Shawn Lee
HSE/OE Manager, Richmond Refinery

TV Tracking #: 514

1. ☐ RECEIVED IN ENFORCEMENT: 08/02/2022

July 29, 2022

Mr. Jeff Gove
Director of Compliance and Enforcement
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
Attn: Title V Reports

Six-month Deviation Summary and Six-month Monitoring Report Submittal by Chevron Richmond Refinery (Plant #0010) For the Period of January 1, 2022 to June 30, 2022

Dear Mr. Gove:

Attached are the Chevron Six-month Deviation Summary Report, and the Six-month Monitoring Report for January through June 2022, which meets the requirements of the Title V Permit Standard Condition I. F. and 40 CFR 70.6 as described in the BAAQMD correspondence from Steve Hill to Jim Whiteside dated January 8, 2004.

For questions, please contact Mrs. Ashley Demcsak at (510) 242-4405.

Sincerely,

Ashley Demcsak for

Shawn Lee

Attachment

2022 AUG -2 AM 8:58

Health, Environment & Safety
Chevron Products Company
P.O Box 1272
Richmond, CA 94802 – 0272
Tel 510 242 1400
Fax 510 242 5353
ShawnLee@chevron.com

TV #514

BAAQMD Title V Permit
6 Month Deviation Summary Report

From 01/01/2022 *to* 06/30/2022

Chevron Richmond Refinery
A0010

Facility Address:		Mailing Address:	
	841 Chevron Way		PO Box 1272
City:	Richmond	City:	Richmond
State:	CA	State:	CA
Zip Code:	94801	Zip Code:	94802-0272

Contact: Jason Brown Title: Air Compliance Technician Phone: (510) 242-3485

Event Started: 6/29/2022 - 12:45 AM Stopped: 6/29/2022 - 1:30 AM ☐ Ongoing Event Discovered On: 6/29/2022	Report ID: 7411 Source Number: Abatement Device:	May have resulted in a violation of: Permit: PC #18656 Parts 3 and 12 (formerly part 5) BAAQMD: Other: Refinery Sector Rule 40 CFR 63 Subpart CC (63.670(e))	

Event Description: On June 29, 2022, when regulated material was routed to the flare for greater than 15 minutes the average net heating value of the combustion zone (RSR BTU) at the D&R Flare (6015) was less than 270 BTU/SCF in a 15-minute block from 00:45 hours through 01:30 hours.

Probable Cause: Operations routed the steam flow to the relief system to minimize visible emissions, which also causes the flare net heating value (NHV) of the flare combustion zone to decrease below the 270 BTU/SCF limit. Additionally, many D&R process units were shut down for ongoing maintenance resulting in an extremely low vent gas composition. When the NHV drops below the 270 BTU/SCF, Operations is instructed to reduce steam to the flare header to assist with raising the BTU. If the BTU/SCF requirement still cannot be met, then Operations is instructed to increase the assist natural gas flow to the flare. Unfortunately, in this instance, operations did not increase natural gas flow to the flare to meet the 270 BTU/SCF requirement.

Corrective actions or preventative steps taken: As an immediate corrective action, HSE communicated with Operations to reinforce the flare compliance requirements. A flare operations computer-based training has been developed and rolled out for completion by Operations personnel in areas that operate flares to improve understanding of all flare requirements, including NHV. Lastly, HSE has provided in person training to operations to ensure flare training material is understood.

Event Started: 6/23/2022 - 9:00 AM Stopped: 6/23/2022 - 12:00 PM ☐ Ongoing Event Discovered On: 6/24/2022	Report ID: 7402 Source Number: S4229 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Reg. 9-1-307 Other: 40 CFR Part 60, Subpart J	

Event Description: On June 23, 2022, the SRU 3 Train (S4229) exceeded the 1-hour average SO2 limit of 250 ppm corrected to 0% O2 from the 09:00 clock hour through the 11:00 clock hour.

Probable Cause: On June 23, 2022 the SRU 3 Train experienced variations in its acid gas feed composition due to an upstream process plant upset. The variation in hydrocarbon in the acid gas feed composition led to the decreased conversion of SO2 in the train due to the lack of air available to maintain proper H2S/SO2 ratios.

Corrective actions or preventative steps taken: Operations responded by routing sour gas feed from the SRU to the H2S relief scrubber, and per procedure, increased caustic solution flow to the SO2 absorbers and increased excess air to the front-end of the train to lower stack SO2 emissions.

Event Started: 6/22/2022 - 7:51 PM Stopped: 6/23/2022 - 3:12 AM ☐ Ongoing Event Discovered On: 6/23/2022	Report ID: 7401 Source Number: S4228 Abatement Device:	May have resulted in a violation of: Permit: PC #24136 Section 81 BAAQMD: Other:

Event Description: On June 22, 2022 the SRU 2 Train thermal oxidizer operated below the minimum temperature limit from the 19:51 clock hour to the 03:12 clock hour on June 23, 2022.

Probable Cause: On June 18, 2022, acid gas feed was pulled from the SRU 2 train as part of planned maintenance activities. The SRU 2 Train (S-4228) thermal oxidizer operated below the permitted minimum temperature requirement while the hot strip/passivation/shutdown procedures were performed. Per procedures, Operations conducted the hot strip/passivation/shutdown procedure on SRU 2 Train displacing any possible plugging contaminants. During the process of conducting shutdown operations, the thermal oxidizer flame temperature was lowered resulting in the thermal oxidizer operating below the minimum temperature requirement.

Corrective actions or preventative steps taken: The Refinery has applied for a revision to Permit Condition 24136, Parts 81, 82, 83, 84, 87, 88, 92 and 95 to propose that the operation of the thermal oxidizer at the temperature limit apply only when acid gas is being fed to the unit. The application was submitted to the Air District on October 25, 2019 and has been assigned application number 30221. An updated application was submitted on June 14, 2020.

Event Started: 6/23/2022 Stopped: . Discovered On: 6/23/2022	Report ID: 7424 Source Number: Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Reg 2, Rule 1, Section 302 Other:

✓ Ongoing Event

Event Description: On June 23, 2022, it was discovered that two PERP permitted portable diesel engines were on site for greater than 12 months. A Permit to Operate application #31795 has been submitted. Title V Update: The 10-day deviation report was submitted outside of the required reporting timeframe.

Probable Cause: Due to unanticipated construction delays of rebuilt tank, T-2651, two temporary diesel engine driven pumps were needed longer than 12 months. The pumps circulate liquid in temporary tanks to prevent solidification. Ordinarily T-2651 mixer prevents solidification.

Corrective actions or preventative steps taken: A permit application was submitted to BAAQMD for the pumps on June 15, 2022. BAAQMD issuance of the permit will end the deviation.

Event Started: 6/17/2022 - 2:59 PM Stopped: 6/17/2022 - 3:49 PM ☐ Ongoing Event Discovered On: 6/20/2022	Report ID: 7396 Source Number: S4285 Abatement Device:	May have resulted in a violation of: Permit: 11066 Part 7 (A5) BAAQMD: Other:

Event Description: On June 17, 2022, the FCC TR sets tripped offline at 14:59 hours. The FCC TR Sets were reenergized on June 17, 2022 at 15:49 hours.

Probable Cause: On June 17, 2022, the FCC TR sets tripped offline at 14:59 hours due to a process upset. The Transformer Rectifier (TR) sets at the electrostatic precipitator (ESP) were de-energized by the safety instrument systems per design during the upset. The de-energization of the ESP is done to ensure that there is no hydrocarbon carryover into the ESP that could potentially ignite and result in a process safety event.

Corrective actions or preventative steps taken: Once the FCC unit was stabilized the ESP and TR sets were re-energized per procedure. The Refinery has applied for a revision to Permit Condition 11066, Part 7 (A5). The application was submitted to the Air District on September 25, 2020. There are no outstanding requests from the Air District on this permit application. Consistent with that permit application, the Refinery is operating the TR sets and ESP during shutdown in a manner that is required to ensure process safety.

Event Started: 6/18/2022 - 7:00 PM Stopped: 6/23/2022 - 4:00 AM ☐ Ongoing Event Discovered On: 6/20/2022	Report ID: 7399 Source Number: S4228 Abatement Device:	May have resulted in a violation of: Permit: PC# 24136, Part 84 BAAQMD: Other:

Event Description: On June 18, 2022, the SRU Train 2 exceeded its 3-hour average NOx corrected to 0% O2 limit from the 19:00 clock hour. The deviation is still ongoing as the SRU2 Train continues to operate above the permit limit. Title V 10-day Update: SRU 2 Train is shutdown for maintenance activities.

Probable Cause: On June 18, 2022, there was no acid gas feed going to the SRU 2 train. Per procedure, Operations introduced natural gas and completed a hot strip and regeneration before shutting down 2SRU for maintenance work. The increased NOx was due to natural gas firing while following the hot strip and shutdown procedure. During this process, Operations continued work to minimize NOx by manipulating the secondary air registers on the thermal oxidizer and by minimizing thermal oxidizer temperature.

Corrective actions or preventative steps taken: While following the hot strip/shutdown procedure, Operations worked to minimize the NOx emissions by manipulating the secondary air registers on the thermal oxidizer and by minimizing thermal oxidizer temperature during the shutdown period. The Refinery has applied for a revision to Permit Condition 24136, Parts 81, 82, 83, 84, 87, 88, 92 and 95 to propose exemption of the NOx limit during shutdown periods to safely remove sulfur and pyrophoric materials from the SRU trains. The application was submitted to the Air District on October 25, 2019 and has been assigned application number 30221. An updated application was submitted on June 14, 2020.

Event Started: 6/18/2022 - 9:20 AM Stopped: 6/18/2022 - 10:07 AM ☐ Ongoing Event Discovered On: 6/20/2022	Report ID: 7397 Source Number: S4228 Abatement Device:	May have resulted in a violation of: Permit: PC#24136 Section(s) #83 & #88 BAAQMD: Other:

Event Description: On June 18, 2022 at 09:20 hours the (S-4228) SRU Train #2 WESP was deenergized prior to pulling Acid Gas Feed from the plant on June 18, 2022 at 10:07 hours. Title V 10-day Update: SRU 2 Train is shutdown for maintenance activities.

Probable Cause: While shutting down SRU 2 train to perform maintenance activities per procedure, Operations followed process safety best practice and deenergized the WESP prior to pulling acid gas feed to prevent potentially unsafe conditions. Operations deenergized the 2SRU WESP on June 18 at 09:20 hours and the acid gas feed was pulled on June 18 at 10:07 hours.

Corrective actions or preventative steps taken: The Refinery has applied for a revision to Permit Condition 24136, Parts 81, 82, 83, 84, 87, 88, 92 and 95 to include language for safe WESP operation during SRU shutdown. The application was submitted to the Air District on October 25, 2019 and has been assigned application number 30221. An updated application was submitted on June 14, 2020.

Event Started: 6/17/2022 - 3:00 PM Stopped: 6/17/2022 - 4:00 PM ☐ Ongoing Event Discovered On: 6/20/2022	Report ID: 7395 Source Number: S4285 Abatement Device:	May have resulted in a violation of: Permit: PC# 11066 Part 3C BAAQMD: Other:

Event Description: On June 17, 2022 the F-300 stack opacity exceeded its 30% 6-minute average limit during the 15:00 clock hour.

Probable Cause: On June 17, 2022, the F-300 stack opacity exceeded its 30% 6-minute average limit during the 15:00 clock hour due to a process upset. The Transformer Rectifier (TR) sets at the electrostatic precipitator (ESP) were de-energized by the safety instrument systems per design during the power dip. The de-energization of the ESP during is done to ensure that there is no hydrocarbon carryover into the ESP that could potentially ignite and result in a process safety event.

Corrective actions or preventative steps taken: Once the FCC unit stabilized after the process upset, the ESP was re-energized per procedure and opacity was subsequently brought back within limits.

Event Started: 6/17/2022 - 12:00 AM Stopped: 6/19/2022 - 12:00 AM ☐ Ongoing Event Discovered On: 6/19/2022	Report ID: 7394 Source Number: V870 Abatement Device:	May have resulted in a violation of: Permit: PC 12842 part 98(c)(d) BAAQMD: Other:	

Event Description: The V-870 Fuel Gas Drum exceeded its 100 ppm Calendar Day total sulfur limit from June, 17 2022 through June, 18 2022 with an actual excess of 113.28 ppm. Also, V-870 exceeded its 100 ppm Calendar Day total sulfur limit from June, 18 2022 through June, 19 2022 with an actual excess of 111.53 ppm. Also, V-870 exceeded its 1-hour average total sulfur limit from June 17, 2022 16:00 clock hour through June 18, 2022 01:00 clock hour with an actual excess of 264.82 ppm.

Probable Cause: On June 17, 2022, the bugas produced from D&R was being fed to the YDIB and TKN GRU process units. As bugas production begin to decline, as a result of shutting down D&R process units, the YDIB unit was shutdown. To manage the bugas inventory level in T-3145, bugas burn was increased at V-870. As a result, sulfur limits were exceeded at V-870.

Corrective actions or preventative steps taken: To assist with lowering bugas burn at V-870, the refinery began burning bugas at V-475. Additionally, bugas feed was maximized at TKN GRU and the vapor pressure was increased to allow for bugas to be routed into gasoline streams. This directionally lowers bugas build in T-3145 and the need to burn at fuel gas drums.

Event Started: 6/15/2022 - 9:00 PM Stopped: 6/15/2022 - 10:00 PM ☐ Ongoing Event Discovered On: 6/16/2022	Report ID: 7389 Source Number: S4471 Abatement Device:	May have resulted in a violation of: Permit: PC#24136 Part 14a BAAQMD: Other:	

Event Description: On June 15, 2022, F-1100 exceeded its 1-hour average NOx corrected to 3% O2 limit during the 21:00-clock hour.

Probable Cause: Hydrogen Plant F-1100 experienced an upset due to a set of PSA1 (pressure swing adsorption) beds tripping offline. The PSA1 bed trip resulted in slightly elevated NOx of 5.1 ppm 1-hour average NOx corrected to 3% O2.

Corrective actions or preventative steps taken: Upon discovery, Operations immediately increased ammonia flow while stabilizing the Hydrogen Plant. The F-1100 NOx was restored to compliance limits within the next hour. Additionally, Operations and Maintenance personnel completed troubleshooting and returned the PSA1 bed to service.

Event Started: 6/13/2022 - 4:00 PM Stopped: 6/13/2022 - 5:00 PM ☐ Ongoing Event Discovered On: 6/14/2022	Report ID: 7385 Source Number: S4471 Abatement Device:	May have resulted in a violation of: Permit: PC #24136 Part 14a BAAQMD: Other:	

Event Description: On June 13, 2022, F-1100 exceeded its 1-hour average NOx corrected to 3% O2 limit during the 16:00-clock hour.

Probable Cause: Hydrogen Plant F-1100 experienced an upset due to a set of PSA1 (pressure swing adsorption) beds tripping offline. The PSA1 bed trip resulted in elevated NOx levels.

Corrective actions or preventative steps taken: Upon discovery, Operations immediately increased ammonia flow while stabilizing the Hydrogen Plant. The F-1100 NOx was restored to compliance limits within the next hour.

Event Started: 6/13/2022 Stopped: 6/17/2022 ☐ Ongoing Event Discovered On: 6/13/2022	Report ID: 7400 Source Number: S4430 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD PTO #27038 BAAQMD: Other:	

Event Description: (THIS DEVIATION IS FILED IN ABUNDANCE OF CAUTION) On June 13, 2022, the S-4430 (10788436) Prime Diesel Engine Generator #2 (Internal Combustion Engine, Cummins, model QSB7-G9, 314 bhp) was removed from site for maintenance. BAAQMD Permit To Operate, Condition #27038, does not currently have any exemption for maintenance and this report is being submitted in an abundance of caution to ensure that all reporting requirements are met.

Probable Cause: On June 13, 2022, the Bay Area Air Quality Management District (BAAQMD)-permitted generator (S-4430) Prime Diesel Engine Generator # 2 (EIN 10788436) malfunctioned and was removed from site for repairs. It was replaced with a generator that meets the CARB emission standard of the permitted generator to continue servicing portable trailers, which are currently in use by the Refinery. S-4430, was permitted by the Air District in July of 2019, as a stationary generator servicing the maintenance IMPACT team portable trailers in the Refinery Maintenance North Yard Ranch Area. S-4430 does not currently have a provision for preventative maintenance or repairs as was included for permitted stationary generator S-4431, which was permitted in March of 2020 and is in similar service and location as S-4430.

Corrective actions or preventative steps taken: The Refinery coordinated with the engine supplier to return EIN 10788436 to service as soon as possible. EIN 10788436 was returned to service on June 17, 2022. The temporary replacement for EIN 10788436 is equivalent to the CARB emission standard of EIN 10788436. The Refinery submitted a permit application for the S-4430 maintenance provision to BAAQMD on October 27, 2020. The proposed provision would allow the Refinery to use a temporary PERP generator (i.e. engine) as a temporary replacement if the Air District-permitted generator required maintenance and/or repairs.

Event Started: 6/12/2022 - 6:11 PM Stopped: 6/12/2022 - 6:23 PM ☐ Ongoing Event Discovered On: 6/12/2022	Report ID: 7398 Source Number: S6010 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Other: 40 CFR 60 Subpart J (60.104(a)(1))

Event Description: On June 12, 2022, flaring occurred at the LSFO Flare (S-6010). The flaring was not due to a startup, shutdown, or malfunction.

Probable Cause: Increased pressure in C-1190 from heat of the day conditions contributed to flaring. Operations quickly responded by reducing Crude Unit feed rate and increasing the loading on the relief compressors to alleviate heat of day conditions.

Corrective actions or preventative steps taken: As an immediate corrective action, Operations reduced feed rate to the crude unit, which reduced pressure and stopped flaring.

Event Started: 6/8/2022 - 1:07 PM Stopped: 6/8/2022 - 1:12 PM ☐ Ongoing Event Discovered On: 6/8/2022	Report ID: 7390 Source Number: S6010 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Other: 40 CFR 60 Subpart J (60.104(a)(1))

Event Description: On June 8, 2022, flaring occurred at the LSFO Flare (S-6010). The flaring was not due to a startup, shutdown, or malfunction.

Probable Cause: The H2 plant blowing down liquid to V-3900, resulting in increased pressure to the flare gas relief system. Operations immediately loaded the flare gas compressors to alleviate the pressure on the relief gas system. The water seal breech lasted for less than 5 minutes and did not result is any visual emissions.

Corrective actions or preventative steps taken: Operations loaded the flare gas compressors to stop the flaring. H2 plant operations supervisors held discussions with H2 plant operations crews on the importance of coordinating with other affected operating units when blowing down vessels.

Event Started:	6/7/2022 - 4:49 PM
Stopped:	6/7/2022 - 5:52 PM ☐ Ongoing Event
Discovered On:	6/7/2022

Report ID:	7391
Source Number:	S6039
Abatement Device:	

May have resulted in a violation of:

Permit:	
BAAQMD:	
Other:	40 CFR 60 Subpart J (60.104(a)(1))

Event Description: On June 7, 2022, flaring occurred at the FCC (S-6016), Alky (S-6019), NISO flare (S-6013), and RLOP (S-6039) flares. The flaring was not due to a startup, shutdown, or malfunction.

Probable Cause: During maintenance on the 83HV373 air inflow valve in RLOP, Operations blocked in air inflow as needed per procedure to perform maintenance but inadvertently did not re-open the air inflow valve prior to releasing the equipment back to normal use. As the air inflow valve typically requires air flow to stay closed, the blocked air inflow led to the dump valve opening and flow being routed to relief, which resulted in flaring.

Corrective actions or preventative steps taken: Upon discovery, Operations reopened the air inflow valve , which stopped the flow of Hydrogen to relief and the flaring event stopped. As a corrective action, Operations management provided training to Operations crews on best practices for maintaining instrument air control valves and verifications before isolation .

Event Started: 5/31/2022	Report ID: 7388	May have resulted in a violation of:
Stopped: 6/13/2022 ☐ Ongoing Event	Source Number: S4148	Permit:
Discovered On: 6/7/2022	Abatement Device:	BAAQMD: BAAQMD Reg 8, Rule 8, Section 302.6
		Other:

Event Description: On June 7, 2022, the BAAQMD Inspector Chris Coelho issued the Chevron Richmond Refinery Notice of Violation A60649 alleging violation of BAAQMD Regulation 8, Rule 8, Section 302.6 on the basis of "Leaks in #13 Separator that are not vapor tight." The Refinery is in the process of implementing corrective actions as stated in the NOV response letter submitted on June 16, 2022.

Probable Cause: On May 24, 2022, Air District Inspector, Chris Coelho conducted VOC monitoring at #13 Separator (S-4148). While inspecting the separator cover, the Inspector found VOC leaks above BAAQMD Regulation 8 Rule 8 leak definition. All leak sources identified were repaired by Refinery maintenance within 24 hours. On May 31, 2022, Chris Coelho returned to conduct a follow up VOC inspection on #13 Separator and found additional VOC leaks. After each inspection on May 24 and May 31, Refinery maintenance conducted immediate repairs and the Refinery inspection group re-inspected within 24 hours of initial finding to confirm repair. A reinspection conducted within 24 hours of source discovery confirmed that VOC levels were below the vapor tight definition stated in Regulation 8 Rule 8 Section 204. Despite the Air District Inspector finding new leaks on each visit, the Refinery continues to adhere to Regulation 8 Rule 8 Section 302.6 by minimizing found leaks within 24 hours and repairing within 7 days.

Corrective actions or preventative steps taken: Immediately following the inspection, the refinery maintenance repaired the VOC leaks and the Refinery inspection group re-inspected within 24 hours of initial finding to confirm repair. Additionally, the refinery resealed all the separator lids to ensure separator remined vapor tight. The Refinery conducts semi-annual inspections of the separators and completes minimization and/or repairs within the timeframes specified in Regulation 8 Rule 8 Section 302.6. The use of a FLIR camera has been added to the semi-annual inspections to help identify leak sources. The BAAQMD Inspector returned on July 20th, 2022, to inspect the separator and found no leaks.

Event Started: 5/26/2022 - 4:00 AM Stopped: 5/26/2022 - 4:04 AM ☐ Ongoing Event Discovered On: 5/26/2022	Report ID: 7372 Source Number: S6012 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Other: 40 CFR 60 Subpart J (60.104(a)(1))

Event Description: On May 25, 2022, flaring occurred at the SISO (S-6012), FCC (S-6016), Alky (S-6019), NISO flares (S-6013). The flaring was not due to a startup, shutdown, or malfunction.

Probable Cause: Water carried over from E-440 steam generator, which caused a slowdown of recycle gas compressor K-400 at the TKC. The slowdown resulted in a trip of the feed valve closed and the furnace to go to minimum fire. Per emergency procedure, R-420/421 module was de-pressured to relief, exceeding the flare gas recovery capacity and resulting in the visible flaring. The water carryover from E-440 was potentially due to an issue with the boiler feed water (BFW) softener regeneration sending brine water to the BFW system.

