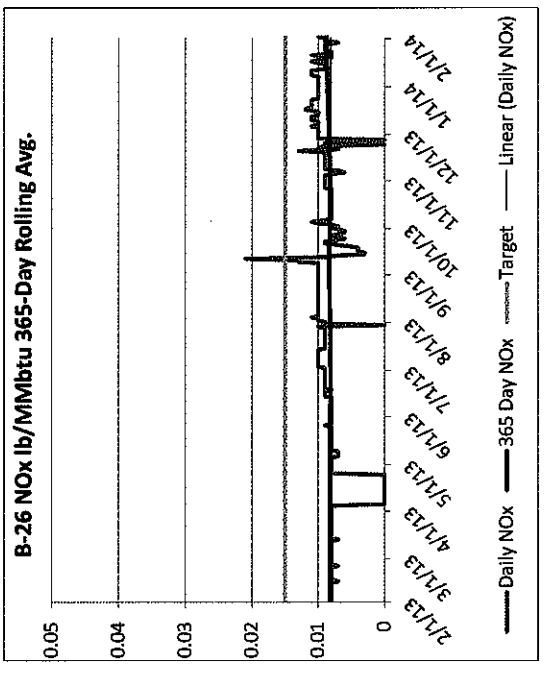

H-60 NOx lb/MMbtu 365-Day Rolling Avg.
0.05
0.04
0.03
0.02
0.01
0
2/1/13
3/1/13
4/1/13
5/1/13
6/1/13
7/1/13
8/1/13
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)

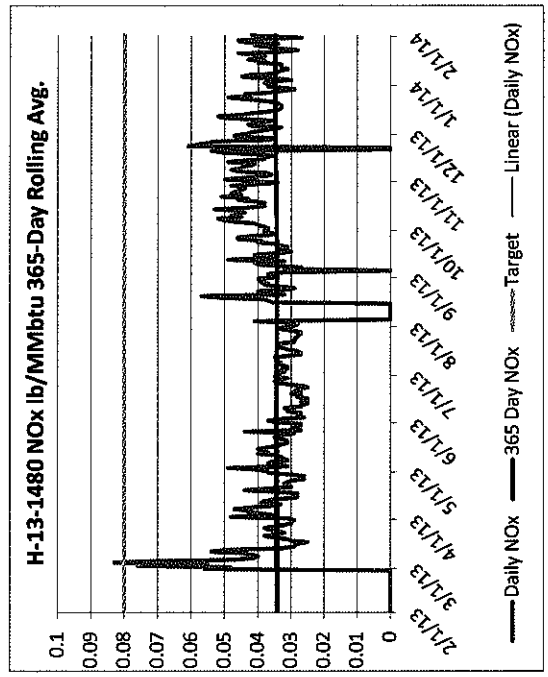

H-58 NOx lb/MMbtu 365-Day Rolling Avg.
0.04
0.03
0.02
0.01
0
2/1/13
3/1/13
4/1/13
5/1/13
6/1/13
7/1/13
8/1/13
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)

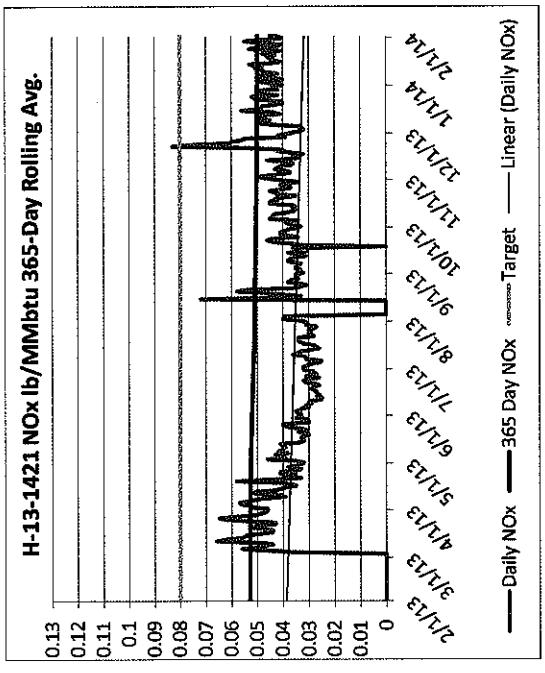

H-34 NOx lb/MMbtu 365-Day Rolling Avg.
0.06
0.05
0.04
0.03
0.02
0.01
0
2/1/13
3/1/13
4/1/13
5/1/13
6/1/13
7/1/13
8/1/13
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)

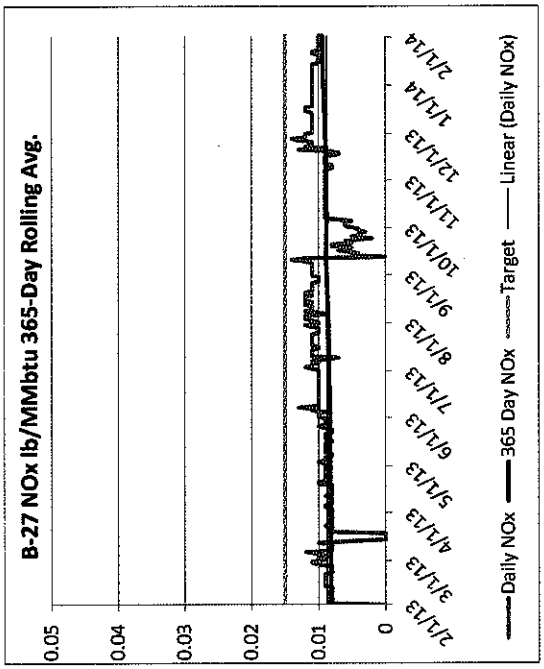

H-18/23 NOx lb/MMbtu 365-Day Rolling Avg.
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
2/1/13
3/1/13
4/1/13
5/1/13
6/1/13
7/1/13
8/1/13
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)

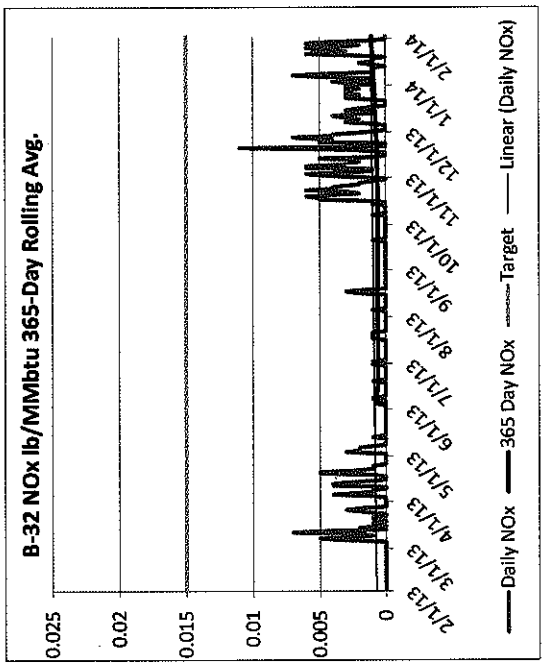

H-50 NOx lb/MMbtu 365-Day Rolling Avg.
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
2/1/13
3/1/13
4/1/13
5/1/13
6/1/13
7/1/13
8/1/13
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)

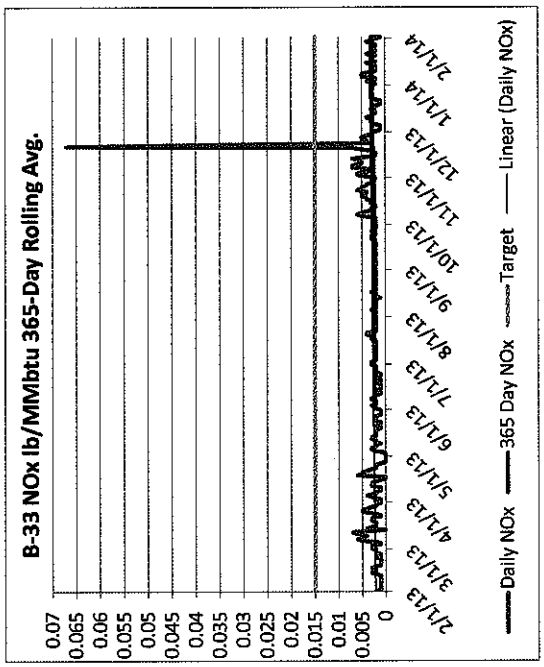

B-26 NOx lb/MMbtu 365-Day Rolling Avg.
0.05
0.04
0.03
0.02
0.01
0
2/1/13
3/1/13
4/1/13
5/1/13
6/1/13
7/1/13
8/1/13
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)


H-13-1480 NOx lb/MMbtu 365-Day Rolling Avg.
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
2/1/13
3/1/13
4/1/13
5/1/13
6/1/13
7/1/13
8/1/13
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)


H-13-1421 NOx lb/MMbtu 365-Day Rolling Avg.
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)

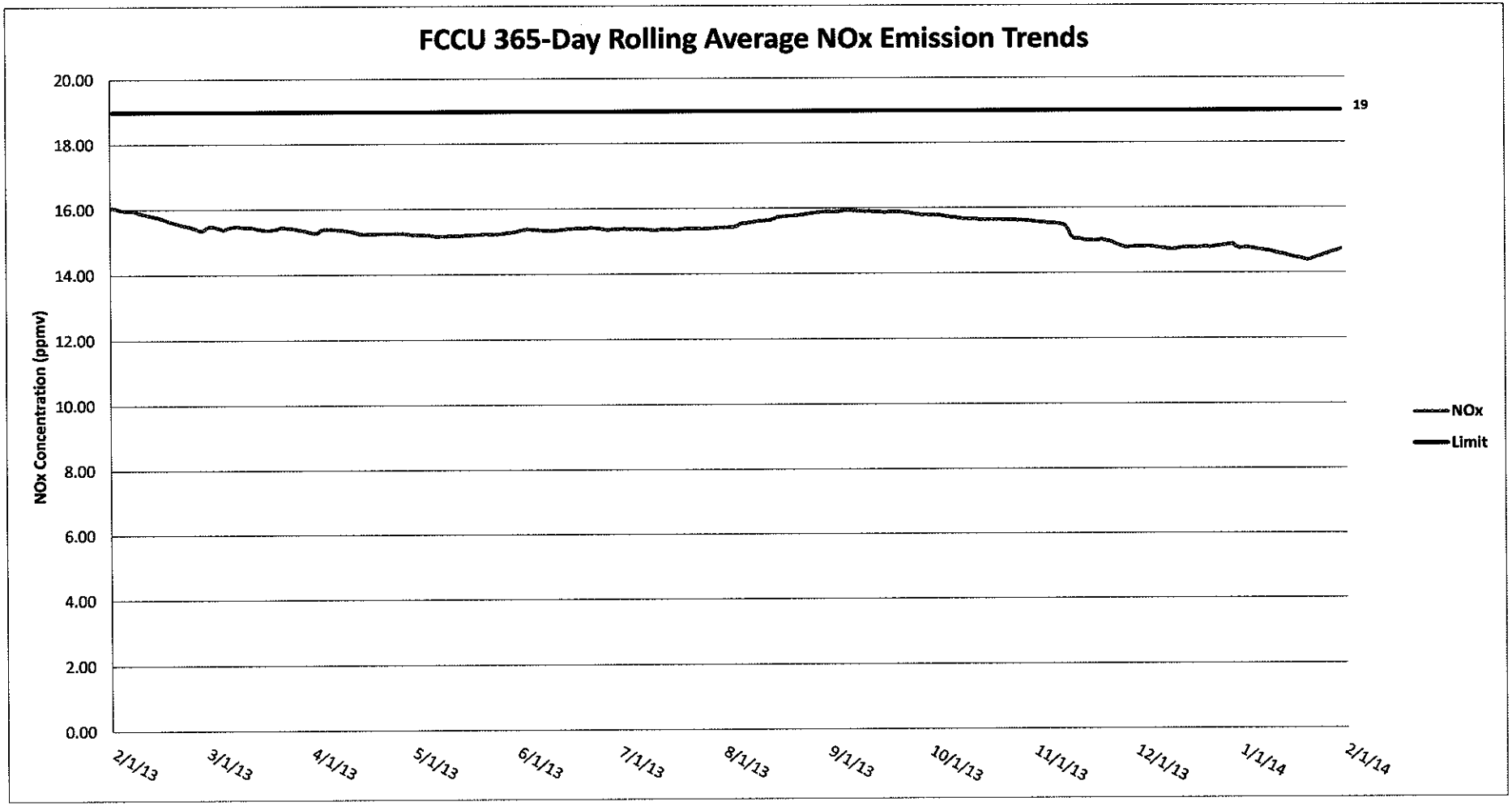

B-27 NOx lb/MMbtu 365-Day Rolling Avg.
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)


B-32 NOx lb/MMbtu 365-Day Rolling Avg.
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)


B-33 NOx lb/MMbtu 365-Day Rolling Avg.
Daily NOx
365 Day NOx
Target
Linear (Daily NOx)