Corrective actions or preventative steps taken: Once K-400 speed returned to normal, Operations stopped de-pressuring the module to relief and the flaring ceased. Process Engineering is conducting a review of the water carryover from E-440 to identify process improvement opportunities to aid in the prevention of future reoccurrence.

Event Started: 5/23/2022 - 11:00 AM Stopped: 5/25/2022 - 10:00 AM ☐ Ongoing Event Discovered On: 5/25/2022	Report ID: 7366 Source Number: S4227 Abatement Device:	May have resulted in a violation of: Permit: PC#24136, Part 84 BAAQMD: Other:

Event Description: On May 23, 2022, SRU Train 1 exceeded its 3-hour average NOx, corrected to 0% O2 limit, from the 11:00 clock hour through the 21:00 clock hour. Also, SRU Train 1 exceeded its 3-hour average NOx, corrected to 0% O2 limit, on May 24, 2022 , from the 07:00 clock hour and is currently ongoing. Title V 10-day Update: On May 24, 2022, SRU Train 1 exceeded its 3-hour average NOx, corrected to 0% O2 limit from the 07:00 clock hour through the 09:00 clock hour.

Probable Cause: On May 22, 2022, the SRU 1 Train shutdown following an upstream process plant upset and exceeded its 3-hour average NOx corrected to 0% O2 limit on May 23, 2022 when steam rates to the main reaction furnace were restricted due to a plugged nozzle on the flame scanner.

Corrective actions or preventative steps taken: The flame scanner nozzle was cleared allowing optimized steam rates to the main reaction furnace that decreased NOx emissions on May 24, 2022. The Refinery has applied for a revision to Permit Condition 24136, Parts 81, 82, 83, 84, 87, 88, 92 and 95 to propose exemption of the NOx limit during shutdown periods from the SRU trains. The application was submitted to the Air District on October 25, 2019 and has been assigned application number 30221. An updated application was submitted on June 14, 2020.

Event Started: 5/22/2022 - 5:41 PM	Report ID: 7363	May have resulted in a violation of:
Stopped: 5/22/2022 - 6:18 PM ☐ Ongoing Event	Source Number: S4227	Permit: PC#24136 Section(s) #83 & #88
Discovered On: 5/23/2022	Abatement Device:	BAAQMD:
		Other:

Event Description: On May 22, 2022 at 17:41 hours the 1SRU Train WESP was deenergized prior to pulling Acid Gas Feed from the plant on May 22, 2022 at 18:18 hours.

Probable Cause: While shutting down SRU 1 train due to an upstream process plant upset, Operations followed process safety best practice and deenergized the WESP prior to pulling acid gas feed to prevent potentially unsafe conditions. Operations deenergized the 1SRU WESP on May 22 at 1741 hours and the acid gas feed was pulled on May 22 at 1818 hours.

Corrective actions or preventative steps taken: The Refinery has applied for a revision to Permit Condition 24136, Parts 81, 82, 83, 84, 87, 88, 92 and 95 to include language for safe WESP operation during SRU shutdown. The application was submitted to the Air District on October 25, 2019 and has been assigned application number 30221. An updated application was submitted on June 14, 2020.

Event Started: 5/22/2022	Report ID: 7371	May have resulted in a violation of:
Stopped: 5/23/2022 ☐ Ongoing Event	Source Number: S6021	Permit:
Discovered On: 5/23/2022	Abatement Device:	BAAQMD: BAAQMD Reg 12-12-405
		Other:

Event Description: On May 23, 2022, the Refinery submitted a late notification of flaring to BAAQMD for flaring on May 22, 2022 at the H2 Flare (S-6021). It was discovered on May 23, 2022 that the volume of vent gas flared exceeded 500,000 standard cubic feet at the H2 Flare (S-6021) on May 22, 2022.

Probable Cause: The late notification for 500,000 standard cubic feet of vent gas flared as required by BAAQMD Regulation 12-12-405 was due to miscommunication between Refinery Operations personnel resulting in the notification not being timely submitted.

Corrective actions or preventative steps taken: Upon discovery, the notification was submitted to BAAQMD on May 23, 2022. HSE reviewed the requirement with Refinery Operations personnel to submit a notification as soon as possible to BAAQMD when the volume of vent gas flared exceeds 500,000 standard cubic feet.

Event Started: 5/21/2022 - 7:49 AM Stopped: 5/21/2022 - 7:50 AM ☐ Ongoing Event Discovered On: 5/21/2022	Report ID: 7367 Source Number: S6010 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Other: 40 CFR 60 Subpart J (60.104(a)(1))	

Event Description: On May 21, 2022, flaring occurred at the LSFO Flare (S-6010). The flaring was not due to a startup, shutdown, or malfunction.

Probable Cause: The flaring occurred due to the blowdown of second stage suction bottle V-953 at K-900, which caused a sudden increase in relief flow that resulted in flaring at the LSFO Flare for one minute.

Corrective actions or preventative steps taken: Flaring ceased as the blowdown activity slowed down. As a corrective action, Operations management reviewed with operating crews to open the valve more slowly during blowdown activity to aid in the prevention of future reoccurrence.

Event Started: 5/13/2022 - 9:00 AM Stopped: 5/13/2022 - 11:00 AM ☐ Ongoing Event Discovered On: 5/16/2022	Report ID: 7350 Source Number: S4227 Abatement Device:	May have resulted in a violation of: Permit: PC #24136 Section 81 BAAQMD: Other:	

Event Description: On May 13, 2022 the SRU 1 Train thermal oxidizer operated below the minimum temperature limit from the 09:00 clock hour through the 10:00 clock hour.

Probable Cause: On May 13, 2022 the SRU Train 1 (S-4227) thermal oxidizer operated below the permitted minimum temperature requirement due an upstream process plant startup activities that caused variations in the acid gas feed composition. Higher hydrocarbon percentage in the feed gas led to a higher H2S percentage in the tail gas and caused the thermal oxidizer temperature to increase. The increase in temperature resulted in higher NOx formation and lowered the tail gas excess O2. This resulted in a decrease of the thermal oxidizer temperature.

Corrective actions or preventative steps taken: Operations placed the valve output of the natural gas to thermal oxidizer in manual to prevent flame loss. When the hydrocarbon percentage in the feed gas decreased, Operations ensured the thermal oxidizer temperature was brought back above the minimum temperature of 1400F.

Event Started: 5/13/2022 Stopped: 5/13/2022 ☐ Ongoing Event Discovered On: 5/16/2022	Report ID: 7355 Source Number: S6016 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: BAAQMD Reg 12-11-502.3.1 Other:

Event Description: On May 16, 2022 it was discovered that the FCC flare sample was not collected per the requirements of BAAQMD Reg. 12-11-502.3.1(a).

Probable Cause: On May 13, 2022, flaring occurred at the FCC flare, and a flare sample collection at the autosampler was initiated at the required time. While the sample was taken at the correct time frame, it was rejected at the Refinery Lab due to insufficient sample available for analysis.

Corrective actions or preventative steps taken: Operations inspected the flare sample station and ensured that it was functioning properly. The flare sample station continues to undergo regularly scheduled preventative maintenance to ensure proper operation.

Event Started: 5/13/2022 - 5:00 PM Stopped: 5/13/2022 - 7:00 PM ☐ Ongoing Event Discovered On: 5/16/2022	Report ID: 7353 Source Number: S6016 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Other: Refinery Sector Rule 40 CFR 63 Subpart CC (63.670(c))

Event Description: On May 13, 2022, the FCC Flare (S-6016) exceeded the visible emissions limit of 5 minutes in any 2 consecutive hours from the 17:00 clock hour through the 19:00 clock hour.

Probable Cause: On May 13, 2022, overhead pressure on the debutanizer column (C-160) fluctuated under high ambient temperatures and C-160 exceeded the PRD set pressures and relieved to the flares. While steam was increased rapidly to the flare, it was not sufficient in fully minimizing the visible emissions.

Corrective actions or preventative steps taken: Operations reduced feed and riser temperature and stabilized pressure fluctuations by placing the debutanizer vent pressure control valve in manual operation to efficiently reduce the pressure and the flaring stopped.

Event Started: 5/13/2022 - 6:15 PM	Report ID: 7352	May have resulted in a violation of:	
Stopped: 5/13/2022 - 7:00 PM ☐ Ongoing Event	Source Number: S6016	Permit:	PC #18656 Parts 3 and 12 (formerly part 5)
Discovered On: 5/16/2022	Abatement Device:	BAAQMD:	
		Other:	Refinery Sector Rule 40 CFR 63 Subpart CC (63.670(e))

Event Description: On May 13, 2022, when regulated material was routed to the flare for greater than 15 minutes the average net heating value of the combustion zone (RSR BTU) at the FCC Flare (6016) was less than 270 BTU/SCF in a 15-minute block from 18:15 hours through 19:00 hours.

Probable Cause: Operations routed the steam flow to the relief system to minimize visible emissions, which also causes the flare net heating value (NHV) of the flare combustion zone to decrease below the 270 BTU/SCF limit. When the NHV drops below the 270 BTU/SCF, Operations is instructed to reduce steam to the flare header to assist with raising the BTU. If the BTU/SCF requirement still cannot be met, then Operations is instructed to increase the assist natural gas flow to the flare. Inadvertently, during the FCC flaring activity, the assist gas was not increased to meet the 270 BTU/SCF limit.

Corrective actions or preventative steps taken: As an immediate corrective action, HSE communicated with Operations to reinforce the flare NHV compliance requirements. In mid-May, HSE provided in-person refresher training on the flare NHV requirements to flare Operation crews.

Event Started: 5/13/2022 - 5:53 PM	Report ID: 7362	May have resulted in a violation of:	
Stopped: 5/13/2022 - 6:49 PM ☐ Ongoing Event	Source Number: S6016	Permit:	
Discovered On: 5/13/2022	Abatement Device:	BAAQMD:	
		Other:	40 CFR 60 Subpart J (60.104(a)(1))

Event Description: On May 13, 2022, flaring occurred at the FCC Flare (S-6016), Alky Flare, and NISO Flare. This deviation is filed in abundance of caution to ensure all reporting requirements are met.

Probable Cause: On May 13, 2022, overhead pressure on the debutanizer column (C-160) fluctuated under high ambient temperatures and C-160 exceeded the PRD set pressures and relieved to the flares.

Corrective actions or preventative steps taken: Operations reduced feed and riser temperature and stabilized pressure fluctuations by placing the debutanizer vent pressure control valve in manual operation to efficiently reduce the pressure and the flaring stopped. Maintenance inspected the debutanizer overhead pressure control valve and replaced the valve positioner.

Event Started: 5/11/2022 - 6:01 AM	Report ID: 7347	May have resulted in a violation of:	
Stopped: 5/13/2022 - 11:03 AM ☐ Ongoing Event	Source Number: S4228	Permit:	PC#24136 Section(s) #83 & #88
Discovered On: 5/12/2022	Abatement Device:	BAAQMD:	
		Other:	

Event Description: On May 11, 2022, at 06:01 hours the SRU 2 Train operated with the WESP de-energized. The WESP was re-energized on May 11, 2022 at 13:19 hours. Again On May 12, 2022, at 14:12 hours the SRU 2 Train operated with the WESP de-energized. The WESP was re-energized on May 12, 2022 at 15:52 hours. Also, on May 13, 2022, at 09:23 hours the SRU 2 Train operated with the WESP de-energized. The WESP was re-energized on May 13, 2022 at 11:03 hours.

Probable Cause: On May 11, May 12, and on May 13, 2022, the SRU 2 Train experienced variations in acid gas feed composition. The higher hydrocarbon percentage in the acid gas feed from upstream process plants resulted in decreased conversion of H2S to SO2 in the front end of the SRU, and an increase of H2S in the tail gas to the TGU. The increased volume of H2S consumed the excess O2 at the thermal oxidizer to convert the H2S to SO2, resulting in a potential low O2 operating scenario. Operations followed a process safety best practice by keeping the WESP offline during the potential low O2 operating scenario and ensured that the train was stable and operating safely before energizing the WESP on May 13, 2022 at 11:03 hours.

Corrective actions or preventative steps taken: Operations followed process safety best practice to aid in prevention of potentially unsafe operating conditions. Once Operations ensured that the train was stable and operating safely, the WESP was energized. Chevron has applied for a revision to Permit Condition 24136, Parts 81, 82, 83, 84, 87, 88, 92 and 95. The application was submitted to the Air District on October 25, 2019 and has been assigned application number 30221. An updated application was submitted on June 14th, 2020.

Event Started: 5/11/2022 - 8:00 AM	Report ID: 7343	May have resulted in a violation of:	
Stopped: 5/11/2022 - 9:00 AM ☐ Ongoing Event	Source Number: S4228	Permit:	
Discovered On: 5/12/2022	Abatement Device:	BAAQMD:	Reg. 9-1-307
		Other:	40 CFR Part 60, Subpart J

Event Description: On May 11, 2022, the SRU 2 Train (S4228) exceeded the 1-hour average SO2 limit of 250 ppm corrected to 0% O2 during the 08:00 clock hour.

Probable Cause: On May 11, 2022 the SRU 2 Train experienced variations in its acid gas feed composition due to an upstream process plant startup activities. The variation in hydrocarbon in the acid gas feed composition led to the decreased conversion of SO2 in the train due to the lack of air available to maintain proper H2S/SO2 ratios.

Corrective actions or preventative steps taken: Operations responded by routing sour gas feed from the SRU to the H2S relief scrubber, and per procedure, increased caustic solution flow to the SO2 absorbers and increased excess air to the front-end of the train to lower stack SO2 emissions.

Event Started: 5/11/2022 - 8:00 AM	Report ID: 7342	May have resulted in a violation of:	
Stopped: 5/11/2022 - 9:00 AM ☐ Ongoing Event	Source Number: S4227	Permit:	
Discovered On: 5/12/2022	Abatement Device:	BAAQMD: Reg. 9-1-307	
		Other: 40 CFR Part 60, Subpart J	

Event Description: On May 11, 2022, the SRU 1 Train (S4227) exceeded the 1-hour average SO2 limit of 250 ppm corrected to 0% O2 during the 08:00 clock hour.

Probable Cause: On May 11, 2022 the SRU 1 Train experienced variations in its acid gas feed composition due to an upstream process plant startup activities. The variation in hydrocarbon in the acid gas feed composition led to the decreased conversion of SO2 in the train due to the lack of air available to maintain proper H2S/SO2 ratios.

Corrective actions or preventative steps taken: Operations responded by routing sour gas feed from the SRU to the H2S relief scrubber, and per procedure, increased caustic solution flow to the SO2 absorbers and increased excess air to the front-end of the train to lower stack SO2 emissions.

Event Started: 5/11/2022 - 6:00 AM	Report ID: 7345	May have resulted in a violation of:	
Stopped: 5/11/2022 - 9:00 AM ☐ Ongoing Event	Source Number: S4228	Permit: PC #24136 Section 81	
Discovered On: 5/12/2022	Abatement Device:	BAAQMD:	
		Other:	

Event Description: On May 11, 2022 the SRU 2 Train thermal oxidizer operated below the minimum temperature limit from the 06:00 clock hour through the 08:00 clock hour.

Probable Cause: On May 11, 2022 the SRU Train 2 (S-4228) thermal oxidizer operated below the permitted minimum temperature requirement due an upstream process plant startup activities that caused variations in the acid gas feed composition. Higher hydrocarbon percentage in the feed gas led to a higher H2S percentage in the tail gas and caused the thermal oxidizer temperature to increase. The increase in temperature resulted in higher NOx formation and lowered the tail gas excess O2. This resulted in a decrease of the thermal oxidizer temperature.

Corrective actions or preventative steps taken: Operations placed the valve output of the natural gas to thermal oxidizer in manual to prevent flame loss. When the hydrocarbon percentage in the feed gas decreased, Operations ensured the thermal oxidizer temperature was brought back above the minimum temperature of 1400F.

Event Started: 5/11/2022 - 6:00 AM	Report ID: 7344	May have resulted in a violation of:	
Stopped: 5/11/2022 - 9:00 AM Ongoing Event	Source Number: S4227	Permit: PC #24136 Section 81	
Discovered On: 5/12/2022	Abatement Device:	BAAQMD:	
		Other:	

Event Description: On May 11, 2022 the SRU 1 Train thermal oxidizer operated below the minimum temperature limit from the 06:00 clock hour through the 08:00 clock hour.

Probable Cause: On May 11, 2022 the SRU Train 1 (S-4227) thermal oxidizer operated below the permitted minimum temperature requirement due an upstream process plant startup activities that caused variations in the acid gas feed composition. Higher hydrocarbon percentage in the feed gas led to a higher H2S percentage in the tail gas and caused the thermal oxidizer temperature to increase. The increase in temperature resulted in higher NOx formation and lowered the tail gas excess O2. This resulted in a decrease of the thermal oxidizer temperature.

Corrective actions or preventative steps taken: Operations placed the valve output of the natural gas to thermal oxidizer in manual to prevent flame loss. When the hydrocarbon percentage in the feed gas decreased, Operations ensured the thermal oxidizer temperature was brought back above the minimum temperature of 1400F.

Event Started: 5/11/2022 - 9:00 AM	Report ID: 7341	May have resulted in a violation of:	
Stopped: 5/11/2022 - 10:00 AM Ongoing Event	Source Number: V701	Permit: PC 24136 Part 98D	
Discovered On: 5/12/2022	Abatement Device:	BAAQMD:	
		Other:	

Event Description: On May 11, 2022, the V-701 Fuel Gas Drum exceeded its 1-hour average total sulfur limit during the 09:00 clock hour.

Probable Cause: During RLOP GRU startup, the pressure increased in the column C-1910 and caused an increase in flow and pressure at 4H2S. The process upset resulted in 4H2S routing sour gas feed to 5H2S. The sour gas feed carried significant hydrocarbon into 5H2S, resulting in a process upset. The plant upset resulted in elevated H2S in the fuel gas system, causing an exceedance on H2S at V-701.

Corrective actions or preventative steps taken: Refinery Operations routed sour gas feed from 4H2S to 5H2S and routed all remaining H2S to Emergency H2S scrubber C-840 to mitigate the upset that originated from 4H2S.

Event Started: 5/10/2022 - 6:03 PM Stopped: 5/13/2022 - 11:42 AM ☐ Ongoing Event Discovered On: 5/11/2022	Report ID: 7346 Source Number: S4227 Abatement Device:	May have resulted in a violation of: Permit: PC#24136 Section(s) #83 & #88 BAAQMD: Other:	

Event Description: On May 10, 2022, at 18:03 hours the SRU 1 Train operated with the WESP de-energized. The WESP was re-energized on May 11, 2022 at 10:07 hours. Again On May 12, 2022, at 15:28 hours the SRU 1 Train operated with the WESP de-energized. The WESP was re-energized on May 12, 2022 at 16:14 hours. Also, on May 13, 2022 at 09:23 hours the SRU 1 Train operated with the WESP de-energized. The WESP was re-energized on May 13, 2022 at 11:42 hours.

Probable Cause: On May 10 and on May 11, 2022, the SRU 1 Train WESP was deenergized per procedure to perform water washing for maintenance. On May 12 and on May 13, 2022, the SRU 1 train experienced variations in acid gas feed composition. The higher hydrocarbon percentage in the acid gas feed from upstream process plants resulted in decreased conversion of H2S to SO2 in the front end of the SRU, and an increase of H2S in the tail gas to the TGU. The increased volume of H2S consumed the excess O2 at the thermal oxidizer to convert the H2S to SO2, resulting in a potential low O2 operating scenario. Operations followed a process safety best practice by keeping the WESP offline during the potential low O2 operating scenario and ensured that the SRU 1 Train was stable and operating safely before energizing the WESP on May 13, 2022 at 11:42 hours.

Corrective actions or preventative steps taken: Operations followed process safety best practice to aid in prevention of potentially unsafe operating conditions. Once Operations ensured that the SRU 2 Train was stable and operating safely, the WESP was energized. Chevron has applied for a revision to Permit Condition 24136, Parts 81, 82, 83, 84, 87, 88, 92 and 95. The application was submitted to the Air District on October 25, 2019 and has been assigned application number 30221. An updated application was submitted on June 14th, 2020.

Event Started: 5/9/2022 - 8:56 AM Stopped: 5/9/2022 - 6:03 PM ☐ Ongoing Event Discovered On: 5/10/2022	Report ID: 7338 Source Number: S4228 Abatement Device: SRU #2 Train WESP Temperature	May have resulted in a violation of: Permit: PC#24136 Section(s) #83 & #88 BAAQMD: Other:	

Event Description: On May 09, 2022 at 08:56 hours, the SRU 2 Train operated with the WESP de-energized. The WESP was re-energized on May 09, 2022 at 18:03 hours.

Probable Cause: On May 9, 2022, Operations received an alarm on the SRU 2 Train WESP and discovered that there was no power to the WESP. Maintenance responded to perform troubleshooting which revealed a burnt wire in the WESP control cabinet.

Corrective actions or preventative steps taken: The burnt wire and an electrical switch were replaced. In an aid to prevent future recurrence, preventative maintenance is being evaluated to include verification of the WESP control cabinets.

Event Started: 5/6/2022 - 1:00 AM	Report ID: 7336	May have resulted in a violation of:	
Stopped: 5/6/2022 - 4:00 AM ☐ Ongoing Event	Source Number: S4472	Permit: PC 24136	
Discovered On: 5/9/2022	Abatement Device:	BAAQMD:	
		Other:	

Event Description: On May 06, 2022, F-2100 exceeded the 1-hour average NOx limit of 5 ppm corrected to 3% O2 starting from the 01:00-clock hour through the 03:00-clock hour due to loss of NH3 injection.

Probable Cause: The 120V power supply for the ammonia skid to the F-2100 SCR (selective catalytic reduction) failed. The loss of power for the ammonia skid caused the NH3 injection to the SCR to stop. The purpose of the SCR is to reduce NOx by injecting ammonia to the catalyst bed. When the ammonia skid to the F-2100 SCR lost its power supply, this caused temporary loss of ammonia to the F-2100 SCR and consequently resulted in an increase in NOx.

Corrective actions or preventative steps taken: As an immediate corrective action, Operations worked quickly to re-establish ammonia injection to F-2100, which reduced NOx emissions. As a permanent fix, Refinery maintenance personnel replaced the 120V power supply for the ammonia skid to the F-2100 SCR.

Event Started: 4/24/2022 - 2:00 PM	Report ID: 7328	May have resulted in a violation of:	
Stopped: 4/24/2022 - 4:30 PM ☐ Ongoing Event	Source Number: S6010	Permit: PC #18656 Parts 3 and 12 (formerly part 5)	
Discovered On: 4/25/2022	Abatement Device:	BAAQMD:	
		Other:	

Event Description: On April 24, 2022, when regulated material was routed to the flare for greater than 15 minutes the average net heating value of the combustion zone (RSR BTU) at the LSFO Flare (6010) was less than 270 BTU/SCF in a 15-minute block, first, during 14:00 hours and then, from 15:00 hours through 16:30 hours.