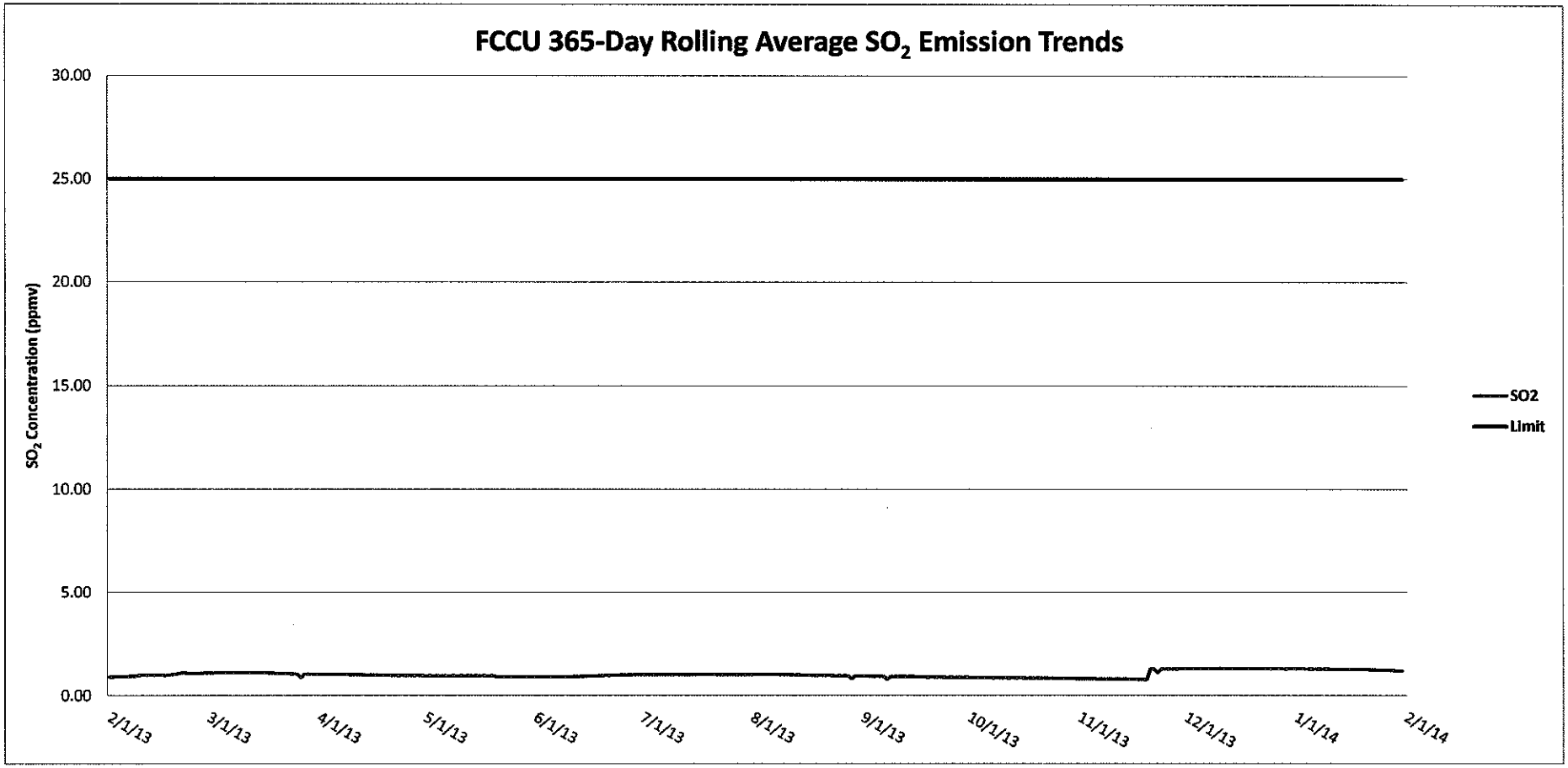
Appendix 7

FCCU NO_x emission trend


FCCU 365-Day Rolling Average NOx Emission Trends
NOx Concentration (ppmv)
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
19
2/1/13
3/1/13
4/1/13
5/1/13
6/1/13
7/1/13
8/1/13
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
NOx
Limit

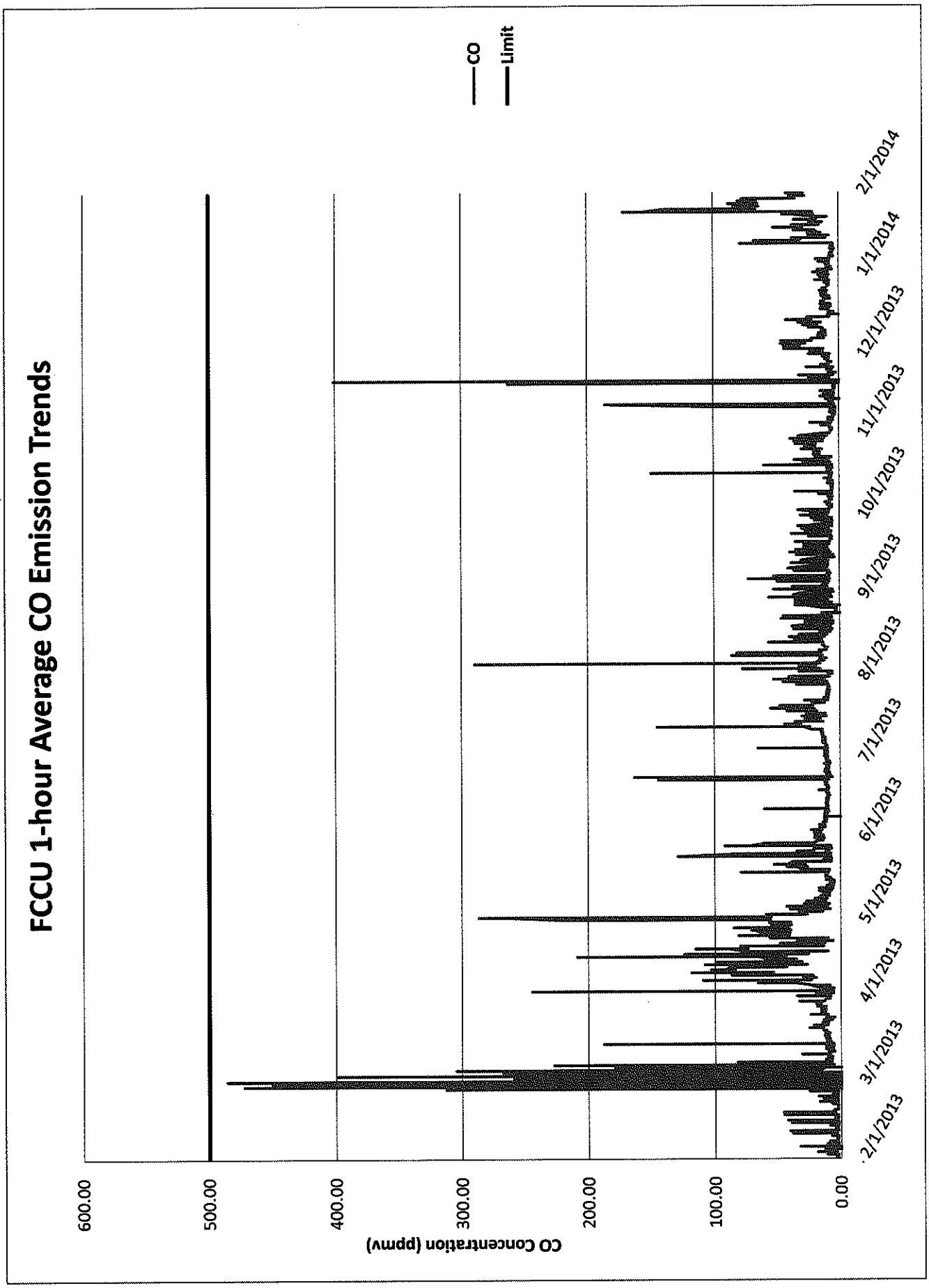
Appendix 8

FCCU SO_2 emission trend


FCCU 365-Day Rolling Average SO_2 Emission Trends
30.00
25.00
20.00
15.00
10.00
5.00
0.00
SO_2 Concentration (ppmv)
2/1/13
3/1/13
4/1/13
5/1/13
6/1/13
7/1/13
8/1/13
9/1/13
10/1/13
11/1/13
12/1/13
1/1/14
2/1/14
SO2
Limit

Appendix 9

FCCU CO emission trend


FCCU 1-hour Average CO Emission Trends
CO
Limit
CO Concentration (ppmv)
600.00
500.00
400.00
300.00
200.00
100.00
0.00
2/1/2013
3/1/2013
4/1/2013
5/1/2013
6/1/2013
7/1/2013
8/1/2013
9/1/2013
10/1/2013
11/1/2013
12/1/2013
1/1/2014
2/1/2014

Appendix 10

Refinery fuel gas description and diagram

Valero Texas City Refinery Fuel Gas Systems Description

The Valero Texas City Refinery has (4) types of fuel gas systems. They are as follows:

- Purchased Natural Gas
- Plant/Refinery Fuel Gas (RFG)
- Coker Fuel Gas (CFG)
- Flare Gas Recovery Unit (FGRU) Fuel Gas

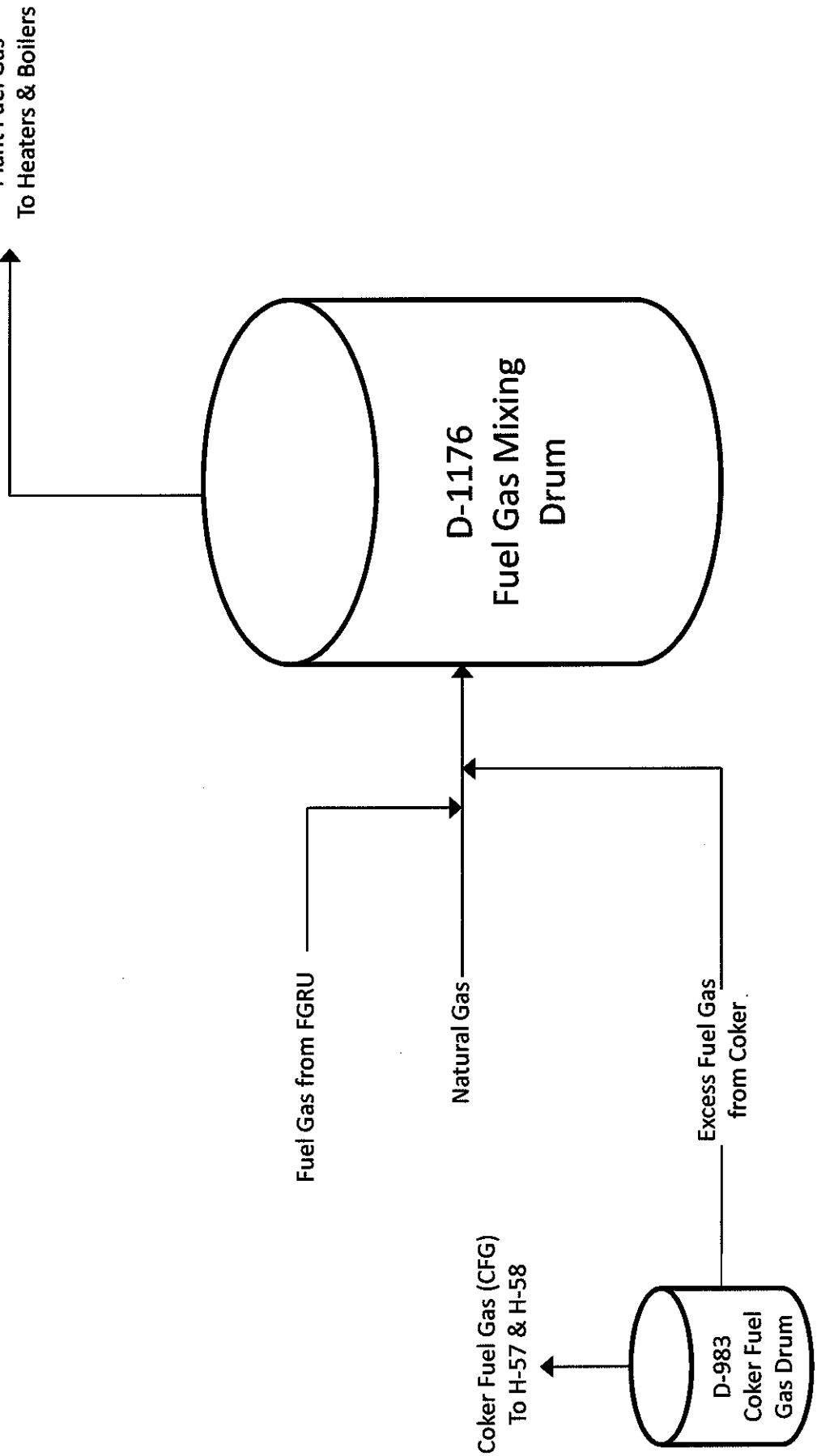
Natural Gas is purchased from and delivered to three dispositions: lab, refinery pilot (high pressure gas) header, and the Fuel Gas Mixing Drum (D-1176). The natural gas is purchased from: HPL, El Paso, and Kinder Morgan (Tejas) through three pipelines. Natural gas is used for the pilots and burners in the furnaces and makeup gas to various units.

The Plant/Refinery Fuel Gas (RFG) system is a mixture of offgas that has been treated to remove H_2S and NH_3 from various process units. This mixture along with natural gas makeup is routed to the Fuel Gas Mixing Drum (D-1176) where any free liquids are removed and the gases are mixed well. The fuel gas is then routed throughout the refinery for use in heaters and boilers. The net heating value and the H_2S concentration of the Plant/Refinery Fuel Gas system are continuously monitored and recorded.

The Coker Fuel Gas (CFG) system is a mixture of offgas from various sources in the Delayed Coker Unit that has been treated to remove H_2S and NH_3. The fuel gas is then routed to the Coker Heaters H-57 and H-58. Any excess fuel gas is routed to the Fuel Gas Mixing Drum (D-1176) where any free liquids are removed and the gases are mixed well. The fuel gas is then routed throughout the refinery for use in heaters and boilers. The net heating value and the H_2S concentration of the Coker Fuel Gas system are continuously monitored and recorded.

The Flare Gas Recovery Unit (FGRU) Fuel Gas system is a part of the Plant/Refinery Fuel Gas (RFG) system. During normal operations, the offgas from various process units is treated to remove H_2S and NH_3. The offgas is then routed to the FGRU to recover the offgas and recycle the offgas as fuel gas for use in the refinery heaters and boilers via the Fuel Gas Mixing Drum (D-1176). In the event of an upset, the offgas will bypass D-1176 and will be routed to one of the five flares. The net heating value and the H_2S concentration of the FGRU Fuel Gas system are continuously monitored and recorded.

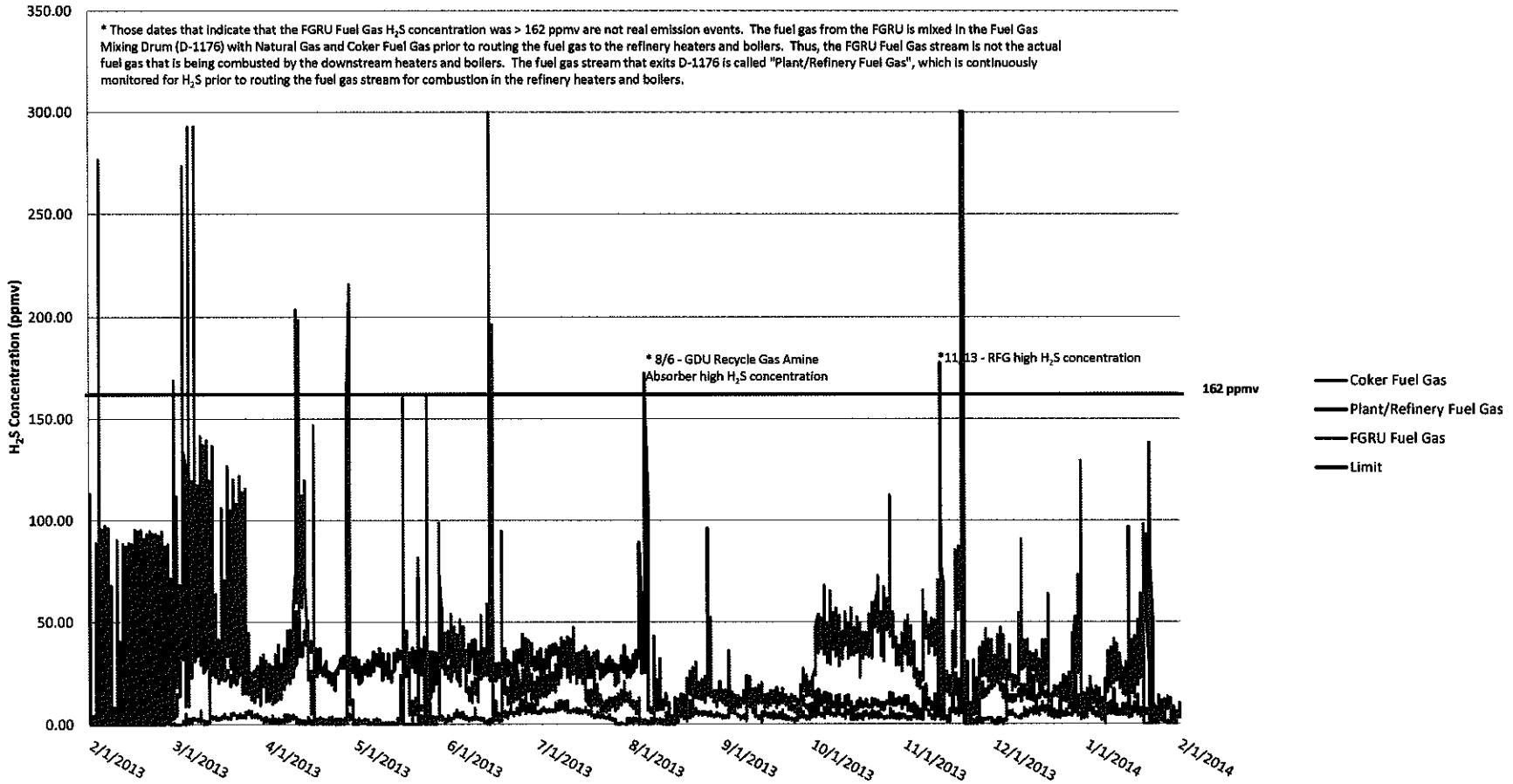
Fuel Gas Systems



Appendix 11

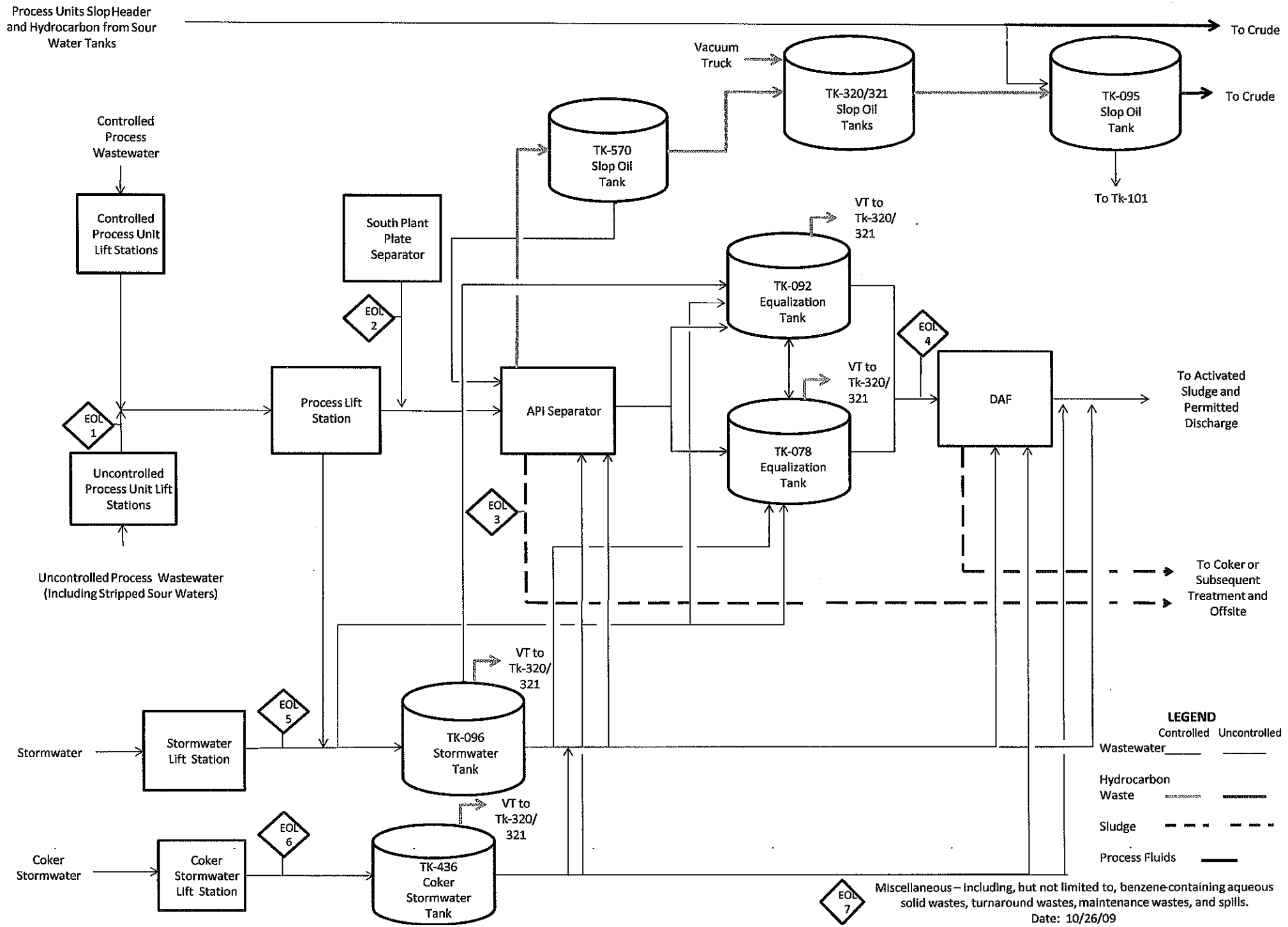
Fuel gas H_2S trends

Fuel Gas Systems 3-hour Average H_2S Concentration Trends

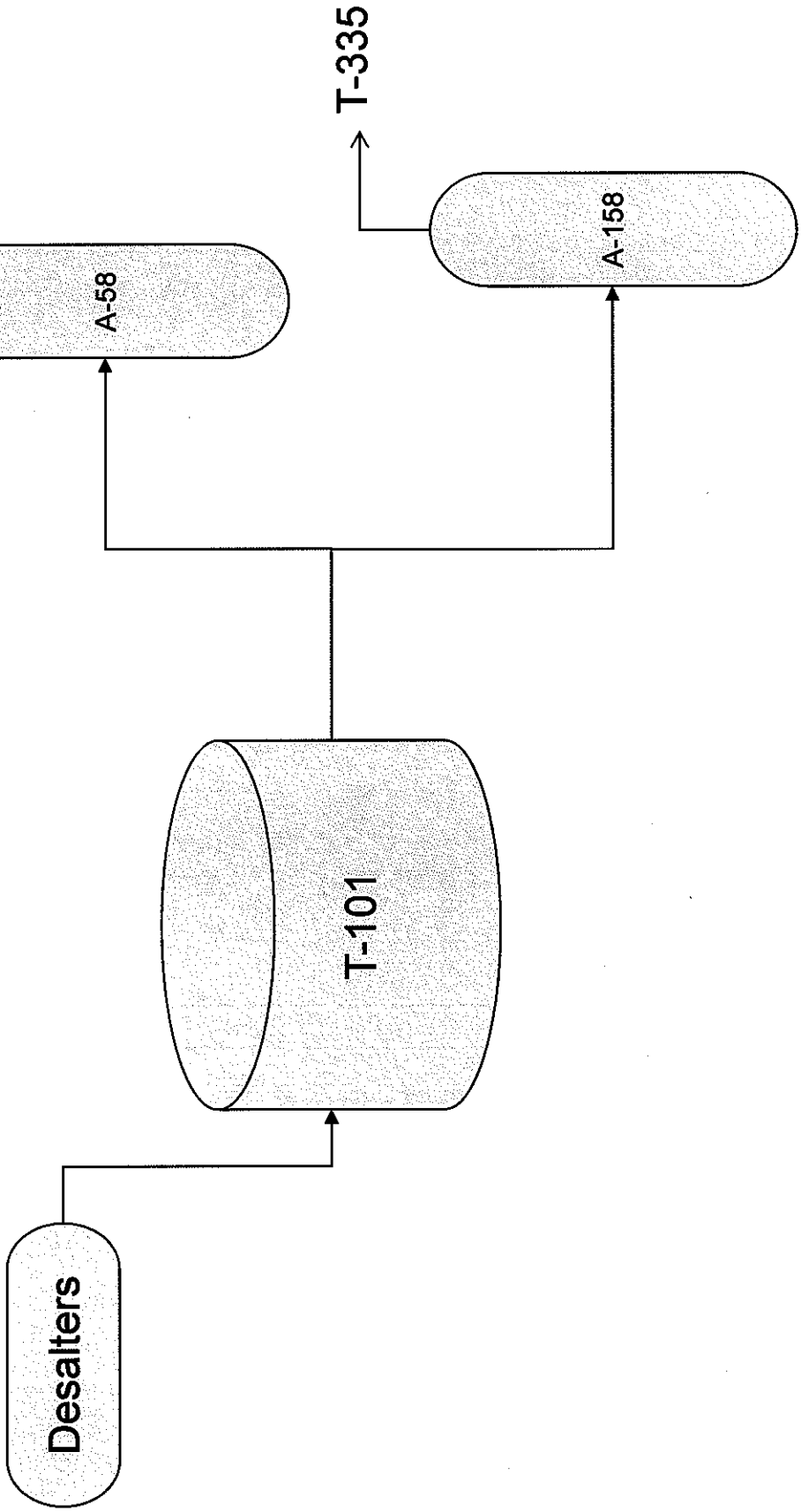


Appendix 12

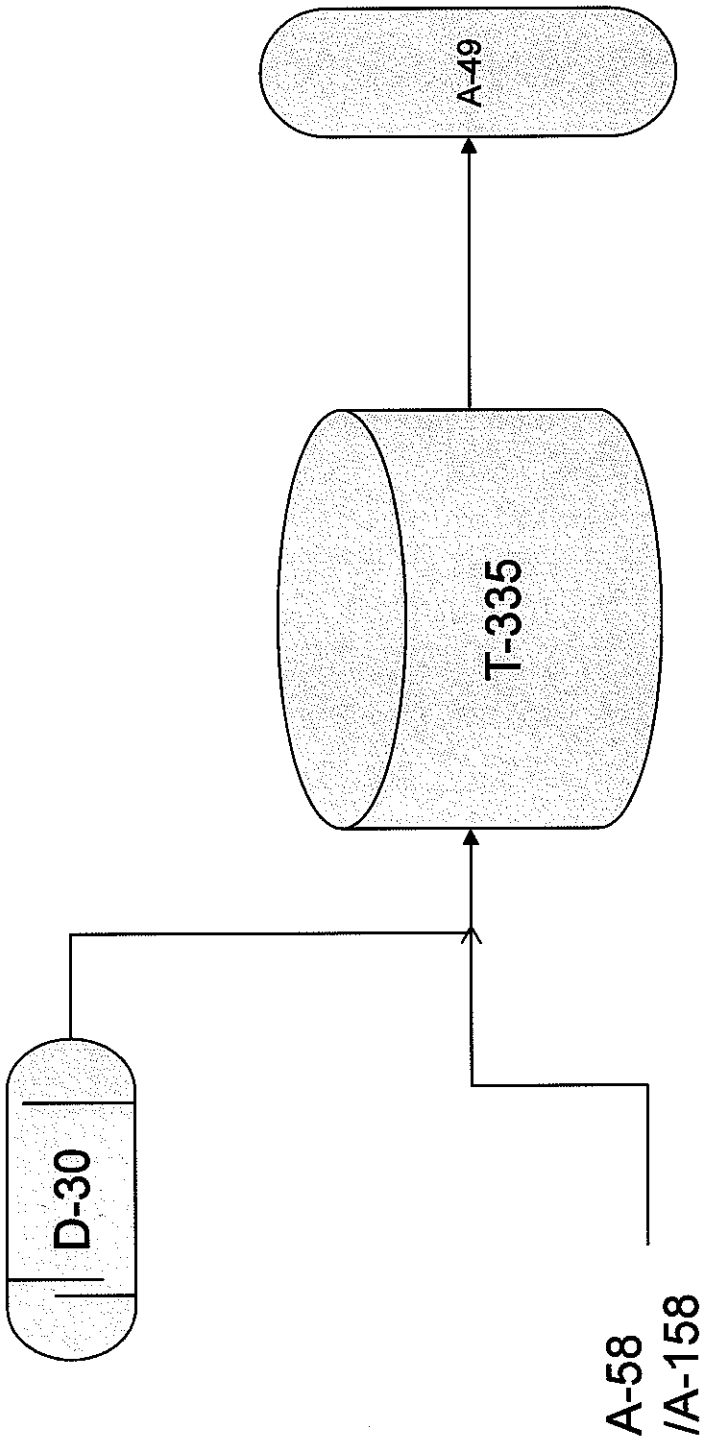
BWON schematics


Process Units Slop Header and Hydrocarbon from Sour Water Tanks
To Crude
Vacuum Truck
TK-320/321 Slop Oil Tanks
TK-095 Slop Oil Tank
To Crude
To Tk-101
Controlled Process Wastewater
TK-570 Slop Oil Tank
Controlled Process Unit Lift Stations
South Plant Plate Separator
VT to Tk-320/ 321
TK-092 Equalization Tank
EOL 2
EOL 4
VT to Tk-320/ 321
DAF
To Activated Sludge and Permitted Discharge
Process Lift Station
API Separator
TK-078 Equalization Tank
EOL 1
Uncontrolled Process Unit Lift Stations
EOL 3
Uncontrolled Process Wastewater (Including Stripped Sour Waters)
To Coker or Subsequent Treatment and Offsite
VT to Tk-320/ 321
EOL 5
Stormwater
Stormwater Lift Station
TK-096 Stormwater Tank
VT to Tk-320/ 321
EOL 6
Coker Stormwater
Coker Stormwater Lift Station
TK-436 Coker Stormwater Tank
EOL 7
LEGEND
Controlled Uncontrolled
Wastewater
Hydrocarbon Waste
Sludge
Process Fluids
Miscellaneous – Including, but not limited to, benzene-containing aqueous solid wastes, turnaround wastes, maintenance wastes, and spills.
Date: 10/26/09