Probable Cause: Operations routed the steam flow to the relief system to minimize visible emissions, which also causes the flare net heating value (NHV) of the flare combustion zone to decrease below the 270 BTU/SCF limit. When the NHV drops below the 270 BTU/SCF, Operations is instructed to reduce steam to the flare header to assist with raising the BTU. If the BTU/SCF requirement still cannot be met, then Operations is instructed to increase the assist natural gas flow to the flare. Inadvertently, during the LSFO flaring activity, the assist gas was not increased to meet the 270 BTU/SCF limit.

Corrective actions or preventative steps taken: As an immediate corrective action, HSE communicated with Operations to reinforce the flare NHV compliance requirements. In mid-May, HSE provided in-person refresher training on the flare NHV requirements to flare Operation crews.

Event Started: 4/23/2022 - 5:00 PM Stopped: 4/23/2022 - 6:00 PM ☐ Ongoing Event Discovered On: 4/25/2022	Report ID: 7327 Source Number: S6010 Abatement Device:	May have resulted in a violation of: Permit: PC #18656 Parts 3 and 12 (formerly part 5) BAAQMD: Other:	

Event Description: On April 23, 2022, when regulated material was routed to the flare for greater than 15 minutes the average net heating value of the combustion zone (RSR BTU) at the LSFO Flare (6010) was less than 270 BTU/SCF in a 15-minute block from 17:00 hours through 18:00 hours.

Probable Cause: Operations routed the steam flow to the relief system to minimize visible emissions, which also causes the flare net heating value (NHV) of the flare combustion zone to decrease below the 270 BTU/SCF limit. When the NHV drops below the 270 BTU/SCF, Operations is instructed to reduce steam to the flare header to assist with raising the BTU. If the BTU/SCF requirement still cannot be met, then Operations is instructed to increase the assist natural gas flow to the flare. Inadvertently, during the LSFO flaring activity, the assist gas was not increased to meet the 270 BTU/SCF limit.

Corrective actions or preventative steps taken: As an immediate corrective action, HSE communicated with Operations to reinforce the flare NHV compliance requirements. In mid-May, HSE provided in-person refresher training on the flare NHV requirements to flare Operation crews.

Event Started: 4/24/2022 - 11:34 AM Stopped: 4/24/2022 - 4:21 PM ☐ Ongoing Event Discovered On: 4/24/2022	Report ID: 7332 Source Number: S6010 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Other: 40 CFR 60 Subpart J (60.104(a)(1))	

Event Description: On April 24, 2022, flaring occurred at the LSFO Flare (S-6010). The flaring was not due to a startup, shutdown, or malfunction.

Probable Cause: Operations was proactively managing reduced flare gas recovery capacity while two flare gas recovery compressors were out of service due to ongoing maintenance. Increased pressure in C-1190 from heat of the day conditions and feed composition also attributed to flaring.

Corrective actions or preventative steps taken: As an immediate corrective action, Operations reduced feedrate to the crude unit, which reduced pressure and stopped flaring.

Event Started: 4/23/2022 - 4:11 PM	Report ID: 7331	May have resulted in a violation of:	
Stopped: 4/23/2022 - 5:55 PM ☐ Ongoing Event	Source Number: S6010	Permit:	
Discovered On: 4/23/2022	Abatement Device:	BAAQMD:	
		Other:	40 CFR 60 Subpart J (60.104(a)(1))

Event Description: On April 23, 2022, flaring occurred at LSFO Flare (S-6010). The flaring was not due to a startup, shutdown, or malfunction.

Probable Cause: Operations was proactively managing reduced flare gas recovery capacity while two flare gas recovery compressors were out of service due to ongoing maintenance. Increased pressure in C-1190 from heat of the day conditions and feed composition also attributed to flaring.

Corrective actions or preventative steps taken: As an immediate corrective action, Operations reduced feedrate to the crude unit, which reduced pressure and stopped flaring.

Event Started: 4/8/2022 - 1:45 PM	Report ID: 7313	May have resulted in a violation of:	
Stopped: 4/8/2022 - 2:00 PM ☐ Ongoing Event	Source Number: S6010	Permit:	PC #18656 Parts 3 and 12 (formerly part 5)
Discovered On: 4/11/2022	Abatement Device:	BAAQMD:	
		Other:	Refinery Sector Rule 40 CFR 63 Subpart CC (63.670(e)).

Event Description: On April 08, 2022, when regulated material was routed to the flare for greater than 15 minutes the average net heating value of the combustion zone (RSR BTU) at the LSFO Flare (6010) was less than 270 BTU/SCF in a 15-minute block during 13:45 hours.

Probable Cause: Operations routed the steam flow to the relief system to minimize visible emissions, which also causes the flare net heating value (NHV) of the flare combustion zone to decrease below the 270 BTU/SCF limit. When the NHV drops below the 270 BTU/SCF, Operations is instructed to reduce steam to the flare header to assist with raising the BTU. If the BTU/SCF requirement still cannot be met, then Operations is instructed to increase the assist natural gas flow to the flare. Inadvertently, during the LSFO flaring activity, the assist gas was not increased to meet the 270 BTU/SCF limit.

Corrective actions or preventative steps taken: As an immediate corrective action, HSE communicated with Operations to reinforce the flare NHV compliance requirements. In mid-May, HSE provided in person refresher training on the flare NHV requirements to flare Operation crews.

Event Started: 4/7/2022 Stopped: 4/11/2022 ☐ Ongoing Event Discovered On: 4/11/2022	Report ID: 7320 Source Number: S4354 Abatement Device:	May have resulted in a violation of: Permit: Title V Standard Conditions J Part 3 BAAQMD: Other:

Event Description: The Butamer Plant underwent an unscheduled start up on April 7, 2022. The Refinery failed to submit an unplanned start up notification to the Air District within 48 hours or the next business day. The startup notification was sent to the Air District on April 11, 2022.

Probable Cause: The Butamer Plant underwent an unscheduled start up during a scheduled day off for the person responsible, however, the Butamer Plant started up earlier than expected. Unfortunately, the team responsible for the notification did not recognize the notification window when the Plant started up early.

Corrective actions or preventative steps taken: Once the startup of the Butamer Plant was discovered, a startup notification was immediately submitted. Furthermore, this incident was reviewed within the team and plant startups and shutdowns will be reviewed using new daily tracking tools to aid in the prevention of a reoccurrence.

Event Started: 4/8/2022 - 1:31 PM Stopped: 4/8/2022 - 1:47 PM ☐ Ongoing Event Discovered On: 4/8/2022	Report ID: 7317 Source Number: S6010 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Other: 40 CFR 60 Subpart J (60.104(a)(1))

Event Description: On April 8, 2022, flaring occurred at the LSFO Flare (S-6010). The flaring was not due to a startup, shutdown, or malfunction.

Probable Cause: Operations was proactively managing reduced flare gas recovery capacity while two flare gas recovery compressors were out of service due to ongoing maintenance, and slightly opened a valve for light ends from C-1190 during heat of day conditions. Flaring occurred due to additional load through the valve to the relief system.

Corrective actions or preventative steps taken: As an immediate corrective action, Operations identified the additional load was coming from the valve and closed the valve to reduce load on relief.

Event Started: 4/7/2022 - 1:45 PM Stopped: 4/7/2022 - 2:45 PM ☐ Ongoing Event Discovered On: 4/7/2022	Report ID: 7305 Source Number: S6010 Abatement Device:	May have resulted in a violation of: Permit: PC #18656 Parts 3 and 12 (formerly part 5) BAAQMD: Other: Refinery Sector Rule 40 CFR 63 Subpart CC (63.670(e))

Event Description: On April 07, 2022, when regulated material was routed to the flare for greater than 15 minutes the average net heating value of the combustion zone (RSR BTU) at the LSFO Flare (6010) was less than 270 BTU/SCF in a 15-minute block from 13:45 hours through 14:45 hours.

Probable Cause: Operations routed the steam flow to the relief system to minimize visible emissions, which also causes the flare net heating value (NHV) of the flare combustion zone to decrease below the 270 BTU/SCF limit. When the NHV drops below the 270 BTU/SCF, Operations is instructed to reduce steam to the flare header to assist with raising the BTU. If the BTU/SCF requirement still cannot be met, then Operations is instructed to increase the assist natural gas flow to the flare. Inadvertently, during the LSFO flaring activity, the assist gas was not increased to meet the 270 BTU/SCF limit.

Corrective actions or preventative steps taken: As an immediate corrective action, HSE communicated with Operations to reinforce the flare NHV compliance requirements. In mid-May, HSE provided in person refresher training on the flare NHV requirements to flare Operation crews.

Event Started: 4/3/2022 - 12:00 AM Stopped: 4/4/2022 - 12:00 AM ☐ Ongoing Event Discovered On: 4/5/2022	Report ID: 7300 Source Number: S4339 Abatement Device:	May have resulted in a violation of: Permit: Title V Section VI 6E BAAQMD: Other:

Event Description: On April 3, 2022, F-1110 exceeded its daily firing rate limit of 456 MMBTU/day.

Probable Cause: The LNC plant in RLOP was undergoing startup activities when the F-1110 daily firing rate limit was inadvertently exceeded.

Corrective actions or preventative steps taken: Upon discovery, Operations staff was immediately notified and coached on the daily firing rate Title V limit. The F-1110 firing rate was decreased and the Title V daily firing rate was within the limit beginning on the following day.

Event Started: 4/2/2022 - 8:19 PM Stopped: 4/3/2022 - 6:12 AM ☐ Ongoing Event Discovered On: 4/2/2022	Report ID: 7312 Source Number: S6012 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Other: 40 CFR 60 Subpart J (60.104(a)(1))

Event Description: On April 2, 2022, flaring occurred at the SISO Flare (S-6012). The flaring was not due to a startup, shutdown, or malfunction.

Probable Cause: A hydrocarbon layer accumulated in the SISO Flare base and periodically weathered off, which resulted in the low level flaring. Operations found that a small flow of pentane was entering the relief system from the P-126 pumps at the SDA via a needle valve which was not fully closed during commissioning of P-126B.

Corrective actions or preventative steps taken: Upon discovery of the cause of flaring, the needle valve was closed and make-up water to the flare base was increased to flush the hydrocarbons from the flare base, which stopped the low level flaring.

Event Started: 3/28/2022 - 5:00 AM Stopped: 3/28/2022 - 6:00 AM ☐ Ongoing Event Discovered On: 3/31/2022	Report ID: 7297 Source Number: S4227 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Reg. 9-1-307 Other: 40 CFR Part 60, Subpart J

Event Description: On March 28, 2022, the SRU 1 Train (S4227) exceeded the 1-hour average SO2 limit of 250 ppm corrected to 0% O2 during the 05:00 clock hour.

Probable Cause: On March 28, 2022 the 1SRU train experience variations in its acid gas feed composition due to an upstream process plant upset. The variation in hydrocarbon in the acid gas feed composition led to the decreased conversion of SO2 in the train due to the lack of air available to maintain proper H2S/SO2 ratios.

Corrective actions or preventative steps taken: Operations responded by adding caustic to the SO2 absorbers and adjusting H2S/SO2 ratios decreasing SO2 emissions.

Event Started: 3/28/2022 - 9:00 PM Stopped: 3/29/2022 - 2:00 AM ☐ Ongoing Event Discovered On: 3/31/2022	Report ID: 7298 Source Number: S4228 Abatement Device:	May have resulted in a violation of: Permit: PC#24136, Part 84 BAAQMD: Other:	

Event Description: On March 28, 2022, SRU Train 2 exceeded its 3-hour average NOx, corrected to 0% O2 limit, from the 21:00 clock hour through March 29, 2022 01:00 clock hour.

Probable Cause: On March 28, 2022, 2SRU (S-4228) train received instances of increased hydrocarbons in the acid gas feed stream. The higher hydrocarbon content in the acid gas feed led to a change in the tail gas quality which increased the thermal oxidizer temperature and resulted in increased NOx formation.

Corrective actions or preventative steps taken: Operations worked to minimize the NOx by minimizing thermal oxidizer temperatures to near permit limits, manipulating the secondary air registers on the thermal oxidizer, increasing steam to F-2270, and targeting excess tail gas oxygen between 2-3%.

Event Started: 3/29/2022 Stopped: 3/30/2022 ☐ Ongoing Event Discovered On: 3/30/2022	Report ID: 7301 Source Number: Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: BAAQMD Reg 1-523.1 Other:	

Event Description: The Refinery submitted a late inoperative monitor notification (RCA 08G66) on March 30, 2022. On March 26, 2022, the RLOP Flare mass spectrometer, that measures, BTU, became inoperative at 14:52 hours and was back in service on March 30, 2022 at 10:13 hours.

Probable Cause: It was discovered upon additional visual inspection on March 30, 2022 that the RLOP flare mass spectrometer had a failed pump. A failed pump means that the mass spectrometer was not able to receive fresh sample to feed to the BTU analyzer. While there were no alarms to indicate an issue, the analyzer crew determined that the failed pump issue started on March 26, 2022 based upon reviewing analyzer data.

Corrective actions or preventative steps taken: Upon discovery on March 30, 2022, the analyzer crew repaired the failed pump for the RLOP flare mass spectrometer and returned the meter to service as soon as possible.

Event Started: 3/28/2022 - 4:00 AM Stopped: 3/28/2022 - 7:00 AM ☐ Ongoing Event Discovered On: 3/29/2022	Report ID: 7296 Source Number: S4227 Abatement Device:	May have resulted in a violation of: Permit: PC #24136 Section 81 BAAQMD: Other:

Event Description: On March 28, 2022 the SRU 1 Train thermal oxidizer operated below the minimum temperature limit from the 04:00 clock hour through the 06:00 clock hour.

Probable Cause: On March 28, 2022, the SRU Train 1 (S-4227) thermal oxidizer operated below the permitted minimum temperature requirement due an upstream process plant upset that caused variations in the acid gas feed composition. Higher hydrocarbon percentage in the feed gas led to a higher H2S percentage in the tail gas and caused the thermal oxidizer temperature to increase. The increase in temperature resulted in higher NOx formation and lowered the tail gas excess O2. This resulted in a decrease of the thermal oxidizer temperature.

Corrective actions or preventative steps taken: Operations placed the valve output of the natural gas to thermal oxidizer in manual to prevent flame loss. When the hydrocarbon percentage in the feed gas decreased, Operations ensured the thermal oxidizer temperature was brought back above the minimum temperature of 1400F.

Event Started: 3/26/2022 Stopped: Discovered On: 3/28/2022	Report ID: 7302 Source Number: S4227 Abatement Device:	May have resulted in a violation of: Permit: PC #24136 Section 81, Part ciii BAAQMD: Other:

✓ Ongoing Event

Event Description: On March 26, 2022, the SRU 1 train thermal oxidizer temperature excursions exceeded the allowable limit over a 12-month consecutive period.

Probable Cause: On March 26, 2022, the SRU Train 1 (S-4227) thermal oxidizer temperature excursions exceeded the allowable limit due an upstream process plant upset that caused variations in the acid gas feed composition. Higher hydrocarbon percentage in the feed gas led to a higher H2S percentage in the tail gas and caused the thermal oxidizer temperature to increase. The increase in temperature resulted in higher NOx formation and lowered the tail gas excess O2. This resulted in a decrease of the thermal oxidizer temperature.

Corrective actions or preventative steps taken: Operations placed the valve output of the natural gas to thermal oxidizer in manual to prevent flame loss. The average thermal oxidizer temperature was maintained above 1200F which is expected to convert H2S and other sulfur compounds in the vapor stream to SO2. When the hydrocarbon percentage in the feed gas decreased, Operations ensured the thermal oxidizer temperature was brought back above the minimum temperature of 1400F.

Event Started: 3/26/2022 - 4:00 AM Stopped: 3/26/2022 - 7:00 AM ☐ Ongoing Event Discovered On: 3/27/2022	Report ID: 7292 Source Number: S4227 Abatement Device:	May have resulted in a violation of: Permit: PC #24136 Section 81 BAAQMD: Other:

Event Description: On March 26, 2022 the SRU 1 Train thermal oxidizer operated below the minimum temperature limit from the 04:00 clock hour through the 06:00 clock hour.

Probable Cause: On March 26, 2022, the SRU Train 1 (S-4227) thermal oxidizer operated below the permitted minimum temperature requirement due an upstream process plant upset that caused variations in the acid gas feed composition. Higher hydrocarbon percentage in the feed gas led to a higher H2S percentage in the tail gas and caused the thermal oxidizer temperature to increase. The increase in temperature resulted in higher NOx formation and lowered the tail gas excess O2. This resulted in a decrease of the thermal oxidizer temperature.

Corrective actions or preventative steps taken: Operations placed the valve output of the natural gas to thermal oxidizer in manual to prevent flame loss. When the hydrocarbon percentage in the feed gas decreased, Operations ensured the thermal oxidizer temperature was brought back above the minimum temperature of 1400F.

Event Started: 3/24/2022 - 3:00 PM Stopped: 3/24/2022 - 10:00 PM ☐ Ongoing Event Discovered On: 3/25/2022	Report ID: 7287 Source Number: S4228 Abatement Device:	May have resulted in a violation of: Permit: PC#24136, Part 84 BAAQMD: Other:

Event Description: On March 24, 2022, the SRU Train 2 exceeded its 3-hour average NOx corrected to 0% O2 limit from the 15:00 clock hour through the 22:00 clock hour.

Probable Cause: On March 24, 2022, 2SRU (S-4228) train received variation in the acid gas feed stream due to an upstream plant process upset. The variation in acid gas feed composition led to a change in the tail gas quality which increased the thermal oxidizer temperature and resulted in increased NOx formation.

Corrective actions or preventative steps taken: Operations worked to minimize the NOx by minimizing thermal oxidizer temperatures to near permit limits, manipulating the secondary air registers on the thermal oxidizer, increasing steam to F-2270, and targeting excess tail gas oxygen between 2-3%.

Event Started: 3/23/2022 - 11:00 AM	Report ID: 7279	May have resulted in a violation of:	
Stopped: 3/25/2022 - 2:00 AM ☐ Ongoing Event	Source Number: S4227	Permit: PC#24136, Part 84	
Discovered On: 3/24/2022	Abatement Device:	BAAQMD:	
		Other:	

Event Description: On March 23, 2022, SRU Train 1 exceeded its 3-hour average NOx, corrected to 0% O2 limit, from the 11:00 clock hour through the 16:00 clock hour. Title V Update: In addition, on March 24, 2022, SRU Train 1 exceeded its 3-hour average NOx, corrected to 0% O2 limit, from the 12:00 clock hour through March 25 at the 02:00 clock hour.

Probable Cause: On March 23 and 24, 2022, 1SRU (S-4227) train received increased hydrocarbons in the acid gas feed stream due to an upstream plant process upset. The higher hydrocarbon content in the acid gas feed led to a change in the tail gas quality which increased the thermal oxidizer temperature and resulted in increased NOx formation.

Corrective actions or preventative steps taken: Operations worked to minimize the NOx by minimizing thermal oxidizer temperatures to near permit limits, manipulating the secondary air registers on the thermal oxidizer, increasing steam to F-2170, and targeting excess tail gas oxygen between 2-3%.

Event Started: 3/24/2022 - 11:40 AM	Report ID: 7294	May have resulted in a violation of:	
Stopped: 3/24/2022 - 11:45 AM ☐ Ongoing Event	Source Number: S6010	Permit:	
Discovered On: 3/24/2022	Abatement Device:	BAAQMD:	
		Other: 40 CFR 60 Subpart J (60.104(a)(1))	

Event Description: On March 24, 2022, flaring occurred at the LSFO Flare (S-6010). The flaring was not due to a startup, shutdown, or malfunction.

Probable Cause: Operations received an instantaneous High High alarm for liquid level on V-200, the liquid knockout drum for compressor K-200), which then tripped K-200 offline, resulting in flow to relief and flaring. The system is designed to trip the compressor offline to protect the compressor from damage due to liquid carryover. Subsequently, the root valve to the high level alarm was found to have been blocked in, which resulted in Operations not receiving the initial high level alarm.

Corrective actions or preventative steps taken: As an immediate corrective action, Operations reduced feed rates and reestablished level indication to knockout drum to get K-200 back online, which stabilized the unit and stopped the flaring.

Event Started: 3/22/2022 - 2:00 PM Stopped: 3/22/2022 - 4:00 PM ☐ Ongoing Event Discovered On: 3/24/2022	Report ID: 7281 Source Number: S6010 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Other: Refinery Sector Rule 40 CFR 63 Subpart CC (63.670(c))

Event Description: On March 22, 2022, the LSFO Flare (S-6010) exceeded the visible emissions limit of 5 minutes in any 2 consecutive hours from the 14:00 clock hour to the 16:00 clock hour.

Probable Cause: On March 22, 2022, visible emissions occurred at the LSFO flare when cooling water tower fans malfunctioned and tripped offline on increased vibrations causing a process upset and flow to relief. While steam was increased rapidly to the flare, it was not sufficient in fully minimizing the visible emissions.

Corrective actions or preventative steps taken: Operations responded per procedure by optimizing steam to the flare. Maintenance identified vibration switches on the fans failed and managed to repair one of the cooling water fans which eventually stopped the flow to relief.

Event Started: 3/22/2022 - 2:15 PM Stopped: 3/22/2022 - 4:30 PM ☐ Ongoing Event Discovered On: 3/23/2022	Report ID: 7280 Source Number: S6010 Abatement Device:	May have resulted in a violation of: Permit: PC #18656 Parts 3 and 12 (formerly part 5) BAAQMD: Other: Refinery Sector Rule 40 CFR 63 Subpart CC (63.670(e))

Event Description: On March 22, 2022, when regulated material was routed to the flare for greater than 15 minutes the average net heating value of the combustion zone (RSR BTU) at the LSFO Flare (6010) was less than 270 BTU/SCF in a 15-minute block, first, from 14:15 hours through 14:45 hours, then, from 15:15 hours through 15:45 hours and during 16:15 hours.

Probable Cause: Operations routed the steam flow to the relief system to minimize visible emissions, which also causes the flare net heating value (NHV) of the flare combustion zone to decrease below the 270 BTU/SCF limit. When the NHV drops below the 270 BTU/SCF, Operations is instructed to reduce steam to the flare header to assist with raising the BTU. If the BTU/SCF requirement still cannot be met, then Operations is instructed to increase the assist natural gas flow to the flare. Inadvertently, during the LSFO flaring activity, the assist gas was not increased to meet the 270 BTU/scf limit.

Corrective actions or preventative steps taken: As an immediate corrective action, HSE communicated with Operations to reinforce the flare compliance requirements. A flare operations computer-based training has been developed and rolled out for completion by Operations personnel in areas that operate flares to improve understanding of all flare requirements, including NHV. Lastly, HSE is providing in person training to operations to ensure flare training material is understood.