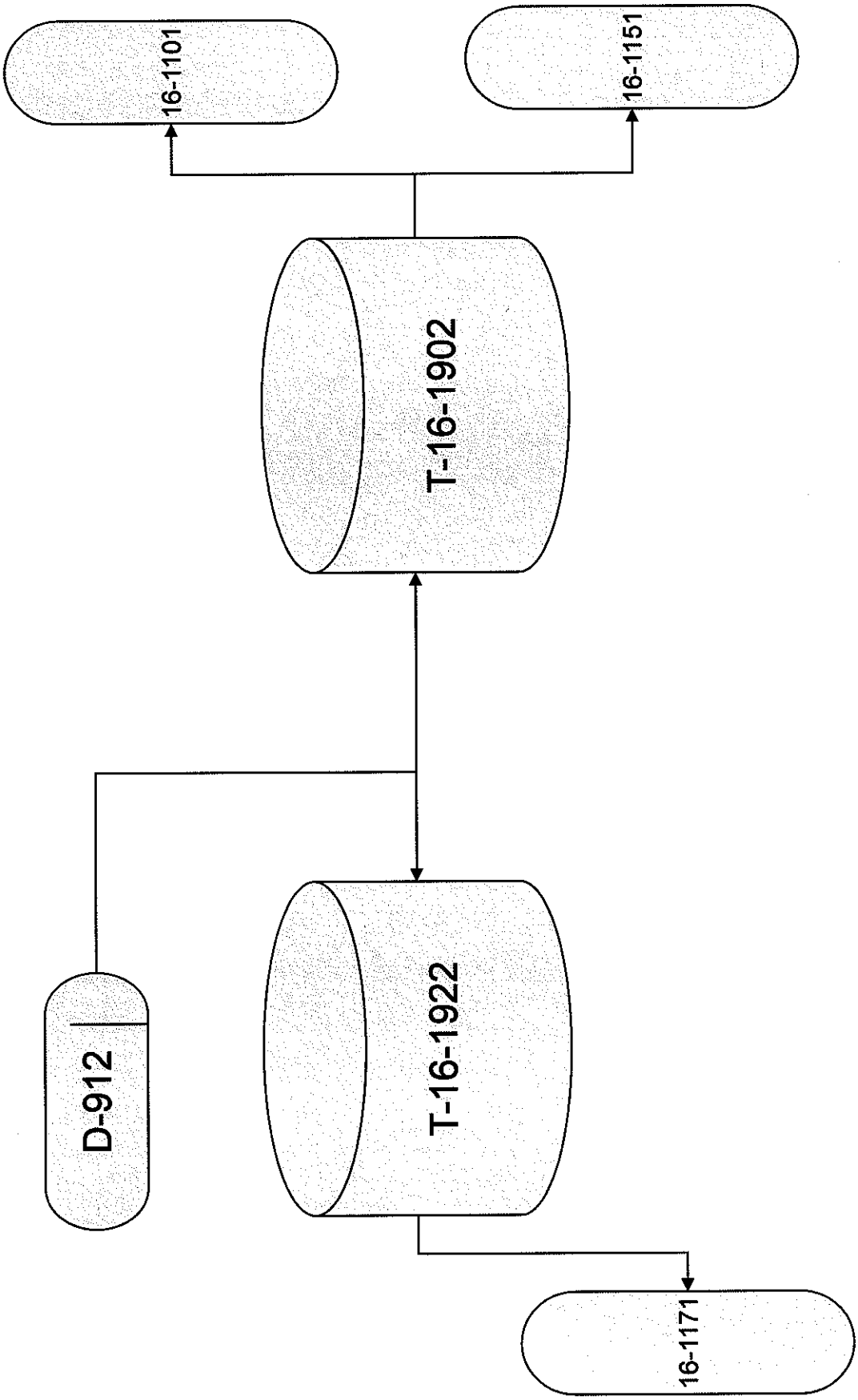
Valero Texas City Sour Water Tanks



Valero Texas City Sour Water Tank

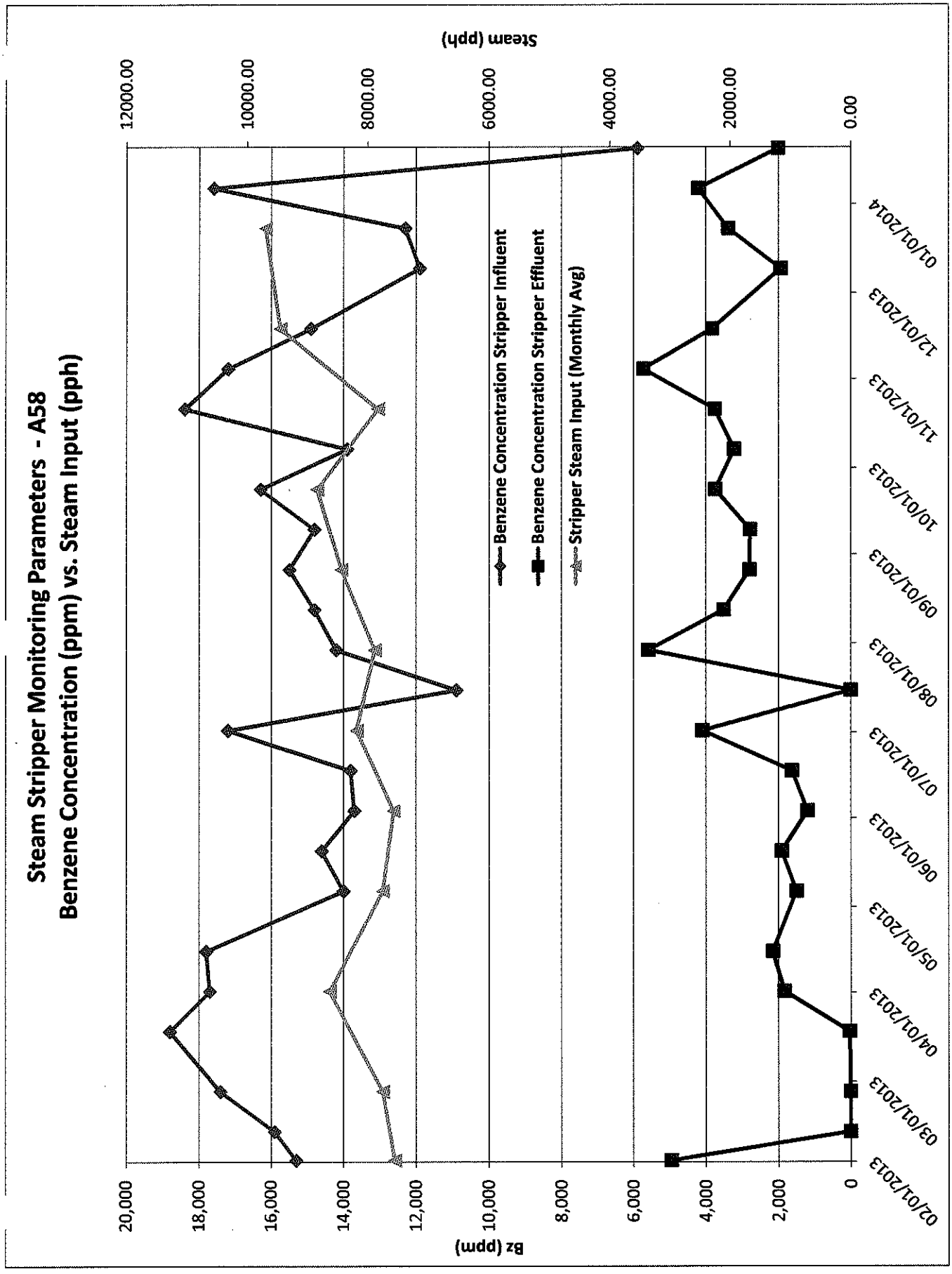


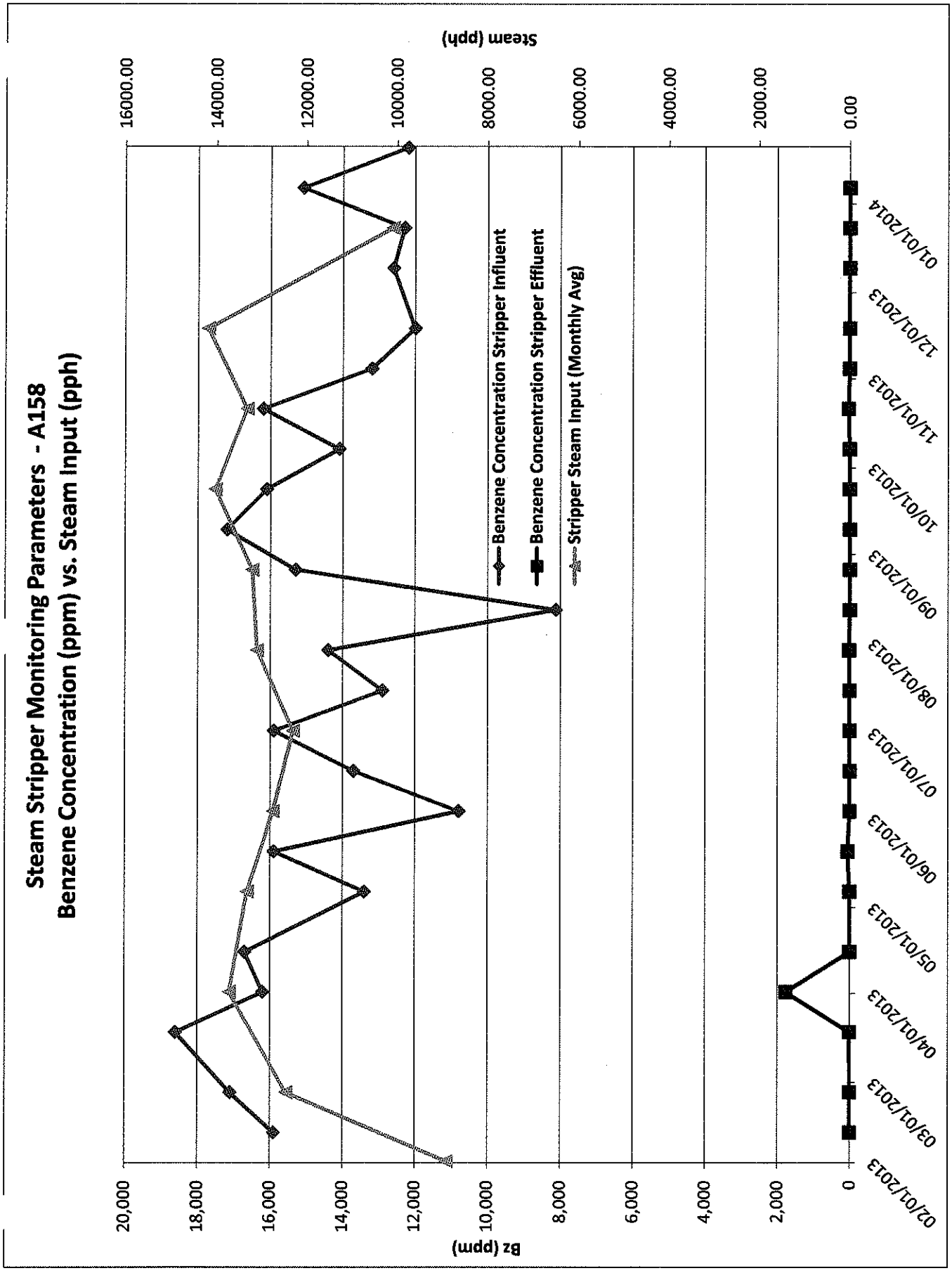
Valero Texas City GOHT Sour Water Tanks

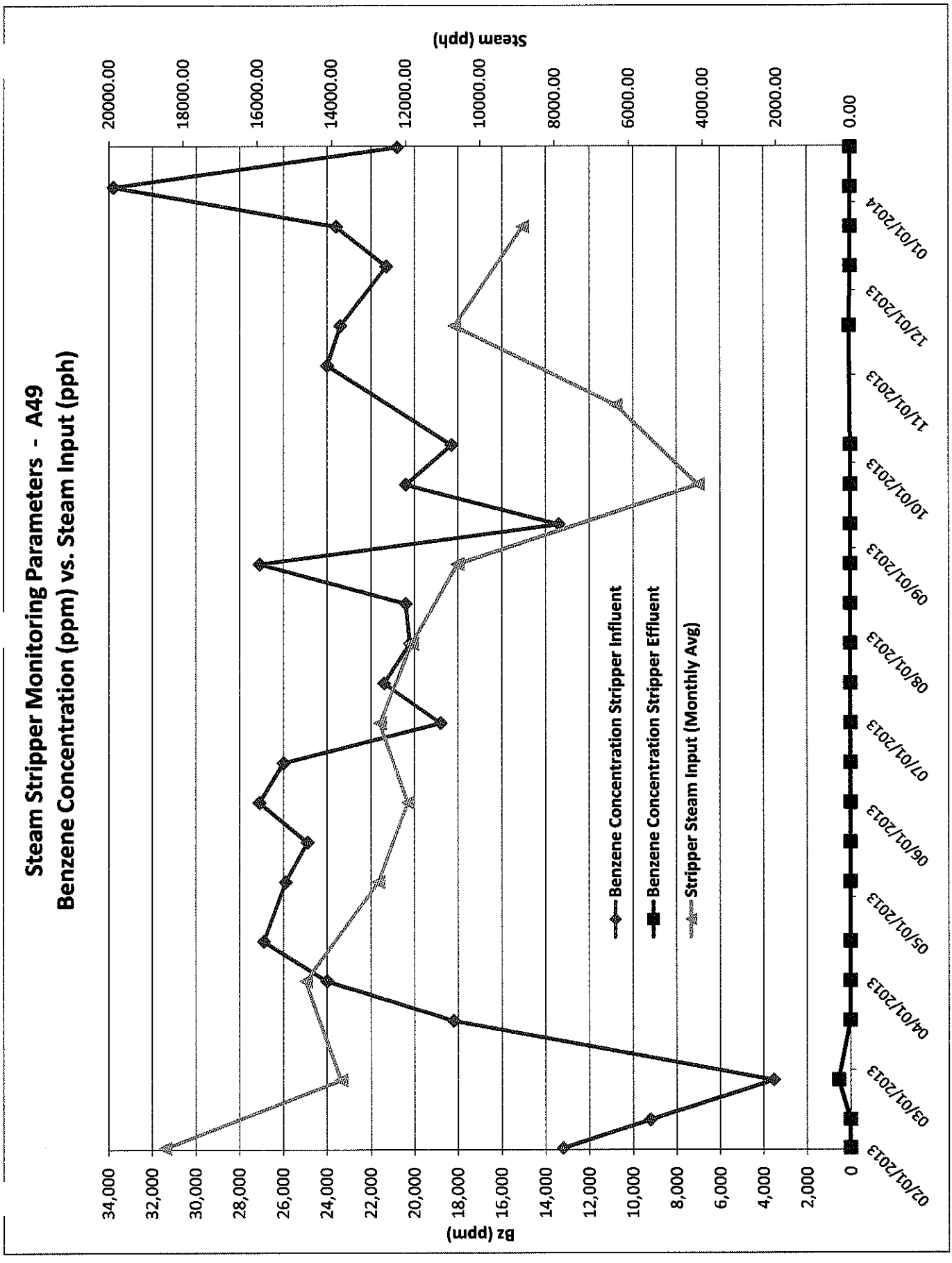


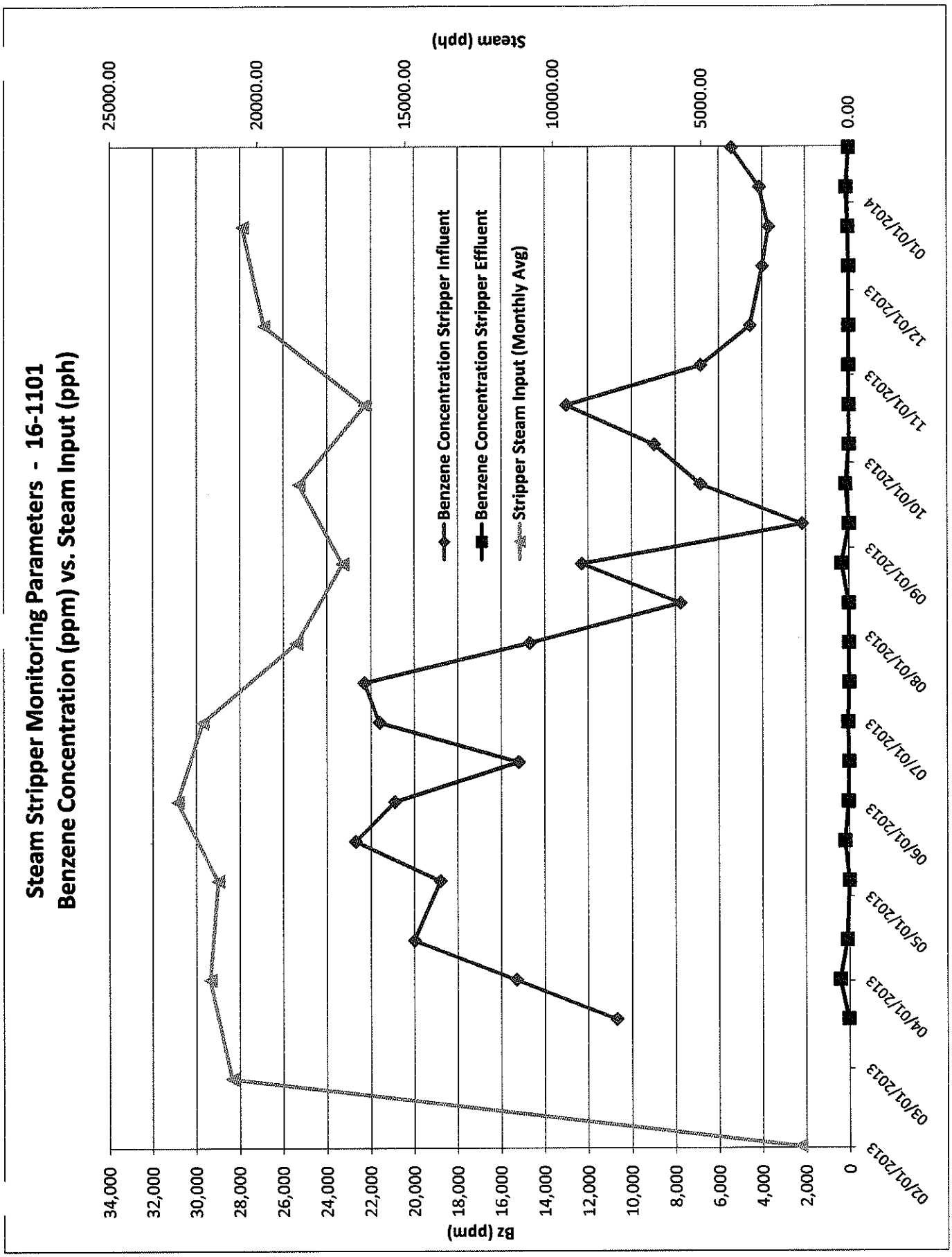
Appendix 13

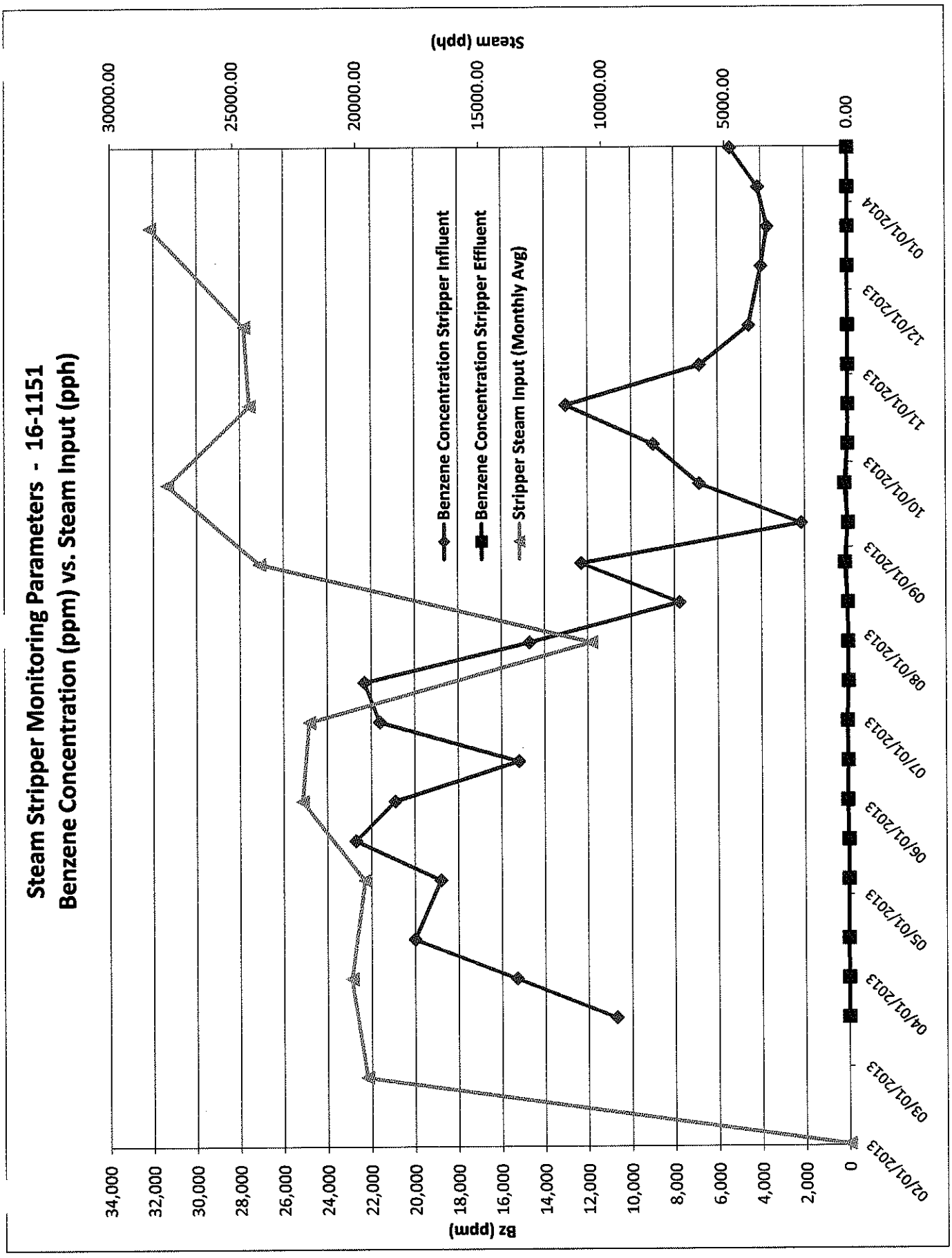
Steam strippers effluents benzene trends


Steam Stripper Monitoring Parameters - A58
Benzene Concentration (ppm) vs. Steam Input (pph)
Bz (ppm)
Steam (pph)
Benzene Concentration Stripper Influent
Benzene Concentration Stripper Effluent
Stripper Steam Input (Monthly Avg)
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
12000.00
10000.00
8000.00
6000.00
4000.00
2000.00
0.00
02/01/2013
03/01/2013
04/01/2013
05/01/2013
06/01/2013
07/01/2013
08/01/2013
09/01/2013
10/01/2013
11/01/2013
12/01/2013
01/01/2014


Steam Stripper Monitoring Parameters - A158
Benzene Concentration (ppm) vs. Steam Input (pph)
Bz (ppm)
Steam (pph)
Benzene Concentration Stripper Influent
Benzene Concentration Stripper Effluent
Stripper Steam Input (Monthly Avg)
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
16000.00
14000.00
12000.00
10000.00
8000.00
6000.00
4000.00
2000.00
0.00
02/01/2013
03/01/2013
04/01/2013
05/01/2013
06/01/2013
07/01/2013
08/01/2013
09/01/2013
10/01/2013
11/01/2013
12/01/2013
01/01/2014


Steam Stripper Monitoring Parameters - A49
Benzene Concentration (ppm) vs. Steam Input (pph)
Bz (ppm)
Steam (pph)
Benzene Concentration Stripper Influent
Benzene Concentration Stripper Effluent
Stripper Steam Input (Monthly Avg)
34,000
32,000
30,000
28,000
26,000
24,000
22,000
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
20000.00
18000.00
16000.00
14000.00
12000.00
10000.00
8000.00
6000.00
4000.00
2000.00
0.00
02/01/2013
03/01/2013
04/01/2013
05/01/2013
06/01/2013
07/01/2013
08/01/2013
09/01/2013
10/01/2013
11/01/2013
12/01/2013
01/01/2014