Event Started: 3/6/2022	Report ID: 7277	May have resulted in a violation of:
Stopped: 3/24/2022 ☐ Ongoing Event	Source Number:	Permit:
Discovered On: 3/22/2022	Abatement Device:	BAAQMD: Reg 8-5-404
		Other:

Event Description: On March 22, 2022, it was discovered that the January tank monthly inspection report was not submitted within the required timeframe. The tank inspections were conducted within the required timeframe and the tank inspection report was submitted on March 24, 2022.

Probable Cause: The monthly tank inspections for January were conducted within the required timeframe. However, it was found that due to an unintentional oversight, the inspection report was not submitted within 60 days of the inspection. Immediately after the discovery, the report was submitted on March 24, 2022.

Corrective actions or preventative steps taken: The Refinery takes all deviations very seriously and immediately upon discovery the late report was submitted. The Refinery has robust procedures and work practices in place to ensure compliance with Air District reporting requirements. To aid in the prevention of a reoccurrence the quarterly reminder to submit tank reports was updated to a monthly reminder, and the Refinery has reinforced the expectation to always follow proper procedures and protocols.

Event Started: 3/21/2022 - 9:00 AM	Report ID: 7268	May have resulted in a violation of:
Stopped: 3/21/2022 - 9:15 AM ☐ Ongoing Event	Source Number: S6021	Permit:
Discovered On: 3/21/2022	Abatement Device:	BAAQMD:
		Other: Refinery Sector Rule 40 CFR 63 Subpart CC (63.670(c))

Event Description: On March 21, 2022, when regulated material was routed to the flare for greater than 15 minutes, the average net heating value of the combustion zone (RSR BTU) at the H2 Plant Flare (S-6021) was less than 270 BTU/SCF in a 15-minute block during the 09:00 hours.

Probable Cause: This deviation is being submitted in abundance of caution. The steam meter used to calculate the RSR BTU was inoperative from 09:00 hours – 09:10 hours, where the RSR BTU value could not be calculated during that time to demonstrate compliance. The steam meter was operative during 09:11 hours – 09:14 hours, during which the RSR BTU ended the 15-minute block during the 09:00 hours below the 270 BTUSCF requirement.

Corrective actions or preventative steps taken: The steam meter used to calculate the RSR BTU value was inoperative during the majority of the 15-minute block during the 09:00 hours. This deviation is being submitted in abundance of caution.

Event Started: 3/19/2022	Report ID: 7293	May have resulted in a violation of:	
Stopped: 3/21/2022 ☐ Ongoing Event	Source Number: S6021	Permit:	
Discovered On: 3/21/2022	Abatement Device:	BAAQMD:	BAAQMD Reg 1-523.1
		Other:	

Event Description: The Refinery submitted a late inoperative monitor notification (RCA 08G39) on March 21, 2022. On March 16, 2022, the H2 Flare (S-6021) Pilot Gas Flow meter (31FI34016) became inoperative at 11:56 hours.

Probable Cause: 31FI34016 was reading erratically on March 16, 2022 11:56 hours through March 17, 2022 23:27 hours before flatlining from March 17, 2022 23:27. Readings appeared to stabilize for a short time period on March 16th, and therefore it was determined initially that the meter did not exceed 24 hours of downtime. Upon further subject matter expert review on March 21, 2022, it was determined that the meter should be considered inoperative for the entire period when the meter began to read erratically on March 16, 2022 11:56 hours.

Corrective actions or preventative steps taken: Upon delivery of the spare part for 31FI34016, the meter was subsequently repaired and put back in service on March 30, 2022 at 15:45 hours.

Event Started: 3/21/2022 - 7:29 AM	Report ID: 7289	May have resulted in a violation of:	
Stopped: 3/21/2022 - 8:05 AM ☐ Ongoing Event	Source Number: S6010	Permit:	
Discovered On: 3/21/2022	Abatement Device:	BAAQMD:	
		Other:	40 CFR 60 Subpart J (60.104(a)(1))

Event Description: On March 21, 2022, flaring occurred at the LSFO Flare (S-6010). The flaring was not due to a startup, shutdown, or malfunction.

Probable Cause: The PSA3 RPG liquids pumps cavitated and caused a high level in the RPG liquids drum. In response, Operations had to route RPG liquids to the relief system, which exceeded the FGR capacity and resulted in the visible flaring at LSFO Flare.

Corrective actions or preventative steps taken: As a corrective action, Operations reduced RPG feed to reduce accumulation of RPG liquid and divert the RPG liquid. The pumps successfully regained flow to the normal routing and therefore stopped the flow to relief.

Event Started: 3/20/2022 - 11:00 AM	Report ID: 7269	May have resulted in a violation of:	
Stopped: 3/20/2022 - 12:00 PM ☐ Ongoing Event	Source Number: S4227	Permit:	PC #24136 Section 81
Discovered On: 3/21/2022	Abatement Device:	BAAQMD:	
		Other:	

Event Description: On March 20, 2022 the SRU 1 Train thermal oxidizer operated below the minimum temperature limit during the 11:00 clock hour.

Probable Cause: On March 20, 2022, the SRU Train 1 (S-4227) thermal oxidizer operated below the permitted minimum temperature requirement due an upstream process plant upset that caused variations in the acid gas feed composition. Higher hydrocarbon percentage in the feed gas led to a higher H2S percentage in the tail gas and caused the thermal oxidizer temperature to increase. The increase in temperature resulted in higher NOx formation and lowered the tail gas excess O2. This resulted in a decrease of the thermal oxidizer temperature.

Corrective actions or preventative steps taken: Operations placed the valve output of the natural gas to thermal oxidizer in manual to prevent flame loss. When the hydrocarbon percentage in the feed gas decreased, Operations ensured the thermal oxidizer temperature was brought back above the minimum temperature of 1400F.

Event Started: 3/16/2022 - 10:00 AM	Report ID: 7266	May have resulted in a violation of:	
Stopped: 3/16/2022 - 11:00 AM ☐ Ongoing Event	Source Number: S4228	Permit:	
Discovered On: 3/17/2022	Abatement Device:	BAAQMD:	Reg. 9-1-307
		Other:	40 CFR Part 60, Subpart J

Event Description: On March 16, 2022, the SRU 2 Train (S4228) exceeded the 1-hour average SO2 limit of 250 ppm corrected to 0% O2 during the 10:00 clock hour.

Probable Cause: On March 16, 2022, SRU 2 train received decreased acid gas feed rates and variations in the acid gas feed composition which caused the H2S/SO2 ratio of the tail gas to not be optimized which increased SO2 emissions. At the same time, the air demand analyzer malfunctioned and Operations was not able to maintain proper H2S/SO2 ratio.

Corrective actions or preventative steps taken: Operations responded by increasing air rates to the train and the SO2 emissions decreased. In addition, the Analyzer team was called to service the analyzer and was subsequently repaired.

Event Started: 3/16/2022 - 11:00 PM	Report ID: 7267	May have resulted in a violation of:	
Stopped: 3/16/2022 - 11:15 PM Ongoing Event	Source Number: S6021	Permit:	
Discovered On: 3/17/2022	Abatement Device:	BAAQMD:	
		Other:	Refinery Sector Rule 40 CFR 63 Subpart CC (63.670(c))

Event Description: On March 16, 2022, when regulated material was routed to the flare for greater than 15 minutes, the average net heating value of the combustion zone (RSR BTU) at the H2 Plant Flare (S-6021) was less than 270 BTU/SCF in a 15-minute block during the 23:00 hours.

Probable Cause: During the planned shutdown of Hydrogen Train 1 for maintenance on March 16, 2022, increased nitrogen flow to the flare caused the average net heating value of the combustion zone to decrease below 270 BTU/SCF in a 15-minute block. Refinery Operations introduced nitrogen gas per procedure to clean sections of the Hydrogen Plant as part of shutdown activities. The natural gas assist control valve did not provide enough natural gas flow to maintain the net heating value above the 270 BTU/SCF limit due to the control logic on the output of the natural gas assist flow controller . The control logic limited the output even though the calculated natural gas flow to maintain the net heating value was higher based on the BTU analyzer.

Corrective actions or preventative steps taken: As a corrective action, Refinery personnel are evaluating the control logic on the natural gas assist control valve for improvements with meeting the RSR BTU requirement during nitrogen use for maintenance activities.

Event Started: 3/14/2022 - 12:00 PM	Report ID: 7262	May have resulted in a violation of:	
Stopped: 3/14/2022 - 1:00 PM Ongoing Event	Source Number: S4471	Permit:	PC #24136 Part 14a
Discovered On: 3/16/2022	Abatement Device:	BAAQMD:	
		Other:	

Event Description: On March 14, 2022, F-1100 exceeded its 1-hour average NOx corrected to 3% O2 limit during the 12:00-clock hour.

Probable Cause: On March 14, 2022, F-1100 exceeded the 1-hr average NOx limit. This was caused by reducing hydrogen rates in preparation to pull feed on Hydrogen Train 1 for the planned shutdown. Operations was unable to reduce O2 rates fast enough to keep up with the hydrogen rate reduction, causing an exceedance of the 5 ppm 1-hr average NOx corrected to 3% O2 limit (actual 5.2 ppm). The O2 rate changes needs to be made in small moves to prevent the furnace from shutting down as a safety design measure.

Corrective actions or preventative steps taken: Operations reduced the O2 rates and was able to clear the NOx alarm within the hour.

Event Started:	3/8/2022	Report ID:	7285
Stopped:	3/8/2022 Ongoing Event	Source Number:	S4148
Discovered On:	3/16/2022	Abatement Device:	

May have resulted in a violation of:

Permit:	PC #24085
BAAQMD:	BAAQMD Reg 2, Rule 6, Section 307
Other:	

Event Description: On March 16, 2022, the BAAQMD Inspector Chris Coelho issued the Chevron Richmond Refinery Notice of Violation A60643 alleging violation of BAAQMD Regulation 2, Rule 6, Section 307-P/C #24085 Carbon Absorbers at S4148. While the Refinery disputes the basis for the NOV, it submits this 10-day deviation in an abundance of caution. For the reasons discussed in the response letter for the NOV, submitted on March 24, 2022, the Refinery believes it met applicable compliance requirements and the NOV should be withdrawn. This does not obligate Chevron to submit such reports in the future where there is no deviation.

Probable Cause: On March 8, 2022, Air District Inspector, Chris Coelho conducted a source verification on #13 Separator (S-4148). While inspecting the carbon drum abatement system, the Inspector found slight tearing on the hose at the connection into the carbon drum. The Inspector conducted VOC concentration measurements on the hose and at each carbon drum outlet and found no VOC breakthrough. The Refinery inspection group then conducted a similar VOC measurement and found no breakthrough. The Air Inspector cited Title V Permit Condition #24085 Part 1 "The owner/operator shall vent Source S-4148 at all times to Abatement device A-32105, two (200 lb minimum capacity) activated carbon vessels arranged in series" as the basis for the NOV. The Refinery respectfully disagrees with the basis of issuance for this NOV because it is the Refinery's understanding that the intent of part 1 is to ensure that the source is not disconnected, abated by another system, or changed without proper permitting. In this instance, the separator abatement hose was connected to the carbon drum system but needed repair. The Refinery conducts weekly VOC measurements on the #13 separator carbon abatement system, and a review of inspection records for the past two years indicates that the abatement system remained vapor tight based on negligible VOC concentrations at the inlet and outlet of the abatement system.

Corrective actions or preventative steps taken: Upon the finding, the hose was immediately repaired and has since been replaced. A vapor hose integrity check has been added to the weekly inspection sheet to ensure proper hose examination. The Refinery shared the finding with Operations and the field technicians to reinforce the permit requirements.

Event Started: 3/16/2022 Stopped: 3/16/2022 ☐ Ongoing Event Discovered On: 3/16/2022	Report ID: 7276 Source Number: S6021 Abatement Device:	May have resulted in a violation of: Permit: Reg 12-11-506 BAAQMD: Other:

Event Description: It was discovered on March 16, 2022 that the mass spectrometry analyzer at the Hydrogen Plant Flare (S-6021) became inoperative on March 16, 2022. As a result, a flare sample was collected late on March 16, 2022 during flaring at the Hydrogen Plan Flare (S-6021).

Probable Cause: When flaring for 15 consecutive minutes greater than 0.475 MMSCFD at the H2 Flare, a flare sample must be collected within 15 minutes if the H2 flare mass spectrometer is not working. The H2 flare mass spectrometer common trouble alarm came on March 16, 2022 at 5:44 a.m. while the H2 flare was flaring. Therefore, a manual flare sample was required at 5:59 a.m. but was not taken until 11:46 am.

Corrective actions or preventative steps taken: Upon discovery of H2 Flare mass spectrometer common trouble alarm, HSE communicated the requirement to H2 Plant Operations of when to collect a manual flare sample in order to fulfill compliance requirements .

Event Started: 3/9/2022 - 12:00 AM Stopped: 3/12/2022 - 12:00 AM ☐ Ongoing Event Discovered On: 3/10/2022	Report ID: 7256 Source Number: S4285 Abatement Device:	May have resulted in a violation of: Permit: PC#11066 Part 5(b) BAAQMD: Other:

Event Description: On March 09, 2022, the FCC (F-300) exceeded its rolling 7-day average 40 ppm NOx corrected to 0% O2 limit starting at the 0:00 clock hour. Title V Update: On March 09, 2022, the FCC (F-300) exceeded its rolling 7-day average 40 ppm NOx corrected to 0% O2 limit starting at the 0:00 clock hour until March 12, 2022 00:00 clock hour.

Probable Cause: The FCC F-300 exceeded the rolling 7-day average 40 ppm NOx corrected to 0% O2 limit due to operational moves to manage LPG inventories during a process plant shutdown. In response to the process plant shutdown FCC feed rate was reduced, however, the excess O2 rate could not be reduced as the air rate was constrained due to equipment limitation. The increased excess O2 rate resulted in an increase in NOx emissions.

Corrective actions or preventative steps taken: After the process plant started up, the feed rates at the FCC increased and stabilized and the NOx emissions decreased within limits.

Event Started: 3/4/2022 - 7:00 PM	Report ID: 7253	May have resulted in a violation of:	
Stopped: 3/4/2022 - 7:30 PM ☐ Ongoing Event	Source Number: S6016	Permit:	PC #18656 Parts 3 and 12 (formerly part 5)
Discovered On: 3/8/2022	Abatement Device:	BAAQMD:	
		Other:	Refinery Sector Rule 40 CFR 63 Subpart CC (63.670(e))

Event Description: On March 04, 2022, when regulated material was routed to the flare for greater than 15 minutes the average net heating value of the combustion zone (RSR BTU) at the FCC Flare (6016) was less than 270 BTU/SCF in a 15-minute block during 19:00 hours and during 19:15 hours.

Probable Cause: On March 04, 2022, Operations routed the steam flow to the relief system to minimize visible emissions, which also causes the flare net heating value (NHV) of the flare combustion zone to decrease below the 270 BTU/SCF limit. When the NHV drops below the 270 BTU/SCF, Operations is instructed to reduce steam to the flare header to assist with raising the BTU. If the BTU/SCF requirement still cannot be met, then Operations is instructed to increase the assist natural gas flow to the flare. While the assist natural gas flow was adjusted during flaring, the increase was not enough to meet the 270 BTU/SCF requirement.

Corrective actions or preventative steps taken: HSE communicated with Operations to reinforce the flare compliance requirements. Additionally, a new flare operations computer-based training has been developed and rolled out for completion by Operations personnel in areas that operate flares to improve understanding of all flare requirements, including NHV.

Event Started: 3/4/2022 - 12:00 AM	Report ID: 7250	May have resulted in a violation of:	
Stopped: 3/5/2022 - 12:00 AM ☐ Ongoing Event	Source Number: Refinery	Permit:	
Discovered On: 3/7/2022	Abatement Device:	BAAQMD:	Reg. 9-10-301
		Other:	

Event Description: The refinery exceeded the calendar day refinery-wide NOx mass emissions limit of 3,116 lbs on March 04, 2022. The calendar day refinery-wide NOx was 3,202 lbs.

Probable Cause: On March 04, 2022, the Refinery exceeded its NOx mass emissions limit during a steam load-shed attempt due to the shutdown of the Alky plant on the morning of March 04. Operations were progressing turning furnaces from the high pressure on CP-3300s on March 03, 2022 which increased RPG rates to the fuel gas system. Later in the evening of March 04, compressor trips at the TKC further affected the fuel gas and steam systems.

Corrective actions or preventative steps taken: Furnaces were operating in a posture to aid in the prevention of process upsets, and all mitigating work practices were instituted to minimize the NOx excess. Additional corrective actions will focus on addressing the cause of the shutdown at the Alky plant.

Event Started: 3/4/2022 - 11:00 AM Stopped: 3/4/2022 - 10:00 PM Ongoing Event Discovered On: 3/7/2022	Report ID: 7248 Source Number: S4155 Abatement Device:	May have resulted in a violation of: Permit: PC #8773, Part 1 BAAQMD: Other:

Event Description: On March 04, 2022, the F-135 (S-4155) exceeded its 3-hour average NOx limit of 8.85 lb/hr, first, from the 11:00 clock hour through the 14:00 clock hour and then, from the 19:00 clock hour through the 21:00 clock hour.

Probable Cause: Changes in the fuel gas system composition led to elevated NOx emissions at F-135. On March 3, 2022, refinery process gas (RPG) flow was increased per procedure to the fuel gas system due to high differential pressure at H2 plant compressors CP-3300s. In response, Operations began tuning furnaces , but process unit upsets at Alky and TKC resulted in additional RPG flow to the fuel gas system, causing a significant increase in fuel gas BTU. Higher fuel gas BTU corresponds to increased heat and therefore higher NOx.

Corrective actions or preventative steps taken: Operations reduced feed rates to unload F-135. Additionally, Operations implemented the appropriate action to mitigate NOx emissions by increasing O2 rates. However, the increase in fuel gas BTU was at a level that was not immediately manageable through F-135 operation to meet the 3-hour average NOx limit.

Event Started: 3/4/2022 - 6:52 PM Stopped: 3/4/2022 - 8:52 PM Ongoing Event Discovered On: 3/4/2022	Report ID: 7257 Source Number: S6013 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Other: 40 CFR 60 Subpart J (60.104(a)(1))

Event Description: On March 4, 2022, flaring occurred at the NISO Flare (S-6013), Alky Flare (S-6019), FCC Flare (S-6016), RLOP Flare (S-6039), and SISO Flare (S-6012). The flaring was not due to a startup, shutdown, or malfunction.

Probable Cause: K-400 tripped due to a high liquid level shutdown activation in the upstream knock out drum V-431. Initially, it was believed that the V-431 level instrumentation had failed but after additional review, it is believed the liquid level was real. Process engineering provided guidance to alleviate the level, which was implemented by Operations that shift. Flow was routed to relief per emergency procedure, which resulted in the flaring activity.

Corrective actions or preventative steps taken: Operations cleared the high liquid level in V-431 and restarted K-400, which stopped the flaring activity.

Event Started: 3/2/2022 - 9:00 PM Stopped: 3/4/2022 - 5:00 AM ☐ Ongoing Event Discovered On: 3/3/2022	Report ID: 7255 Source Number: Abatement Device:	May have resulted in a violation of: Permit: PC 8773 and PC 24136 BAAQMD: Other: NSPS 40 CFR 60 Subpart J 60.104(a)(1)	

Event Description: The V-475 Fuel Gas Drum exceeded its 50 ppm Calendar-Day average H2S limit on March 3, 2022 (RCA 08F84). The V-475 Fuel Gas Drum exceeded its 50 ppm 24-hour average H2S limit from March 3, 2022 00:00 hours through March 4, 2022 04:00 hours (RCA 08F85). The V-475 Fuel Gas Drum exceeded its 160 ppm 3-hr average H2S limit from March 2, 2022 22:00 clock hour through the 08:00 clock hour on March 3, 2022 (RCA 08F86). Also, the V-475 Fuel Gas Drum exceeded its 1-hour average total sulfur 200 ppm limit from the 21:00 clock hour on March 2, 2022 through the 07:00 clock hour on March 3, 2022 (RCA 08F87).

Probable Cause: On March 2, 2022, 20 Plant experienced a loss of DEA pump P-2030 that resulted in the V-475 Fuel Gas Drum H2S and total sulfur exceedances. DEA is a chemical used to extract H2S gas from refinery gas streams. Reduced H2S extraction from the refinery gas streams occurred due to the loss of DEA circulation from the P-2030 trip, which consequently led to the H2S exceedances at the fuel gas drum.

Corrective actions or preventative steps taken: As an immediate corrective action, process gas was diverted to 5H2S to decrease duty on 4H2S and V-475, in order to mitigate the H2S and total sulfur exceedances. A work order was written to repair P-2030.

Event Started: 2/25/2022 - 6:47 AM Stopped: 2/26/2022 - 2:46 PM ☐ Ongoing Event Discovered On: 2/28/2022	Report ID: 7238 Source Number: S4228 Abatement Device:	May have resulted in a violation of: Permit: PC#24136 Section(s) #83 & #88 BAAQMD: Other:	

Event Description: On February 25, 2022 at 06:47 hours, the (S-4228) 2SRU Train WESP was deenergized prior to pulling Acid Gas Feed from the train at 06:51 hours. On February 26, 2022 at 12:34 hours, Acid Gas Feed was introduced to the the (S-4228) 2SRU Train prior to energizing the WESP (A-120) on February 26, 2022 at 14:46 hours.

Probable Cause: On February 25, 2022, the SRU 2 Train tripped offline due to an upset at an upstream process unit and the WESP was deenergized while acid gas feed was in the train. The process control logic is programmed to shut off the WESP as a process safety best practice to aid in the prevention of potentially unsafe conditions. Acid gas feed was introduced into SRU 2 Train on February 26, 2022, at approximately 12:34 hours and the WESP was reenergized.

Corrective actions or preventative steps taken: The process control logic is programmed to aid in the prevention of potentially unsafe operating conditions. Once Operations ensured that the SRU 2 Train was stable and operating safely, the WESP was energized. Chevron has applied for a revision to Permit Condition 24136, Parts 81, 82, 83, 84, 87, 88, 92 and 95 to include language for WESP operation during SRU shutdown. The application was submitted to the Air District on October 25, 2019 and has been assigned application number 30221. An updated application was submitted on June 14th, 2020.

Event Started: 2/25/2022 - 6:00 AM	Report ID: 7226	May have resulted in a violation of:	
Stopped: 2/26/2022 - 2:00 AM ☐ Ongoing Event	Source Number: S4228	Permit:	PC #24136 Section 81
Discovered On: 2/28/2022	Abatement Device:	BAAQMD:	
		Other:	

Event Description: The SRU 2 Train thermal oxidizer operated below the minimum temperature limit, from February 25, 2022 06:00 hours to February 26, 2022 02:00 hours.

Probable Cause: On February 25, 2022, the SRU Train 2 (S-4228) thermal oxidizer operated below the permitted minimum temperature requirement after the train tripped offline due to an upset at an upstream process unit. Operations responded by relighting the thermal oxidizer and increasing the temperature above the minimum operating temperature requirement. There was no acid gas feed to the SRU 2 Train for the duration of the excursion.

Corrective actions or preventative steps taken: The Refinery has applied for a revision to Permit Condition 24136, Parts 81, 82, 83, 84, 87, 88, 92 and 95 to propose that the operation of the thermal oxidizer at the temperature limit apply only when acid gas is being fed to the unit. The application was submitted to the Air District on October 25, 2019 and has been assigned application number 30221. An updated application was submitted on June 14, 2020.

Event Started: 2/25/2022 - 5:00 PM	Report ID: 7229	May have resulted in a violation of:	
Stopped: 2/26/2022 - 2:00 PM ☐ Ongoing Event	Source Number: S4228	Permit:	PC#24136, Part 84
Discovered On: 2/28/2022	Abatement Device:	BAAQMD:	
		Other:	

Event Description: On February 25, 2022, the SRU Train 2 exceeded its 3-hour average NOx corrected to 0% O2 limit from the 17:00 clock hour through the 13:00 clock hour on February 26, 2022.

Probable Cause: On February 25, 2022, the SRU Train 2 (S-4228) tripped offline due to an upset at an upstream process unit. There was no acid gas feed going to the SRU 2 train. During recovery efforts, Operations worked to minimize NOx by adjusting the secondary air registers on the thermal oxidizer and by minimizing thermal oxidizer temperature.

Corrective actions or preventative steps taken: Operations worked to minimize the NOx emissions by adjusting the secondary air registers on the thermal oxidizer and by minimizing thermal oxidizer temperature during the shutdown period. The Refinery has applied for a revision to Permit Condition 24136, Parts 81, 82, 83, 84, 87, 88, 92 and 95 to propose exemption of the NOx limit during shutdown periods from the SRU trains. The application was submitted to the Air District on October 25, 2019 and has been assigned application number 30221. An updated application was submitted on June 14, 2020.

Event Started: 2/25/2022 - 8:36 PM Stopped: 2/25/2022 - 8:40 PM Discovered On: 2/25/2022	Ongoing Event	Report ID: 7247 Source Number: S6013 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Other: 40 CFR 60 Subpart J (60.104(a)(1))

Event Description: On February 25, 2022, flaring occurred at the NISO Flare (S-6013). The flaring was not due to a startup, shutdown, or malfunction.

Probable Cause: Temperature increases on a hydroprocessing reactor caused slight depressuring to relief to lower the reactor temperature. Depressuring to relief in this scenario is per procedure and a Hydroprocessing Best Practice.

Corrective actions or preventative steps taken: Feed rate was temporarily reduced to lower reactor temperatures and stop the flaring.

Event Started: 2/18/2022 - 2:07 PM Stopped: 2/18/2022 - 2:12 PM Discovered On: 2/18/2022	Ongoing Event	Report ID: 7228 Source Number: S6016 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Other: 40 CFR 60 Subpart J (60.104(a)(1))

Event Description: On February 18, 2022, flaring occurred at the FCC Flare (S-6016) and the Alky Flare. This deviation is filed in abundance of caution to ensure all reporting requirements are met.

Probable Cause: On February 18, 2022, visible flaring occurred at the FCC and Alky flares due to a deviation between two pressure transmitters on the wet gas compressor, causing the CCC controller to slow down the wet gas compressor. This change in speed resulted in a pressure differential on PC-100A, which opened to relief and resulted in brief flaring.

Corrective actions or preventative steps taken: Operations immediately responded by temporarily placed the spillback valves in manual control, and flaring stopped. Additional potential corrective actions are pending the Refinery's review for this flaring event.

Event Started:	2/11/2022 - 3:45 PM		
Stopped:	2/11/2022 - 4:45 PM	Ongoing Event	
Discovered On:	2/14/2022		

Report ID:	7213
Source Number:	S6010
Abatement Device:	

May have resulted in a violation of:

Permit:	PC #18656 Parts 3 and 12 (formerly part 5)
BAAQMD:	
Other:	Refinery Sector Rule 40 CFR 63 Subpart CC (63.670(e))

Event Description: On February 11, 2022, when regulated material was routed to the flare for greater than 15 minutes the average net heating value of the combustion zone (RSR BTU) at the LSFO Flare (6010) was less than 270 BTU/SCF in a 15-minute block from 15:45 hours through 16:45 hours.

Probable Cause: Operations routed the steam flow to the relief system to minimize visible emissions, which also causes the flare net heating value (NHV) of the flare combustion zone to decrease below the 270 BTU/SCF limit. When the NHV drops below the 270 BTU/SCF, Operations is instructed to reduce steam to the flare header to assist with raising the BTU. If the BTU/SCF requirement still cannot be met, then Operations is instructed to increase the assist natural gas flow to the flare. Inadvertently, during the LSFO flaring activity, the assist gas was not increased to meet the 270 BTU/scf limit.

Corrective actions or preventative steps taken: As an immediate corrective action, HSE communicated with Operations to reinforce the flare compliance requirements. A flare operations computer-based training has been developed and rolled out for completion by Operations personnel in areas that operate flares to improve understanding of all flare requirements, including NHV. Lastly, HSE is providing in person training to operations to ensure flare training material is understood.

Event Started: 2/13/2022 - 2:15 PM Stopped: 2/13/2022 - 2:45 PM ☐ Ongoing Event Discovered On: 2/14/2022	Report ID: 7215 Source Number: S6010 Abatement Device:	May have resulted in a violation of: Permit: PC #18656 Parts 3 and 12 (formerly part 5) BAAQMD: Other: Refinery Sector Rule 40 CFR 63 Subpart CC (63.670(e))	

Event Description: On February 13, 2022, when regulated material was routed to the flare for greater than 15 minutes the average net heating value of the combustion zone (RSR BTU) at the LSFO Flare (6010) was less than 270 BTU/SCF in a 15-minute block from 14:15 hours through 14:45 hours.

Probable Cause: Operations routed the steam flow to the relief system to minimize visible emissions, which also causes the flare net heating value (NHV) of the flare combustion zone to decrease below the 270 BTU/SCF limit. When the NHV drops below the 270 BTU/SCF, Operations is instructed to reduce steam to the flare header to assist with raising the BTU. If the BTU/SCF requirement still cannot be met, then Operations is instructed to increase the assist natural gas flow to the flare. Inadvertently, during the LSFO flaring activity, the assist gas was not increased to meet the 270 BTU/scf limit.

Corrective actions or preventative steps taken: As an immediate corrective action, HSE communicated with Operations to reinforce the flare compliance requirements. A flare operations computer-based training has been developed and rolled out for completion by Operations personnel in areas that operate flares to improve understanding of all flare requirements, including NHV. Lastly, HSE is providing in person training to operations to ensure flare training material is understood.

Event Started: 8/31/2020 Stopped: 2/28/2021 ☐ Ongoing Event Discovered On: 2/9/2022	Report ID: 7220 Source Number: S4431 Abatement Device:	May have resulted in a violation of: Permit: PC 22569 Parts 2 & 3a BAAQMD: Other:	

Event Description: On February 9, 2022 it was discovered that the SRU Stationary Standby Diesel Engine Generator (S-7013) operated without an operational meter and the engine log entries are incomplete from August 2020 to January 2021.

Probable Cause: On February 9, 2022, while retrieving the engine log to provide engine hours for a source inspection request, it was discovered that the digital display on the SRU Stationary Standby Diesel Engine Generator (S-7013) was not operational. Troubleshooting efforts identified that a new motherboard is needed.

Corrective actions or preventative steps taken: Repair work to replace the motherboard is in progress. The Refinery continues to investigate the root cause of this incident and develop potential corrective actions.

Event Started: 1/26/2022 - 8:00 AM Stopped: 1/26/2022 - 1:15 PM Discovered On: 1/26/2022	Ongoing Event	Report ID: 7202 Source Number: S6010 Abatement Device:	May have resulted in a violation of: Permit: PC #18656 Parts 3 and 12 (formerly part 5) BAAQMD: Other:

Event Description: On January 26, 2022, when regulated material was routed to the flare for greater than 15 minutes the average net heating value of the combustion zone (RSR BTU) at the LSFO Flare (6010) was less than 270 BTU/SCF in a 15-minute block, first, from 08:00 hours through 09:15 hours, then, from 10:00 hours through 10:30 hours and from 10:45 hours through 13:15 hours.

Probable Cause: Operations routed the steam flow to the relief system to minimize visible emissions, which also causes the flare net heating value (NHV) of the flare combustion zone to decrease below the 270 BTU/SCF limit. When the NHV drops below the 270 BTU/SCF, Operations is instructed to reduce steam to the flare header to assist with raising the BTU. If the BTU/SCF requirement still cannot be met, then Operations is instructed to increase the assist natural gas flow to the flare. While the assist natural gas flow was adjusted during flaring, the increase was not enough to meet the 270 BTU/SCF requirement.

Corrective actions or preventative steps taken: As an immediate corrective action, HSE communicated with Operations to reinforce the flare compliance requirements. A flare operations computer-based training has been developed and rolled out for completion by Operations personnel in areas that operate flares to improve understanding of all flare requirements, including NHV. Lastly, HSE will provide in person training to operations to ensure flare training material is understood.

Event Started: 1/22/2022 - 5:00 PM Stopped: 1/22/2022 - 8:00 PM Discovered On: 1/24/2022	Ongoing Event	Report ID: 7199 Source Number: S4228 Abatement Device:	May have resulted in a violation of: Permit: PC#24136, Part 84 BAAQMD: Other:

Event Description: On January 22, 2022, the SRU Train 2 exceeded its 3-hour average NOx corrected to 0% O2 limit from the 17:00 clock hour through the 19:00 clock hour.

Probable Cause: The SRU 2 Train exceeded its 3-hour average NOx correct to 0% O2 limit due to a faulty stack flow meter. The Refinery continues to investigate the root cause of the faulty meter and develop long-term corrective actions. This deviation is submitted in an abundance of caution because the Refinery's review of process conditions does not indicate an emissions excess occurred.

Corrective actions or preventative steps taken: The Maintenance team reached out to the manufacturer to troubleshoot the faulty meter and electronic component(s) will be replaced.

Event Started: 1/21/2022 - 4:00 AM Stopped: 1/21/2022 - 5:00 AM ☐ Ongoing Event Discovered On: 1/24/2022	Report ID: 7195 Source Number: S4227 Abatement Device:	May have resulted in a violation of: Permit: PC #24136 Section 81 BAAQMD: Other:	

Event Description: On January 21, 2022 the SRU 1 Train thermal oxidizer operated below the minimum temperature limit during the 04:00 clock hour.

Probable Cause: On January 21, 2022, the SRU Train 1 (S-4227) thermal oxidizer operated below the permitted minimum temperature requirement due to startup of an upstream process unit resulting in variations of acid gas feed rates and feed composition. The higher hydrocarbon percentage in the feed gas led to a higher H2S percentage in the tail gas and caused the thermal oxidizer temperature to increase. The increase in temperature resulted in higher NOx formation and lowered the tail gas excess O2. This resulted in a decrease of the thermal oxidizer temperature.

Corrective actions or preventative steps taken: Operations placed the valve output of the natural gas to thermal oxidizer in manual to aid in the prevention of flame loss. When the hydrocarbon percentage in the feed gas decreased, Operations ensured the thermal oxidizer temperature was brought back above the minimum temperature of 1400F.

Event Started: 1/24/2022 - 2:57 PM Stopped: 1/24/2022 - 3:10 PM ☐ Ongoing Event Discovered On: 1/24/2022	Report ID: 7206 Source Number: S6016 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Other: 40 CFR 60 Subpart J (60.104(a)(1))

Event Description: On January 24, 2022, flaring occurred at the FCC Flare (S-6016) and the Alky Flare. This deviation is filed in abundance of caution to ensure all reporting requirements are met.

Probable Cause: On January 24, 2022, visible flaring occurred at the FCC and Alky flares due to a deviation between two pressure transmitters on the wet gas compressor, causing the CCC controller to slow down the wet gas compressor. This change in speed resulted in a pressure differential on PC-100A, which opened to relief and resulted in brief flaring.

Corrective actions or preventative steps taken: Operations immediately responded by troubleshooting and temporarily placed the spillback valves in manual control, and flaring stopped. Additional potential corrective actions are pending the Refinery's investigation for this flaring event.

Event Started: 1/16/2022 Stopped: 1/17/2022 ☐ Ongoing Event Discovered On: 1/17/2022	Report ID: 7198 Source Number: S4471 Abatement Device:	May have resulted in a violation of: Permit: PC 24136 Part 18 BAAQMD: Other:

Event Description: It was discovered on January 17, 2022 that the source test results for the F-1100 (S-4471) source test conducted on November 16, 2021 was due to the BAAQMD on January 15, 2022. Upon discovery, the F-1100 source test results were submitted on January 17, 2022.

Probable Cause: HSE compliance personnel inadvertently mixed the report due dates for the two Hydrogen Plant furnace source tests. The F-1100 Annual Stack Test was due on January 15, 2022, and the F-2100 Annual Stack Test was due on January 17, 2022. However, HSE compliance personnel inadvertently tracked the due date for the F-1100 stack test as the date for the F-2100 stack test and vice versa, which resulted in the F-1100 Annual Stack Test being submitted late.

Corrective actions or preventative steps taken: Upon discovery, the F-1100 source test results were submitted on January 17, 2022. HSE compliance personnel reviewed the incident and confirmed that the source testing due dates are correctly included in the team's report tracker that is reviewed during team meetings to aid in the prevention of future reoccurrence.

Event Started: 12/23/2021 Stopped: 3/30/2022 ☐ Ongoing Event Discovered On: 1/17/2022	Report ID: 7187 Source Number: Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Reg 1-523.2 Other:

Event Description: It was discovered on January 17, 2022 upon data review that the H2 Flare Pilot Gas Flow meter (31FI34016) exceeded the parametric monitor periods of inoperation limits per Regulation 1-523.2. RCA 08E16 and RCA 08E48 were filed in association with this inoperative monitor.

Probable Cause: The H2 Flare Pilot Gas Flow meter 31FI34016 was inoperative starting on December 8, 2021. Upon discovery, Refinery Operations and Maintenance personnel made multiple attempts to troubleshoot the meter, including consulting with instrumentation subject matter experts and the vendor. Though meter readings stabilized initially upon maintenance troubleshooting, it was subsequently determined that the meter was faulty and needed to be replaced. Due to worldwide supply chain issues causing delays in manufacturing of parts, the meter is pending replacement. The Refinery is ready to replace the meter upon receipt.

Corrective actions or preventative steps taken: Upon discovery that the meter was inoperative, Refinery Operations and Maintenance personnel made multiple attempts to troubleshoot the meter, including consulting with instrumentation subject matter experts and the vendor. The Refinery contacted several suppliers to request expedited delivery for a replacement meter. However, no spares were on hand by the suppliers and the replacement for the specialized meter would need to be manufactured. The initial expected delivery date provided by the manufacturer was January 31, 2022. However, the estimated due date was pushed to March 2022 due to worldwide supply chain issues causing delays in manufacturing of the replacement parts. Engineering calculations of the pilot flow rates are being used to fulfill pilot gas monitoring requirements while the meter is inoperative. Update: Upon delivery of the spare part for 31FI34016, the meter was subsequently repaired and put back in service on March 30, 2022 at 15:45 hours.

Event Started: 1/14/2022 - 11:00 AM Stopped: 1/14/2022 - 11:30 AM Ongoing Event Discovered On: 1/14/2022	Report ID: 7190 Source Number: S6016 Abatement Device:	May have resulted in a violation of: Permit: PC #18656 Parts 3 and 12 (formerly part 5) BAAQMD: Other: Refinery Sector Rule 40 CFR 63 Subpart CC (63.670(e))

Event Description: On January 14, 2022, when regulated material was routed to the flare for greater than 15 minutes the average net heating value of the combustion zone (RSR BTU) at the FCC Flare (6016) was less than 270 BTU/SCF in a 15-minute block from 11:00 hours through 11:30 hours.

Probable Cause: On January 14, 2022, Operations routed the steam flow to the relief system to minimize visible emissions, which also causes the flare net heating value (NHV) of the flare combustion zone to decrease below the 270 BTU/SCF limit. When the NHV drops below the 270 BTU/SCF, Operations is instructed to reduce steam to the flare header to assist with raising the BTU. If the BTU/SCF requirement still cannot be met, then Operations is instructed to increase the assist natural gas flow to the flare. While the assist natural gas flow was adjusted during flaring, the increase was not enough to meet the 270 BTU/SCF requirement.

Corrective actions or preventative steps taken: HSE communicated with Operations to reinforce the flare compliance requirements. Additionally, a new flare operations computer-based training has been developed and rolled out for completion by Operations personnel in areas that operate flares to improve understanding of all flare requirements, including NHV.

Event Started: 1/13/2022 - 2:00 PM Stopped: 1/13/2022 - 7:00 PM Ongoing Event Discovered On: 1/14/2022	Report ID: 7186 Source Number: S4228 Abatement Device:	May have resulted in a violation of: Permit: PC#24136, Part 84 BAAQMD: Other:

Event Description: On January 13, 2022, SRU Train 2 exceeded its 3-hour average NOx, corrected to 0% O2 limit, from the 14:00 clock hour through the 18:00 clock hour.

Probable Cause: The SRU 2 Train exceeded its 3-hour average NOx correct to 0% O2 limit due to a faulty stack flow meter. The Refinery continues to investigate the root cause of the faulty meter and develop long-term corrective actions. This deviation is submitted in an abundance of caution because the Refinery's review of process conditions does not indicate an emissions excess occurred.

Corrective actions or preventative steps taken: The Maintenance team reached out to the manufacturer to troubleshoot the faulty meter and electronic component(s) will be replaced.

Event Started: 1/13/2022 - 12:30 PM	Report ID: 7188	May have resulted in a violation of:	
Stopped: 1/13/2022 - 1:30 PM ☐ Ongoing Event	Source Number: S6016	Permit:	PC #18656 Parts 3 and 12 (formerly part 5)
Discovered On: 1/14/2022	Abatement Device:	BAAQMD:	
		Other:	Refinery Sector Rule 40 CFR 63 Subpart CC (63.670(e))

Event Description: On January 13, 2022, when regulated material was routed to the flare for greater than 15 minutes the average net heating value of the combustion zone (RSR BTU) at the FCC Flare (6016) was less than 270 BTU/SCF in a 15-minute block from 12:30 hours through 13:30 hours.

Probable Cause: On January 13, 2022, Operations routed the steam flow to the relief system to minimize visible emissions, which also causes the flare net heating value (NHV) of the flare combustion zone to decrease below the 270 BTU/SCF limit. When the NHV drops below the 270 BTU/SCF, Operations is instructed to reduce steam to the flare header to assist with raising the BTU. If the BTU/SCF requirement still cannot be met, then Operations is instructed to increase the assist natural gas flow to the flare. While the assist natural gas flow was adjusted during flaring, the increase was not enough to meet the 270 BTU/SCF requirement.

Corrective actions or preventative steps taken: HSE communicated with Operations to reinforce the flare compliance requirements. Additionally, a new flare operations computer-based training has been developed and rolled out for completion by Operations personnel in areas that operate flares to improve understanding of all flare requirements, including NHV.

Event Started: 2/19/2020	Report ID: 6814	May have resulted in a violation of:	
Stopped: ✓ Ongoing Event	Source Number: S32103	Permit:	
Discovered On: 5/13/2021	Abatement Device:	BAAQMD:	Reg. 2-1-220
		Other:	Title 13, Division 3, Chapter 9, Article 5, Section 2451 (b)(2)

Event Description: On May 13, 2021, it was discovered that a portable air compressor greater than 50 horsepower has been onsite for more than 12 consecutive months at the Cogen plant.

Probable Cause: During an internal review of the portable engine program, it was discovered that the Refinery inadvertently did not include this Cogen compressor as part of the ongoing deviation filed in February 2020. Omission of the compressor was an oversight as there is full intention of permitting the compressor along with the other permitted compressors onsite. This Cogen compressor is included in the Refinery's application submitted to the BAAQMD on March 2020. The omission can be attributed to hastily gathering all the relevant data following the discovery of the compliance gap within 10 days of discovery. This compressor has been emergency standby service starting February 2019.

Corrective actions or preventative steps taken: Upon discovery of the omission of the Cogen compressor, Chevron filed a separate deviation within 10-days of discovery. Internal records have been updated to reflect this engine's equipment number, time onsite and when it has been removed from site. This Cogen compressor has been added to fuel and hour tracking documents to ensure permit conditions can be adhered to accordingly. This Cogen compressor is included in the Refinery's application submitted to the BAAQMD on March 2020.

Event Started:	10/31/2019
Stopped:	
	✓ Ongoing Event
Discovered On:	1/31/2020

Report ID:	4385
Source Number:	S3129
Abatement Device:	

May have resulted in a violation of:

Permit:	PC J.2
BAAQMD:	
Other:	

Event Description: The throughput limits for T3129 contained in Table II A 3 (Grandfathered Sources) of the refinery's Title V permit did not exist before December 1, 2003 (the date the refinery's Title V permit was issued). To determine compliance with the annual throughput limits listed in Table II A 3, the District directed that Chevron sum the total throughput for each of the twelve months preceding the calculation date. Table II A 3 includes an annual throughput limit of 4,970,210 bbls. for S-3129. As of October 2019, the actual annual throughput limit of S-3129 for the past twelve months was 5,269,007 bbls. Accordingly, based on data for the months of November 2018 through October 2019, Chevron determined that S-3129 exceeded its annual throughput limit listed in Table II A 3 of the refinery's Title V permit. Pursuant to Standard Condition J.2 of the refinery's Tile V permit, Chevron is required to report to the District any exceedance of a limit in Table II A 3. Such notice is for reporting purposes only -- it is not an indication of non-compliance with the refinery's Title V permit.

Probable Cause: The grandfathered limit was established using the highest documented throughput for the tank which was not appropriate since design capacity would provide a higher throughput limit. This tank has not been part of any activity with NSR implications.

Corrective actions or preventative steps taken: According to Standard Condition J-2 of our Title V permit, this throughput limit is for reporting purposes only. We are reporting this exceedance consistent with this permit condition.

Event Started:	8/31/2019	Report ID:	4386
Stopped:		✓ Ongoing Event	Source Number: S0991
Discovered On:	1/31/2020		Abatement Device:

May have resulted in a violation of:

Permit: PC J.2

BAAQMD:

Other:

Event Description: The throughput limits for T991 contained in Table II A 3 (Grandfathered Sources) of the refinery's Title V permit did not exist before December 1, 2003 (the date the refinery's Title V permit was issued). To determine compliance with the annual throughput limits listed in Table II A 3, the District directed that Chevron sum the total throughput for each of the twelve months preceding the calculation date. Table II A 3 includes an annual throughput limit of 5,342,125 bbls. for S-991. As of August 2019, the actual annual throughput limit of S-991 for the past twelve months was 5,383,208 bbls. Accordingly, based on data for the months of September 2018, through August 2019, Chevron determined that S-991 exceeded its annual throughput limit listed in Table II A 3 of the refinery's Title V permit. Pursuant to Standard Condition J.2 of the refinery's Tile V permit, Chevron is required to report to the District any exceedance of a limit in Table II A 3. Such notice is for reporting purposes only -- it is not an indication of non-compliance with the refinery's Title V permit.