Steam Stripper Monitoring Parameters - 16-1101
Benzene Concentration (ppm) vs. Steam Input (pph)
Bz (ppm)
Steam (pph)
Benzene Concentration Stripper Influent
Benzene Concentration Stripper Effluent
Stripper Steam Input (Monthly Avg)
34,000
32,000
30,000
28,000
26,000
24,000
22,000
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
25000.00
20000.00
15000.00
10000.00
5000.00
0.00
02/01/2013
03/01/2013
04/01/2013
05/01/2013
06/01/2013
07/01/2013
08/01/2013
09/01/2013
10/01/2013
11/01/2013
12/01/2013
01/01/2014


Steam Stripper Monitoring Parameters - 16-1151
Benzene Concentration (ppm) vs. Steam Input (pph)
Bz (ppm)
Steam (pph)
Benzene Concentration Stripper Influent
Benzene Concentration Stripper Effluent
Stripper Steam Input (Monthly Avg)
34,000
32,000
30,000
28,000
26,000
24,000
22,000
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
30000.00
25000.00
20000.00
15000.00
10000.00
5000.00
0.00
02/01/2013
03/01/2013
04/01/2013
05/01/2013
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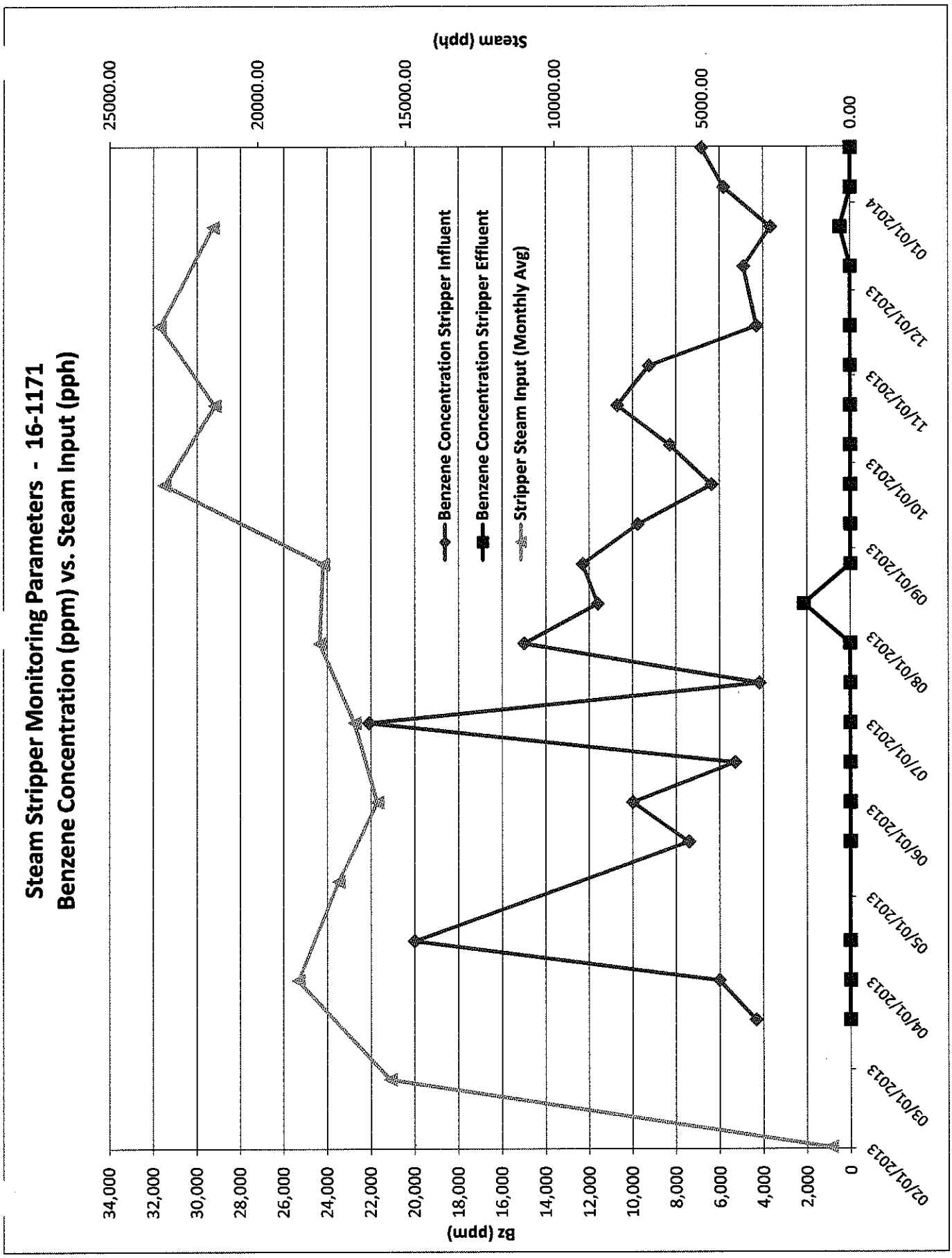
01/01/2014


Steam Stripper Monitoring Parameters - 16-1171
Benzene Concentration (ppm) vs. Steam Input (pph)
Bz (ppm)
Steam (pph)
Benzene Concentration Stripper Influent
Benzene Concentration Stripper Effluent
Stripper Steam Input (Monthly Avg)
34,000
32,000
30,000
28,000
26,000
24,000
22,000
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
25000.00
20000.00
15000.00
10000.00
5000.00
0.00
02/01/2013
03/01/2013
04/01/2013
05/01/2013
06/01/2013
07/01/2013
08/01/2013
09/01/2013
10/01/2013
11/01/2013
12/01/2013
01/01/2014

Appendix 14

Flare gas recovery system description

1 Duty of the Unit

This chapter provides an overview of the Flare Gas Recovery Unit (FGRU) and serves as a concise introduction for anyone new to the unit. Among other topics, this chapter covers how the FGRU unit operations, fits into the overall Refinery Flare System, and a general process description.

1.1 Flare System

The refinery's flare system is made up of five flares and their associated piping and auxiliary equipment. The flare systems are designed as a safety factor in the event of any over-pressurization of any process equipment that must release its pressure out of the affected vessel, compressor, or relief valve. The flare system also acts as the vent for any equipment that contains hydrocarbons that must be depressurized including process tanks for maintenance or for any other reason that the pressure must be reduced. Each piece of unit equipment that vents to the flare has its own flow control, pressure control/relief, and/or isolation valve that tie it into one of the flare headers.

1.2 FGRU

The purpose of the Flare Gas Recovery Unit is to compress routine flare gases and route them to the fuel gas system. During major flaring events the gas will go directly to the flares. The five flare headers go to the Flare Gas Recovery Unit. On each Flare a 16" line comes off the top of the Flare line before the Knock Out/Seal Combo drum allowing any liquid that maybe in the Flare line to continue to the Knock Out/Seal Combo drum. The Gases in the 16" line then flow to the appropriate Train Compressor Knock Out drum. The bottom part of the drum knocks out any liquid present in the flare line. The top part of the drum has a water seal that diverts the gases to the Flare Gas Recovery compressors during routine flaring events. If the flare gas pressure exceeds the seal drum pressure, flare gas goes directly to the flares.

Once the flare gas is diverted to the FGR unit, the gas first enters an Inlet drum that knocks out any condensed liquid. After the Inlet Drum the gas is compressed using liquid ring compressors followed by a Liquid Separator Drum that knocks out the compressor's service liquid (water). From the Separator drum the gas in sent to an Amine treating unit to remove H2S. Following H2S removal the gas is sent to the refinery's fuel gas system. In the event the plant has an excess of fuel gas, the recovered Sweet Flare Gas is diverted directly to either Flare #3 or Flare #4.

The FGR system consists of three trains. Flare Headers #1 & #4 go to

Train #1, Flare Headers #3 & #5 go to Train #2 and Flare Header #2 goes to Train #3. High volume flaring events are allowed to continue through a liquid seal and into the appropriate flare.

1.3 Train 1

Train One has an inlet knock drum, three flare gas compressors and a service liquid separator. The compressed Flare Gas is then sent to an amine contactor and into the fuel gas system.

1.4 Train 2

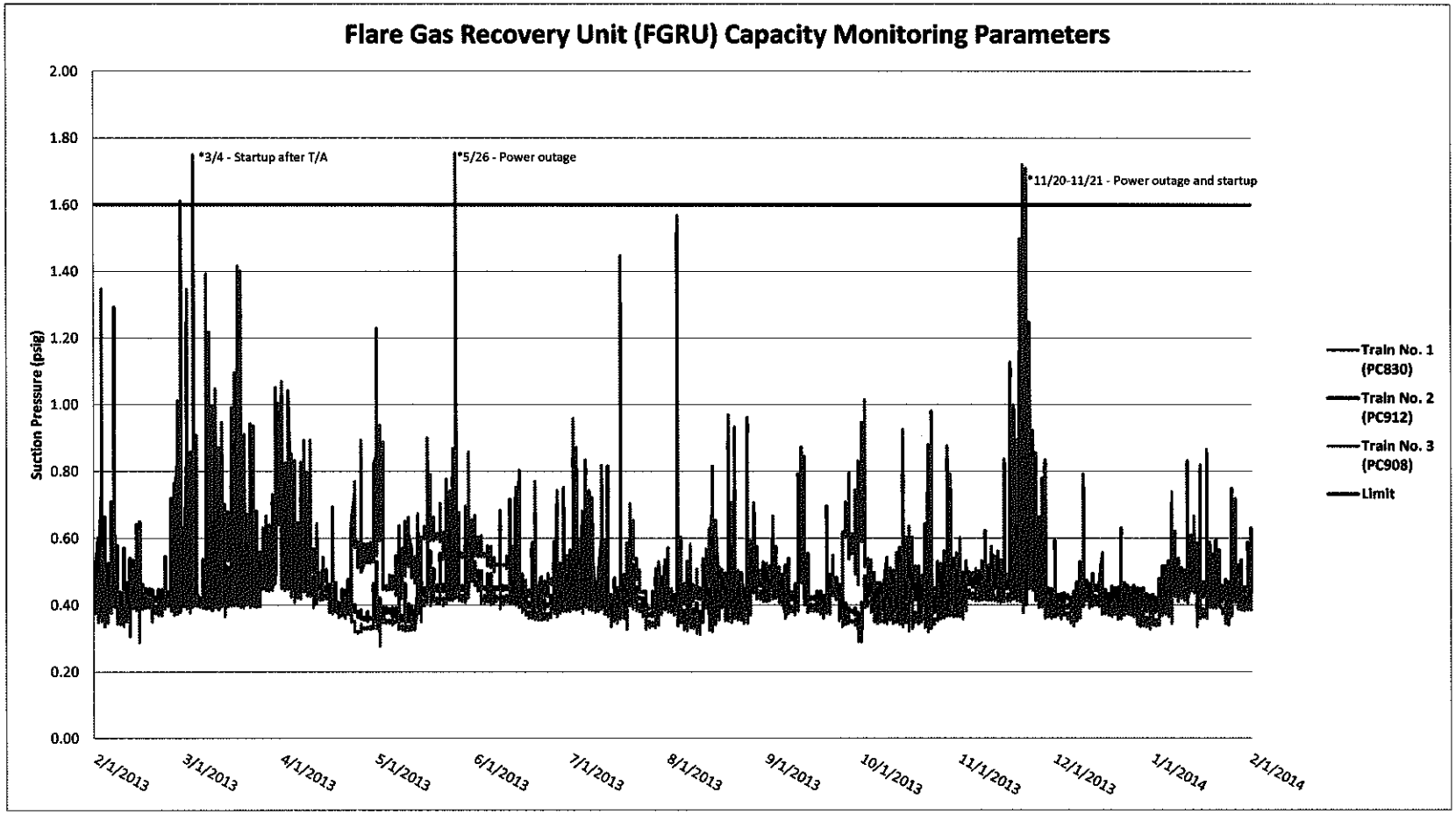
Train Two has an inlet knock drum, two gas compressors and a service liquid separator. The Compressed Flare Gas is then sent to an amine contactor and into the fuel gas system.

1.5 Train 3

Train Three has an inlet knock drum, two gas compressors and a service liquid separator. The Compressed Flare Gas is then sent to an amine contactor and into the fuel gas system.

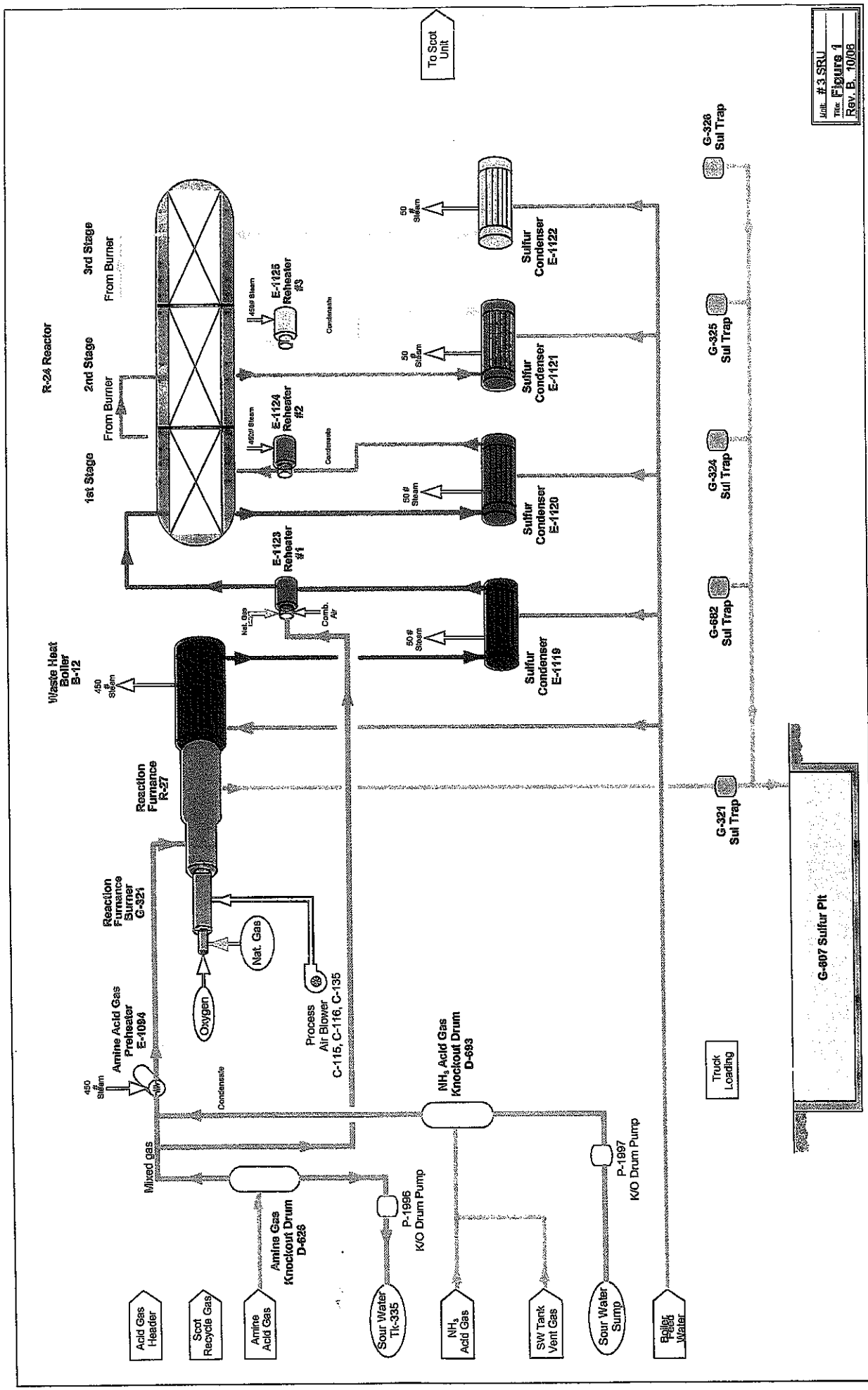
Appendix 15

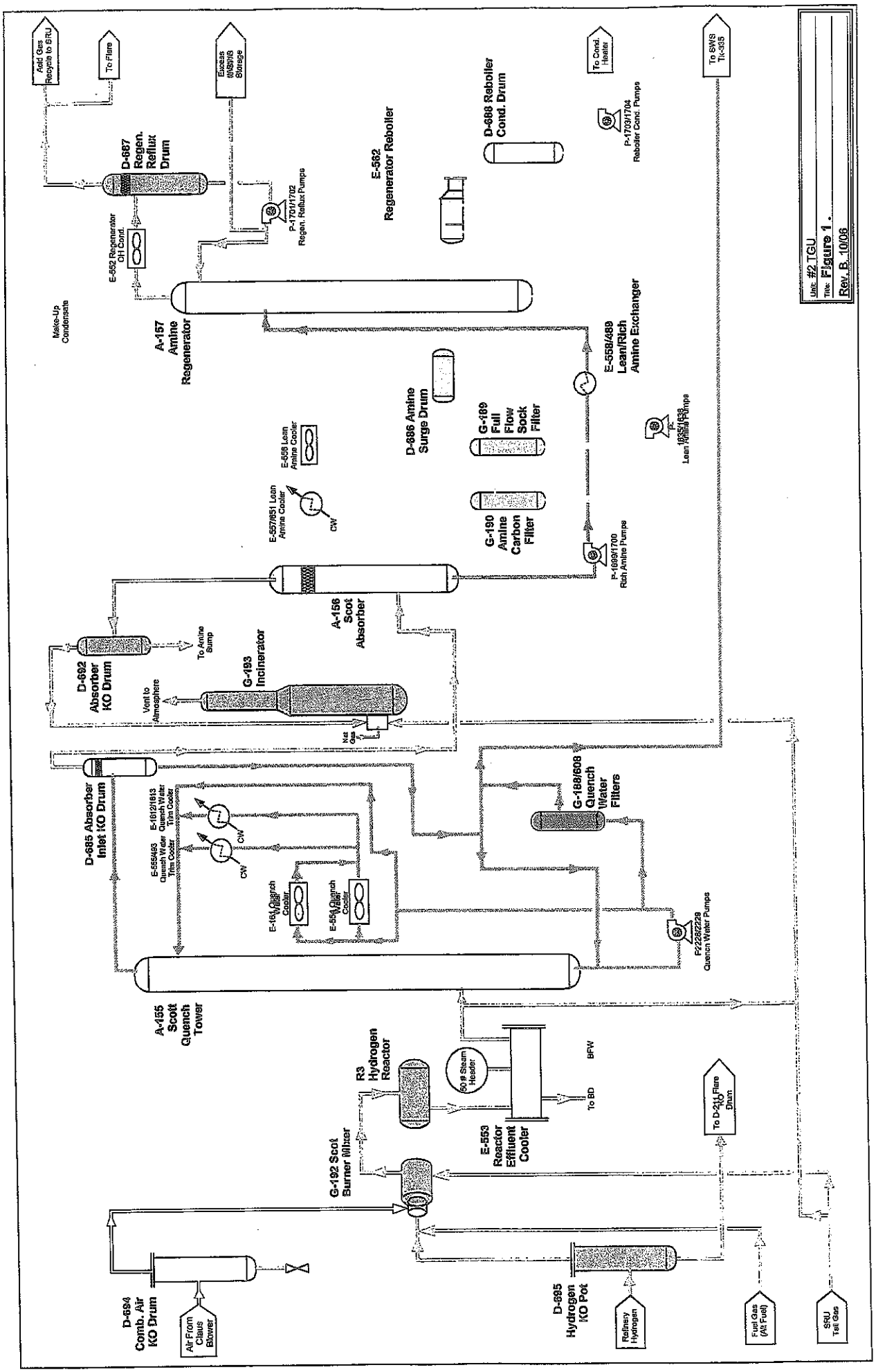
Flare gas recovery compressor operations chart