Probable Cause: The grandfathered limit was established using the highest documented throughput for the tank which was not appropriate since design capacity would provide a higher throughput limit. This tank has not been part of any activity with NSR implications.

Corrective actions or preventative steps taken: According to Standard Condition J-2 of our Title V permit, this throughput limit is for reporting purposes only. We are reporting this exceedance consistent with this permit condition.

Event Started: 2/27/2019	Report ID: 4145	May have resulted in a violation of:
Stopped:	✓ Ongoing Event	Source Number: S32103	Permit:
Discovered On: 12/5/2019	Abatement Device:	BAAQMD: Reg. 2-1-220
		Other: Title 13, Division 3, Chapter 9, Article 5, Section

Event Description: On December 5, 2019, it was discovered that portable air compressors or generators greater than 50 horsepower have been onsite and hooked up for service for more than 12 consecutive months at the Cracking FCC Air Compressors. In May 2021, it was discovered that one air compressor at the SRU was onsite and in service for more than 12 consecutive months. This deviates from Title 13, Division 3, Chapter 9, Article 5, Section 2451, (b)(2), and Reg. 2-1-22

Probable Cause: While conducting a field audit of portable diesel engine emission generators of 50hp or greater it was discovered that four diesel engine portable air compressors have resided at the FCC and SRU as stationary sources for more than one year without the required permitting. Typically, at least 1 portable air compressor is hooked up "on standby" at the FCC Air Compressors to help support to refinery air needs. The compressors are leased equipment from third party contractor and rotated periodically to have maintenance performed by the contracted owner.

Corrective actions or preventative steps taken: Title V deviation submitted to the BAAQMD upon discovery. Internal investigation conducted to review management controls for compliance and develop sustainable mitigations to aid in the prevention of future occurrences. Reviewing recommendations from investigation to create a procedure to better manage tracking and compliance, including permitting guidance. The Refinery submitted permit applications on March 24, 2020 and responded to a Request for Additional Information on May 18, 2020.

Event Started: 1/17/2017 - 9:07 AM Stopped: ✓ Ongoing Event Discovered On: 1/17/2017	Report ID: 4348 Source Number: S4285 Abatement Device:	May have resulted in a violation of: Permit: BAAQMD: Other: 40 CFR 63.1564

Event Description: On January 17, 2017 from 0907 hours to 1421 hours, the FCC (S-4285) operated above its limit of 20% opacity for a consecutive 3-hour period. This indicated excess occurred during the Refinery's (BAAQMD 6-5) Ammonia Optimization and Demonstration Testing Protocol. Per the agreement made on April 12, 2016 between the Refinery and the BAAQMD, the test protocol is conducted under the Air District's Trial Testing Policy and this notification is being submitted to capture all potential deviations as a result of implementing the testing protocol. UPDATE: On June 27, 2017, the BAAQMD agreed to allow the Chevron Richmond Refinery to continue trial testing under the Refinery's Ammonia Optimization and Demonstration Testing Protocol. Per the agreement, the BAAAQMD will extend enforcement relief and permit the Refinery to operate outside the requirements of the Title V Permit Condition 11066 #3A, 3B, 3C, 7A, and 7A5 (and potentially other parts of the permit condition) until issuance of the final ammonia emissions limit. The Refinery will continue to capture all potential deviations as a result of implementing the testing protocol.

Probable Cause: Due to the ongoing FCC stack ammonia optimization testing protocol, the Refinery deviated from 40 CFR 63.1564 on the following dates. January 2017 • January 17, 2017 from 0907 hours to 1421 hours February 2017 • None March 2017 • None April 2017 • None May 2017 • None June 2017 • None July 2017 • None August 2017 • None September 2017 • None October 2017 • None November 2017 • None December 2017 • None January 2018 • None February 2018 • None March 2018 • None April 2018 • None May 2018 • None June 2018 • None July 2018 • None August 2018 • None September 2018 • None October 2018 • None November 2018 • None December 2018 • None January 2019 • None February 2019 • None March 2019 • None April 2019 • None May 2019 • None June 2019 • None July 2019 • None August 2019 • None September 2019 • None October 2019 • None November 2019 • None December 2019 None January 2020 None February 2020 None March 2020 None April 2020 None May 2020 None June 2020 None JULY 2020 None AUGUST 2020 None SEPTEMBER 2020 None OCTOBER 2020 None November 2020 None December 2020 None January 2021 None February 2021 None March 2021 None April 2021 None May 2021 None June 2021 None July 2021 None August 2021 None September 2021 None October 2021 None November 2021 None December 2021 None January 2022 None February 2022 None March 2022 None April 2022 None May 2022 None June 2022 None

Corrective actions or preventative steps taken: FCC NH3 Optimization, Regulation 6-5, trial testing is being conducted and still ongoing.

Event Started: 5/20/2016 - 7:00 AM Stopped: ✓ Ongoing Event Discovered On: 5/23/2016	Report ID: 4347 Source Number: S4285 Abatement Device:	May have resulted in a violation of: Permit: PC #11066 part 7A5 BAAQMD: Other:

Event Description: Beginning on May 20, 2016 the FCC electrostatic precipitator (ESP) has begun operating intermittently in a state of deviation with Title V permit condition 11066 part 7(A5) following the commencement of the Refinery's ammonia optimization and demonstration testing protocol per Regulation 6 Rule 5. Per the Air District's approval and direction given on April 12, 2016, the test protocol is conducted under the Air District's Trial Testing Policy and this report is being submitted to capture all potential deviations with the above mentioned permit condition as a result of implementing the testing protocol. UPDATE: On June 27, 2017, the BAAQMD agreed to allow the Chevron Richmond Refinery to continue trial testing under the Refinery's Ammonia Optimization and Demonstration Testing Protocol. Per the agreement, the BAAAQMD will extend enforcement relief and permit the Refinery to operate outside the requirements of the Title V Permit Condition 11066 #3A, 3B, 3C, 7A, and 7A5 (and potentially other parts of the permit condition) until issuance of the final ammonia emissions limit. The Refinery will continue to capture all potential deviations as a result of implementing the testing protocol.

Probable Cause: Due to the ongoing FCC stack ammonia optimization testing protocol, the Refinery deviated from BAAQMD permit condition #11066 part 7A5 on the following dates. May: May 20, 2016 at 0700 hrs to May 21, 2016 at 0300 hrs•May 21, 2016 at 0600 hrs to May 23, 2016 at 0700 hrs•May 25, 2016 at 20:00 hrs to May 26, 2016 at 00:00 hrs•May 26, 2016 at 18:00 hrs to May 27, 2016 at 00:00 hrs•May 27, 2016 at 08:00 hrs to May 27, 2016 at 10:00 hrs•May 28, 2016 at 09:00 hrs to May 28, 2016 at 11:00 hrs•May 28, 2016 at 21:00 hrs to May 28, 2016 at 22:00 hrs•May 31, 2016 at 21:00 hrs to May 31, 2016 at 22:00 hrs June: •June 6, 2016 at 10:00 hrs to June 6, 2016 at 14:00 hrs•June 10, 2016 at 20:00 hrs to June 10, 2016 at 21:00 hrs•June 14, 2016 at 22:00 hrs to June 15, 2016 at 01:00 hrs•June 15, 2016 at 07:00 hrs to June 15, 2016 at 08:00 hrs•June 15, 2016 at 12:00 hrs to June 15, 2016 at 19:00 hrs•June 15, 2016 at 22:00 hrs to June 15, 2016 at 23:00 hrs•June 16, 2016 at 09:00 hrs to June 17, 2016 at 08:00 hrs•June 17, 2016 at 20:00 hrs to June 18, 2016 at 09:00 hrs•June 18, 2016 at 22:00 hrs to June 19, 2016 at 01:00 hrs•June 20, 2016 at 17:00 hrs to June 25, 2016 at 12:00 hrs•June 25, 2016 at 20:00 hrs to June 26, 2016 at 11:00 hrs•June 26, 2016 at 18:00 hrs to June 26, 2016 at 21:00 hrs• June 27, 2016 at 03:00 hrs to June 27, 2016 at 04:00 hrs•June 27, 2016 at 05:00 hrs to June 27, 2016 at 11:00 hrs•June 28, 2016 at 05:00 hrs to June 28, 2016 at 08:00 hrs•June 28, 2016 at 20:00 hrs to June 29, 2016 at 02:00 hrs•June 29, 2016 at 19:00 hrs to June 30, 2016 at 12:00 hrs•June 30, 2016 at 19:00 hrs to July 1, 2016 at 00:00 hrs July: •Jul 1, 2016 at 00:00 hrs to Jul 1, 2016 at 02:00 hrs•July 2, 2016 at 09:00 hrs to July 2, 2016 at 10:00 hrs•July 3, 2016 at 02:00 hrs to July 3, 2016 at 15:00 hrs•July 4, 2016 at 08:00 hrs to July 4, 2016 at 16:00 hrs•July 4, 2016 at 22:00 hrs to July 5, 2016 at 00:00 hrs•July 5, 2016 at 00:00 hrs to July 5, 2016 at 09:00 hrs•July 6, 2016 at 09:00 hrs to July 6, 2016 at 15:00 hrs •July 6, 2016 at 18:00 hrs to July 7, 2016 at 00:00 hrs•July 7, 2016 at 00:00 hrs to July 7, 2016 at 08:00 hrs•July 7, 2016 at 10:00 hrs 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to Sep 5, 2016 at 21:00 hrs•Sep 6, 2016 at 03:00 hrs to Sep 7, 2016 at 20:00 hrs•Sep 8, 2016 at 06:00 hrs to Sep 8, 2016 at 21:00 hrs•Sep 9, 2016 at 00:00 hrs to Sep 9, 2016 at 21:00 hrs •Sep 10, 2016 at 00:00 hrs to Sep, 2016 at 17:00 hrs•Sep 18, 2016 at 08:00 hrs to Sep 18, 2016 at 15:00 hrs•Sep 20, 2016 at 02:00 hrs to Sept 20, 2016 at 14:00 hrs•Sep 20, 2016 at 20:00 hrs to Sep 21, 2016 at 15:00 hrs•Sep 21, 2016 at 21:00 hrs to Sep 24, 2016 at 00:00 hrs•Sep 24, 2016 at 03:00 hrs to Sep 25, 2016 at 21:00 hrs•Sep 26, 2016 at 02:00 hrs to Sep 27, 2016 at 16:00 hrs•Sep 27, 2016 at 19:00 hrs to Sep 30, 2016 at 04:00 hrs•Sep 30, 2016 at 05:00 hrs to Sep 30, 2016 at 10:00 hrs •Sep 30, 2016 at 16:00 hrs to Oct 1, 2016 at 00:00 hrs October: •Oct 1, 2016 at 00:00 hrs to Oct 4, 2016 at 22:00 hrs•Oct 4, 2016 at 23:00 hrs to Oct 7, 2016 at 21:00 hrs• Oct 8, 2016 at 05:00 hrs to Oct13, 2016 at 19:00 hrs•Oct 13, 2016 at 23:00 hrs to Oct 15, 2016 at 07:00 hrs•Oct 15, 2016 at 09:00 hrs to Oct 17, 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20:00 hrs to Dec 16, 2016 at 07:00 hrs•Dec 16, 2016 at 08:00 hrs to Dec 18, 2016 at 02:00 hrs•Dec 18, 2016 at 05:00 hrs to Jan 1, 2016 at 00:00 hrs January 2017: •Jan 1, 2017 at 00:00 hours to Jan 26, 2017 at 20:00 hours•Jan 27, 2017 at 00:00 hours to Jan 31, 2017 at 12:00 hours•Jan 31, 2017 at 14:00 hours to Jan 31, 2017 at 16:00 hours•Jan 31, 2017 at 19:00 hours to Feb 1, 2017 at 00:00 hours February 2017: •Feb 1, 2017 at 00:00 hours to Feb 26, 2017 at 19:00 hours• Feb 27, 2017 at 00:00 hours to Feb 28, 2017 at 23:00 hours March 2017: •Mar 1, 2017 at 00:00 hours to Mar 2, 2017 at 01:00•Mar 2, 2017 at 06:00 hours to Mar 4, 2017 at 13:00•Mar 4, 2017 at 15:00 hours to Mar 10, 2017 at 00:00•Mar 10, 2017 at 06:00 hours to Mar 10, 2017 at 22:00•Mar 11, 2017 at 00:00 hours to Mar 25, 2017 at 05:00•Mar 25, 2017 at 10:00 hours to Mar 25, 2017 at 12:00•Mar 25, 2017 at 15:00 hours to Mar 25, 2017 at 16:00•Mar 25, 2017 at 19:00 hours to Mar 26, 2017 at 01:00•Mar 26, 2017 at 10:00 hours to Mar 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22:00•Apr 10, 2017 at 01:00 hours to Apr 10, 2017 at 18:00•Apr 10, 2017 at 22:00 hours to Apr 13, 2017 at 22:00•Apr 14, 2017 at 04:00 hours to Apr 14, 2017 at 20:00•Apr 15, 2017 at 00:00 hours to Apr 16, 2017 at 11:00•Apr 16, 2017 at 14:00 hours to Apr 19, 2017 at 16:00•Apr 19, 2017 at 20:00 hours to Apr 20, 2017 at 09:00•Apr 20, 2017 at 10:00 hours to Apr 24, 2017 at 06:00•Apr 24, 2017 at 08:00 hours to Apr 26, 2017 at 18:00•Apr 26, 2017 at 20:00 hours to Apr 27, 2017 at 17:00• Apr 27, 2017 at 21:00 hours to Apr 29, 2017 at 21:00•Apr 29, 2017 at 23:00 hours to May 1, 2017 at 00:00 May 2017 •May 1, 2017 at 00:00 hours to May 7, 2017 at 19:00•May 7, 2017 at 23:00 hours to May 9, 2017 at 19:00•May 9, 2017 at 22:00 hours to May 10, 2017 at 13:00•May 10, 2017 at 14:00 hours to May 10, 2017 at 21:00•May 12, 2017 at 10:00 hours to May 13, 2017 at 18:00•May 13, 2017 at 21:00 hours to May 16, 2017 at 00:00•May 16, 2017 at 10:00 hours to May 16, 2017 at 14:00•May 16, 2017 at 18:00 hours to May 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S/D; Reference RCA # 07G74 • April 12, 2018 at 04:00 hours to April 12, 2018 at 12:00 hours • April 14, 2018 at 23:00 hours to April 17, 2018 at 17:00 hours – ESP S/D due to unplanned FCC S/D; Reference RCA # 07G76 • April 17, 2018 at 17:00 hours to April 18, 2018 at 06:00 hours • April 20, 2018 at 20:00 hours to April 20, 2018 at 22:00 hours • April 21, 2018 at 07:00 hours to April 21, 2018 at 13:00 hours • April 22, 2018 at 09:00 hours to April 22, 2018 at 10:00 hours • April 23, 2018 at 21:00 hours to April 24, 2018 at 00:00 hours • April 25, 2018 at 14:00 hours to April 26, 2018 at 08:00 hours • April 26, 2018 at 12:00 hours to April 27, 2018 at 10:00 hours May 2018 • May 9, 2018 at 08:00 hours to May 9, 2018 at 18:00 hours • May 10, 2018 at 07:00 hours to May 10, 2018 at 16:00 hours • May 11, 2018 at 09:00 hours to May 11, 2018 at 14:00 hours • May 11, 2018 at 19:00 hours to May 12, 2018 at 10:00 hours • May 15, 2018 at 08:00 hours to May 15, 2018 at 10:00 hours • May 15, 2018 at 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20, 2018 at 13:00 hours • June 20, 2018 at 16:00 hours to June 20, 2018 at 21:00 hours • June 21, 2018 at 18:00 hours to June 22, 2018 at 20:00 hours • June 22, 2018 at 23:00 hours to June 30, 2018 at 00:00 hours July 2018 • July 1, 2018 at 01:00 hours to July 1, 2018 at 17:00 hours • July 2, 2018 at 07:00 hours to July 3, 2018 at 19:00 hours • July 3, 2018 at 23:00 hours to July 5, 2018 at 22:00 hours • July 5, 2018 at 23:00 hours to July 6, 2018 at 05:00 hours • July 6, 2018 at 20:00 hours to July 7, 2018 at 16:00 hours • July 7, 2018 at 18:00 hours to July 8, 2018 at 12:00 hours • July 8, 2018 at 21:00 hours to July 9, 2018 at 10:00 hours • July 9, 2018 at 14:00 hours to July 9, 2018 at 16:00 hours • July 9, 2018 at 19:00 hours to July 10, 2018 at 14:00 hours • July 10, 2018 at 15:00 hours to July 12, 2018 at 01:00 hours • July 12, 2018 at 06:00 hours to July 12, 2018 at 20:00 hours • July 21, 2018 at 19:00 hours to July 21, 2018 at 23:00 hours • July 22, 2018 at 23:00 hours to July 23, 2018 at 03:00 hours • July 26, 2018 at 21:00 hours to July 27, 2018 at 03:00 hours • July 27, 2018 at 05:00 hours to July 27, 2018 at 08:00 hours • July 27, 2018 at 20:00 hours to July 28, 2018 at 01:00 hours • July 28, 2018 at 04:00 hours to July 28, 2018 at 09:00 hours • July 28, 2018 at 15:00 hours to July 28, 2018 at 16:00 hours • July 28, 2018 at 19:00 hours to August 1, 2018 at 00:00 hours August 2018 • August 1, 2018 at 00:00 hours to August 3, 2018 at 17:00 hours • August 4, 2018 at 09:00 hours to August 4, 2018 at 15:00 hours • August 4, 2018 at 19:00 hours to August 4, 2018 at 23:00 hours • August 5, 2018 at 03:00 hours to August 5, 2018 at 19:00 hours • August 6, 2018 at 00:00 hours to August 6, 2018 at 16:00 hours • August 7, 2018 at 01:00 hours to August 8, 2018 at 14:00 hours • August 9, 2018 at 00:00 hours to August 9, 2018 at 12:00 hours • August 9, 2018 at 15:00 hours to August 9, 2018 at 19:00 hours • August 10, 2018 at 03:00 hours to August 11, 2018 at 12:00 hours • August 13, 2018 at 01:00 hours to August 13, 2018 at 06:00 hours • August 14, 2018 at 01:00 hours to August 18, 2018 at 13:00 hours • August 19, 2018 at 00:00 hours to August 22, 2018 at 19:00 hours • August 23, 2018 at 15:00 hours to August 26, 2018 at 21:00 hours • August 27, 2018 at 02:00 hours to August 28, 2018 at 15:00 hours • August 28, 2018 at 18:00 hours to August 29, 2018 at 18:00 hours • August 30, 2018 at 07:00 hours to August 30, 2018 at 21:00 hours • August 31, 2018 at 10:00 hours to August 31, 2018 at 12:00 hours • August 31, 2018 at 19:00 hours to August 31, 2018 at 22:00 hours September 2018 • September 1, 2018 at 04:00 hours to September 1, 2018 at 16:00 hours • September 2, 2018 at 02:00 hours to September 15, 2018 at 01:00 hours • September 15, 2018 at 17:00 hours to September 21, 2018 at 12:00 hours • September 21, 2018 at 21:00 hours to September 22, 2018 at 13:00 hours • September 22, 2018 at 22:00 hours to September 23, 2018 at 14:00 hours • September 23, 2018 at 21:00 hours to September 25, 2018 at 18:00 hours • September 26, 2018 at 01:00 hours to September 29, 2018 at 14:00 hours • September 30, 2018 at 13:00 hours to October 1, 2018 at 00:00 hours October 2018 • October 1, 2018 at 00:00 hours to October 3, 2018 at 06:00 hours • October 3, 2018 at 10:00 hours to October 3, 2018 at 17:00 hours • October 3, 2018 at 21:00 hours to October 4, 2018 at 06:00 hours • October 4, 2018 at 19:00 hours to October 14, 2018 at 13:00 hours • October 14, 2018 at 16:00 hours to October 14, 2018 at 17:00 hours • October 14, 2018 at 22:00 hours to October 15, 2018 at 20:00 hours • October 16, 2018 at 06:00 hours to November 1, 2018 at 00:00 hours November 2018 • November 1, 2018 at 00:00 to December 1, 2018 at 00:00 December 2018 • Dec 1, 2018 at 0000h to Jan 1, 2019 at 0000h January 2019 • Jan 1, 2019 at 0000h to Jan 14, 2019 at 0100h • Jan 14, 2019 at 0200h to Jan 14, 2019 at 1700h • Jan 14, 2019 at 1800h to Jan 15, 2019 at 0200h • Jan 15, 2019 at 0400h to Jan 15, 2019 at 0500h • Jan 15, 2019 at 0700h to Jan 15, 2019 at 0800h • January 15, 2019 at 19:00 to January 16, 2019 at 00:00 • January 16, 2019 at 08:00 to January 16, 2019 at 13:00 • January 16, 2019 at 15:00 to January 16, 2019 at 22:00 • January 16, 2019 at 23:00 to January 17, 2019 at 21:00 • January 24, 2019 at 20:00 to

January 24, 2019 at 23:00 • January 25, 2019 at 21:00 to January 26, 2019 at 02:00 February 2019 •February 2, 2019 at 00:00 hours to February 2, 2019 at 01:00 hours –FCC unplanned S/D due to power outage• February 10, 2019 at 15:00 hours to February 13, 2019 at 03:00 hours –FCC S/U subsequent to unplanned S/D due to power outage•February 20, 2019 at 00:00 hours to February 20, 2019 at 11:00 hours•February 20, 2019 at 22:00 hours to February 21, 2019 at 08:00 hours•February 21, 2019 at 20:00 hours to February 22, 2019 at 13:00 hours•February 23, 2019 at 08:00 hours to February 23, 2019 at 12:00 hours-Reference RCA # 07L28 March 2019 •March 2, 2019 at 00:00 hours to March 2, 2019 at 05:00 hours•March 2, 2019 at 09:00 hours to March 2, 2019 at 10:00 hours•March 5, 2019 at 20:00 hours to March 6, 2019 at 03:00 hours• March 6, 2019 at 11:00 hours to March 7, 2019 at 09:00 hours – FCC unplanned S/U due to power outage; Reference RCA # 07L46•March 9, 2019 at 21:00 hours to March 9, 2019 at 22:00 hours•March 11, 2019 at 21:00 hours to March 13, 2019 at 04:00 hours•March 14, 2019 at 18:00 hours to March 14, 2019 at 19:00 hours•March 15, 2019 at 00:00 hours to March 16, 2019 at 20:00 hours•March 18, 2019 at 08:00 hours to March 20, 2019 at 08:00 hours – FCC process unit upset; Reference RCA # 07L74 submitted for March 19, 2019 10:18 hours to March 19, 2019 at 10:29 hours•March 20, 2019 at 11:00 hours to March 21, 2019 at 10:00 hours•March 21, 2019 at 18:00 hours to April 1, 2019 at 00:00 April 2019 •April 1, 2019 at 00:00 hours to May 1, 2019 at 00:00 hours May 2019 •May 1, 2019 at 00:00 hours to May 6, 2019 at 10:00 hours• May 6, 2019 at 11:00 hours to May 6, 2019 at 17:00 hours•May 6, 2019 at 19:00 hours to May 7, 2019 at 13:00 hours•May 7, 2019 at 19:00 hours to May 8, 2019 at 00:00 hours•May 8, 2019 at 09:00 hours to May 8, 2019 at 11:00 hours•May 8, 2019 at 12:00 hours to June 1, 2019 at 00:00 hours June 2019 •June 1, 2019 at 00:00 hours to July 1, 2019 00:00 hours July 2019 •July 1, 2019 at 00:00 hours to July 15, 2019 at 11:00 hours• July 15, 2019 at 12:00 hours to July 18, 2019 at 05:00 hours•July 18, 2019 at 07:00 hours to July 18, 2019 at 12:00 hours•July 19, 2019 at 07:00 hours to July 20, 2019 at 10:00 hours•July 20, 2019 at 11:00 hours to July 27, 2019 at 06:00 hours•July 27, 2019 at 14:00 hours to July 27, 2019 at 16:00 hours•July 27, 2019 at 19:00 hours to July 28, 2019 at 08:00 hours•July 28, 2019 at 09:00 hours to July 28, 2019 at 10:00 hours•July 29, 2019 at 07:00 hours to August 1, 2019 at 00:00 hours August 2019 •Aug 1 at 0000h to Aug at 1400h•Aug 11 at 2200h to Aug 11 at 2300h•Aug 13 at 0600h to Aug 13 at 0800h•Aug 13 at 2000h to Sep 1, 2019 0000h September 2019 Sep 1 at 0000h to Oct 1, 2019 at 0000h October 2019 Oct 1 at 0000h to Nov 1, 2019 at 0000h November 2019 Nov 1 at 0000h to Dec 1, 2019 at 0000h December 2019 Dec 1, 2019 at 0000h to Jan 1, 2020 at 0000h January 2020 Jan 1, 2020 at 0000h to Feb 1, 2020 at 0000h February 2020 Feb 1, 2020 at 0000h to Mar 1, 2020 at 0000h March 2020 Mar 1, 2020 at 0000h to April 1, 2020 at 0000h April 2020 April 1, 2020 at 0000h to May 1, 2020 at 0000h May 2020 May 1 at 0000h to May 6 at 1500h•May 6 at 1800h to May 6 at 1900h•May 6 at 2000h to May 6 at 2300h•May 7 at 0100h to May 7 at 1000h• May 7 at 1700h to May 7 at 1900h•May 8 at 0000h to May 8 at 0100h•May 8 at 0200h to June 1, 2020 at 00:00h June 2020 June 1 at 0000h to July 1, 2020 at 0000h July 2020 July 1 at 0000h to July 8 at 1800h•July 9 at 0800h to July 9 at 1100h•July 10 at 1800h to Aug 1 at 0000 hours August 2020 Aug 1, 2020 at 0000h to Aug 1, 2020 at 0000h September 2020 Sept 1 at 0000h to Sept 15 at 0500h•Sept 15, 2020 at 0900h to Oct 1, 2020 at 0000h October 2020 Oct 1, 2020 at 0000h to Oct 2, 2020 at 1600h – ESP S/D due to planned FCC Turnaround November 2020 Nov 01, 2020 at 0000h to Nov 30, 2020 at 0000h - ESP S/D due to planned FCC Turnaround December 2020 Dec 01, 2020 at 0000h to Dec 09, 2020 at 1459h - ESP S/D due to planned FCC Turnaround•Dec 9, 2020 at 1500h to Dec 10, 2020 at 0200h•Dec 13, 2020 at 2000h and Jan 01, 2021 at 0000h January 2021 Jan 1, 2021 at 0000h to Jan 19, 2021 at 0300h•Jan 19, 2021 at 0400h to Jan 22, 2021 at 0200h – FCC process unit upset; Reference RCA # 07X77•Jan 22, 2021 at 0200h to Feb 1, 2021 at 0000h February 2021 Feb 1, 2021 at 0000h to Mar 1, 2021 at 0000h March 2021 Mar 1, 2021 at 0000h to Mar 2, 2021 at 1200h•Mar 5, 2021 at 1300h to Mar 5, 2021 at 1900h Reference RCA # 07Y68 April 2021 • The Refinery did not deviate from BAAQMD permit condition #11066 part 7A5 in the month of April. May 2021 • May 2, 2021 at 22:00 hours to May 3, 2021 at 00:00 hours June 2021 • The Refinery did not deviate from BAAQMD permit condition #11066 part 7A5 in the month of June. July 2021 •July 17, 2021 at 10:00 hours to July 17, 2021 at 11:00 hours.•July 25, 2021 at 02:00 hours to July 25, 2021 at 11:00 hours. Reference Breakdown #08A77 August 2021 Aug 8, 2021 at 0900h to Aug 8, 2021 at 1000h•Aug 9, 2021 at 0800h to Aug 9, 2021 at 1400h.• Aug 17, 2021 at 0800h to Aug 17, 2021 at 1100h•Aug 18, 2021 at 0900h to Aug 18, 2021 at 1000h•Aug 19, 2021 at 0900h to Aug 19, 2021 at 1000h•Aug 21, 2021 at 2200h to Aug 22, 2021 at 0000h•Aug 22, 2021 at 2000h to Aug 23, 2021 at 0200h•Aug 24, 2021 at 1200h to Aug 24, 2021 at 1800h•Aug 24, 2021 at 2200h to Aug 25, 2021 at 2200h•Aug 26, 2021 at 0800h to Aug 26, 2021 at 1100h•Aug 27, 2021 at 0800h to Aug 27, 2021 at 1200h•Aug 28, 2021 at 0900h to Aug 28, 2021 at 1200h•Aug 29, 2021 at 0800h to Aug 29, 2021 at 1600h September 2021 •Sept 1, 2021 at 2000h to Sept 2, 2021 at 0300h• Sept 2, 2021 at 1800h to Sept 4, 2021 at 0300h•Sept 4, 2021 at 0800h to Sept 6, 2021 at 0100h•Sept 6, 2021 at 0800h to Sept 6, 2021 at 1000h•Sept 6, 2021 at 1500h to Sept 7, 2021 at 0900h•Sept 8, 2021 at 0500h to Sept 8, 2021 at 1400h•Sept 11, 2021 at 0700h to Sept 11, 2021 at 1200h•Sept 13, 2021 at 0700h to Sept 13, 2021 at 1600h•Sept 14, 2021 at 0200h to Sept 17, 2021 at 1900h•Sept 18, 2021 at 0800h to Sept 18, 2021 at 1700h•Sept 19, 2021 at 0700h to Sept 20, 2021 at 0600h•Sept 20, 2021 at 1000h to Sept 21, 2021 at 0700h•Sept 21, 2021 at 1300h to Sept 21, 2021 at 2300h•Sept 22, 2021 at 0600h to Sept 22, 2021 at 1000h•Sept 22, 2021 at 1600h to Sept 23, 2021 at 1500h•Sept 24, 2021 at 1000h to Sept 24, 2021 at 0300h•Sept 25, 2021 at 0200h to Sept 25, 2021 at 1400h•Sept 25, 2021 at 2000h to Sept 26, 2021 at 0400h•Sept 26, 2021 at 1300h to Sept 27, 2021 at 0500h•Sept 28, 2021 at 0200h to Sept 29, 2021 at 0800h•Sept 29, 2021 at 1400h to Sept 30, 2021 at 0100h•Sept 30, 2021 at 1400h to Oct 1, 2021 at 0000h October 2021 •Oct 1 at 0000h to Oct 1 at 0100h•Oct 1 at 0700h to Oct 1 at 1700h•Oct 2 at 1600h to Oct 2 at 1700h•Oct 3 at 0700h to Oct 3 at 0800h•Oct 3 at 1400h to Oct 4 at 0300h•Oct 4 at 0800h to Oct 4 at 2300h•Oct 6 at 1600h to Oct 6 at 2000h•Oct 8 at 1600h to Oct 8 at 1900h•Oct 11 at 2000h to Oct 11 at 2300h•Oct 12 at 0700h to Oct 12 at 1900h•Oct 12 at 2300h to Oct 13 at 0200h•Oct 13 at 0700h to Oct 13 at 1000h•Oct 13 at 2000h to Oct 14 at 0000h•Oct 14 at 1000h to Oct 14 at 2000h•Oct 17 at 0900h to Oct 17 at 1000h•Oct 24 at 0:00h to Oct 24 at 1000h•Oct 24 at 1000h to Nov 1 at 00:00 - ESP S/D due to unplanned FCC Shutdown. November 2021 •Nov 1 at 0000h to Nov 11 at 0600h - ESP S/D due to unplanned FCC Shutdown.•Nov 11 at 0700h to Nov 11 at 0900h December 2021 •Dec 13 at 0400h to Dec 15 at 1500h - ESP S/D due to unplanned FCC Shutdown•Dec 15 at 1500h to Dec 18 at 0900h •Dec 18 at 1000h to Dec 22 at 2200h•Dec 24 at 0700h to 1500h•Dec 27 at 0200h to Jan 1, 2022 at 0000h January 2022 •Jan 01 at 0000h to Jan 10 at 2200h February 2022 •Feb 2 at 1000h to Feb 3 at 0800h•Feb 23 at 1200h to Feb 23 at 2100h•Feb 24 at 0800h to Feb 24 at 2100h•Feb 25 at 0300h to Feb 25 at 0600h March 2022 •March 07 at 2200h to March 14 at 1000h•March 14 at 1400h to March 14 at 2200h•March 15 at 0900h to March 19 at 0400h•March 19 at 1500h to April 01 at 0000h April 2022 •Apr 1 at 0000h to Apr 29 at

1100h•Apr 29 at 1300h to Apr 29 at 2300h May 2022 •May 2 at 1600h to May 2 at 1900h•May 3 at 0700h to May 3 at 1100h•May 3 at 1400h to May 3 at 1700h•May 4 at 0900h to May 4 at 1100h•May 5 at 0100h to May 5 at 1100h• May 8 at 0900h to May 8 at 1200h•May 9 at 0800h to May 9 at 1000h•May 12 at 1300h to May 12 at 1400h•May 13 at 0100h to May 13 at 1200h•May 17 at 0800h to May 17 at 1000h• May 20 at 0200h to May 20 at 0900h•May 21 at 0100h to May 21 at 1100h•May 21 at 1800h to May 22 at 0900h•May 22 at 1500h to May 22 at 1600h June 2022 •June 2 at 0300h to June 2 at 0500h•June 2 at 1700h to June 2 at 2200h•June 3 at 1500h to June 3

at 1900h•June 4 at 1200h to June 4 at 2300h•June 8 at 0500h to June 8 at 0700h•June 9 at 0700h to June 9 at 0900h•June 9 at 2200h to June 10 at 0700h•June 15 at 2100h to June 16 at 0000h•June 16 at 0700h to June 16 at 1000h• June 16 at 2000h to June 16 at 2300h•June 17 at 1500h to June 17 at 2000h•June 18 at 0400h to June 18 at 0600h•June 28 at 2100h to June 28 at 2300h

Corrective actions or preventative steps taken: FCC NH3 Optimization, Reg 6-5, trial testing is being conducted and still ongoing.

Event Started: 6/30/2008 - 11:59 PM
Stopped: ✓ Ongoing Event
Discovered On: 7/7/2008

Report ID: 4345
Source Number: S1504
Abatement Device:

May have resulted in a violation of:
Permit:
BAAQMD:
Other:

Event Description: The throughput limits for T1504 contained in Table II A 3 (Grandfathered Sources) of the refinery's Title V permit are new limits -- they did not exist before December 1, 2003 (the date the refinery's Title V permit was issued). To determine compliance with the annual throughput limits listed in Table II A 3, the District directed that Chevron sum the total throughput for each of the twelve months preceding the calculation date. Table II A 3 includes an annual throughput limit of 602,132 bbls. for S-1504. As of June 30, 2008, the actual annual throughput limit of S-1504 for the past twelve months was 609,294 bbls. Accordingly, based on data for the months of July 2007 through June 2008, on July 7, 2008, Chevron determined that S-1504 exceeded its annual throughput limit listed in Table II A 3 of the refinery's Title V permit. Pursuant to Standard Condition J.2 of the refinery's Tile V permit, Chevron is required to report to the District any exceedance of a limit in Table II A 3. Such notice is for reporting purposes only -- it is not an indication of non-compliance with the refinery's Title V permit.

Probable Cause: The grandfathered limit was established using the highest documented throughput for the tank which was not appropriate since design capacity would provide a higher throughput limit. This tank has not been part of any activity with NSR implications.

Corrective actions or preventative steps taken: According to Standard Condition J-2 of our Title V permit, this throughput limit is for reporting purposes only. We are reporting this exceedance consistent with this permit condition.

Event Started:	4/30/2008 - 11:59 PM
Stopped:	✓ Ongoing Event
Discovered On:	5/1/2008

Report ID:	4344
Source Number:	S3072
Abatement Device:	

May have resulted in a violation of:

Permit:	Title V Permit Table II.A.3
BAAQMD:	
Other:	

Event Description:	The throughput limits for T3072 contained in Table II A 3 (Grandfathered Sources) of the refinery's Title V permit are new limits -- they did not exist before December 1, 2003 (the date the refinery's Title V permit was issued). To determine compliance with the annual throughput limits listed in Table II A 3, the District directed that Chevron sum the total throughput for each of the twelve months preceding the calculation date. Table II A 3 includes an annual throughput limit of 2,979,200 bbl. for S-3072. As of April 30, 2008 the actual throughput of S-3072 for the past 12 months was 2,987,253 bbl. Accordingly, based on data for the months May, 2007 through April 2008, on May 1, 2008, Chevron determined that S-3072 exceeded its annual throughput limit listed in Table II A 3 of the refinery's Title V permit. Pursuant to Standard Condition I.J.2 of the refinery's Title V permit, Chevron is required to report to the District any exceedance of a limit in Table II A 3. Such notice is for reporting purposes only -- it is not an indication of non-compliance with the refinery's Title V permit.
Probable Cause:	The grandfathered limit was established using the highest documented throughput for the tank which was not appropriate since design capacity would provide a higher throughput limit. This tank has not been part of any activity with NSR implications.
Corrective actions or preventative steps taken:	According to Standard Condition J-2 of our Title V permit, this throughput limit is for reporting purposed only. We are reporting this exceedance consistent with this permit condition.

Event Started: 4/1/2008	Report ID: 4343	May have resulted in a violation of:
Stopped:	✓ Ongoing Event	Source Number: S3104	Permit:
Discovered On: 4/1/2008		Abatement Device:	BAAQMD:
			Other:

Event Description: The throughput limits for T3104 contained in Table II A 3 (Grandfathered Sources) of the refinery's Title V permit are new limits -- they did not exist before December 1, 2003 (the date the refinery's Title V permit was issued). To determine compliance with the annual throughput limits listed in Table II A 3, the District directed that Chevron sum the total throughput for each of the twelve months preceding the calculation date. Table II A 3 includes an annual throughput limit of 22,676,000 bbls. for S-3104. As of March 31, 2007, the actual throughput of S-3104 for the past 12 months was 22,752,328 bbls. Accordingly, based on data for the months of April 2007 through March 2008, on April 1, 2008, Chevron determined that S-3104 exceeded its annual throughput limit listed in Table II A 3 of the refinery's Title V permit. Pursuant to Standard Condition J.2 of the refinery's Tile V permit, Chevron is required to report to the District any exceedance of a limit in Table II A 3. Such notice is for reporting purposes only -- it is not an indication of non-compliance with the refinery's Title V permit.

Probable Cause: The grandfathered limit was established using the highest documented throughput for the tank which was not appropriate since design capacity would provide a higher throughput limit. This tank has not been part of any activity with NSR implications.

Corrective actions or preventative steps taken: According to Standard Condition J-2 of our Title V permit, this throughput limit is for reporting purposes only. We are reporting this exceedance consistent with this permit condition.

Event Started:	3/31/2007 - 11:59 PM
Stopped:	✓ Ongoing Event
Discovered On:	4/2/2007

Report ID:	4342
Source Number:	S3071
Abatement Device:	

May have resulted in a violation of:

Permit:	Title V Permit Table II.A.3
BAAQMD:	
Other:	

Event Description:	The throughput limits for T3071 contained in Table II A 3 (Grandfathered Sources) of the refinery's Title V permit are new limits -- they did not exist before December 1, 2003 (the date the refinery's Title V permit was issued). To determine compliance with the annual throughput limits listed in Table II A 3, the District directed that Chevron sum the total throughput for each of the twelve months preceding the calculation date. Table II A 3 includes an annual throughput limit of 8,560,287 bbl. for S-3071. As of March 31, 2007 the actual throughput of S-3071 for the past 12 months was 8,776,309 bbl. Accordingly, based on data for the months April, 2006 through March 2007, on April 2, 2006, Chevron determined that S-3071 exceeded its annual throughput limit listed in Table II A 3 of the refinery's Title V permit. Pursuant to Standard Condition I.J.2 of the refinery's Title V permit, Chevron is required to report to the District any exceedance of a limit in Table II A 3. Such notice is for reporting purposes only -- it is not an indication of non-compliance with the refinery's Title V permit.
Probable Cause:	The grandfathered limit was established using the highest documented throughput for the tank which was not appropriate since design capacity would provide a higher throughput limit. This tank has not been part of any activity with NSR implications.
Corrective actions or preventative steps taken:	According to Standard Condition J-2 of our Title V permit, this throughput limit is for reporting purposes only. We are reporting this exceedance consistent with this permit condition.

Event Started:	11/23/2006 - 3:00 AM
Stopped:	✓ Ongoing Event
Discovered On:	12/4/2006

Report ID:	4341
Source Number:	S1688
Abatement Device:	

May have resulted in a violation of:

Permit:	Title V Permit Table II.A.3
BAAQMD:	
Other:	

Event Description:	The throughput limits for T1688 contained in Table II A 3 (Grandfathered Sources) of the refinery's Title V permit are new limits -- they did not exist before December 1, 2003 (the date the refinery's Title V permit was issued). To determine compliance with the annual throughput limits listed in Table II A 3, the District directed that Chevron sum the total throughput for each of the twelve months preceding the calculation date. Table II A 3 includes an annual throughput limit of 5,059,000 bbl. for S-1688. As of December 1, 2006 the actual throughput of S-1688 for the past 12 months was 5,206,861 bbl. Accordingly, based on data for the months December 2005 through November 2006, on December 1, 2006, Chevron determined that S-1688 exceded its annual throughput limit listed in Table II A 3 of the refinery's Title V permit. Pursuant to Standard Condition I.J.2 of the refinery's Title V permit, Chevron is required to report to the District any exceedance of a limit in Table II A 3. Such notice is for reporting purposes only -- it is not an indication of non-compliance with the refinery's Title V permit.
Probable Cause:	The grandfathered limit was established using the highest documented throughput for the tank which was not appropriate since design capacity would provide a higher throughput limit. This tank has not been part of any activity with NSR implications.
Corrective actions or preventative steps taken:	According to Standard Condition J-2 of our Title V permit, this throughput limit is for reporting purposes only. We are reporting this exceedance consistent with this permit condition.

Event Started:	7/1/2005		
Stopped:		✓ Ongoing Event	
Discovered On:	7/1/2005		

Report ID:	4340
Source Number:	S1491
Abatement Device:	

May have resulted in a violation of:

Permit:	Title V permit, Table II A 3
BAAQMD:	
Other:	

Event Description: REVISED: The throughput limit for the Chevron Refinery Tank 1491 (S#1491) contained in Table II A 3 (Grandfathered Sources) of the Refinery's Title V permit are new limits - they did not exist before December 1, 2003 (the date the refinery's Title V permit was issued). Table II A 3 includes a 12-month throughput limit of 1;093,160 bbls for 1491 Tank. As of July 31, 2006 the actual total throughput of this source for the previous 12 months was approximately 1,137,815 bbls. Accordingly, based on data for the months August 2005 through July 2006, Chevron determined that this source exceeded its annual throughput limit listed in Table II A 3 of the Refinery's Title V permit. As of January 31, 2009, the actual throughput of S-1491 for the past 12 months was 1,119,918 bbls. Accordingly, based on data for the months of February 2008 through January 2009, on February 3, 2009, Chevron determined that S-1491 exceeded its annual throughput limit in Table II A 3 of the refinery's Title V permit. Updated 9/1/2018: As of August 31, 2017, the actual throughput of S-1491 for the past 12 months was 1,611,125 bbls. Accordingly, based on data for the months of September 2017 through August 2018, on September 1, 2018, Chevron determined that S-1491 exceeded its annual throughput limit in Table II A 3 of the refinery's Title V permit. Pursuant to Standard Condition I.J.2 of the Refinery's Title V permit, Chevron is required to report to the District any exceedance of a limit in Table II A 3. Such notice is for reporting purposes only - it is not an indication of non-compliance with the Refinery's Title V permit.

Probable Cause: T-3073 received gasoline components from two process units and the refinery decided to divert one of these streams to T-1491 (S-1491). T-1491 has contained a number of gasoline components during its life. Although no change occurred with plant operation or capacity, the diverted stream caused an increase in throughput to be seen by T-1491. Immediately prior to its current service, T-1491 contained MTBE/TAME which was the basis for the Title V grandfathered throughput limit. The throughput of the current process stream to T-1491 is much greater than the throughput of MTBE/TAME. No modifications have been made which affect T-1491's throughput capabilities and no modifications were made which enabled the change in service. The grandfathered limit was established using the highest documented throughput for the tank which was not appropriate since design capacity would provide a higher throughput limit. This tank has not been part of any activity with NSR implications

Corrective actions or preventative steps taken: Chevron will continue to report this to the District as required by the Title V permit. According to Standard Condition J-2 of our Title V permit, this limit is for reporting purposes only. We are reporting this exceedance consistent with this permit condition.