Flare Gas Recovery Unit (FGRU) Capacity Monitoring Parameters
Suction Pressure (psig)
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
*3/4 - Startup after T/A
*5/26 - Power outage
*11/20-11/21 - Power outage and startup
2/1/2013
3/1/2013
4/1/2013
5/1/2013
6/1/2013
7/1/2013
8/1/2013
9/1/2013
10/1/2013
11/1/2013
12/1/2013
1/1/2014
2/1/2014
Train No. 1 (PC830)
Train No. 2 (PC912)
Train No. 3 (PC908)
Limit

Appendix 16

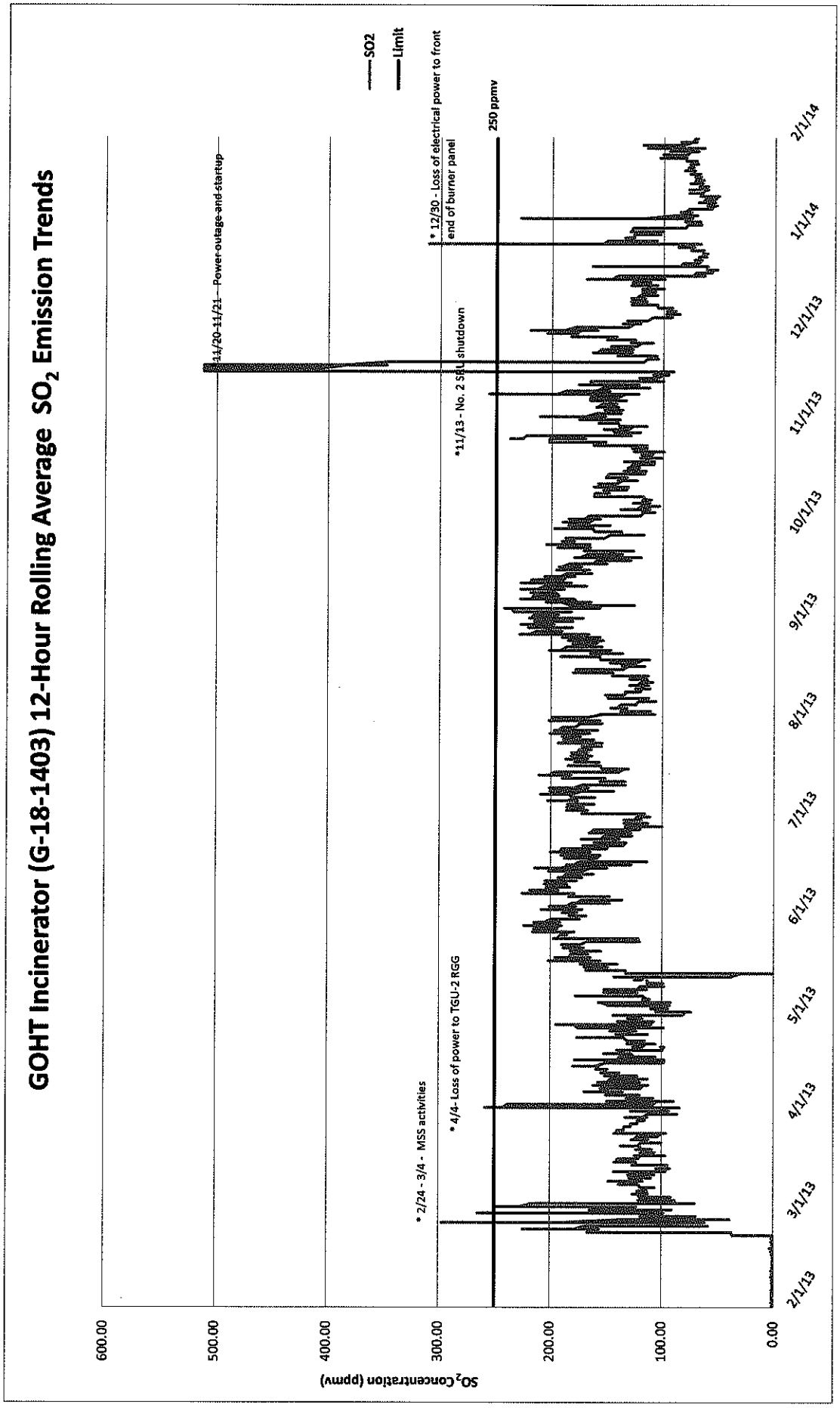
SRU process diagram


Unit: #3 SRU
Title: Figure 1
Rev. B, 10/06
R-24 Reactor
1st Stage
2nd Stage
3rd Stage
From Burner
From Burner
From Burner
To Scot Unit
Waste Heat Boiler B-12
450 # Steam
Reaction Furnace R-27
Reaction Furnace Burner G-321
Nat. Gas
Comb. Air
Oxygen
Nat. Gas
Process Air Blower C-115, C-116, C-135
Amine Acid Gas Preheater E-1084
450 # Steam
Condensate
E-1123 Reheater #1
E-1124 Reheater #2
E-1125 Reheater #3
450# Steam
Condensate
50 # Steam
Sulfur Condenser E-1119
Sulfur Condenser E-1120
Sulfur Condenser E-1121
Sulfur Condenser E-1122
G-321 Sul Trap
G-682 Sul Trap
G-324 Sul Trap
G-325 Sul Trap
G-326 Sul Trap
G-607 Sulfur Pit
Truck Loading
NH3 Acid Gas Knockout Drum D-693
Mixed gas
Amine Gas Knockout Drum D-626
P-1996 K/O Drum Pump
P-1997 K/O Drum Pump
Acid Gas Header
Scot Recycle Gas
Amine Acid Gas
Sour Water Tk-335
NH3 Acid Gas
SW Tank Vent Gas
Sour Water Sump
Boiler Feed Water


Unit: #2 TGU
Title: Figure 1.
Rev. B. 10/06
Acid Gas Recycle to SRU
To Flare
Excess to Slop Storage
To Cond. Heater
To SWS TK-335
D-687 Regen. Reflux Drum
E-562 Regenerator Reboiler
D-688 Reboiler Cond. Drum
P-1703/1704 Reboiler Cond. Pumps
E-562 Regenerator OH Cond.
P-1701/1702 Regen. Reflux Pumps
Make-Up Condensate
A-157 Amine Regenerator
E-558/489 Lean/Rich Amine Exchanger
D-686 Amine Surge Drum
G-189 Full Flow Sock Filter
1635/1636 Lean Amine Pumps
E-556 Lean Amine Cooler
E-557/651 Lean Amine Cooler
CW
G-190 Amine Carbon Filter
P-1699/1700 Rich Amine Pumps
A-156 Scot Absorber
D-692 Absorber KO Drum
To Amine Sump
G-193 Incinerator
Vent to Atmosphere
Nat Gas
D-685 Absorber Inlet KO Drum
E-1612/1613 Quench Water Trim Cooler
E-555/493 Quench Water Trim Cooler
CW
G-188/608 Quench Water Filters
E-161 Quench Water Cooler
E-556 Quench Water Cooler
P-2228/2229 Quench Water Pumps
A-155 Scot Quench Tower
R3 Hydrogen Reactor
50 # Steam Header
BFW
To BD
E-553 Reactor Effluent Cooler
To D-211 Flare KO Drum
G-192 Scot Burner Mixer
D-694 Comb. Air KO Drum
Air From Claus Blower
D-695 Hydrogen KO Pot
Refinery Hydrogen
Fuel Gas (Alt Fuel)
SRU Tail Gas

Appendix 17

SRU SO_2 emissions trends



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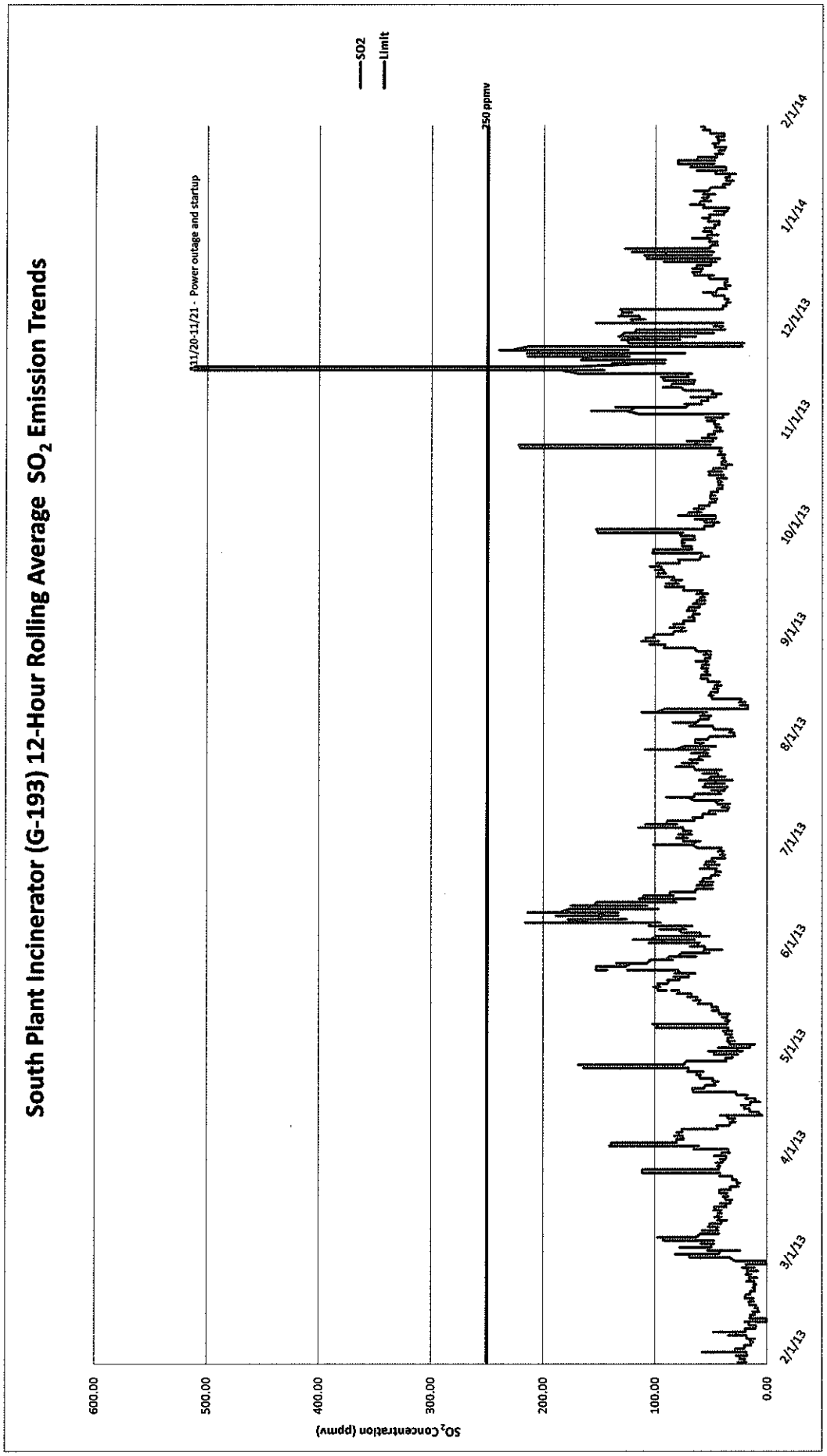

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Appendix 18

Operating permit excerpts

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 31, 2013

MR LESLIE G RUCKER
HEALTH SAFETY AND ENVIRONMENTAL DIRECTOR
VALERO REFINING TEXAS LP
PO BOX 3429
TEXAS CITY TX 77592-3429

Re: Permit Alteration
Permit Number: 39142
Valero Refining Texas City Refinery
Texas City, Galveston County
Regulated Entity Number: RN100238385
Customer Reference Number: CN600127468
Account Number: GB-0073-P
Associated Permit Number: PSDTX822M2

Dear Mr. Rucker:

This is in response to your letter received February 28, 2013, requesting alteration of the conditions and maximum allowable emission rates table (MAERT) of the above-referenced permit. We understand Valero is requesting the following:

1. Clarify special conditions 33, 40, 41, 45, 54, and 55;
2. Remove Fugitive EPN F-44 associated with the Isooctene Unit and Storage Tank EPNs EG-193 (Tank 071) and 093 from the MAERT as the facilities have been permanently shut down; and
3. Incorporate Standard Permit 91499 into the permit by reference. B-32 & B-33

As indicated in Title 30 Texas Administrative Code § 116.116(c) [30 TAC § 116.116(c)], and based on our review, Permit Number 39142 is altered. Enclosed are the altered special conditions, MAERT and a new permit face to replace those currently attached to your permit. Please attach these to your permit.

Planned maintenance, startup, and shutdown emissions have been previously reviewed, authorized, and included in the MAERT. Any other maintenance activities are not authorized by this permit and will need to obtain a separate authorization.