Event Started:	12/31/2004 - 11:59 PM
Stopped:	✓ Ongoing Event
Discovered On:	1/10/2005

Report ID:	4339
Source Number:	RLW
Abatement Device:	

May have resulted in a violation of:

Permit:	Title V Permit, Table II.A.3
BAAQMD:	
Other:	

Event Description: REVISED NOTIFICATION to reflect date & time change: The throughput limit for the Chevron Refinery Long Wharf contained in Table II A 3 (Grandfathered Sources) of the refinery's Title V permit are new limits -- they did not exist before December 1, 2003 (the date the refinery's Title V permit was issued). To determine compliance with the annual throughput limits listed in Table II A 3, the District directed that Chevron sum the total throughput for each of the twelve months preceeding the calculation date. Table II A 3 includes a 12-month throughput limit of 146,628,000 bbls for the sum of all 6 berths - S-9321, -9322, -9323, -9324, -9325 and -9326. As of January 1, 2005 the actual total throughput of these sources for the previous 12 months was approximately 148,340,000 bbls. Accordingly, based on data for the months January 2004 through December 2004, on January 10, 2005 Chevron determined that these sources exceeded their annual throughput limit listed in Table II A 3 of the refinery's Title V permit. Pursuant to Standard Condition I.J.2 of the refinery's Title V permit, Chevron is required to report to the District any exceedance of a limit in Table II A 3. Such notice is for reporting purposes only -- it is not an indication of non-compliance with the refinery's Title V permit.

Probable Cause: The refinery has been operating at higher rates in order to meet the increased public demand for refined products, i.e., gasoline, diesel fuel and jet fuel. The refinery's feedstocks and incremental production are both handled at the Long Wharf. The 12-month throughput limit in the Title V Permit was artificially imposed and did not reflect the "as built" capabilities of the systems. No modifications have been made since February, 2000 that affected the wharf's throughput capabilities.

Corrective actions or preventative steps taken: Chevron has reported this to the District as required by the Title V permit.

Certification Statement

I certify under penalty of law that based on the information and belief formed after reasonable inquiry, the statements and information in this document and in all attachments and other materials are true, accurate, and complete.

x	***Tolly Graves***	***Director, Richmond Refinery***	7/29/2022
Signature of Responsible Official	Print Name	Title	Date

BAAQMD Title V Permit
6 Month Monitoring Report

From 01/01/2022 *to* 06/30/2022

Chevron Richmond Refinery
A0010

Facility Address:		Mailing Address:	
	841 Chevron Way		PO Box 1272
City:	Richmond	City:	Richmond
State:	CA	State:	CA
Zip Code:	94801	Zip Code:	94802-0272

Contact: Jason Brown Title: Air Compliance Technician Phone: (510) 242-3485

Inoperable monitors as defined by BAAQMD Regulations 1-522 and 1-523 for the reporting period are summarized below:

Record Id	Source(S#)	Abatement Device (A#)	CEM	GLM	Parametic	NOx	SO2	CO	H2S	TRS	NH3	O2	CO2	H2O	Opacity/ LTA	Lead	Stream	Flow	Wind Dir	Wind Speed	Temp	VOC	Gauge Press.
7173	V870	V-870 H2S analyzer	✓						✓														

Started: 1/1/2022 3:36 AM

Stopped: 1/2/2022 8:15 AM

Discovered on: 1/2/2022

Event Description: On January 01, 2022, the V-870 Total Sulfur analyzer became inoperative at 03:36 hours. The analyzer was back in service on January 02, 2022 at 08:15 hours.

Record Id	Source(S#)	Abatement Device (A#)	CEM	GLM	Parametic	NOx	SO2	CO	H2S	TRS	NH3	O2	CO2	H2O	Opacity/ LTA	Lead	Stream	Flow	Wind Dir	Wind Speed	Temp	VOC	Gauge Press.
7171	S6013				✓									✓									

Started: 12/30/2021 11:06 PM

Stopped: 1/4/2022 8:06 AM

Discovered on: 1/3/2022

Event Description: RESUMPTION OF MONITORING On January 04, 2022, the NISO Flare Water Seal Level Indicator was back in service at 08:06 hours. On December 30, 2021, the NISO Flare Water Seal Level Indicator became inoperative at 23:06 hours.

Record Id	Source(S#)	Abatement Device (A#)	CEM	GLM	Parametic	NOx	SO2	CO	H2S	TRS	NH3	O2	CO2	H2O	Opacity/ LTA	Lead	Stream	Flow	Wind Dir	Wind Speed	Temp	VOC	Gauge Press.
7174	S6010				✓																		

Started: 1/2/2022 9:25 AM

Stopped: 1/7/2022 1:30 PM

Discovered on: 1/3/2022

Event Description: RESUMPTION OF MONITORING On January 07, 2022, the LSFO Flare mass spectrometer, that measures BTU, was back in service at 13:30 hours. On January 02, 2022, the LSFO Flare mass spectrometer, that measures BTU, became inoperative at 09:25 hours.

Record Id	Source(S#)	Abatement Device (A#)	CEM	GLM	Parametic	NOx	SO2	CO	H2S	TRS	NH3	O2	CO2	H2O	Opacity/ LTA	Lead	Stream	Flow	Wind Dir	Wind Speed	Temp	VOC	Gauge Press.
7172	S6012				✓																		

Started: 1/5/2022 4:23 PM

Stopped: 1/14/2022 9:04 AM

Discovered on: 1/3/2022

Event Description: RESUMPTION OF MONITORING On January 14, 2022, the SISO Flare (S-6012) mass spectrometer, that measures BTU, was back in service at 09:04 hours. On January 05, 2022, the SISO Flare (S-6012) mass spectrometer, that measures BTU, became inoperative at 16:23 hours. This notification is being submitted in an abundance of caution.

7177	S6016				✓																		

Started: 1/6/2022 5:35 PM

Stopped: 1/8/2022 6:52 PM

Discovered on: 1/10/2022

Event Description: On January 06, 2022, the FCC Flare Vent Gas flow meter (59FI735), became inoperative at 17:35 hours. The FCC Flare Vent Gas flow meter (59FI735) was back in service on January 08, 2022 at 18:52 hours

7179	S4471				✓				✓														

Started: 1/9/2022 4:38 AM

Stopped: 1/10/2022 9:12 AM

Discovered on: 1/10/2022

Event Description: On January 09, 2022, the F-1100 PSA1 Tail Gas Total Sulfur analyzer became inoperative at 04:38 hours. The F-1100 PSA1 Tail Gas Total Sulfur analyzer was back in service on January 10, 2022 at 09:12 hours.

7189	S6013				✓									✓									

Started: 1/14/2022 6:39 AM

Stopped: 1/22/2022 3:05 PM

Discovered on: 1/17/2022

Event Description: RESUMPTION OF MONITORING On January 22, 2022, the NISO Flare Water Seal Level Indicator was back in service at 15:05 hours. On January 14, 2022, the NISO Flare Water Seal Level Indicator became inoperative at 06:39 hours. This report is being submitted in an abundance of caution.

7191	S6016				✓																		

Started: 1/17/2022 1:05 AM

Stopped: 1/21/2022 7:59 PM

Discovered on: 1/18/2022

Event Description: RESUMPTION OF MONITORING On January 21, 2022, the FCC Flare Vent Gas flow meter (59FI735), was back in service at 19:59 hours. On January 17, 2022, the FCC Flare Vent Gas flow meter (59FI735), became inoperative at 01:05 hours.

Record Id	Source(S#)	Abatement Device (A#)	CEM	GLM	Parametic	NOx	SO2	CO	H2S	TRS	NH3	O2	CO2	H2O	Opacity/ LTA	Lead	Stream	Flow	Wind Dir	Wind Speed	Temp	VOC	Gauge Press.
7193	S4285		✓					✓															

Started: 1/19/2022 5:30 AM

Stopped: 1/20/2022 12:21 PM

Discovered on: 1/19/2022

Event Description: On January 19, 2022 the FCC (F-300) CO analyzer became inoperative at 05:30 hours. The FCC (F-300) CO analyzer was back in service on January 20, 2022 at 12:21 hours.

7192	S6012				✓																		

Started: 1/18/2022 9:18 AM

Stopped: 1/19/2022 3:56 PM

Discovered on: 1/20/2022

Event Description: On January 18, 2022, the SISO Flare (S-6012) mass spectrometer, that measures BTU, became inoperative at 09:18 hours. The SISO Flare (S-6012) mass spectrometer was back in service on January 19, 2022 at 15:56 hours.

7197					✓																		

Started: 1/21/2022 4:37 AM

Stopped: 1/25/2022 10:41 AM

Discovered on: 1/24/2022

Event Description: RESUMPTION OF MONITORING On January 25, 2022, the D&R Flare (S-6015) mass spectrometer, that measures BTU, was back in service at 10:41 hours. On January 21, 2022, the D&R Flare (S-6015) mass spectrometer, that measures BTU, became inoperative at 04:37 hours. This report is being submitted in an abundance of caution.

7201	S6039				✓																		

Started: 1/25/2022 1:50 PM

Stopped: 1/26/2022 3:21 PM

Discovered on: 1/26/2022

Event Description: On January 25, 2022, the RLOP Flare mass spectrometer, that measures BTU, became inoperative at 13:50 hours. The RLOP Flare mass spectrometer was back in service on January 26, 2022 at 15:21 hours.

7205	S6016				✓																		

Started: 1/30/2022 11:10 PM

Stopped: 2/3/2022 2:18 PM

Discovered on: 1/31/2022

Event Description: RESUMPTION OF MONITORING On February 03, 2022, the FCC Flare Vent Gas flow meter (59FI735), was back in service at 14:18 hours. On January 30, 2022, the FCC Flare Vent Gas flow meter (59FI735), became inoperative at 23:10 hours.

Record Id	Source(S#)	Abatement Device (A#)	CEM	GLM	Parametic	NOx	SO2	CO	H2S	TRS	NH3	O2	CO2	H2O	Opacity/ LTA	Lead	Stream	Flow	Wind Dir	Wind Speed	Temp	VOC	Gauge Press.
7208					✓																		

Started: 2/3/2022 2:46 PM

Stopped: 2/14/2022 2:35 PM

Discovered on: 2/7/2022

Event Description: RESUMPTION OF MONITORING On February 14, 2022, the Isomax Cooling Water Tower hydrocarbon analyzer (78AI260A) was back in service at 14:35 hours. On February 03, 2022, the Isomax Cooling Water Tower hydrocarbon analyzer (78AI260A) became inoperative at 14:46 hours.

7209	S6021				✓													✓					

Started: 2/4/2022 10:11 AM

Stopped: 2/13/2022 5:52 PM

Discovered on: 2/7/2022

Event Description: RESUMPTION OF MONITORING On February 13, 2022, the H2 Flare (S-6021) Nitrogen purge to NH3 relief was back in service at 17:52 hours. On February 04, 2022, the H2 Flare (S-6021) Nitrogen purge to NH3 relief became inoperative at 10:11 hours.

7219	S6039				✓												✓				✓		

Started: 2/15/2022 1:27 PM

Stopped: 2/16/2022 1:48 PM

Discovered on: 2/17/2022

Event Description: On February 15, 2022, the RLOP Flare steam flow meter (80FB3115) and steam temperature flow meter (80TI103) became inoperative at 13:27 hours. The RLOP Flare steam flow meters were back in service on February 16, 2022 at 13:48 hours.

7218					✓																		

Started: 2/15/2022 2:21 PM

Stopped: 2/21/2022 1:40 PM

Discovered on: 2/17/2022

Event Description: RESUMPTION OF MONITORING On February 21, 2022, the Isomax Cooling Water Tower hydrocarbon analyzer (78AI260A) was back in service at 13:40 hours. On February 15, 2022, the Isomax Cooling Water Tower hydrocarbon analyzer (78AI260A) became inoperative at 14:21 hours.

7222	S4169				✓																		

Started: 2/18/2022 3:57 AM

Stopped:

Discovered on: 2/18/2022

Event Description: Retracted on February 24, 2022. Upon further review, the F-731 fuel gas pressure flow meter (76PC7300) was operative. An inoperative monitor notification was inadvertently submitted. On February 18, 2022 the F-731 fuel gas pressure flow meter became inoperative at 3:57 hours.

Record Id	Source(S#)	Abatement Device (A#)	CEM	GLM	Parametic	NOx	SO2	CO	H2S	TRS	NH3	O2	CO2	H2O	Opacity/ LTA	Lead	Stream	Flow	Wind Dir	Wind Speed	Temp	VOC	Gauge Press.
7227					✓																		

Started: 2/25/2022 4:23 AM

Stopped: 3/1/2022 9:57 AM

Discovered on: 2/28/2022

Event Description: RESUMPTION OF MONITORING On March 01, 2022, the D&R Flare (S-6015) mass spectrometer, that measures BTU, was back in service at 09:57 hours. On February 25, 2022, the D&R Flare (S-6015) mass spectrometer, that measures BTU, became inoperative at 04:23 hours. This report is being submitted in an abundance of caution.

7225					✓																		

Started: 2/24/2022 1:15 PM

Stopped: 3/8/2022 10:00 AM

Discovered on: 2/28/2022

Event Description: RESUMPTION OF MONITORING On March 08, 2022, the Isomax Cooling Water Tower hydrocarbon analyzer (78AI260A) was back in service at 10:00 hours. On February 24, 2022, the Isomax Cooling Water Tower hydrocarbon analyzer (78AI260A) became inoperative at 13:15 hours.

7252	S6016				✓																		

Started: 3/5/2022 4:16 AM

Stopped: 3/10/2022 2:07 PM

Discovered on: 3/7/2022

Event Description: RESUMPTION OF MONITORING On March 10, 2022, the FCC Flare Vent Gas Flow Meter (59FI737), was back in service at 14:07 hours. On March 05, 2022, the FCC Flare Vent Gas Flow Meter (59FI737), became inoperative at 04:16 hours.

7251	S6019				✓													✓					

Started: 3/5/2022 5:36 AM

Stopped: 3/10/2022 12:30 PM

Discovered on: 3/7/2022

Event Description: RESUMPTION OF MONITORING On March 10, 2022 the Alky Flare Vent Gas Flow Meter (59FI736) was back in service at 12:30 hours. On March 05, 2022 the Alky Flare Vent Gas Flow Meter (59FI736) became inoperative at 05:36 hours.

7254	S4285		✓												✓								

Started: 3/7/2022 8:12 AM

Stopped: 3/8/2022 8:34 AM

Discovered on: 3/9/2022

Event Description: On March 07, 2022, the FCC opacity analyzer became inoperative at 08:12 hours. The analyzer was back in service on March 08, 2022 at 08:34 hours.

Record Id	Source(S#)	Abatement Device (A#)	CEM	GLM	Parametic	NOx	SO2	CO	H2S	TRS	NH3	O2	CO2	H2O	Opacity/ LTA	Lead	Stream	Flow	Wind Dir	Wind Speed	Temp	VOC	Gauge Press.
7258					✓																		

Started: 3/12/2022 4:24 AM

Stopped: 3/14/2022 11:11 AM

Discovered on: 3/14/2022

Event Description: On March 12, 2022, the D&R Flare (S-6015) mass spectrometer, that measures BTU, became inoperative at 04:24 hours. The mass spectrometer was back in service on March 14, 2022 at 11:11 hours.

7271	S4472	F-2100 PSA 2 Tail Gas, Total Sulfur			✓				✓														

Started: 3/18/2022 4:46 AM

Stopped: 3/22/2022 11:38 AM

Discovered on: 3/21/2022

Event Description: RESUMPTION OF MONITORING On March 22, 2022, the F-2100 PSA2 Tail Gas Total Sulfur analyzer (34AI22108) was back in service at 11:38 hours. On March 18, 2022, the F-2100 PSA2 Tail Gas Total Sulfur analyzer (34AI22108) became inoperative at 04:46 hours.

7272	S6021				✓													✓					

Started: 3/16/2022 11:56 AM

Stopped: 3/30/2022 3:45 PM

Discovered on: 3/21/2022

Event Description: RESUMPTION OF MONITORING On March 30, 2022, the H2 Flare (S-6021) Pilot Gas Flow meter (31FI34016) was back in service at 15:45 hours. On March 16, 2022, the H2 Flare (S-6021) Pilot Gas Flow meter (31FI34016) became inoperative at 11:56 hours.

7278	S6039				✓																		

Started: 3/21/2022 11:45 PM

Stopped: 3/30/2022 2:58 PM

Discovered on: 3/22/2022

Event Description: (Updated)RESUMPTION OF MONITORING On March 30, 2022, the RLOP Flare Vent Gas Pressure flow meter (80PI110) was back in service at 14:58 hours. [Update] On March 21, 2022, the RLOP Flare Vent Gas Pressure flow meter (80PI110) became inoperative at 23:45 hours.

7284	S4061, S4062		✓			✓						✓											

Started: 3/22/2022 1:16 PM

Stopped: 3/23/2022 1:53 PM

Discovered on: 3/23/2022

Event Description: On March 22, 2022 the F-410/447 NOx and O2 analyzers were inoperative at 13:16 hours. The NOx and O2 analyzers were back in service on March 23, 2022 at 13:53 hours.

Record Id	Source(S#)	Abatement Device (A#)	CEM	GLM	Parametic	NOx	SO2	CO	H2S	TRS	NH3	O2	CO2	H2O	Opacity/ LTA	Lead	Stream	Flow	Wind Dir	Wind Speed	Temp	VOC	Gauge Press.
7283	V701		✓						✓														

Started: 3/22/2022 10:20 PM

Stopped: 3/24/2022 9:45 AM

Discovered on: 3/23/2022

Event Description: On March 22, 2022, the V-701 H2S analyzer became inoperative at 22:20 hours. The H2S analyzer was back in service on March 24, 2022 at 09:45 hours.

7290	S4188		✓			✓						✓											

Started: 3/26/2022 6:25 PM

Stopped: 3/29/2022 1:17 AM

Discovered on: 3/28/2022

Event Description: RESUMPTION OF MONITORING On March 29, 2022, the F-651 Poly NOx and O2 analyzers were back in service at 01:17 hours. On March 26, 2022, the F-651 Poly NOx and O2 analyzers became inoperative at 18:25 hours.

7295	S6039				✓																		

Started: 3/26/2022 2:52 PM

Stopped: 3/30/2022 10:13 AM

Discovered on: 3/30/2022

Event Description: On March 26, 2022, the RLOP Flare mass spectrometer, that measures BTU, became inoperative at 14:52 hours. The RLOP Flare mass spectrometer was back in service on March 30, 2022 at 10:13 hours.

7330					✓																		

Started: 4/28/2022 2:25 PM

Stopped:

Discovered on: 5/2/2022

Event Description: RCA retracted on 5/5/2022. On April 28, 2022, the Isomax Cooling Water Tower flow meter (78FI260A) became inoperative at 14:25 hours.

7351	S4285		✓												✓								

Started: 5/15/2022 9:34 AM

Stopped: 5/16/2022 9:34 AM

Discovered on: 5/16/2022

Event Description: On May 15, 2022, the FCC opacity analyzer became inoperative at 09:34 hours. The analyzer was back in service on May 16, 2022 at 09:34 hours.

7354					✓																		

Started: 5/17/2022 7:51 AM

Stopped: 5/18/2022 7:39 PM

Discovered on: 5/18/2022

Event Description: On May 17, 2022, the D&R Flare (S-6015) mass spectrometer, that measures BTU, became inoperative at 07:51 hours. The mass spectrometer was back in service on May 18, 2022 at 19:39 hours.

Record Id	Source(S#)	Abatement Device (A#)	CEM	GLM	Parametic	NOx	SO2	CO	H2S	TRS	NH3	O2	CO2	H2O	Opacity/ LTA	Lead	Stream	Flow	Wind Dir	Wind Speed	Temp	VOC	Gauge Press.
7373	S6039				✓																		

Started: 5/31/2022 7:44 AM

Stopped: 6/3/2022 11:44 AM

Discovered on: 6/1/2022

Event Description: RESUMPTION OF MONITORING On June 03, 2022, the RLOP Flare mass spectrometer, that measures BTU, was back in service at 11:44 hours. On May 31, 2022, the RLOP Flare mass spectrometer, that measures BTU, became inoperative at 07:44 hours.

7374	S6013				✓																		

Started: 6/1/2022 10:29 AM

Stopped: 6/2/2022 3:11 PM

Discovered on: 6/2/2022

Event Description: RESUMPTION OF MONITORING On June 02, 2022, the NISO Flare mass spectrometer, that measures BTU, was back in service at 15:11 hours. On June 01, 2022, the NISO Flare mass spectrometer, that measures BTU, became inoperative at 10:29 hours.

7375	S6016				✓																		

Started: 6/3/2022 9:59 PM

Stopped: 6/7/2022 8:42 PM

Discovered on: 6/6/2022

Event Description: On June 03, 2022, the FCC Flare Vent Gas flow (59FI735 & 59FI737) and temperature (59TI735A & 59TI737A) meters, became inoperative at 21:59 hours and was back in service June 7th at 20:42 hours.

7379	S6019				✓																		

Started: 6/6/2022 7:28 AM

Stopped: 6/7/2022 12:16 PM

Discovered on: 6/7/2022

Event Description: On June 06, 2022, the Alky Flare mass spectrometer, that measures BTU, became inoperative at 07:28 hours. The Alky Flare mass spectrometer was back in service on June 07, 2022 at 12:16 hours.

7382	S6013				✓																		

Started: 6/10/2022 12:39 PM

Stopped: 6/13/2022 9:35 AM

Discovered on: 6/13/2022

Event Description: RESUMPTION OF MONITORING On June 13, 2022, the NISO Flare mass spectrometer was back in service at 09:35 hours. On June 10, 2022, the NISO Flare mass spectrometer, that measures BTU, became inoperative at 12:39 hours.

Record Id	Source(S#)	Abatement Device (A#)	CEM	GLM	Parametic	NOx	SO2	CO	H2S	TRS	NH3	O2	CO2	H2O	Opacity/ LTA	Lead	Stream	Flow	Wind Dir	Wind Speed	Temp	VOC	Gauge Press.
7408	S6013				✓																		

Started: 6/26/2022 4:08 AM

Stopped: 6/27/2022 5:14 AM

Discovered on: 6/28/2022

Event Description: On June 26, 2022, the NISO Flare mass spectrometer, that measures BTU, became inoperative at 04:08 hours. The NISO Flare mass spectrometer was back in service on June 27, 2022 at 05:14 hours.

7412	S6021				✓																		

Started: 6/28/2022 7:44 AM

Stopped: 6/29/2022 12:22 PM

Discovered on: 6/29/2022

Event Description: On June 28, 2022, the H2 Plant Flare mass spectrometer (Total Sulfur, and BTU) became inoperative at 07:44 hours. The Mass Spectrometer was back in service on June 29, 2022 at 12:22 hours.

7414	S6012				✓																		

Started: 6/29/2022 12:19 PM

Stopped: 6/30/2022 1:11 PM

Discovered on: 6/30/2022

Event Description: On June 29, 2022, the SISO Flare (S-6012) mass spectrometer, that measures BTU, became inoperative at 12:19 hours. The SISO Flare (S-6012) mass spectrometer was back in service on June 30, 2022 at 13:11 hours.

Certification Statement

I certify under penalty of law that based on the information and belief formed after reasonable inquiry, the statements and information in this document and in all attachments and other materials are true, accurate, and complete.

x	*Tolly Graves*	*Director, Richmond Refinery*	7/29/2022
Signature of Responsible Official	Print Name	Title	Date