Your cooperation in this matter is appreciated. If you need further information or have any questions, please contact Mr. Rick Goertz at (512) 239-5606 or write to the Texas Commission on Environmental Quality, Office of Air, Air Permits Division, MC-163, P.O. Box 13087, Austin, Texas 78711-3087.

Mr. Leslie G Rucker
Page 2
May 31, 2013

Re: Permit Number: 39142

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality.

Sincerely,

Michael Wilson, P.E., Director
Air Permits Division
Office of Air
Texas Commission on Environmental Quality

MPW/rg

Enclosure

cc: Director, Office of Environmental Health Pgm Air & Water Pollution Svc, Galveston County Health District, La Marque
Air Section Manager, Region 12 - Houston
Air Permits Section Chief, New Source Review, Section (6PD-R), U.S. Environmental Protection Agency, Region 6, Dallas

Project Numbers: 189700, 189703

once per shift shall be included in the operator manual. These records shall be made available to representatives of the TCEQ upon request. **(PSD)**

Fluid Catalytic Cracking Unit (FCCU)

34. The maximum and annual average coke burn-off rate shall not exceed 70,000 lb/hr and 60,500 lb/hr respectively. The average coke burn-off rate (tons per hour) and hours of operation shall be recorded daily shall be maintained on-site. Coke burn-off rate shall be determined using the methods as specified in 40 CFR Part 60, Subpart J. These records shall be maintained for a minimum of five years and made available to representatives of the TCEQ or local program upon request. **(11/12)**

35. The FCCU is subject to the applicable requirements in 40 CFR Part 60, Subparts A and J promulgated for Petroleum Refineries.

36. The pH and flow rate (gallons per minute) of the caustic solution circulating in the scrubber shall be continuously monitored and recorded. During periods of time when the SO_2 continuous emissions monitor (CEM) is off-line, excluding the daily 24 to 28-minute period when the CEM is in calibration mode, the pH level shall be maintained above 6.0 by the addition of fresh caustic solution as required. Records of pH and flow rate shall be maintained on-site for a period of two years and made available to representatives of the TCEQ upon request. **(PSD)**

37. The opacity of emissions from the FCCU wet gas scrubber stack shall not exceed 15 percent averaged over a six-minute period. **(PSD)**

    Valero may conduct alternative monitoring and recordkeeping in order to demonstrate compliance with 30 TAC § 111.111(a)(1)(B) and 40 CFR § 60.102(a)(2) in accordance with EPA and TCEQ Alternate Monitoring Plan (AMP) associated with the FCCU Scrubber (EPN G-001) as approved by EPA Region 6 on a letter dated May 20, 2005. In accordance with the approved AMP, the FCCU wet gas scrubber feed water pressure shall be no less than 57 psig or the FCCU wet gas scrubber filter differential pressure (pressure drop) shall be no less than 16 inches of water column as determined on a three-block hour average basis.

38. The maximum allowable concentration of the following pollutants in the FCCU vent gas scrubber stack shall not exceed the following: **(12/11)**

CO	500 ppmvd (1 hour average)
CO	400 ppmvd (365 day rolling average) **(11/12)**

SO_2	200 ppmvd (1 hour average)
SO_2	50 ppmvd (0% oxygen, as a 7-day rolling average)
SO_2	25 ppmvd (0% oxygen, as a 365-day rolling average)
nitrogen oxides (NO_x)	200 ppmvd (1 hour average)
nitrogen oxides (NO_x)	38 ppmvd (0% oxygen, as a 7-day rolling average)
nitrogen oxides (NO_x)	19 ppmvd (0% oxygen, as a 365-day rolling average)
VOC	10 ppmv

The emissions from the FCCU stack shall not exceed 1.0 lb of particulate matter (PM) per 1,000 lb of coke burn-off.

39. The maximum allowable concentrations and/or emission of the following pollutants from the FCCU are included in the best available control technology (BACT) short-term and annual CAP calculations. If any of the following emission rates (ER) are exceeded, the holder of this permit shall provide adequate information to demonstrate continuing compliance with BACT and the emission CAP for those compounds. The levels below shall be achieved no later than October 31, 2002: **(PSD)**

Compound	Short-Term (lb/hr)	Annual (TPY)
SO_2	180	791
NO_x	390	658
CO	594	1,805
PM_{10}	73	296

PM_{10} - particulate matter of 10 microns or less

49. The caustic concentration and scrubber circulation rate for the reformer scrubber shall be continuously monitored and recorded. Records shall be maintained on-site for a period of two years and made available to representatives upon request.

Fired Units (Heaters, Boilers, Turbines, and Engines)

50. Per EPA Consent Decree No. SA-05-CA-0569, Valero shall achieve a final system wide weighted average emission limit for NOx of 0.044 lbs/MMBtu to reduce NO_x from refinery heaters and boilers greater than 40 MMBtu/hr. For purposes of this special condition and the EPA Consent Decree, the term "system-wide" shall be defined as all the Valero refineries included in EPA Consent Decree Civil Action No. SA-05-CA-0569. **(1/13)**

The following table contains NO_x emission limits in pounds per MMBtu at HHV as a 365 day rolling average for covered Heaters and Boilers and shall not exceed the following individual emission limitations:

EPN	Source Name	NO, lb/MMBTU at HHV (365 Day Rolling Average)
EB-18	Boiler No. 18	0.050
EB-26	Boiler No. 26	0.015
EB-27	Boiler No. 27	0.015
EB-32	Boiler No. 32	0.015
EB-33	Boiler No. 33	0.015
EH-16/17	Crude No.3 Heater No. 16	0.065
EH-16/17	Crude No.3 Heater No. 17	0.065
EH-REF2	Reformer No. 2 Heater No. 18	0.080
EH-REF2	Reformer No. 2 Heater No. 19	0.080
EH-REF2	Reformer No. 2 Heater No. 20	0.080
EH-REF2	Reformer No. 2 Heater No. 21	0.080
EH-REF2	Reformer No. 2 Heater No. 22	0.080
EH-REF2	Reformer No. 2 Heater No. 23	0.080
EH-28	Alkylation Heater No. 28	0.035

EPN	Source Name	NO_x lb/MMBTU at HHV (365 Day Rolling Average)
EH-29	RVDU Heater	0.150
EH-31/32	MDHT Heater No. 31	0.150
EH-31/32	MDHT Heater No. 32	0.150
EH-34	Vacuum Tower Charge Heater No. 34	0.040
EH-57	Coker Heater No. 57	0.015
EH-58	Coker Heater No. 58	0.015
EH-50	DHT Heater No. 50	0.055
EH-13-1401	GOHT. Hydrotreater Furnace Heater No. 1401	0.065
EH-13-1421	GOHT. Fractionator Heater No. 1421	0.080
EH-13-1451	GOHT. Hydrotreater Furnace Heater No. 1451	0.085
EH-13-1480	GOHT Feed Prep Heater No. 1480	0.080
EH-44	Rose Heater No. 44	0.040
EH-45	Toppers Heater No. 45	0.040
EH-46	Toppers Heater No. 46	0.040
EH-60	Low Sulfur Gasoline Reboiler Heater No. 60	0.030

51. The holder of this permit shall install a continuous H_2S monitoring system in a portion of the fuel gas system common to the combustion devices covered by this permit in accordance with the fuel sulfur monitoring requirements of 40 CFR § 60.105. Fuel gas used to fire all heaters and boilers, shall not exceed an H_2S concentration of 162 ppmv or 0.1 grain per dry standard cubic foot on a rolling three hour average basis. The H_2S concentration in the fuel gas shall be continuously monitored and recorded.

52. The fuel gas fired in the various units is limited to natural gas, refinery fuel gas, or a combination of natural gas and fuel gas. The fuel gas shall contain no more than 10 grains of total sulfur per 100 dry standard cubic feet (dscf). The fuel gas shall be sampled every 6 months to determine total sulfur and net heating value.

File

CC: JA HS PP LGR Amer VC

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 13, 2013

MR SAL VISCONTINI
SENIOR VICE PRESIDENT AND GENERAL MANAGER
VALERO REFINING-TEXAS, L.P.
PO BOX 3429
TEXAS CITY TX 77592-3429

Re: Final Revised Permit Approval
Minor Revision
Permit Number: O1253
Valero Refining Texas, L.P.
Texas City Refinery
Texas City, Galveston County
Regulated Entity Number: RN100238385
Customer Reference Number: CN600127468
Account Number: GB-0073-P

Dear Mr. Viscontini:

The revised effective federal operating permit (FOP) for Valero Refining Texas, L.P., Texas City Refinery is enclosed. On October 30, 2009, the Environmental Protection Agency (EPA) notified the Texas Commission on Environmental Quality (TCEQ) of objections to the issuance of the FOP. The TCEQ responded to EPA objections on July 22, 2010. Per the March 18, 2011 EPA letter to the TCEQ, Texas City Refinery's objections have been addressed. This letter constitutes authority to operate the changes identified in the FOP revision application.

Consistent with Title 30 Texas Administrative Code Chapter 122, Subchapter C, the permit holder shall submit an application to the Air Permits Division (APD) for a revision to an FOP for those activities at a site which change, add, or remove one or more FOP terms or conditions. The permit holder shall also submit an application to the APD for a revision to a permit to address the following: the adoption of an applicable requirement previously designated as federally enforceable only; the promulgation of a new applicable requirement; the adoption of a new state-only requirement; or a change in a state-only designation.

Thank you again for your cooperation in this matter. If you have questions concerning the review or this notice, please contact Ms. Kim Strong, P.E. at (512) 239-0252.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality.

Sincerely,

Michael Wilson, P.E., Director
Air Permits Division
Office of Air
Texas Commission on Environmental Quality

MPW/kds

cc: Mr. Patrick Passantino, Environmental Manager, Valero Refining-Texas, L.P., Texas City
Mr. Jack Merrill, Director-Refinery Operations, Valero Refining-Texas, L.P., Texas City
Director, Office of Environmental Health PGM Air & Water Pollution Svc, Galveston County Health District, La Marque
Air Section Manager, Region 12 - Houston

Enclosure: Revised Effective Permit

cc: Air Permit Section Chief, U.S. Environmental Protection Agency, Region 6, Dallas

Project Number: 13846

of the certified registration shall be maintained with the permit. Records sufficient to demonstrate compliance with the established limits shall be maintained. The certified registration and records demonstrating compliance shall be provided, on request, to representatives of the appropriate TCEQ regional office and any local air pollution control agency having jurisdiction over the site. The permit holder shall submit updated certified registrations when changes at the site require establishment of new emission limits. If changes result in emissions that do not remain below major source thresholds, the permit holder shall submit a revision application to codify the appropriate requirements in the permit.

25. Valero may conduct alternative monitoring and recordkeeping in order to demonstrate compliance with § 60.102(a)(2) and § 111.111(a)(1)(B) in accordance with the EPA/TCEQ alternate monitoring plan associated with the FCCU scrubber for G-001 (letter dated May 20, 2005, from EPA, Region 6).

26. Per Valero Refining Texas L.P.'s § 114 Consent Decree (Civil Action No. SA-05-CA-0569), the permit holder shall accept applicability and comply with the applicable requirements of 40 CFR Part 60, Subpart J for FL-1, FL-2, FL-3, FL-4, & FL-5 by December 31, 2007 if a flare gas recovery system is not installed or by December 31, 2008 if a flare gas recovery system is installed.

27. Per Valero Refining Texas L.P.'s § 114 Consent Decree (Civil Action No. SA-05-CA-0569), the permit holder shall accept applicability and comply with the applicable requirements of 40 CFR Part 60, Subpart J for B-18, B-26, B-27, B-28, H-13-1401, H-13-1421, H-13-1451, H-13-1480, H-15, H-16, H-17, H-18, H-19, H-20, H-21, H-22, H-23, H-27, H-29, H-31, H-32, H-34, H-35, H-44, H-45, H-46, H-50, and H-60 by December 31, 2007 and for H-28, H-57, and H-58 by December 31, 2010.

28. Per Valero Refining Texas L.P.'s § 114 Consent Decree (Civil Action No. SA-05-CA-0569), the permit holder shall comply with NOx concentration limits for the FCCU scrubber G-001 of no greater than 20 ppmvd, measured as a 365-day rolling average and 40 ppmvd, measured as a 7-day rolling average, both at 0% O2.

29. Per Valero Refining Texas L.P.'s § 114 Consent Decree (Civil Action No. SA-05-CA-0569), the permit holder shall comply with SO2 concentration limits for the FCCU scrubber G-001 of 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% O2.

Additional Monitoring Requirements

30. Unless otherwise specified, the permit holder shall comply with the compliance assurance monitoring requirements as specified in the attached "CAM Summary" upon issuance of the permit. In addition, the permit holder shall comply with the following:

A. The permit holder shall comply with the terms and conditions contained in 30 TAC § 122.147 (General Terms and Conditions for Compliance Assurance Monitoring).

B. The permit holder shall report, consistent with the averaging time identified in the "CAM Summary," deviations as defined by the deviation limit in the "CAM Summary." Any monitoring data below a minimum limit or above a maximum limit, that is collected in accordance with the requirements specified in 40 CFR § 64.7(c), shall be reported as a deviation. Deviations shall be reported according to 30 TAC § 122.145 (Reporting Terms and Conditions).

C. The permit holder may elect to collect monitoring data on a more frequent basis and average the data, consistent with the averaging time specified in the "CAM Summary," for purposes of determining whether a deviation has occurred. However, the additional data points must be collected on a regular basis. In no event shall data be collected and used in particular instances in order to avoid reporting deviations. All monitoring data shall be collected in accordance with the requirements specified in 40 CFR § 64.7(c).

D. The permit holder shall operate the monitoring, identified in the attached "CAM Summary," in accordance with the provisions of 40 CFR § 64.7.

E. The permit holder shall comply with either of the following requirements for any particulate matter capture system associated with the control device subject to CAM. If the results of the following inspections indicate that the capture system is not working properly, the permit holder shall promptly take necessary corrective action:

(i) Once per year the permit holder shall inspect any fan for proper operation and inspect the capture system used in compliance of CAM for cracks, holes, tears, and other defects; or

(ii) Once per year, the permit holder shall inspect for fugitive emissions escaping from the capture system in compliance of CAM by performing a visible emissions observation for a period of at least six minutes in accordance with 40 CFR Part 60, Appendix A, Test Method 22.

F. The permit holder shall comply with the requirements of 40 CFR §70.6(a)(3)(ii)(A) and 30 TAC §122.144(1)(A)-(F) for documentation of all required inspections.

31. The permit holder shall comply with the periodic monitoring requirements as specified in the attached "Periodic Monitoring Summary" upon issuance of the permit. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable,