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	PROCESSED BY: Bob Sanford	CHECKED BY

PERMIT TO CONSTRUCT
Application Nos. 530643 - 530648

COMPANY NAME: Chevron Products Company

MAILING ADDRESS: P.O. Box 97
El Segundo, CA 90245

EQUIPMENT LOCATION: 324 W. El Segundo Blvd.
El Segundo, CA 90245

BACKGROUND/SUMMARY

As part of their PRO Project, Chevron proposed to construct a new vapor recovery system (VRS) and flare to handle vent gases from atmospheric emergency pressure relief valves (PRVs) in the following permit units: No. 2 Crude Unit, No. 2 Resid Stripper, Merox Plant and Waste Gas Compressor Station. Under current operation, any gas leaking from these PRVs and any emergency releases from these PRVs go to the atmosphere. Chevron has decided not to construct the new flare and VRS. Chevron now proposes to connect the outlet of these atmospheric PRVs to the Refinery Blowdown Gas Recovery System (commonly referred to as the LSFO Vapor Recovery System (VRS)) and LSFO Flare.

Chevron also proposes to replace vessels V-1290 and V-2500 in the LSFO Flare permit unit. The V-1290 is a knockout drum on the relief header from the Naphtha Hydrotreater No. 2. This drum collects liquid in the relief gas to the LSFO VRS or Flare since the liquid will degrade operation of the compressors and flare. The new drum will be larger than the existing drum since the existing drum is undersized. The V-2500 is a knockout drum on the main relief header to the LSFO Flare. It collects liquids in the relief gas to the flare since the liquids will degrade flare operation. The existing drum, which is constructed of carbon steel, is being replaced due to corrosion. The new vessel will be constructed of carbon steel with internal stainless steel cladding. It will have the same dimensions as the current drum.

The following permit cleanup activities will also be undertaken:

1. The Alky Unit Vapor Recovery System is currently permitted as Process 20 System 11 in Chevron's RECLAIM/Title V permit. This permit unit currently consists of Accumulator Vessel V-203 (D2218) and Knockout Pot V-217 (D2219), which are both located on a relief header that connects to the main header for the LSFO Flare/VRS. Per current permitting practice, this type of relief header is not normally permitted as a separate permit unit. It is proposed to move these devices to LSFO Flare permit unit.
2. The Vapor Gathering System II is permitted as Process 20 System 18 in Chevron's RECLAIM/Title V permit. This permit unit currently consists of Knockout Pot V-2 (D1824), which is also located on a relief header that connects to the main header for the LSFO Flare/VRS. It is proposed to move this device to LSFO Flare permit unit.
3. Chevron's RECLAIM/Title V permit currently specifies that vent gases from the Carbon Adsorbers V-441/V-442 (C884) in the Merox Plant (P12S18) are directed to Compressor K-450A in the Waste Gas Compressor Station (P20S19). According to drawings provided by

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Chevron, these carbon adsorbers are connected to Compressors K-2006, K-2007 and K-2008 (D4211 – D4213) in the LSFO VRS (P20S10). The carbon adsorbers are only vented to the LSFO VRS during regeneration (steam desorption).

EQUIPMENT DESCRIPTION:

New permits to construct will be issued in Section H of Chevron's RECLAIM/Title V Facility Permit for each of the subject permit units. Also, the Alky Unit VRS (P20S11) and Vapor Gathering System II (P20S18) permit units will be removed from Section D of Chevron's RECLAIM/Title V Permit. The proposed permit pages for each of these permits are contained in this section. In these proposed permit pages, new text is indicated by underline and deleted text is indicated by strikethrough. Modified conditions are indicated by parenthesis.

Section H: Permit to Construct and Temporary Permit to Operate

Description	ID No.	Connect To	RECLAIM Source Type	Emissions and Requirements	Conditions
Process 1: Crude Distillation					P13.1
System 3: No. 2 Crude Unit (Atmospheric Distillation)					S7.4, S13.2, (S15.7), S15.9, S15.10, S31.20
ACCUMULATOR, V-302, ATMOSPHERIC COLUMN OVERHEAD REFLUX DRUM, LENGTH: 32 FT; DIAMETER: 11 FT A/N: 530643	D11				
DRUM, HOLDING, DEGASSING, V-355, P. H. CONDENSATE, HEIGHT: 15 FT; DIAMETER: 6 FT 6 IN A/N: 530643	D15			Note: 1 PRV (& 1 spare) – Max. release rate of 6,406 lb/hr	<u>K171.15</u>
COLUMN, ATMOSPHERIC, C-301, WITH NEW OVERHEAD VAPOR AIR-COOLED EXCHANGERS, HEIGHT: 141 FT 8 IN; DIAMETER: 21 FT 6 IN A/N: 530643	D3195			Note: 3 PRVs (& 1 spare) – Max. release rate of 237,385 lb/hr.	<u>K171.15</u>
COLUMN, NO. 1 SIDECUT STRIPPER, C-302, HEIGHT: 31 FT 7 IN; DIAMETER: 5 FT 6 IN A/N: 530643	D3196				
COLUMN, NO. 2 SIDECUT STRIPPER, C-303, HEIGHT: 33 FT 7 IN; DIAMETER: 7 FT 6 IN A/N: 530643	D3197				
COLUMN, NO. 3 SIDECUT STRIPPER, C-304, HEIGHT: 22 FT 7 IN; DIAMETER: 7 FT 6 IN A/N: 530643	D3198				
COLUMN, STABILIZER, C-308, HEIGHT: 80 FT 3 IN; DIAMETER: 6 FT 6 IN A/N: 530643	D3199			Note: 1 PRV – Max. release rate of 58,752 lb/hr	<u>K171.15</u>
COLUMN, PREFRACTIONATOR, C-351, HEIGHT: 78 FT; DIAMETER: 11 FT A/N: 530643	D3200			Note: The PRVs on this vessel will be eliminated through connection of the vessel to the C-301 Atm. Column.	<u>K171.15</u>

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Description	ID No.	Connect To	RECLAIM Source Type	Emissions and Requirements	Conditions
VESSEL, DESALTER, PETRECO, V-319A, HEIGHT: 80 FT; DIAMETER: 12 FT A/N: 530643	D3235				
VESSEL, DESALTER, PETRECO, V-319B, HEIGHT: 80 FT; DIAMETER: 12 FT A/N: 530643	D3236				
TANK, V-352, DEMULSIFYING CHEMICAL, LENGTH: 6 FT DIAMETER: 2 FT 6 IN A/N: 530643	D3237				
ACCUMULATOR, V-306, STABILIZER OVERHEAD REFLUX DRUM, LENGTH: 14 FT 1.5 IN T/T, DIAMETER: 4 FT 3 IN A/N: 530643	D4221				
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: 530643	D3576			HAP: (10) [40CFR 63 Subpart CC, #5A, 5-25-2001]	H23.3 H23.47

[Note: The V-363 Fuel Gas KO Drum is equipped with 1 PRV (& 1 spare) with a maximum release rate of 58,752 lb/hr. Per SCAQMD policy, fuel gas KO drums are not included in the RECLAIM/Title V permit.]

Description	ID No.	Connect To	RECLAIM Source Type	Emissions and Requirements	Conditions
Process 1: Crude Distillation					P13.1
System 13: No. 2 Resid Stripper					S7.4, S13.2, (S15.7), S15.9, S15.10, S46.2
VESSEL, BLOWDOWN DRUM, V-203, LENGTH: 8 FT 9 IN; DIAMETER: 2 FT A/N: 530644	D108				
VESSEL, V-206, STEAM/AIR DECOKING, HEIGHT: 7 FT; DIAMETER: 4 FT A/N: 530644	D111				
EJECTOR, SECONDARY, G-218A/B A/N: 530644	D3702				H23. 21
EJECTOR, TERTIARY, G-219A/B A/N: 530644	D3703				H23. 21
COLUMN, VACUUM FRACTIONATING, C-201, HEIGHT: 91 FT; DIAMETER: 21 FT A/N: 530644	D3963		Note: 2 PRVs (& 1 spare) – Max. release rate of 61,073 lb/hr		K171.15
DRUM, SEAL, V-210, LENGTH: 10 FT T/T; DIAMETER: 6 FT A/N: 530644	D4219				



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Description	ID No.	Connect To	RECLAIM Source Type	Emissions and Requirements	Conditions
EJECTOR, PRIMARY, G-217 A/N: 530644	D4220				H23.21
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: 530644	D4368				H23.47

Description	ID No.	Connect To	RECLAIM Source Type	Emissions and Requirements	Conditions
Process 12: TREATING AND STRIPPING UNIT					
System 18: MEROX PLANT					
					<u>S7.4, S13.2, S15.7, S46.2</u>
REACTOR, MEROX, R-410, HEIGHT: 24 FT ; DIAMETER: 9 FT A/N: 530645	D881			Note: 1 PRV – Max. release rate of 44,138 lb/hr.	<u>K171.15</u>
KNOCKOUT DRUM, VESSEL, TREATER, V-410, CAUSTIC PRETREATER, ELECTROSTATIC, HEIGHT: 16 FT ; DIAMETER: 6 FT 6 IN A/N: 530645	D882			Note: 1 PRV – Max. release rate of 35,282 lb/hr. Note: This vessel currently functions as a water knockout drum	<u>K171.15</u>
SETTLING TANK, V-440, SPENT CAUSTIC, WITH EMERGENCY VENT TO ATMOSPHERE, HEIGHT: 24 FT; DIAMETER: 10 FT A/N: 530645	D883	C884		Note: 1 PRV – Max. release rate of 7,423 lb/hr.	<u>K171.15</u>
REGENERATIVE CARBON ADSORBER, V-441/V-442, TWO (2) PARALLEL UNITS (ONE SPARE), STEAM DESORPTION, WITH EMERGENCY VENT TO ATMOSPHERE, HEIGHT: 5 FT 6 IN; DIAMETER: 3 FT A/N: 530645	C884	D883 D3489		Note: According to Chevron and supporting drawings, this CA vents to the compressors in the LSFO VRS (D4211 – D4213) during steam desorption of the CAs. Not compressor K-450A (D3489) in the Waste Gas Comp. Station (P20S19).	D90.21, E153.1, <u>E336.18</u>
TANK, HOLDING, T-410, METHANOL, 10000 GALS; DIAMETER: 12 FT ; HEIGHT: 13 FT A/N: 530645	D886			Note: According to Chevron, this tank has been demolished.	
DRUM, DISSOLVING, V-412, MEROX CATALYST, HEIGHT: 3 FT; DIAMETER: 2 FT 6 IN A/N: 530645	D3451				
SETTLING TANK, V-420, CAUSTIC, LENGTH: 30 FT 2 IN; DIAMETER: 8 FT A/N: 530645	D3452				
DRUM, WATER WASH, V-430, HEIGHT: 20 FT ; DIAMETER: 7 FT A/N: 530645	D3453			Note: 1 PRV – Max. release rate of 120,074 lb/hr.	<u>K171.15</u>
DRUM, MIX, V-470, INHIBITOR, HEIGHT: 3 6 FT ; DIAMETER: 2 FT 6 IN A/N: 530645	D3454			Note: Height of this tank will be corrected.	

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Description	ID No.	Connect To	RECLAIM Source Type	Emissions and Requirements	Conditions
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: 530645	D3651			HAP: (10) [40CFR 63 Subpart CC, #5A, 6-23-2003]	H23. 3

Description	ID No.	Connect To	RECLAIM Source Type	Emissions and Requirements	Conditions
Process 20: Air Pollution Control					
System 7: LSFO Emergency Relief System (Flare)					S7.4, S13.2, (S18.7), <u>S31.20</u>
FLARE, ELEVATED WITH STEAM INJECTION, F-2500, HEIGHT: 175 FT; DIAMETER: 3 FT 6 IN A/N: 526609 530646	C1757				B61.11, D12.14, D323.2, H23.44 , H23.46, H23.49 , H-1
DRUM, V-1198, CRUDE UNIT RELIEF, WITH STEAM COIL, LENGTH: 20 FT; DIAMETER: 11 FT 6 IN A/N: 526609 530646	D1759				
DRUM, V-1290, NAPHTHA HYDROTREATER RELIEF, WITH STEAM COIL, T/T LENGTH: 46 23 FT; DIAMETER: 5 10 FT A/N: 526609 530646	D1760			Note: This vessel is being replaced. The new vessel will be larger than the existing vessel to increase relief capacity.	
DRUM, V-1591, VRDS RELIEF, WITH STEAM COIL, LENGTH: 32 FT; DIAMETER: 10 FT 6 IN A/N: 526609 530646	D1761				
DRUM, V-1691, VGO RELIEF, WITH STEAM COIL, LENGTH: 30 FT; DIAMETER: 10 FT 6 IN A/N: 526609 530646	D1762				
DRUM, V-1890, HYDROGEN PLT, H2S RECOVERY, H2 BOOSTER COMPR & PENTANE PLUS PLT RELIEF, WITH STEAM COIL, LENGTH: 21 FT; DIAMETER: 6 FT 6 IN A/N: 526609 530646	D1763				
KNOCK OUT POT, V-956, THERMAL DISTILLATION RECOVERY SYSTEM, LENGTH: 7 FT; DIAMETER: 2 FT A/N: 526609	D1764			Note: According to Chevron, the Thermal Distillation Recovery System and this KO pot have been demolished.	
VESSEL, SEPARATOR, DEGASSER, V-1175, HEIGHT: 19 FT; DIAMETER: 7 FT 1 IN A/N: 526609 530646	D1767				

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Description	ID No.	Connect To	RECLAIM Source Type	Emissions and Requirements	Conditions
<u>KNOCK OUT POT, LPG, V-2, WITH EMERGENCY PRV VENTED TO ATMOS., HEIGHT: 8 FT; DIAMETER: 4 FT</u> A/N: 410463 530646	<u>D1824</u>			Note: This KO Drum, which is located on a relief header to the LSFO VRS/Flare, is being moved from the Vapor Gathering System II permit unit (P20S18).	
<u>ACCUMULATOR, V-203, COKER LINE LIQUID, HEIGHT: 12 FT; DIAMETER: 4 FT</u> A/N: 235937 530646	<u>D2218</u>			Note: These drums, which are located on a relief header to the LSFO VRS/Flare, are being moved from the Alky Unit Vapor Recovery System permit unit (P20S11).	
<u>KNOCK OUT POT, DIB/COGEN/LPG RELIEF, V-217, LENGTH: 20 FT; DIAMETER: 10 FT</u> A/N: 235937 530646	<u>D2219</u>				
<u>KNOCK OUT POT, NHT NO. 3, V-1098, LENGTH: 20 FT; DIAMETER: 10 FT</u> A/N: 526609 530646	<u>D2220</u>				E336.1
<u>VESSEL, SEPARATOR, V-2502, PROCESS GAS, HEIGHT: 4 FT 7 IN; DIAMETER: 1 FT 8 IN</u> A/N: 526609 530646	<u>D3028</u>				
<u>FILTER, K-2502, PROCESS GAS, HEIGHT: 1 FT 2.25 IN; DIAMETER: 11.5 IN</u> A/N: 526609	<u>D3029</u>			Note: According to Chevron, this filter has been removed from service.	
<u>KNOCK OUT POT, V-2500, LENGTH IS TANGENT TO TANGENT, WITH STEAM COIL, LENGTH: 25 FT; DIAMETER: 12 FT</u> A/N: 526609 530646	<u>D3840</u>			Note: This vessel is being replaced. The new vessel will have the same dimensions as the existing vessel.	
<u>KNOCK OUT POT, NO. 2 CU/NO. 2 RS, MINALK/K-450 RELIEF, V-398, T/T LENGTH: 30 FT; DIAMETER: 10 FT</u> A/N: 530646	<u>Dxxx1</u>			Note: This is a knockout drum on the new relief header for the PRVs being connected to the LSFO Flare/VRS.	<u>K171.15</u>
<u>FUGITIVE EMISSIONS, MISCELLANEOUS</u> A/N: 526609 530646	<u>D3678</u>			HAP: (10) [40CFR 63 Subpart CC, #5A, 5-25-2001]	H23.3

Description	ID No.	Connect To	RECLAIM Source Type	Emissions and Requirements	Conditions
Process 20: AIR POLLUTION CONTROL					
System 10: REFINERY BLOWDOWN GAS RECOVERY SYSTEM					S7.4, S13.2, S15.5, S15.9, (S18.12), S46.2
<u>KNOCK OUT POT, V-2010, RESID STRIPPER, LENGTH: 10 FT; DIAMETER: 7 FT 1 IN</u> A/N: 526608 530647	<u>D1772</u>				

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Description	ID No.	Connect To	RECLAIM Source Type	Emissions and Requirements	Conditions
COMPRESSOR, ELECTRIC DRIVEN, K-2006, TWO-STAGE, RECIPROCATING, 4 MMSCFD, DUAL PACKING RINGS WITH NITROGEN PURGE GAS VENTED TO A FUEL GAS SYSTEM A/N: 526608 530647	D4211				E73.8, H23.47
COMPRESSOR, ELECTRIC DRIVEN, K-2007, TWO-STAGE, RECIPROCATING, 4 MMSCFD, DUAL PACKING RINGS WITH NITROGEN PURGE GAS VENTED TO A FUEL GAS SYSTEM A/N: 526608 530647	D4212				E73.8, H23.47
COMPRESSOR, ELECTRIC DRIVEN, K-2008, TWO-STAGE, RECIPROCATING, 4 MMSCFD, DUAL PACKING RINGS WITH NITROGEN PURGE GAS VENTED TO A FUEL GAS SYSTEM A/N: 526608 530647	D4213				E73.8, H23.47
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: 526608 530647	D3679			HAP: (10) [40CFR 63 Subpart CC, #5A,5-25-2001]	H23.19

Description	ID No.	Connect To	RECLAIM Source Type	Emissions and Requirements	Conditions
Process 20: AIR POLLUTION CONTROL					
System 19: WASTE GAS COMPRESSOR STATION					S7.4, S13.2, (S15.7), S15.24, S18.23, S46.2
COMPRESSOR, K-450A, PACKED SEALS, MOTOR DRIVE A/N: 530648	D3489	€884			E73.10, K67.73
COMPRESSOR, K-450B, PACKED SEALS, MOTOR DRIVE A/N: 530648	D3566				E73.10, K67.73
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: 530648	D3685				H23. 3, K171.15

[Note: The KO drum for Compressors K-450 A/B is equipped with 2 PRVs (& 1 spare) with a max total release rate of 37,325 lb/hr. Per SCAQMD policy, compressor KO drums are not included in the RECLAIM/Title V permit.]

PROCESS CONDITIONS:

P13.1 All devices under this process are subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
Benzene	40CFR61,	SUBPART FF

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[40CFR 61 Subpart FF, 12-4-2003]

[Processes subject to this condition: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16]

SYSTEM CONDITIONS:

S7.4 The following conditions shall apply to all refinery operation and related devices from this system:

The operator shall comply with all applicable mitigation measures stipulated in the "Statement of Findings, Statement of Overriding Considerations, and Mitigation Monitoring Plan" document which is part of the SCAQMD Certified Final Environmental Impact Report dated 09-May-2008 for this facility.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with the applicable measures stipulated in the "Statement of Findings, Statement of Overriding Considerations, and Mitigation Monitoring Plan" document.

[CA PRC CEQA, 11-23-1970]

[Systems subject to this condition: Process 1 System 3, 13, Process 3, System 1; Process 7, System 4; Process 12, System 18, 28; Process 13, System 10, 11, 12, 13; Process 17, System 7, 8; Process 20, System 4, 7, 10, 19, 31]

S13.2 All devices under this system are subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1123

[RULE 1123, 12-7-1990]

[Systems subject to this condition : Process 1, System 3, 5, 13, 17; Process 2, System 1, 5, 6; Process 3, System 1, 5; Process 4, System 1, 3, 5, 7, 9, 11, 13; Process 5, System 1; Process 6, System 1, 3, 4; Process 7, System 2, 4, 7; Process 8, System 1, 2, 5, 7, 8, 10; Process 9, System 1, 2; Process 10, System 1, 4; Process 12, System 2, 4, 7, 9, 10, 11, 12, 13, 16, 17, 18, 22, 26, 27, 28; Process 20, System 3, 4, 7, 10, 11, 12, 14, 18, 19, 23; Process 21, System 13, 14, 16, 18, 22]

S15.5 The vent gases from all affected devices of this process/system shall be vented as follows:

All emergency vent gases from the vapor recovery system shall be directed to the flare system.

This process/system shall not be operated unless the flare(s) is in full use and has a valid permit to receive vent gases from this system.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996]

[Systems subject to this condition: Process 2, System 5; Process 8, System 9; Process 20, System 4, 10, 28, 29, 30, 34, 37]

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S15.7 The vent gases from all affected devices of this process/system shall be vented as follows:

All emergency vent gases shall be directed to the vapor recovery system and/or flare system, except ~~Devices IDs D15, D3195, D3199, D3200 (Process 1, System 3), D106 (Process 1, System 13)~~, D3574, D3371, D3373, D591, D595, D597, D3372, D592, D598 & D602 (Process 6, System 4), C884 (Process 12, System 18) that vent to the atmosphere.

This process/system shall not be operated unless the vapor recovery system(s) and/or flare(s) is in full use and has a valid permit to receive vent gases from this system.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996]

[Systems subject to this condition : **Process 1, System 3**, 5, **13**, 17; Process 2, System 1; Process 3, System 1, 5; Process 4, System 1, 3, 5, 7, 9, 11, 13; Process 5, System 1; Process 6, System 4; Process 7, System 4, 7; Process 8, System 1, 2, 5, 7, 8, 10; Process 9, System 1, 2; Process 10, System 1; **Process 12, System 2**, 7, 9, 11, 13, 17, **18**, 22, 23, 25, 26, 27; **Process 20, System 18, 19**; Process 21, System 18]

[Note: Device D106, which was Vacuum Column C-201, was replaced by D3963 (also named Vacuum Column C-201) under PC A/N 421183. This device was erroneously left in condition S15.7 when the PC for the No. 2 Resid Stripper was converted to a PO.]

S15.9 The vent gases from all affected devices of this process/system shall be vented as follows:

All sour gases shall be directed to the sour gas treating unit(s).

This process/system shall not be operated unless the vapor recovery system(s) and/or flare(s) is in full use and has a valid permit to receive vent gases from this system.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996]

[Systems subject to this condition: **Process 1, System 3**, 5, **13**; Process 2, System 1; Process 3, System 1; Process 4, System 1, 3, 7, 9, 11, 13; Process 7, System 4; Process 8, System 1, 5; Process 10, System 1; Process 12, System 7; **Process 20**, System 4, **10**, 28, 29, 30, 37]

S15.10 The vent gases from all affected devices of this process/system shall be vented as follows:

All vent gases under normal operating conditions shall be directed to the vapor recovery system.

This process/system shall not be operated unless the vapor recovery system(s) is in full use and has a valid permit to receive vent gases from this system.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996]

[Systems subject to this condition : **Process 1, System 3**, 5, **13**, 17; Process 2, System 1; Process 3, System 1, 5; Process 4, System 1, 3, 5, 7, 9, 11, 13; Process 5, System 1; Process 6, System 4; Process 7, System 4, 7; Process 8, System 1, 2, 5, 7, 8, 10; Process 9, System 1, 2; Process 10, System 1; Process 12, System 2, 7, 9, 11, 13, 17, 22, 23, 25, 26, 27; **Process 20, System 18**; Process 21, System 18]

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S15.24 The vent gases from all affected devices of this process/system shall be vented as follows:

All waste gases recovered by the vapor recovery system [consisting of all the compressors in Process 20, System 19 (D3489 and D3566) operated independently or concurrently] shall be directed to a gas treating system.

This process/system shall not be operated unless the gas treating system is in full use and has a valid permit to receive vent gases from this system.

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Systems subject to this condition: **Process 20, System 19**]

S18.7 All affected devices listed under this process/system shall be used only to receive, recover and/or dispose of vent gases routed from the system(s) or process(es) listed below, in addition to specific devices identified in the "connected to" column:

Crude Distillation (**Process: 1, System: 3, 5 & 13**)

Delayed Coking (Process: 2, System: 1 & 5)

FCCU (Process: 3, System: 1 & 5)

Hydrotreating (Process: 4, System: 1, 7, 9, 11 & 13)

Hydrogen Generation (Process: 6, System: 4)

Alkylation (Process: 8, System: 1, 2, 5, 7, 8, 9 & 10)

Oxygenates Production (Process: 9, System: 2)

LPG Production (Process: 10, System: 1 & 2)

Treating & Stripping (**Process: 12, System: 2, 7, 9, 11, 13, 17, 18, 23, 25, 26, 27 & 28**)

Sulfur Production (Process 13, System 10, 11)

Air Pollution Control (**Process: 20, System: 10, 19 & 34**)

Miscellaneous (Process: 21, System: 13 & 18)

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Systems subject to this condition: **Process 20, System 3, 7, 23**]

~~**S18.11** All affected devices listed under this process/system shall be used only to receive, recover and/or dispose of vent gases routed from the system(s) or process(es) listed below, in addition to specific devices identified in the "connected to" column:~~

~~Alkylation Unit (Process: 8, System: 7)~~

~~LPG Production (Process: 10, System: 2)~~

~~[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]~~

~~[Systems subject to this condition: **Process 20, System 11**]~~

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[Note: As discussed in more detail in the *Process Description* section of this evaluation, the Alky Unit VRS is a relief header that is connected to the main header of the LSFO VRS and Flare. It does not function as a vapor recovery system. The equipment in this permit unit are being consolidated into LSFO Flare permit unit. The Butamer Plant (P8S7) is being moved from condition S18.11 to condition S18.12 for the LSFO VRS. LPG Production (P10S2) will not be moved to condition S18.12 since this permit unit is no longer in Chevron's RECLAIM/Title V facility permit.]

S18.12 All affected devices listed under this process/system shall be used only to receive, recover and/or dispose of vent gases routed from the system(s) or process(es) listed below, in addition to specific devices identified in the "connected to" column:

Crude Distillation (**Process: 1, System: 3, 5 & 13**)

Coking & Residual Conditioning (Process: 2, System: 1)

Hydrotreating (Process: 4, System: 1, 9, 11 & 13)

Hydrogen Generation (Process: 6, System: 4)

Alkylation (Process: 8, System: 2, ~~5~~ **& 7**)

Coker Depropanizer (Process: 10, System: 1)

Treating and Stripping (Process: 12, System: **18**, 26, 27, 28)

Sulfur Production (Process 13, System 10, 11)

~~Vapor Gathering System~~ **Air Pollution Control** (Process: 20, System: **18, 19**)

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996]

[Systems subject to this condition: Process 2, System 5; **Process 20, System 10**]

S18.23 All affected devices listed under this process/system shall be used only to receive, recover and/or dispose of vent gases routed from the system(s) or process(es) listed below, in addition to specific devices identified in the "connected to" column:

Crude Distillation (**Process: 1, System: 3 & 13**)

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996]

[Systems subject to this condition: **Process 20, System 19]**

[Note: This condition is being added to clarify which permit units contain equipment that currently have vent gas connections to the Waste Gas Compressor Station (P20S19). No new vent gas connections are proposed.]

S31.20 The following BACT requirements shall apply to VOC service fugitive components associated with the devices that are covered by application number(s) 466149, 466876, 467141, 467544, 470739, 470782, and 526607, **530643 and 530646**:

All sampling connections shall be closed-purge, closed loop, or closed-vent systems.

All new valves in VOC service shall be leakless type, except those specifically exempted by Rule 1173 or approved by the District in the following applications:

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heavy liquid service, control valves, instrument piping/tubing, applications requiring torsional valve stem motion, applications where valve failure could pose safety hazard (e.g., drain valves with valve stems in horizontal position), retrofits/special applications with space limitations, and valves not commercially available.

For the purpose of this condition, leakless valve shall be defined as any valve equipped with sealed bellows or equivalent approved in writing by the District prior to installation.

All new components in VOC service as defined by Rule 1173, except valves and flanges shall be inspected quarterly using EPA Reference Method 21. All new valves and flanges in VOC service except those specifically exempted by Rule 1173 shall be inspected monthly using EPA Method 21. Components shall be defined as any valve, flange, fitting, pump, compressor, pressure relief device, diaphragm, hatch, sight-glass, and meter, which are not exempted by Rule 1173.

The following leaks shall be repaired within 7 calendar days -- all light liquid/gas/vapor components leaking at a rate of 500 to 10,000 ppm, heavy liquid components leaking at a rate of 100 to 500 ppm and greater than 3 drops/minute, unless otherwise extended as allowed under Rule 1173.

The following leaks shall be repaired within 2 calendar days -- any leak between 10,000 to 25,000 ppm, any atmospheric PRD leaking at a rate of 200 to 25,000 ppm, unless otherwise extended as allowed under Rule 1173.

The following leaks shall be repaired within 1 calendar day -- any leak greater than 25,000 ppm, heavy liquid leak greater than 500 ppm, or light liquid leak greater than 3 drops per minute.

If 98.0 percent or greater of the new valve and the new flange population inspected is found to leak gaseous or liquid volatile organic compounds at a rate less than 500 ppmv for two consecutive months, then the operator may revert to a quarterly inspection program with the approval of the Executive Officer. This condition shall not apply to leakless valves.

The operator shall revert from quarterly to monthly inspection program if less than 98.0 percent of the new valves and the new flange population inspected are found to leak gaseous or liquid volatile organic compounds at a rate less than 500 ppmv. This condition shall not apply to leakless valves.

The operator shall keep records of the monthly inspection (quarterly where applicable), subsequent repair, and reinspection, in a manner approved by the District.

The operator shall provide to the District, prior to initial startup, a list of all non-leakless type valves that were installed. The list shall include the tag numbers for the valves and reasons why leakless valves were not used. The operator shall not startup the equipment prior to the Districts approval for the use of all non-leakless valves

The operator shall provide to the District, no later than 90 days after initial startup, a recalculation of the fugitive emissions based on actual components installed and removed from service. The operator shall also submit a complete, as built, piping and instrumentation diagram(s) and copies of requisition data sheets or field inspection surveys for all non-leakless type valves with a listing of tag numbers and reasons why leakless valves were not used.

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[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996]

[Systems subject to this condition: [Process 1, System 3](#); Process 12, System 28; Process 13, System 11; Process 16, System 10; Process 17, System 7; [Process 20, System 7](#), 37]

S46.2 The following conditions shall apply to VOC service fugitive components in this system:

The operator shall provide to the District, no later than 60 days after initial startup, a recalculation of the net fugitive emission increase and the total fugitive emissions for the permit unit based on actual components installed and removed from service under the permit to construct for application number(s): 530644, 530645, 530647 and 530648.

[RULE 1301(b)(1), 12-7-1995]

[Systems subject to this condition: [Process 1, System 13](#); [Process 12, System 18](#); [Process 20, System 10, 19](#)]

DEVICE CONDITIONS:

B61.11 The operator shall not use / combust vent gas containing the following specified compounds:

H2S greater than 160 ppm by volume

The H2S concentration limit shall be based on a rolling 3-hour averaging period.

The H2S concentration limit shall not apply to vent gas resulting from an emergency, shutdown, startup, process upset or relief valve leakage.

[Rule 1118, 11-4-2005]

[Devices subject to this condition: C1746, C1749, [C1757](#), C1785, C3012, C4116]

D12.14 The operator shall install and maintain a(n) thermocouple or any other equivalent device to accurately indicate the presence of a flame at the pilot light.

The operator shall also install and maintain a device to continuously record the parameter being measured.

[RULE 1303(a)(1)-BACT, 5-10-1996; 40CFR 60 Subpart A, 4-9-1993; 40CFR 63 Subpart A, 3-16-1994]

[Devices subject to this condition: C1746, C1749, [C1757](#), C1785, C3012]

D90.21 The operator shall periodically monitor the hydrocarbon concentration at the outlet of the carbon canisters according to the following specifications:

The operator shall use a District approved Organic Vapor Analyzer (OVA) to monitor the parameter.

The operator shall monitor once every week using EPA Method 21.

The operator shall calibrate the instrument used to monitor the parameter in ppmv methane.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]

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[Devices subject to this condition: **C884**]

D323.2 The operator shall conduct an inspection for visible emissions from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions, whenever visible emissions are observed, and on an semi-annual basis, at least, unless the equipment did not operate during the entire semi-annual period. The routine semi-annual inspection shall be conducted while the equipment is in operation and during daylight hours.

If any visible emissions (not including condensed water vapor) are detected that last more than three minutes in any one hour, the operator shall verify and certify within 24 hours that the equipment causing the emission and any associated air pollution control equipment are operating normally according to their design and standard procedures and under the same conditions under which compliance was achieved in the past, and either:

- 1). Take corrective action(s) that eliminates the visible emissions within 24 hours and report the visible emissions as a potential deviation in accordance with the reporting requirements in Section K of this permit; or
- 2). Have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures in the CARB manual "Visible Emission Evaluation", within three business days and report any deviations to AQMD.

The operator shall keep the records in accordance with the recordkeeping requirements in Section K of this permit and the following records:

- 1). Stack or emission point identification;
- 2). Description of any corrective actions taken to abate visible emissions;
- 3). Date and time visible emission was abated; and
- 4). All visible emission observation records by operator or a certified smoke reader.

[**RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997; RULE 401, 3-2-1984**]

[Devices subject to this condition : C1746, C1749, **C1757**, C1785, C3012]

E73.8 Notwithstanding the requirements of Section E conditions, the operator is not required to use all three Refinery Blowdown Gas Recovery System compressors concurrently if: The load on the Refinery Blowdown Gas Recovery System is not sufficient to require all compressors to be online.

[**RULE 1303(a)(1)-BACT, 5-10-1996**]

[Devices subject to this condition: **D4211, D4212, D4213**]

E73.10 Notwithstanding the requirements of Section E conditions, the operator may, at his discretion, choose not to use all the compressors in Process 20, System 19 (D3489 and D3566) simultaneously if:

The unit(s) being operated has (have) sufficient capacity to recover all process waste gases under normal operating conditions. Under this condition, no waste gas shall bypass the said compressor(s) during operation.

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[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Devices subject to this condition: **D3489, D3566**]

E153.1 The operator shall change over the carbon in the adsorber whenever breakthrough occurs.

For the purpose of this condition, breakthrough occurs when the hydrocarbon monitor reading indicates a concentration of 500 ppmv at the outlet of the carbon canister unless control efficiency of VOC is 95 percent or over. Control efficiency shall be calculated as $[1 - (\text{exit concentration}/\text{inlet concentration})] \times 100$.

[**RULE 1303(a)(1)-BACT, 5-10-1996**]

[Devices subject to this condition: **C884**]

E336.1 The operator shall vent the vent gases from this equipment as follows:

All vent gases under normal operating conditions shall be directed to the coker blowdown system (Process 2, System 5) or/and refinery blowdown system (Process 20, System 10).

This equipment shall not be operated unless the above blowdown system(s) is in full use and has a valid permit to receive vent gases from this equipment.

[**RULE 1303(a)(1)-BACT, 5-10-1996**]

[Devices subject to this condition: **D2220**]

E336.18 The operator shall vent the vent gases from this equipment as follows:

All vent gases from steam desorption of a carbon adsorber shall be directed to the Refinery Blowdown Gas Recovery System (Process 20, System 10).

This equipment shall not be operated unless the vapor recovery system is in full use and has a valid permit to receive vent gases from this equipment.

[**RULE 1303(a)(1)-BACT, 5-10-1996**]

[Devices subject to this condition: **C884**]

H23.3 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1173

[**RULE 1173, 5-13-1994; RULE 1173, 2-6-2009**]

[Devices subject to this condition : **D3576**, D3588, D3610, D3631, D3635, D3640, D3642, D3644, D3645, D3646, **D3651**, D3654, D3655, D3656, D3657, D3659, D3660, D3663, **D3678**, D3681, **D3685**, D3688, D3691, D3692, D3694, D4086, D4087, D4088, D4310, D4352, D4359, D4368]

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H23.19 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1173
VOC	40 CFR 60	Subpart GGG

[**RULE 1173, 5-13-1994**; **RULE 1173, 2-6-2009**; **40CFR 60 Subpart GGG, 6-7-1985**]

[Devices subject to this condition : D196, D633, D1047, D1048, D1049, D1054, D1929, D1930, D1981, D2042, D3577, D3579, D3580, D3581, D3185, D3613, D3634, D3637, D3638, D3639, D3675, D3676, **D3679**, D3686, D3803, D3921, D3969, D4085, D4107, D4302, D4304]

H23.21 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	465
Sulfur Compounds	District Rule	465

[**RULE 465, 8-13-1999**];

[Devices subject to this condition: D3183, D3184, D3185, D3186, D3238, D3239, D3240, D3241, D3242, D3243, **D3702, D3703**, D4091, **D4220**]

H23.44 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
H2S	40 CFR 60	Subpart J

[**40CFR 60 Subpart J, 6-24-2008**; **CONSENT DECREE CIVIL NO. C 03-04650 CRB, 6-27-2005**]

[Devices subject to this condition: D20, D453, D502, D504, C1746, **C1757**, C2158, C3012, C3493]

H23.46 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
SOx	40 CFR 60	1118

[**RULE 1118, 11-4-2005**]

[Devices subject to this condition: C1746, C1749, **C1757**, C1785, C3012, C4116]

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H23.47 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1173
VOC	40 CFR 60	GGGa

[**RULE 1173, 5-13-1994; RULE 1173, 2-6-2009; 40CFR 60 Subpart GGGa, 6-2-2008**]

[Devices subject to this condition: D3261, [D3576](#), D4205, D4206, D4208, [D4211](#), [D4212](#), [D4213](#), [D4368](#)]

H23.49 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
H2S	40 CFR 60	Subpart Ja

[**40CFR 60 Subpart Ja, 6-24-2008**]

[Devices subject to this condition: [C1757](#), D4355]

II.1 The operator shall comply with all the requirements of the condition and compliance schedule as specified in the variance case no. 831-343, issued on July 22, 2008, in accordance with the Findings and Decisions of the Hearing Board or as subsequently modified by the Hearing Board. The operator shall submit progress reports at least semi-annually, or more frequently if specified in the Findings and Decisions. The progress reports shall contain dates for achieving activities, milestones or compliance required in the schedule of compliance and dates when such activities, milestones or compliance were achieved; and an explanation of why any dates in the schedule of compliance were not, or will not be met, and any preventative or corrective measures adopted.

The variance (or Order for Abatement) referenced in this condition does not affect federal or citizen enforceability of the underlying SIP approved rules for which the applicant is receiving the variance (or Order for Abatement).

[**RULE 3004(a)(10)(C), 12-12-1997**]

[Devices subject to this condition: C1746, C1749, [C1757](#), C1785, C3012]

[**Note:** Chevron has achieved compliance with the subject variance. A letter of final certification of the flare monitoring system was issued by the District on September 28, 2012.]

K67.73 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

Date and duration of events when there is flaring of vent gases greater than 5,000 standard cubic feet from this vapor recovery system or compressor(s).

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Estimated total volume of vent gases combusted in the flare for each such event.

Brief description of the cause of the vent gas flaring for each such event per Rule 1118.

Identification of each of the compressor(s) not operating and reason why they are not online during each such event.

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Devices subject to this condition: **D3489, D3566, D3762, D3766, D3770**]

K171.15 The operator shall provide to the District the following items:

Final drawings and/or specifications of the equipment installed/constructed shall be submitted to the SCAQMD within 60 days after its completion.

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Devices subject to this condition: **D15, D881, D882, D883, D3195, D3199, D3200, D3453, D3685, D3963, D4106, D4354, D4355, D4356, D4357, D4358, D4359, C4360, C4361, D4362, Dxxx1**]

Section D: Facility Description and Equipment Specific Conditions

Description	ID No.	Connect To	RECLAIM Source Type	Emissions and Requirements	Conditions
Process 20: AIR POLLUTION CONTROL					
System 11: ALKY UNIT VAPOR RECOVERY SYSTEM					
ACCUMULATOR, V-203, COKER LINE LIQUID, HEIGHT: 12 FT; DIAMETER: 4 FT A/N: 235937	D2218				
KNOCK-OUT POT, DIB/COGEN/LPG RELIEF, V-217, LENGTH: 20 FT; DIAMETER: 10 FT A/N: 235937	D2219				
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: 235937	D3680				H23-3

Description	ID No.	Connect To	RECLAIM Source Type	Emissions and Requirements	Conditions
Process 20: AIR POLLUTION CONTROL					
System 18: VAPOR GATHERING SYSTEM II					
KNOCK-OUT POT, LPG, V-2, WITH EMERGENCY PRV VENTED TO ATMOS., HEIGHT: 8 FT; DIAMETER: 4 FT A/N: 410463	D1824				S13.2, S15.7, S15.10
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: 410463	D3684				H23-3

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PROCESS CONDITIONS:

None

SYSTEM CONDITIONS:

S13.2 All devices under this system are subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1123

[RULE 1123, 12-7-1990]

[Systems subject to this condition : Process 1, System 3, 5, 13, 17; Process 2, System 1, 5, 6; Process 3, System 1, 5; Process 4, System 1, 3, 5, 7, 9, 11, 13; Process 5, System 1; Process 6, System 1, 3, 4; Process 7, System 2, 4, 7; Process 8, System 1, 2, 5, 7, 8, 10; Process 9, System 1, 2; Process 10, System 1, 4; Process 12, System 2, 4, 7, 9, 10, 11, 12, 13, 16, 17, 18, 22, 26, 27, 28; **Process 20**, System 3, 4, 7, 10, ~~11~~, 12, 14, ~~18~~, 19, 23; Process 21, System 13, 14, 16, 18, 22]

S15.7 The vent gases from all affected devices of this process/system shall be vented as follows:

All emergency vent gases shall be directed to the vapor recovery system and/or flare system, except ~~Devices IDs D15, D3195, D3199, D3200 (Process 1, System 3), D106 (Process 1, System 13)~~, D3574, D3371, D3373, D591, D595, D597, D3372, D592, D598 & D602 (Process 6, System 4), C884 (P12S18) that vent to the atmosphere.

This process/system shall not be operated unless the vapor recovery system(s) and/or flare(s) is in full use and has a valid permit to receive vent gases from this system.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996]

[Systems subject to this condition : Process 1, System 3, 5, 13, 17; Process 2, System 1; Process 3, System 1, 5; Process 4, System 1, 3, 5, 7, 9, 11, 13; Process 5, System 1; Process 6, System 4; Process 7, System 4, 7; Process 8, System 1, 2, 5, 7, 8, 10; Process 9, System 1, 2; Process 10, System 1; Process 12, System 2, 7, 9, 11, 13, 17, 18, 22, 23, 25, 26, 27; **Process 20, System 18, 19**; Process 21, System 18]

S15.9 The vent gases from all affected devices of this process/system shall be vented as follows:

All sour gases shall be directed to the sour gas treating unit(s).

This process/system shall not be operated unless the vapor recovery system(s) and/or flare(s) is in full use and has a valid permit to receive vent gases from this system.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996]

[Systems subject to this condition: **Process 1, System 3, 5, 13**; Process 2, System 1; Process 3, System 1; Process 4, System 1, 3, 7, 9, 11, 13; Process 7, System 4; Process 8, System 1, 5; Process 10, System 1; Process 12, System 7; **Process 20**, System 4, **10**, 28, 29, 30, 37]

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S15.10 The vent gases from all affected devices of this process/system shall be vented as follows:

All vent gases under normal operating conditions shall be directed to the vapor recovery system.

This process/system shall not be operated unless the vapor recovery system(s) is in full use and has a valid permit to receive vent gases from this system.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996]

[Systems subject to this condition : Process 1, System 3, 5, 13, 17; Process 2, System 1; Process 3, System 1, 5; Process 4, System 1, 3, 5, 7, 9, 1, 13; Process 5, System 1; Process 6, System 4; Process 7, System 4, 7; Process 8, System 1, 2, 5, 7, 8, 10; Process 9, System 1, 2; Process 10, System 1; Process 12, System 2, 7, 9, 11, 13, 17, **18**, 22, 23, 25, 26, 27; **Process 20, System 18**; Process 21, System 18]

~~**S18.11** All affected devices listed under this process/system shall be used only to receive, recover and/or dispose of vent gases routed from the system(s) or process(es) listed below, in addition to specific devices identified in the "connected to" column:~~

~~Alkylation Unit (Process: 8, System: 7)~~

~~LPG Production (Process: 10, System: 2)~~

~~**[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996]**~~

~~[Systems subject to this condition: **Process 20, System 11**]~~

DEVICE CONDITIONS

H23.3 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1173

[RULE 1173, 5-13-1994; RULE 1173, 2-6-2009]

[Devices subject to this condition: D3577, D3584, D3586, D3588, D3610, D3631, D3635, D3640, D3642, D3643, D3644, D3645, D3646, D3649, D3650, D3651, D3654, D3655, D3656, D3657, D3659, D3660, D3661, D3662, D3663, D3664, D3665, D3666, D3667, D3668, D3669, D3670, D3671, D3672, D3673, D3678, D3679, **D3680**, D3681, D3682, **D3684**, D3685, D3687, D3691, D3692, D3693, D3694, D3760, D3802, D4086, D4087, D4088, D4351]

FEE ANALYSIS

As shown in the following table, Chevron has paid all applicable fees for all of the subject applications.

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Summary of Fee Analysis

A/N	Equipment Description	BCAT/CCAT	Fee Schedule	Fee Type	Fiscal Year (1)	Fee
530641	RECLAIM/Title V Permit	555009 (BCAT)	na.	Facility Permit Amendment	11-12	\$ 1,747.19
530643	Crude Oil Distillation Unit	000517 (BCAT)	E	Alteration/Modification	11-12	\$ 5,330.66
				Expedited Processing		\$ 2,665.33
530644	Vacuum Distillation Unit	000507 (BCAT)	E	Alteration/Modification	11-12	\$ 5,330.66
				Expedited Processing		\$ 2,665.33
530645	Merox Treating Unit	000538 (BCAT)	E	Alteration/Modification	11-12	\$ 5,330.66
				Expedited Processing		\$ 2,665.33
530646	Refinery Flare System	92 (CCAT)	F	Alteration/Modification	11-12	\$10,619.65
				Expedited Processing		\$ 5,309.83
530647	VRS Serving Refinery Unit	59 (CCAT)	E	Alteration/Modification	11-12	\$ 5,330.66
				Expedited Processing		\$ 2,665.33
530648	VRS Serving Refinery Unit	59 (2) (CCAT)	E	Alteration/Modification	11-12	\$ 5,330.66
				Expedited Processing		\$ 2,665.33
Total						\$57,656.62
Fees Paid						\$57,656.62
Outstanding Balance						\$ 0.00

- (1) Based on the date that the application was submitted.
- (2) The Waste Gas Compressor Station permit unit is currently classified as BCAT 251800 – Misc. Hydrocarbon Separation. This permit unit will be reclassified as *CCAT 59 – VRS Serving Refinery* since this more accurately describes the function of this permit unit.

PERMIT HISTORY

Partial permit histories No. 2 Crude Unit, No. 2 Resid Stripper, Merox Plant, Alky Plant VRS, Vapor Gathering System II, Waste Gas Compressor Station, Refinery Blowdown Gas Recovery System (LSFO VRS) and LSFO Flares are contained in the following tables.

Partial Permit History for No. 2 Crude Unit (P1S3)

Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
257507	na.	D63054	12/1/92	Added and replaced several pumps without a PC. Corrected the description of several pumps. Removed the following equipment from the permit: Demulsifier Tank (V-301), Corrosion Inhibitor Feed Tank (V-353) and Amine Feed Tank (V-364).
385242	na.	F57288	2/25/03	Administrative Application – Removal of Separator Vessel V-346 (D16) and the Gasoline Stripper Column C-3170 (D3201) from the permit. These devices had been previously removed from the refinery.

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Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
421184	8/27/04	na.	na.	Functionally identical replacement of the No. 2 Crude Unit Overhead Condensers E-307 since they were near the end of its service life. Per policy, these condensers are not listed in the facility permit.
469711	9/14/07	G22414	1/15/13	Removal of the Overhead Accumulator V-351 and associated equipment.
530643	na.	na.	na.	Current project for connection of existing atmospheric PRVs serving equipment C-301 (D3195), C-308 (D3199), C-351 (D3200), V-355 (D15) and V-363 (fuel gas KO Pot not in permit) to the LSFO VRS/Flare.

Partial Permit History for No. 2 Resid Stripper Unit (P1S13)

Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
257503	na.	D62083	12/16/92	Replacement of several pumps and rerouting of the primary and secondary ejector exhaust streams from the firebox of the F-201 process heater to the closed offgas system. These changes were made without a PC.
368006	9/01/00	na.	na.	Altered the internals of Vacuum Column C-201 (D106) and replaced its overhead system.
385239	na.	F57287	2/25/03	Administrative Application – Removal of Vacuum Accumulator V-102 (D107), KO Pot V-204 (D109) and KO Pot V-205 (D110). These devices had been previously removed from the refinery.
421183	8/27/04	na.	na.	Functionally identical replacement of the No. 2 Resid Stripper Vacuum Column C-201 (D106) since it was near the end of its service life. .
469712	9/14/07	G22418	1/15/13	Installed a steam-driven ejector, G-217 upstream of existing ejectors G-218 A/B and G-219 A/B to increase vacuum in the column. Also upgraded Vacuum Column Overhead Accumulator V-210.
530644	na.	na.	na.	Current project for connection of existing atmospheric PRVs serving equipment C-201 (D106) to the LSFO VRS/Flare.

Partial Permit History for Merox Plant (P12S18)

Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
A72598		P54376		
C24955		M27033	10/82	

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Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
258926	na.	D67361	12/92	Modified the plant to allow distillate feed. Modifications included removal of one pump and replacement of the motors on one pump and compressor with smaller motors.
405510	na.	G10486	10/26/10	Corrected the following errors that were inadvertently imposed into the permit during conversion of the command and control permit to the facility permit format: (1) Combined two carbon adsorbers (CAs) (C884 /C885) into one device (C884) since the CAs act as a single control device. (2) Added "with emergency vent to atm." to Devices D883 and D884. (3) Removed connections of D881, D882 & D3451-D3454 to CA C884. Also added a connection for D3489 (Compressor K450A/B in Waste Gas Compressor Station) to C884.
530645	na.	na.	na.	Current project for connection of existing atmospheric PRVs serving equipment R-410 (D881), V-410 (D882), V-430 (D3453) and V-440 (D883) to the LSFO VRS/Flare.

Partial Permit History for LSFO Emergency Relief System (P20S7)

Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
A75857	01/73	M00754	7/21/77	Original construction of this emergency relief system (ERS) consisting of a ground flare as a primary flare with an elevated flare to handle relief loads that were greater than the 50,000 lb/hr capacity of the ground flare. The ERS was constructed to handle process upsets in the following process units: Crude Unit No. 4, Naptha Hydrotreater No. 1, Steam Naptha Reformer, Isomax VRDS, Isomax VGO, H2S Recovery Plant No. 5, and the pentanes plus plant.
160485		D05666	2/8/89	Connection of the emergency PRDs in the Copex Plant, Caustic Treating Plant No. 3, and the vapor recovery compressors (K-1 through K-5) to the LSFO ERS.
212958		D33226	10/25/90	Connection of the Thermal Distillation Recovery System (TDRS) to the LSFO ERS through a K.O drum. Appears that this TRDS was either never constructed or has been taken out of service.
235938	1/01/91	na.	na.	Chevron modified the Alky Units Vapor Recovery System. Previously, relief gases were discharged to two gas holders (T-2010 and T-20202) that were upstream of some Houdry Compressors. If the compressors were unavailable or overloaded, the tanks were vented to the atmosphere. Under this modification, the gas holders were removed and the Alky VRS was tied into the LSFO and FCCU ERSs. Included installation of associated K.O pots and pumps.

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Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
301080	4/27/95	na.	na.	Connection of emergency PRDs in the Penex Isomerization Plant (P8S5) and Naptha Hydrotreater No. 3 (P4S13) as part of Chevron's RFG II project. Also removed the connection for the old Alkylation Plant (P4S2), which was removed from service. Include installation of a separator vessel and filter to minimize scaling in the spark arrestor.
336106	2/06/98	na.	na.	Removed the ground flare from operation.
406045	02/18/03	na.	na.	Administrative application. PC AN 336106, permitted the removal of the ground flare but it was not removed from the permit until the flare was removed from service. Since a PO had not been issued with the ground flare removed. Chevron requested the removal. Also included existing K.O pot V-2500 in the permit.
419472	11/04/03	na.	na.	Connection of emergency PRDs in the new No. 6 H2S Recovery Plant (P12S26).
434803	na.	na.	na.	Change of condition application related to the flame monitoring condition (D12.14). Consolidated with AN 454964 for evaluation.
454964	8/09/06	na.	na.	Heavy Crude Project: Connection of emergency PRDs in the new No. 6 H2S Plant Amine Regeneration Unit (P12S27).
482505	5/14/10	na.	na.	PRO Project: Connection of emergency PRDs in the new Sour Water Stripper (P12S28), SRU No. 73 (P13S10), and TGTU No. 73 (P13S11).
508902	12/28/10	na.	na.	Connection of atmospheric PRVs on the outflow line of the Cogen Plant Fuel Mix Drum (V-4540) to the LSFO VRS and Flare
526609	5/10/12	na.	na.	Connection of pressure relief valves on the fuel supply system of the new Cogen Train D to the LSFO VRS and Flare.
530646	na.	na.	na.	Current project for connection of existing atmospheric PRVs in the No. 2 Crude Unit (P1S3), No. 2 Resid Stripper (P1S13), Merox Plant (P12S18) and Waste Gas Compressor Station (P20S19) to the LSFO VRS and Flare.

Partial Permit History for the Refinery Blowdown Gas Recovery (P20S10)

Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
9152	4-8-54			Modification to connect additional vent streams. Note: No records found when original P/O was issued.
A5252, A16700, A5666, A8601, A12519, A51775	-- -- 4-14-59 -- -- --	-- -- -- 16426 -- --		Modifications to connect additional vent streams.

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Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
A68367	--	P-49866		Modification by replacement of 1 st stage cylinder of K-202 compressor and the addition of a condensate drum & PRV connection to the FCCU flare.
A75078	--	P-54448		Modification by addition of service to No. 3 caustic treating plant and to a waste gas compressor station or additional vent streams.
C-12975	--	M03864	4-18-78	Minor modification to include listing of fuel gas K.O. drum and filter in the permit, and also the alteration of the numbering to the system.
C20468		M24849	5/12/82	Modification by the replacement of pump P-2010 and removal of compressor K-20.
421284	na.	F70108	8/04/04	Modification of Condition S18.12 to allow this vapor recovery system to receive vent gases from the new No. 6 H2S Recovery Plant (Process 12, System 26).
464817	7/10/07	na.	na.	Replacement of the three Houdry Compressors @ 2 MMSCFD with three new larger compressors at 4 MMSCFD each..
482504	5/14/10	na.	na.	PRO Project: Connection of PRDs in the new Sour Water Stripper (P12S28), SRU No. 73 (P13S10) and TGTU No. 73 (P13S11).).
508901	12/28/10	na.	na.	Connection of atmospheric PRVs on the outflow line of the Cogen Plant Fuel Mix Drum (V-4540) to the LSFO VRS and Flare
526608	5/10/12	na.	na.	Connection of PRVs on the fuel supply system of the new Cogen Train D to the LSFO VRS and Flare. Construction to be completed in March 2013.
530647	na.	na.	na.	Current project for connection of some existing atmospheric PRVs in the No. 2 Crude Unit (P1S3), No. 2 Resid Stripper (P1S13), Mercox Plant (P12S18) and Waste Gas Compressor Station (P20S19) to the LSFO VRS and Flare.

Permit History for Alky Unit Vapor Recovery System (P20S11)

Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
235937	2/1/91	F10877	12/13/97	Connection of vent streams in the Alkylation Unit to the LSFO Flare/VRS. Included installation of V-203 (Coker Liquid Line Accumulation Pot), V-217 (No. 1 Cru Relief KO Pot), V-1098 (DIB/Cogen/LPG Relief KO Pot) and V-1790 (PPP No. 2 Relief KO Pot). The V-1098 is now listed in the LSFO Flare permit unit. The V-1790 and associated piping have been removed since the plant it served has been demolished.

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Partial Permit History for Vapor Gathering System II (P20S18)

Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
C20071		M24616		
116460				
160488		D04942	1/12/89	
257417	na.	D62080	9/16/82	Removed LPG Drums V-684, V-685 and V-686 from the list of equipment served by this vapor recovery system. The service of these drums was previously changed to the storage of water (V-684) and ammonia (V-685/686).
410463	na.	F87019	4/26/07	Removed Compressors K-3, K-4 and K-5 (D1827 – D1829), Knockout Pot V-3 (D1825) and Knockout Pot V-22 (D1826) without obtaining a PC.

Permit History for Waste Gas Compressor Stations (P20S19)

Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
A73242	09/72	P54533	11/73	Original construction.
413823	na.	G9042	7/02/10	Change of condition application to define “full use” for the compressors in this VRS.
530648	na.	na.	na.	Connection of existing atmospheric PRVs serving equipment V-451 (KO Drum for K-450A/B Compressors) to the LSFO VRS/Flare.

COMPLIANCE RECORD REVIEW

There are no ongoing violations for any of the equipment covered in this evaluation.

PROCESS DESCRIPTION:

No. 2 Crude Unit & No. 2 Resid Stripper

Process Description - Crude oil fed to Crude Unit #2 passes through feed/ effluent heat exchangers and desalters V-319A and B (D3235 & D3236) before entering the Prefractionator Column, C-351 (D3200), where gases and light ends are removed. The prefractionator column bottoms flow through additional heat exchangers and Feed Heater F-301B (D20 in P1S4) into Atmospheric Column C-301 (D3195). In the atmospheric column, LPG, gasoline, jet, diesel and gas oil boiling range cuts are distilled from the bottoms stream. The bottoms stream from the atmospheric column flows through the No. 2 Resid Stripper Heater F-201A (D3695 in P1S14) into Vacuum Column C-201 (D3963) in the No. 2 Resid Stripper, where vacuum gas oils are

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separated out. The bottoms (resid) from the vacuum column are sent to the Delayed Coking Unit.

The condensed oily water and uncondensed gases discharged from the steam ejectors (D3703, D3703, D4220) on the vacuum column are collected in Seal Drum V-210 (D4219). From vessel V-210, the oily water is recycled back to the No. 2 Crude Unit feed. Uncondensed gases are routed from vessel V-210 to the K-450A/B (Device ID's D3489 & D3566) Gas Compressors (Process 20, System 19), where they are compressed and sent to the No. 5 or No. 6 H₂S Plant (Process 12, System 11 or System 26) for sweetening before being routed to the refinery fuel gas system.

Pressure Relief Valves - As noted in the *Equipment Description* Section of this evaluation, Vacuum Distillation Column C-201, Atmospheric Distillation Column C-301, Stabilizer Column C-308, Prefractionator Column C-351, Degassing Drum V-355 and Fuel Gas KO Drum V-363 are currently equipped with one or more atmospheric PRVs. These PRVs are all emergency PRVs that do not vent during normal operation. All of the PRVs will be connected to the LSFO VRS/Flare except the atmospheric PRV on Prefractionator Column C-351, which will be eliminated through connection of the column to Atmospheric Distillation Column C-301. Some details regarding the PRVs that will be connected to the LSFO VRS/Flare are contained in the table below.

Equipment	Proposed No. of PRVs	Set Pressure (psig)	Relief Scenario with Max. Relief Load	Max. Relief Load (lb/hr)	Relief Gas LHV (btu/scf)
Vac. Distillation Column C-201 (D106)	3 in service (1 spare)	45, 47, 47	General Power Failure	61,073	8,673
Atm. Distillation Column C-301 (D3195)	3 in service (1 spare)	54, 56	Bus Failure	237,385	5,809
Stabilizer Column C-308 (D3199)	1 in service	140	C-308 Fire Circle	58,752	6,332
Degassing Drum V-355 (D15)	1 in service (1 spare)	70	C-308 Fire Circle	6,406	3,051
Fuel Gas KO Drum V-363 (1)	1 in service (1 spare)	200	C-308 Fire Circle	8,409	1,012

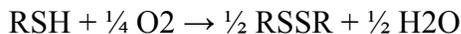
1.) Per District policy, fuel gas ko drums are not included in the RECLAIM/Title V permit.

Mercox Plant

Process Description - The Mercox plant utilizes the Minalk process to convert mercaptan sulfur compounds in the feed to less objectionable and lower vapor pressure disulfides. The feed to the Mercox Plant is FCCU light and heavy gasoline and jet fuel from the No. 4 Crude Unit and/or Isomax Plant. The gasoline or jet is preheated in shell and tube steam heat exchanger E-410 prior to flowing through water knockout vessel V-410 (D882). A small stream of dilute caustic solution is added to the feed followed by infusion of air before the feed enters reactor R-410 (D881).

In the sweetening process, the mercaptans are oxidized to disulfides by the following reaction:

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where R is a hydrocarbon chain

The disulfides are oil soluble and only slightly soluble in caustic so most of them remain in the feed stream. The reactor contains a bed of Merox impregnated activated carbon. The Merox is an organometallic catalyst that accelerates the oxidation of mercaptans to disulfides at or near ambient temperature and pressure.

The reactor effluent flows to caustic settler V-420 (D3452) and excess air flows through the vapor space of caustic settling tank V-440 (D883) to Carbon Adsorbers V-441/V-442 (C884). The caustic is periodically pumped from the bottom of this caustic settler V-420 to caustic settling tank V-440 (D883) from where it is pumped back to R-410 for reuse or sent to disposal. The gasoline or jet fuel flows from caustic settler V-420 thru water wash drum V-430 (D3453) which removes trace caustic and water soluble materials. From water wash drum V-430, the gasoline or jet goes to storage.

Carbon adsorbers V-441/V-442 (C884) control emissions in vent gas from settling tank V-440 including the excess air from reactor R-410 prior to flowing to the atmosphere. The carbon adsorbers are regenerated in place. Following breakthrough as defined and determined by conditions D90.21 and E153.1, the vent gas flow is manually switched to the fresh (regenerated) carbon adsorber. The spent carbon is regenerated with 150 pound steam that desorbs VOCs and other pollutants that have been adsorbed. The steam and desorbed pollutants are sent to the LSFO VRS. Device condition E336.18, which specifies that "all vent gases from steam desorption of a carbon adsorber shall be directed to the blowdown vapor recovery system (Process 20, System 10)", will be tagged to the CAs in the Title V permit.

Device D3489, which is the K-450A Compressor in the Waste Gas Compressor Station permit unit (P20S19), is currently contained in the "Connected To" column for the CAs (C884). As discussed above, the CAs vent to the LSFO VRS (P20S10) during desorption. They do not vent to the Waste Gas Compressor Station. Therefore, D3489 will be removed from the "Connected To" column for C884 and vice versa.

Pressure Relief Valves - As noted in the *Equipment Description* Section of this evaluation, reactor R-410 (D881), water knockout vessel V-410 (D882), water wash drum V-430 (D3453) and caustic settling tank V-440 (D883) are currently equipped with one (1) atmospheric PRV each. These PRVs are all emergency PRVs that do not vent during normal operation. The primary emergency relief scenario for these PRVs is fire. The maximum estimated combined relief load during a fire is 206,900 lb/hr. Some details regarding the PRVs are contained in the table below.

PRV Location	Set Pressure (psig)	Relief Scenario	Max. Relief Load (lb/hr)	Relief Gas LHV (btu/scf)
Merox Reactor R-410 (D881)	182	K-450 Area Fire Circle	44,138	7,048
Water KO Drum V-410 (D882)	184	K-450 Area Fire Circle	35,282	7,045
Water Wash Tank V-430 (D3453)	177	K-450 Area Fire Circle	120,074	7,055

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PRV Location	Set Pressure (psig)	Relief Scenario	Max. Relief Load (lb/hr)	Relief Gas LHV (btu/scf)
Spent Caustic Settler V-440 (D883)	30	K-450 Area Fire Circle	7,423	6,715

The only other relief scenario for these valves is inadvertent closure of a valve on the outlet of a vessel while feeding liquid to the vessel. This scenario would cause a release of liquid (gasoline or jet fuel) at about 120 degrees F. The liquid would collect in new Liquid Dropout Vessel V-398 and be pumped out to tankage. Only a relatively small amount of gas displaced from the liquid dropout vessel into the header would go to the LSFO VRS.

Alky Unit Vapor Recovery System (P20S11)

This permit unit consists of a relief header, including Accumulator Vessel V-203 and KO Pot V-217, that receives vent gases from the Butamer Plant (P8S7). These gases are directed to the main header for the LSFO Flare/VRS. Relief headers such as this one are not normally permitted as separate permit units. The vessels in the relief header are normally contained in the permit for the permit unit in which the relief gases are generated or in the permit for the flare permit unit that would receive the relief gases. In this case, the V-203 and V-217 will be moved to the LSFO Flare permit unit. Condition S18.11, which specifies that the Alky Plant VRS can receive vent gases from the Butamer Plant will be removed from the permit and the Butamer Plant (P8S7) will be added to condition S18.12, which specifies the permit units that the LSFO VRS can receive vent gases from.

Vapor Gathering System II (P20S18)

KO Pot V-2 is the only equipment remaining in this permit unit. At one time this system recovered vapors from LPG tank truck loading, LPG railcar loading, LPG storage tanks, a few LPG thermal relief valves, and the sample container evacuation system in the main laboratory. Years ago, Chevron removed compressors K-3, K-4 and K-5 (D1827 – D1829), Knockout Pot V-3 (D1825) and Knockout Pot V-22 (D1826) without obtaining a PC. A PO was issued for these modifications in 2007 under PC A/N 410463. Now, the system consists of a relief header including KO Pot V-2 which receives vent gases from a couple of LPG thermal relief valves and the sample container evacuation system in the lab. These gases are directed to the main header for the LSFO Flare/VRS.

As discussed above, relief headers such as this one are not normally permitted as separate permit units. For this reason, Knockout Pot V-2 will be moved to the LSFO Flare permit unit.

Waste Gas Compressor Station (P20S19)

Waste gas compressors K-450A and K-450B in this permit unit compresses gases from the No. 2 Crude Unit Atmospheric Column C-301 and the No. 2 Resid Stripper Vacuum Column C-201. The compressed gases are discharged to the No. 5 H2S Plant and/or the No. 6 H2S plant for removal of H2S and other reduced sulfur species prior to being sent to the refinery fuel gas system. These compressors, which each have a design capacity of 1.8 mmscf/d, operate in parallel.

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Compressor KO Drum V-451, which is not included in the RECLAIM/TV permit due to District policy, is currently equipped with two atmospheric PRVS. These PRVS are emergency PRVs that do not vent during normal operation. These PRVs will be replaced and a spare PRV added. The new PRVs will be connected to the LSFO VRS and Flare. The primary relief scenario for these PRVs is cooling water failure. Additional details are provided in the table below.

PRV Location	Set Pressure (psig)	Relief Scenario	Max. Relief Load (lb/hr)	Relief Gas LHV (btu/scf)
Compressor KO Drum V-451	30	Cooling Water Failure	37,325	5,347

LSFO Emergency Relief System (Flare) and Refinery Blowdown Gas Recovery System (commonly called LSFO VRS)

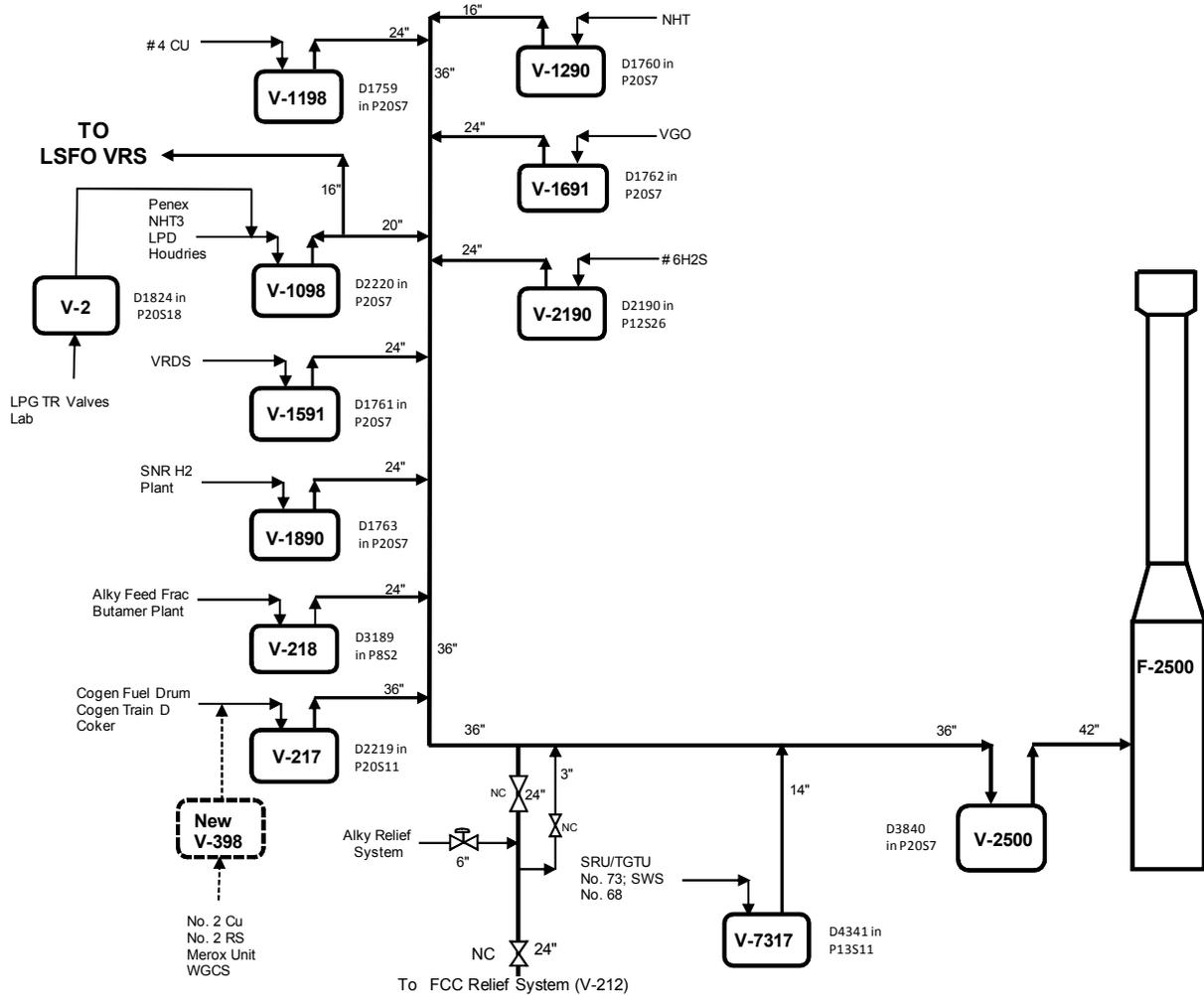
Process Description - PRVs and maintenance vents from the following process units are currently connected into the header for the LSFO VRS/Flare:

- No. 2 Crude Unit (P1S3) and Resid Stripper (P1S13)
- No. 4 Crude Unit (P1S5)
- Delayed Coking Unit (P2S1)
- LSFO Naphtha Hydrotreater (NHT) (P4S1)
- Vacuum Gas Oil Desulfurizer (VGO) (P4S9)
- Vacuum Resid Desulfurizer (VRDS) (P4S11)
- Naphtha Hydrotreater No. 3 (NHT-3) (P4S13)
- Steam Naphtha Reformer Hydrogen Plant (P6S4)
- Penex Isomerization (P8S2)
- Alkylation Feed Fractionation Unit (P8S5)
- Coker Depropanizer (P10S1)
- LPG Production (P10S2)
- No. 6 H₂S Recovery Plant (P12S26&27)
- Sour Water Stripper Plant No. 68 (P12S28)
- SRU/TGTU No. 73 (P13S10&11)
- Cogen Train D (fuel supply system) (P17S7)
- Waste Gas Compressor Station (P20S19)
- Cogen Plant Fuel Mix Drum System (P21S4)

The relief headers from each of these units/areas are equipped with knockout pots to remove moisture. These relief headers and knockout pots are shown in the simplified process flow diagram (PFD) below. With the exception of the V-2 and V-217 Knockout Pots in the Vapor Gathering System II (P20S18) and Alky Unit VRS (P20S11), these knockout pots are listed in either the LSFO Flare permit unit or the permit unit for the process unit in which the relief header originates. The location in the permit of each of the knockout pots is noted in the figure below. Based on current permit practice, KO Pots V-2 and V-217 and Accumulator V-203 will be moved to the LSFO Flare permit. The Vapor Gathering System II (P20S18) and Alky Unit VRS (P20S11) permit units, which have been subject to major physical and functional modifications through the years, no longer serve as independent processes/permit units.

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As seen in the simplified PFD below, the LSFO Flare and VRS are interconnected with the FCCU and Alky Flares and VRSs. The flares are interconnected so that one of the flares can be shut down for maintenance or repairs without shutting down all of the equipment connected to the flare. The valves to switch flow from one flare to another are manual.



Relief Headers for the LSFO VRS and Flare

The main flare relief header is a 36 inch header that connects into the LSFO Flare Knock Drum V-2500 (D3840). A 42 inch line goes from the knockout pot to the base of the flare. The base of the flare contains a water seal to maintain a back pressure of 64 inches water column on the flare header. The LSFO VRS was upgraded in 2007 – 2008 by the replacement of the three existing reciprocating compressors, which had a capacity of 2 MMSCFD each, by three reciprocating compressors with a capacity of 4 MMSCFD each depending on the molecular weight of the gas. These three electrically driven compressors (K-2006, K-2007, and K-2008) operate in parallel and can be operated independently or concurrently at any given time on “as needed” basis depending on the volume of gases available for recovery.

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The K-2005 compressor in the Coker Blowdown System (Process 2, System 5) functions as a backup compressor. The compressors, which pull suction on the flare relief system, discharge the compressed gas to the No. 5 and No. 6 H₂S Plants. The goal of the recovery system is to keep the pressure of the flare header below 64 inches water column to prevent relief gases from flowing through the water seal into the flare.

LSFO VRS operating data for the month of June 2012 was reviewed to determine normal load. During this period, the K-2006 and K-2008 compressors were in operation. The average discharge for these compressors was 2.5 mmscfd and 2.1 mmscfd, respectively. 2.8 mmscfd of the 4.6 mmscfd compressor discharge was gas that was recycled back to the suction of the compressors. Therefore, the average vent gas rate to the compressors was 1.8 mmscfd, which is well below the maximum combined capacity of 12 mmscfd for the three compressors.

The flare stack is a freestanding stack fitted with a Flaregas FS Type tip, which is equipped with 100 “flarejectors”. This cluster of “flarejectors” are designed to provide thorough mixing of steam, air, and gas. The 150 psi steam that is supplied to these “flarejectors” aspirates air and gas through the “flarejectors”. The upper section of the flare tip has a conical shape with a maximum diameter of 68 inches. The flare stack is equipped with a “flarex” (molecular) seal. The stack is continuously purged with either nitrogen or natural gas. The nitrogen or natural gas in conjunction with the molecular seal prevents air from entering into the flare stack.

The capacity of a flare is limited by the hydraulics of the relief system and the flare tip velocity. As required by 40CFR60 Subpart A, the flare tip velocity should be maintained below 400 ft/sec when the heat value of the relief gas is above 1000 btu/scf. The current maximum loads to the flare are 788,800 lb/hr (@ MW = 17.8) during a loss of power to the LSFO Complex and 960,000 lb/hr (@ MW = 105) during a reflux failure at the No. 4 Crude Unit. The net heating value of the relief gas for both of these scenarios is expected to be above 1000 btu/scf. According to Chevron, there are no common relief scenarios between the LSFO complex, No. 4 Crude Unit and the 2 Crude Unit area (2 Crude Unit, 2 Resid Stripper, Merox, and K-450A / B) since each operate independently and have separate electrical power feeds. Connection of the subject PRVs to the VRS/Flare will not impact the maximum flare load since they will not open during current load scenarios .

Based on the estimated maximum velocity at the worst case load of 788,000 lb/hr and a tip exit diameter of 68 inches, the tip velocity is calculated to be 229 ft/sec, which is under the maximum allowable rate of 400 ft/sec.

$$Velocity = \left(\frac{(FlowRate \text{ lb/hr})(379scf / lb - mole)(TemperatureatFlareR)}{(MW)(TipFlowAreaft^2)(3600sec / hr)(TemperatureStandardR)} \right)$$

$$Velocity = \left(\frac{(788,000 \text{ lb/hr})(379scf / lb - mole)(659R)}{(17.8)(25.2 \text{ ft}^2)(3600sec / hr)(532R)} \right) = 229 \text{ ft/sec}$$

The smokeless capacity of the flare varies depending on the properties of the flared stream. Based on the maximum continuous steam flow of 50,000 lbs/hr of steam, actual smokeless burning capacity varies from about 280,000 lb/hr (0.18 lb steam to 1 lb gas) to about 100,000 lb/hr (0.49 lb steam to 1 lb gas).

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The flare is equipped with 4 pilots with a total combined natural gas flow of 800 scfh. Each of the headers in the relief header system is purged with natural gas. The total purge natural gas flow through the flare header system varies from 400 to 1380 scfh. The flare gas header purge gas flow requirements are not expected to change since the new PRDs are being connected to existing headers such that the current purge gas flow will still be adequate to purge the entire header system. During normal operation of the system, the flare header purge gas is captured by the LSFO VRS. The flare stack purge rate is 3600 – 5700 scfh of nitrogen or 500 – 800 scfh of natural gas.

New Relief Header - The outlet of each of the PRVs will be connected to new Knockout Drum V-398, which will be connected to the relief header containing the existing Knockout Drum V-217. As discussed previously, this existing knockout drum and Accumulator V-203 are currently permitted as the Alky Unit Vapor Recovery System (P20S11) but will be moved to the LSFO Flare permit unit. KO Drum V-398 will also be permitted as part of the LSFO Flare permit unit. Liquid recovered in the new KO Pot V-398 will be pumped to existing recovered oil tanks.

CALCULATIONS

This section contains criteria air pollutant (CO, NO_x, PM₁₀, SO₂, and VOC) emission estimates for each of the permit units. The only criteria pollutant emissions from the No. 2 Crude Unit, No. 2 Resid Stripper, Merox Plant, Waste Gas Compressors and LSFO VRS are VOC emissions from fugitive components. The LSFO Flare has emissions from combustion as well as fugitive VOC emissions.

FUGITIVE VOC EMISSIONS

Each of the subject permit units contain fugitive components (valves, flanges, connectors, pumps, compressors, PRVs and drains) that handle VOC containing liquids or gases. The VOC liquids or gases periodically leak from the components. VOC emissions for these fugitive components are estimated by multiplying the total number of each fugitive component type by an appropriate emission factor. The fugitive VOC emission factors utilized in these calculations are from the following document: *California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities* (CARB/CAPCOA - 1999).

The following table contains the estimated current VOC emissions for each permit unit and the estimated fugitive VOC emissions for each of the subject permit units following completion of the proposed modifications.

Estimated Pre- and Post-Modification VOC Emissions from Fugitive Components on a Permit Unit Basis

Permit Unit	Estimated VOC Emissions (lb/day)(1)(2)		Change in VOC Emissions	
	Pre-Mod	Post-Mod	(lb/day)(1)	(lb/year)
No. 2 Crude Unit	256.62	262.45	+5.83	+2098
No. 2 Resid Stripper	213.51	214.09	+0.58	+210
Merox Plant	36.49	37.11	+0.62	+222

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Permit Unit	Estimated VOC Emissions (lb/day)(1)(2)		Change in VOC Emissions	
	Pre-Mod	Post-Mod	(lb/day)(1)	(lb/year)
LSFO Flare	29.39 (3)	31.45	+2.06	+743
LSFO VRS	39.28	40.07	+0.80	+287
Waste Gas Compressors	20.35	20.78	+0.43	+156
Total			+10.32	+3714

(1) 30 day average VOC emissions calculated as annual VOC emissions divided by 360.

(2) Based on CARB/CAPOA emission factors.

(3) Baseline fugitive VOC emissions of 27.0 lb/day were erroneously estimated for previous A/N 526608. Correct emissions are 29.39 lb/day. Due to an error in the calculation spreadsheet, the VOC emissions for 186 existing heavy liquid valves were erroneously estimated as 0 lb/yr instead of 846 lb/yr [186 valves x 4.55 lb/valve]

Baseline VOC emissions have never been established in the Districts NSR database for the Merox Plant and Waste Gas Compressor Station. The current estimated VOC emissions will be entered as the baseline VOC emissions.

COMBUSTION EMISSIONS

This section contains an estimate of criteria pollutant emissions from non-emergency operation of the LSFO Flare. These non-emergency emissions are from the combustion of pilot and flare purge gas streams. Criteria pollutant emissions from the combustion of gases generated from process upsets or equipment malfunctions are not included in the Regulation XIII emission estimates. The subject PRVs will only vent to the flare during emergencies. They will not vent to the VRS/flare during plant SUs, SDs or normal operation. Any leakage through the PRV and any additional header purge gas will also not be combusted in the flare during normal operation because it will be captured in the VRS. Therefore, none of these streams are utilized in estimation of normal flare emissions.

The estimated criteria pollutant emissions from the combustion of the pilot and flare purge gas streams in the LSFO Flare is shown in the table below. These emission estimates utilize District AER/Rule 1118 emission factors for natural gas combustion. As noted in the *Process Description* section, the flare purge gas and flare pilot gas are natural gas. The design pilot and flare purge gas flow rates are each 38 lb/hr (800 scfh). Therefore, the maximum natural gas flow rate to the flare during normal operation is 1600 scfh. The proposed connection of new PRDs does not cause any increase in the normal emissions from the flare since there is no increase in the amount of pilot gas or flare purge gas.

LSFO Flare: Estimate of Maximum Potential Emissions from Combustion of Pilot/Purge Gas

Pollutant	Total Pilot/Purge Gas (MMscf/day)	Emission Factor (lb/MMscf)	Emissions (lb/day)	Emissions (lb/yr)
NOx	0.038	130	4.94	1803
SOx	0.038	0.83	0.03	11

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Pollutant	Total Pilot/Purge Gas (MMscf/day)	Emission Factor (lb/MMscf)	Emissions (lb/day)	Emissions (lb/yr)
CO	0.038	35	1.33	485
PM10	0.038	7.5 (1)(2)	0.29	106
VOC	0.038	7 (1)	0.27	99

Current and post-construction VOC emissions for the flare are 29.66 lb/day and 31.72 lb/day, respectively, including fugitive VOC emissions of 29.39 lb/day and 31.45 lb/day, respectively, and 0.27 lb/day from combustion of pilot and purge gas.

Toxic Air Contaminants

The project will cause an increase in Toxic Air Contaminant (TAC) emissions since the gases leaking from new fugitive components will contain TACs. To determine compliance with Rule 1401, a Tier 1 screening analysis is performed for each of the subject permit units. A Tier 1 analysis utilizes the most conservative receptor distance regardless of whether the receptor is commercial or residential. The screening emission levels for 100 meters were utilized in this analysis since the nearest residential/commercial receptor is between 100 and 200 meters away from the subject permit units.

Emissions of TACs are calculated by multiplying the VOC emission increase for a permit unit by a representative weight fraction of each TAC. The new fugitive components are being installed primary in the new flare gas collection system/header that will collect and convey the gases to the existing LSFO Flare header. The new flare header will connect into the existing header downstream of the Waste Gas Compressor Station (WGCS), which currently collects waste gases from the No. 2 Crude Unit Area (No. 2 Resid Stripper and No. 2 Crude Unit). TAC concentrations in the new header are expected to be similar to those in the discharge gas from the WGCS Compressors K-450A/B. Samples from the K-450A/B discharge gas were analyzed for TACs. This TAC speciation is utilized to estimate TAC emissions for new gaseous service components.

A small number of the new fugitive components will be in liquid service. These will primarily be components associated with the knockout pot for the new flare header. Samples of sour water from a similar knockout pot in the existing system were analyzed for TACs. This TAC speciation is utilized to estimate TAC emissions for new gaseous service components.

The TAC concentrations for these gas and liquid samples are shown below.

TAC Speciations Utilized In TAC Emission Estimates

Pollutant	Weight Fraction	
	Gas/Vapor	Liquid
Benzene	2.3E-04	4.3E-03
Ethylbenzene	6.0E-06	2.9E-04
n-Hexane	1.4E-04	0.0
Naphthalene	1.1E-03	0.0

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Pollutant	Weight Fraction	
	Gas/Vapor	Liquid
Phenol	1.6E-04	0.0
Propylene	1.2E-02	0.0
Toluene	4.9E-05	1.8E-03
Xylenes	8.4E-05	2.8E-04
Ammonia	0.0	1.05E-02
H2S	1.5E-01	2.6E-04
Styrene	3.0E-06	7.6E-05

The following tables contain the results of the Rule 1401 Tier 1 screening analysis.

No 2 Crude Unit: Rule 1401 Tier 1 Health Risk Screening Analysis

Toxic Air Contaminant (TAC)	TAC Emission Increase (1)		TAC Screening Threshold (2)		Pollutant Screening Index (3)	
			Chronic/Cancer	Acute	Chronic/Cancer	Acute
	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr
Benzene	4.27E+00	4.87E-04	8.9	3.96	4.70E-01	1.23E-04
Ethylbenzene	2.77E-01	3.16E-05	517,000	na.	5.35E-07	na.
n-Hexane	1.64E-01	1.87E-05	1,810,000	na.	9.03E-08	na.
Naphthalene	1.28E+00	1.47E-04	7.4	na.	1.73E-01	na.
Phenol	1.87E-01	2.13E-05	51,700	15.5	3.61E-06	1.38E-06
Propylene	1.40E+01	1.60E-03	775,000	na.	1.81E-05	na.
Toluene	1.73E+00	1.98E-04	77,500	99.1	2.23E-05	1.99E-06
Xylenes	3.59E-01	4.09E-05	181,000	58.9	1.98E-06	6.95E-07
Ammonia	9.77E+00	1.11E-03	5.17E+04	8.57E+00	1.89E-04	1.30E-04
H2S	1.75E+02	2.00E-02	2.58E+03	1.12E-01	0.068001	1.79E-01
Styrene	7.42E-02	8.47E-06	2.33E+05	5.62E+01	3.18E-07	1.51E-07
Total					0.57	0.18

- (1) VOC emission increase of 1168 lb/yr for gas/vapor service components multiplied by the TAC concentration for the representative gas sample and 930 lb/yr for liquid service components multiplied by the TAC concentration for the representative liquid sample.
- (2) Screening Emission Level for 100 meters from table for applications received after July 1, 2005.
- (3) TAC emission increase divided by Screening Emission Level.

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No. 2 Resid Stripper: Rule 1401 Tier 1 Health Risk Screening Analysis

Toxic Air Contaminant (TAC)	TAC Emission Increase (1)		TAC Screening Threshold (2)		Pollutant Screening Index (3)	
			Chronic/Cancer	Acute	Chronic/Cancer	Acute
	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr
Benzene	0.05	5.70E-06	8.9	3.96	5.62E-03	1.44E-06
Ethylbenzene	0.001	1.10E-07	517,000	na.	1.93E-09	na.
n-Hexane	0.03	3.40E-06	1,810,000	na.	1.66E-08	na.
Naphthalene	0.25	2.80E-05	7.4	na.	3.38E-02	na.
Phenol	0.04	4.50E-06	51,700	15.5	7.74E-07	2.90E-07
Propylene	2.86	3.20E-04	775,000	na.	3.69E-06	na.
Toluene	0.01	1.10E-06	77,500	99.1	1.29E-07	1.11E-08
Xylenes	0.02	2.30E-06	181,000	58.9	1.10E-07	3.90E-08
Ammonia	0	0	5.17E+04	8.57E+00	0.00E+00	0.00E+00
H2S	35.7	4.00E-03	2.58E+03	1.12E-01	1.38E-02	3.57E-02
Styrene	0	0	2.33E+05	5.62E+01	0.00E+00	0.00E+00
Total					0.05	0.04

- (1) VOC emission increase of 210 lb/yr multiplied by TAC concentration for the representative gas sample.
- (2) Screening Emission Level for 100 meters from table for applications received after July 1, 2005.
- (3) TAC emission increase divided by Screening Emission Level.

Mercox Plant: Rule 1401 Tier 1 Health Risk Screening Analysis

Toxic Air Contaminant (TAC)	TAC Emission Increase (1)		TAC Screening Threshold (2)		Pollutant Screening Index (3)	
			Chronic/Cancer	Acute	Chronic/Cancer	Acute
	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr
Benzene	0.06	6.80E-06	8.9	3.96	6.74E-03	1.72E-06
Ethylbenzene	0.002	2.30E-07	517,000	na.	3.87E-09	na.
n-Hexane	0.04	4.50E-06	1,810,000	na.	2.21E-08	na.
Naphthalene	0.27	3.10E-05	7.4	na.	3.65E-02	na.
Phenol	0.04	4.50E-06	51,700	15.5	7.74E-07	2.90E-07
Propylene	3.1	3.50E-04	775,000	na.	4.00E-06	na.
Toluene	0.01	1.10E-06	77,500	99.1	1.29E-07	1.11E-08
Xylenes	0.02	2.30E-06	181,000	58.9	1.10E-07	3.90E-08

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Ammonia	0	0	5.17E+04	8.57E+00	0.00E+00	0.00E+00
H2S	38.3	4.30E-03	2.58E+03	1.12E-01	1.48E-02	3.84E-02
Styrene	0	0	2.33E+05	5.62E+01	0.00E+00	0.00E+00
Total					0.06	0.04

- (1) VOC emission increase of 222 lb/yr multiplied by TAC concentration for the representative gas sample.
- (2) Screening Emission Level for 100 meters from table for applications received after July 1, 2005.
- (3) TAC emission increase divided by Screening Emission Level.

LSFO VRS: Rule 1401 Tier 1 Health Risk Screening Analysis

Toxic Air Contaminant (TAC)	TAC Emission Increase (1)		TAC Screening Threshold (2)		Pollutant Screening Index (3)	
			Chronic/Cancer	Acute	Chronic/Cancer	Acute
	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr
Benzene	0.21	2.40E-05	8.9	3.96	2.36E-02	6.06E-06
Ethylbenzene	0.01	1.10E-06	517,000	na.	1.93E-08	na.
n-Hexane	0.03	3.40E-06	1,810,000	na.	1.66E-08	na.
Naphthalene	0.23	2.60E-05	7.4	na.	3.11E-02	na.
Phenol	0.03	3.40E-06	51,700	15.5	5.80E-07	2.19E-07
Propylene	2.53	2.90E-04	775,000	na.	3.26E-06	na.
Toluene	0.08	9.10E-06	77,500	99.1	1.03E-06	9.18E-08
Xylenes	0.03	3.40E-06	181,000	58.9	1.66E-07	5.77E-08
Ammonia	0.4	4.60E-05	5.17E+04	8.57E+00	7.74E-06	5.37E-06
H2S	31.6	3.60E-03	2.58E+03	1.12E-01	1.22E-02	3.21E-02
Styrene	0.004	4.60E-07	2.33E+05	5.62E+01	1.72E-08	8.19E-09
Total					0.07	0.03

- (1) VOC emission increase of 287 lb/yr multiplied by TAC concentration for the representative gas sample.
- (2) Screening Emission Level for 100 meters from table for applications received after July 1, 2005.
- (3) TAC emission increase divided by Screening Emission Level.

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LSFO Flare: Rule 1401 Tier 1 Health Risk Screening Analysis

Toxic Air Contaminant (TAC)	TAC Emission Increase (1)		TAC Screening Threshold (2)		Pollutant Screening Index (3)	
			Chronic/Cancer	Acute	Chronic/Cancer	Acute
	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr
Benzene	3.13	3.60E-04	8.9	3.96	3.52E-01	9.09E-05
Ethylbenzene	0.21	2.40E-05	517,000	na.	4.06E-07	na.
n-Hexane	0.001	1.10E-07	1,810,000	na.	5.52E-10	na.
Naphthalene	0.01	1.10E-06	7.4	na.	1.35E-03	na.
Phenol	0.001	1.10E-07	51,700	15.5	1.93E-08	7.10E-09
Propylene	0.1	1.10E-05	775,000	na.	1.29E-07	na.
Toluene	1.29	1.50E-04	77,500	99.1	1.66E-05	1.51E-06
Xylenes	0.2	2.30E-05	181,000	58.9	1.10E-06	3.90E-07
Ammonia	7.7	8.80E-04	5.17E+04	8.57E+00	1.49E-04	1.03E-04
H2S	1.49	1.70E-04	2.58E+03	1.12E-01	5.78E-04	1.52E-03
Styrene	0.06	6.80E-06	2.33E+05	5.62E+01	2.58E-07	1.21E-07
Total					0.35	0.002

- (1) VOC emission increase of 596 lb/yr for gas/vapor service components multiplied by the TAC concentration for the representative gas sample and 147 lb/yr for liquid service components multiplied by the TAC concentration for the representative liquid sample.
- (2) Screening Emission Level for 100 meters from table for applications received after July 1, 2005.
- (3) TAC emission increase divided by Screening Emission Level.

Waste Gas Compressor Station: Rule 1401 Tier 1 Health Risk Screening Analysis

Toxic Air Contaminant (TAC)	TAC Emission Increase (1)		Screening Threshold		Pollutant Screening Index	
			Chronic/Cancer	Acute	Chronic/Cancer	Acute
	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr
Benzene	0.04	4.60E-06	8.9	3.96	4.49E-03	1.16E-06
Ethylbenzene	0.001	1.10E-07	517,000	na.	1.93E-09	na.
n-Hexane	0.03	3.40E-06	1,810,000	na.	1.66E-08	na.
Naphthalene	0.21	2.40E-05	7.4	na.	2.84E-02	na.
Phenol	0.03	3.40E-06	51,700	15.5	5.80E-07	2.19E-07
Propylene	2.32	2.60E-06	775,000	na.	2.99E-06	na.
Toluene	0.01	1.10E-06	77,500	99.1	1.29E-07	1.11E-08

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Xylenes	0.02	2.30E-06	181,000	58.9	1.10E-07	3.90E-08
Ammonia	0	0	5.17E+04	8.57E+00	0.00E+00	0.00E+00
H2S	29	3.30E-03	2.58E+03	1.12E-01	1.12E-02	2.95E-02
Styrene	0.001	1.10E-07	2.33E+05	5.62E+01	4.29E-09	1.96E-09
Total					0.04	0.03

- (1) VOC emission increase of 156 lb/yr multiplied by TAC concentration for the representative gas sample.
- (2) Screening Emission Level for 100 meters from table for applications received after July 1, 2005.
- (3) TAC emission increase divided by Screening Emission Level.

RULE COMPLIANCE REVIEW:

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq., requires that the environmental impacts of proposed "projects" be evaluated and that feasible methods to reduce, avoid or eliminate significant adverse impacts of these projects be identified and implemented. The PRO project qualified as a significant project so preparation of a CEQA document was required. The draft Environmental Impact Report (DEIR) for the PRO project was issued on March 6, 2008. The public review period for this document ended on April 22, 2008. The final Environmental Impact Report (FEIR) was certified on May 9, 2008. An addendum to the FEIR was certified on May 13, 2010.

The original scope of the PRO Project, as analyzed in the FEIR, included construction of a new VRS and flare and connection of the subject PRVs to a new VRS and flare. Due to this change in project description, Chevron is required to prepare an addendum to the FEIR to reflect the change in the original project proposal. The permits to construct for connection of the subject PRVs to the LSFO Flare and VRS will not be issued until the addendum is certified.

The permits for the LSFO VRS and LSFO Flare include condition S7.4 that specifies that Chevron shall comply with all applicable mitigation measures stipulated in the "Statement of Findings, Statement of Overriding Considerations, and Mitigation Monitoring Plan" document which is part of the AQMD Certified Final Environmental Impact Report. This condition will be added to the permits for the No. 2 Crude Unit, No. 2 Resid Stripper, Merox Plant and Waste Gas Compressor Station.

REGULATION II: PERMITS

RULE 212: STANDARDS FOR APPROVING PERMITS

212(c)(1): Public notice is required for a project if any of the modified permit units are located within 1000 feet of a school. The LSFO VRS is 1430 feet from the nearest school. The other permit units are each more than 2600 feet from the nearest school. Public notice is not required under this clause.

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212(c)(2): Public notice is required for any “new or modified facility”, which has on-site emission increases exceeding any of the daily maximums specified in subdivision (g) of Rule 212. Public notice is required under all components of the PRO Project including connection of the subject PRVs to the LSFO VRS and Flare required because the increase in maximum potential emissions for the PRO Project exceeds the CO, PM10, SO2 and VOC emission increase thresholds contained in 212(g). Therefore, a public notice will be issued for connection of the subject PRVs to the LSFO VRS and flare.

Air Contaminant	R212(g) Daily Maximum Threshold (lb/day)	Estimated Emission Increase (lb/day) (1)	
		PRV Connections	PRO Project (2)
CO	220	0	379
NOx	40	0	-235
PM10	30	0	117
SO2	60	0	202
VOC	30	10.3	203
Lead	3	0	0

- 1) Increase in 30-day average maximum potential to emit. Includes emissions from commissioning, startup and shutdown.
- 2) Estimated emission increase for entire PRO Project from the PRO Project FEIR.

212(c)(3): Public notice is required for any new or modified permit units that have an increase in toxic air contaminants that results in an increase of maximum individual cancer risk (MICR) of more than one in a million (1×10^{-6}) during a lifetime (70 years). As discussed in additional detail in the evaluation of Rule 1401, the connection of the subject PRVs to the LSFO VRS and flare does not cause an emission increase that causes an increase in MICR of more than 1×10^{-6} . Public notice is not required under this clause.

212(g): 212(g) specifies that any new or modified sources subject to Regulation XIII which undergo construction or modifications resulting in an emissions increase exceeding any of the daily maximum emission thresholds (listed in the table above) will require notification. From Regulation XIII (Rule 1302), the definition of “Source” is any permitted individual unit, piece of equipment, article, machine, process, contrivance, or combination thereof, which may emit or control an air contaminant. This includes any permit unit at any non-RECLAIM facility and any device at a RECLAIM facility.

Public notice is not required under this clause since the increase in estimated maximum potential VOC emissions for connection of the subject PRVs to the LSFO VRS and Flare is less than the Rule 212(g) threshold of 30 lb/day.

REGULATION IV - PROHIBITIONS

RULE 401: VISIBLE EMISSIONS and RULE 402: NUISANCE

Rule 401 specifies that a person shall not discharge emissions from a source for a period or periods aggregating more than three minutes in any one hour which are as dark or darker in

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shade as that designated No. 1 on the Ringelmann Chart or emissions of such opacity that it obscures an observers view to an equal or greater level. This is equivalent to opacity of 20%.

Rule 402 requires that a person not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which cause, or have a natural tendency to cause injury or damage to business or property.

The function of emergency flares such as the LSFO Flare is to reduce the nuisance potential and health impacts from the periodic emergency releases to the atmosphere of waste/process gases that may contain high levels of toxic and odorous air contaminants. In performing this function, flares have the potential to emit black smoke and other products of incomplete combustion during severe process malfunctions or breakdowns that send large amounts of waste/process gas to the flare. Therefore, all emergency refinery flares do have some potential to emit dark smoke that causes nuisance and exceeds 20 percent opacity for a period of greater than 3 minutes during extreme emergencies during which the process/waste gas load to the flare exceeds the smokeless capacity of the flare.

As discussed in the process description section of this evaluation, the LSFO Flare is equipped with steam injection to provide smokeless combustion up to the smokeless capacity of the flare. This smokeless capacity varies depending on the properties of the waste gas being combusted. For releases up to the smokeless capacity of the flare, smoking will occur only during a short transitory period while the steam injection system adjusts to the load being sent to the flare. An increase of the smokeless capacity of the flare is not warranted since additional steam would have to be produced around the clock to cover emergency flaring events that are relatively rare. Production of additional steam would cause an increase in the emissions of criteria and toxic pollutants for steam that cannot be utilized during normal operational periods when no flaring occurs.

Emergency situations such as a loss of power are covered by the “Breakdown Provisions” of Regulation 430. If the emergency qualifies as a “Breakdown” and Chevron complies with the requirements of 430(b)(3)(A), the smoking during an emergency will not be a violation of Rule 401.

The LSFO VRS minimizes nuisance and visible emissions through the capture of all normal releases and a portion of the emergency releases to the flare. The Chevron refinery has been relatively effective at minimizing flaring events. The capacity of the LSFO VRS was increased by 6 mmscfd in 2008 through replacement of the three existing vapor recovery compressors with larger compressors. As discussed later in the evaluation of District Rule 1118, SO_x emissions from Chevron’s flares during 2006 - 2012 were well below Rule 1118 SO_x performance targets.

Connection of the subject emergency PRVs to the flare will cause a small increase in the nuisance and visible emissions potential of the flare. As discussed later in this evaluation, none of the subject PRVS have had emergency releases during the 8-year period that they have been monitored under District Rule 1173. It is expected that the nuisance and health impacts from a emergency release to the atmosphere from one the subject PRVS would be greater than the nuisance caused from sending the release to the LSFO VRS/Flare.

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RULE 404: PARTICULATE MATTER - CONCENTRATION

This rule sets concentration limits for total PM (solid and condensable) emissions. The rule limit varies based on the quantity of exhaust gas (dry basis) discharged from a source.

PM emissions from the normal operation of the LSFO flare is estimated using the District AER (and Rule 1118) emission factor (EF) of 7.5 lb/MMscf of natural gas combusted. An “F” factor of 8710 scf of flue gas per MMBtu per hour of natural gas combustion is believed to provide a reasonable estimate of the exhaust gas flow rate for the combustion of pilot and purge natural gas in the flare. The calculation of the PM concentration for the exhaust gas from normal operation of the flare is shown below.

$$PM = \left(\frac{7.5 \text{ lb PM}}{\text{MMscf NG}} \right) \left(\frac{\text{scf NG}}{1050 \text{ BTU}} \right) \left(\frac{\text{MMBtu}}{8710 \text{ scf flue gas}} \right) \left(\frac{7000 \text{ grain}}{\text{lb}} \right) = 0.006 \text{ grain/dscf}$$

The estimation of the exhaust gas flow for the LSFO flare is shown below.

$$\begin{aligned} \text{LSFO Flare Exhaust Rate} &= \left(\frac{1600 \text{ scf NG}}{\text{hour}} \right) \left(\frac{1050 \text{ Btu}}{\text{scf NG}} \right) \left(\frac{8710 \text{ scf flue gas}}{\text{MMBtu}} \right) \left(\frac{\text{hour}}{60 \text{ min}} \right) \\ &= 244 \text{ dscfm} \end{aligned}$$

From Table 404(a) in Rule 404, the PM limit for exhaust gas flows below 883 dscfm is 0.196 gr/dscf. Even at high levels of excess O₂, the flue gas flow rate should be below 883 dscfm. The estimated PM concentration of 0.006 gr/dscf is well below the Rule 404 limit of 0.196 gr/dscf. Compliance with this rule is expected.

RULE 405: SOLID PARTICULATE MATTER - WEIGHT

This rule sets solid PM mass emission limits for the processing of solid materials. It is not applicable to combustion sources such as the subject flare.

RULE 407: LIQUID AND GASEOUS AIR CONTAMINANTS

This rule contains the following emission limits:

- Carbon monoxide (CO) - 2,000 ppmv (dry; 15 minute average) [407(a)(1)]
- Sulfur Compounds - 500 ppmv (calculated as SO₂; 15 minute average) [407(a)(2)(B)]

CO Limit

According to R407(b)(3), the provisions of this rule shall not apply to emissions from emergency venting due to equipment failure or process upset. During normal operation, all vent gases are captured by the VRS so only pilot and purge gas are being combusted in the flare. Compliance with the 2000 ppmv CO limit is expected during normal operation of these flares.

Sulfur Compound Limit:

As discussed in more detail in the analysis of RECLAIM requirements, flares are exempt from RECLAIM. Therefore, the flare is subject to the sulfur compound limit of Rule 407 during

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normal operation of the flare. As discussed above, the provisions of this rule do not apply to emissions from the emergency venting from equipment failure or process upset. Compliance with the 500 ppmv sulfur compound limit is expected during normal operation, which includes the combustion of pilot and purge natural gas flows to the flare. The LSFO Flare is only expected to be challenged with a significant amount of high sulfur vent gases during equipment malfunctions or process upsets. Compliance with this rule is expected.

RULE 409: COMBUSTION CONTAMINANTS

This rule contains limit on combustion contaminants from the combustion of fuel of 0.23 gram per cubic meter (0.1 grain per cubic foot) of flue gas (15 minute avg. at 12% CO₂).

As shown in the evaluation of Rule 404, the estimated PM emission from the combustion of natural gas in the LSFO Flare is 0.006 gr/dscf, which is well below the limit of this rule. Compliance with the requirements of this rule is expected during normal operation of these combustion devices.

REGULATION IX - NEW SOURCE PERFORMANCE STANDARDS (NSPS)

SUBPART A – GENERAL CONTROL DEVICE REQUIREMENTS (40CFR60.18)

40CFR60.18 of Subpart A contains general requirements for control devices used to comply with applicable subparts of parts 60 and 61. The control device requirements of NSPS Subpart A include:

60.18(c)(1): “Flares shall be designed for and operated with no visible emissions as determined by the methods specified in paragraph (f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.”

As stated in 60.11(c), the “opacity standards set forth in this part shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard”. Chevron is required to meet the requirement for operation of the flare with no visible emissions except for periods not to exceed a total of 5 minutes during any 2 consecutive hours at all times except startup, shutdown, or malfunction as defined in Subpart A. Compliance with this requirement is expected since the flare only combusts pilot and purge natural gas during normal operation and is equipped with a water seal and VRS.

60.18(c)(2): “Flares shall be operated with a flame present at all times, as determined by the methods specified in paragraph (f).” (f)(2) states that “the presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.” Chevron utilizes a thermocouple (with an infrared detector as a backup) to monitor the existence of a flame. Condition D12.14 for each of the flares requires that “operator shall install and maintain a(n) thermocouple or any other equivalent device to accurately indicate the presence of a flame at the pilot light. The operator shall also install and maintain a device to continuously record the parameter being measured.” Chevron has the monitoring and recording systems in place to comply with the requirements of this section. Continued compliance is expected.

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60.18(c)(3): An owner/operator has the choice of adhering to either the heat content specifications in paragraph (c)(3)(ii) of this section and the maximum tip velocity specifications in paragraph (c)(4) of this section, or adhering to the requirements in paragraph (c)(3)(i) of this section. Chevron complies with the heat content and maximum tip velocity requirements in paragraphs (c)(3)(ii) and (c)(4), respectively, since the requirements in paragraph (c)(3)(i) apply to non-assisted flares only.

Paragraph (c)(3)(ii) specifies that steam and air-assisted flares shall be used to combust vent gas with a net heating value of 300 Btu/scf or greater. As shown in the *Process Description* section of this evaluation, the expected low heating value (LHV) of the vent gases for each of the subject PRVs is expected to be well above 300 Btu/scf. Compliance with this requirement will not be impacted by connection of the new PRVs.

60.18(c)(4)(i): Steam-assisted and nonassisted flares shall be designed for and operated with an exit velocity, as determined by the methods specified in §60.18(f)(4), less than 18.3 m/sec (60 ft/sec), except as provided in §§60.18(c)(4)(ii) and (iii). As discussed below, the flare complies with the alternative velocity requirements specified in §60.18(c)(4)(ii).

60.18(c)(4)(ii): Steam-assisted and non-assisted flares designed for and operated with an exit velocity, as determined by the methods specified in paragraph (f)(4), equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec) are allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 Btu/scf). The net heating value of the gases that would be combusted in the LSFO Flare is greater than 1000 btu/scf so an exit velocity of less than 400 ft/sec is required. As shown in the *Process Description* section of this evaluation, the exit velocity for the maximum estimated load to the flare is 229 ft/sec.

60.18(c)(6): Flares used to comply with this section shall be steam-assisted, air-assisted, or non-assisted. The LSFO Flare is steam assisted.

60.18(e): Flares used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them. Compliance with this requirement is expected.

40CFR60 SUBPART J- STANDARDS OF PERFORMANCE FOR PETROLEUM REFINERIES

This NSPS is applicable to the following affected facilities in petroleum refineries:

- Fluid Catalytic Cracking Unit Catalyst Regenerators
- Fuel Gas Combustion Devices
- All Claus Sulfur Recovery Plants (SRPs)(except Claus Plants of 20 long tons per day (LTD) or less

The LSFO Flare is currently subject to this regulation as denoted by condition H23.44. However, as discussed in more detail below, the flare will become subject to 40CFR60 Subpart Ja upon completion of this project. At that time, the flare will no longer be subject to this regulation.

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40CFR60 SUBPART Ja -- STANDARDS OF PERFORMANCE FOR PETROLEUM REFINERIES FOR WHICH CONSTRUCTION, RECONSTRUCTION, OR MODIFICATION COMMENCED AFTER MAY 14, 2007

Applicability: This NSPS is applicable to the following affected facilities in petroleum refineries which were constructed, reconstructed, or modified after May 14, 2007:

- Fluid Catalytic Cracking Unit Catalyst Regenerators,
- Fluid Coking Units,
- Delayed Coking Units,
- Fuel Gas Combustion Devices (except flares), and
- Claus Sulfur Recovery Plants (SRPs)

The provisions of this subpart apply to flares which commence construction, modification, or reconstruction after June 24, 2008. *Flare* is defined as a combustion device that uses an uncontrolled volume of air to burn gases. The flare includes the foundation, flare tip, structural support, burner, igniter, flare controls, including air injection or steam injection systems, flame arrestors and the flare gas header system. In the case of an interconnected flare gas header system, the *flare* includes each individual flare serviced by the interconnected flare gas header system and the interconnected flare gas header system.

Flare gas header system means all piping and knockout pots, including those in a subheader system, used to collect and transport gas to a flare either from a process unit or a pressure relief valve from the fuel gas system, regardless of whether or not a flare gas recovery system draws gas from the *flare gas header system*. The *flare gas header system* includes piping inside the battery limit of a process unit if the purpose of the piping is to transport gas to a flare or knockout pot that is part of the flare.

It is specified in §60.100a(c)(1), that a modification to a flare occurs if any new piping from a refinery process unit, including ancillary equipment, or a fuel gas system is physically connected to the flare (e.g., for direct emergency relief or some form of continuous or intermittent venting). The following connections are not considered to be modifications of the flare:

- (i) Connections made to install monitoring systems to the flare.
- (ii) Connections made to install a flare gas recovery system or connections made to upgrade or enhance components of a flare gas recovery system
- (iii) Connections made to replace or upgrade existing pressure relief or safety valves, provided the new pressure relief or safety valve has a set point opening pressure no lower and an internal diameter no greater than the existing equipment being replaced or upgraded.
- (iv) Connections made for flare gas sulfur removal.
- (v) Connections made to install back-up (redundant) equipment associated with the flare (such as a back-up compressor) that does not increase the capacity of the flare.
- (vi) Replacing piping or moving an existing connection from a refinery process unit to a new location in the same flare, provided the new pipe diameter is less than or equal to the diameter of the pipe/connection being replaced/moved.
- (vii) Connections that interconnect two or more flares.

It is specified in §60.100a(c)(2), that a modification to a flare occurs if a flare is physically altered to increase the flow capacity of the flare.

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Based on the definition of modification at 60.100a(c), connection of the subject PRVs to the LSFO Flare is considered a modification of the flare. Therefore, the flare will be subject to this regulation following connection of the subject PRVs.

The FCCU and Alky flares will not become subject to this regulation since they are not considered to be interconnected flares as described in this regulation. Interconnected flares as described in this regulation provide additional capacity to a flare by automatically accepting relief gases when the capacity of the base flare is exceeded. The FCCU and Alky Flares do not provide additional capacity for the LSFO Flare. They serve as backup flares when the LSFO Flare is down for maintenance or repairs. The connection to these flares must be opened manually and the system is not designed to facilitate vent gases from the same event to flow to multiple flares.

Requirements: As described below, the primary requirements for flares are contained in sections 60.103a and 60.107a of this subpart.

§60.103a - Design, equipment, work practice or operational standards

As specified in §60.103a(g), an affected flare subject to this subpart located in the South Coast Air Quality Management District (SCAQMD) may elect to comply with SCAQMD Rule 1118 as an alternative to complying with the requirements of paragraphs (a) through (e) of this section. These requirements include completion of root cause and corrective analysis when discharges meet specified total flow and/or SO₂ mass emission thresholds and development and implementation of a flare monitoring plan. Chevron has elected to comply with Rule 1118 in lieu of complying with §60.103a(a)-(e). As discussed in more detail later this document, compliance with the Rule subject Rule 1118 requirements is expected.

The LSFO Flare must comply with §60.103a(h), which specifies that an owner or operator shall not burn in any affected flare any fuel gas that contains H₂S in excess of 162 ppmv determined hourly on a 3-hour rolling average basis. The combustion in a flare of process upset gases or fuel gas that is released to the flare as a result of relief valve leakage or other emergency malfunctions is exempt from this limit. Based on the size and operation of the LSFO VRS, it is not expected that fuel gas with an H₂S concentration greater than 162 ppmv will be sent to the flare. Compliance with this requirement is expected.

§ 60.107a - Monitoring of emissions and operations for fuel gas combustion devices and flares.

As specified in §60.107a(h), an affected flare subject to this subpart located in the SCAQMD may elect to comply with the monitoring requirements in SCAQMD Rule 1118 as an alternative to complying with the monitoring requirements specified in paragraphs (e) and (f) of this section. Chevron has chosen to comply with the monitoring requirements in SCAQMD Rule 1118. As discussed in more detail later this document, compliance with the Rule 1118 monitoring requirements is expected.

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40CFR60 SUBPART GGG – STANDARDS OF PERFORMANCE FOR EQUIPMENT LEAKS OF VOCS IN PETROLEUM REFINERIES FOR WHICH CONSTRUCTION, RECONSTRUCTION, OR MODIFICATION COMMENCED AFTER JANUARY 4, 1983, AND ON OR BEFORE NOVEMBER 7, 2006

The following are affected facilities under this subpart:

- Compressors
- The group of all the equipment within a process unit.

The definition for process unit and equipment follows: “*Process unit* means components assembled to produce intermediate or final products from petroleum, unfinished petroleum derivatives, or other intermediates; a process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.” “*Equipment* means each valve, pump, pressure relief device, sampling connection system, open-ended valve or line, and flange or other connector in VOC service.” From Subpart VVa (as referenced from GGGa), the definition of “*in VOC service*” is that “the piece of equipment contains or contacts a process fluid that is at least 10 percent VOC by weight”.

No. 2 Crude Unit and Resid Stripper: As discussed below, these process units are or will be subject to 40CFR60 Subpart GGGa. Therefore, they are not subject to this regulation.

Merox Unit, Waste Gas Compressor Station, LSFO VRS and LSFO Flare: The Merox Unit, Waste Gas Compressor Station, LSFO VRS and LSFO Flare are not subject to this regulation since they are not process units as defined in this regulation. None of these permit units produce intermediate or final products. The “Fugitive Emissions, Miscellaneous” device (D3679) for the LSFO VRS permit unit is currently tagged with condition H23.19, which specifies that the permit unit is subject to Rule 1173 and 40CFR60 Subpart GGG. Condition H23.19 will be replaced with condition H23.3, which specifies that the permit unit is subject to Rule 1173.

As discussed below, the compressors in the LSFO VRS are subject to 40CFR60 Subpart GGGa.

40CFR60 SUBPART GGGa – STANDARDS OF PERFORMANCE FOR EQUIPMENT LEAKS OF VOCS IN PETROLEUM REFINERIES FOR WHICH CONSTRUCTION, RECONSTRUCTION, OR MODIFICATION COMMENCED AFTER NOVEMBER 7, 2006

This NSPS is applicable to affected facilities in refineries that begin construction after November 7, 2006. The following are affected facilities under this subpart:

- Compressors
- The group of all the equipment within a process unit.

This regulation utilizes the same definition for *equipment* and *process unit* as 40CFR60 Subpart GGG.

No. 2 Crude Unit and Resid Stripper: The No. 2 Resid Stripper is currently subject to this regulation. “Fugitive emissions, miscellaneous” device (D4385) for the No. 2 Resid Stripper is tagged with condition H23.47, which specifies that the permit unit is subject to Rule 1173 and 40CFR60 Subpart GGGa. The No. 2 Crude Unit will become subject to this regulation upon completion of this project since the connection of the PRVs is considered to be a modification of

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the unit with an emission increase. The project does not qualify for an exemption as a process improvement which is accomplished without a capital expenditure [60.590a(c)]. Fugitive emissions, miscellaneous” device (D3576) for the No. 2 Crude Unit will be tagged with condition H23.47.

This regulation references applicable standards of NSPS Subpart VVa at §60.482-1a through §60.482-10a. In general, the equipment leak inspection and monitoring requirements of District Rule 1173 are more stringent than requirements specified at §60.482-1a through §60.482-10a. However, pertinent requirements will be incorporated into Chevron’s leak detection and repair (LDAR) Program for fugitive components. Compliance with the requirements of this regulation is expected.

Merox Unit, Waste Gas Compressor Station, LSFO VRS and LSFO Flare: The Merox Unit, Waste Gas Compressor Station, LSFO VRS and LSFO Flare are not subject to this regulation since they are not process units as defined in this regulation. None of these permit units produce intermediate or final products.

The three compressors in the LSFO VRS are subject to the requirements of this regulation since they were installed in 2007 as replacements for smaller compressors. Each of the compressors (D4211, D4212, D4213) are tagged with condition H23.47. It is specified in §60.482–3a(a) that each compressor shall be equipped with a seal system that includes a barrier fluid system and that prevents leakage of VOC to the atmosphere, except as provided in §60.482–1a(c) and paragraphs (h), (i), and (j) of this section. It is specified in paragraph (h) that a compressor is exempt from the requirements of paragraphs (a) and (b) of this section, if it is equipped with a closed vent system to capture and transport leakage from the compressor drive shaft back to a process or fuel gas system or to a control device that complies with the requirements of §60.482–10a. As specified in the equipment description in the permit, each of the compressors in the LSFO VRS are equipped with dual packing rings with nitrogen gas purged to a fuel gas system. Therefore, the compressors are exempt from the seal requirements specified in §60.482–3a(a) and (b). Compliance with the requirements of these regulations is expected.

REGULATION X - NATIONAL EMISSION STANDARD FOR HAZARDOUS AIR POLLUTANTS (NESHAPS)

40CFR63 SUBPART CC: NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FROM PETROLEUM REFINERIES

This Subpart applies to petroleum refining sources and related emission sources that are specified in section 63.640 (c)(5) through (c)(7) (e.g. miscellaneous process vents (except for FCCU, SRU, and CRU vents), storage vessels, wastewater stream, equipment leaks, gasoline loading racks, marine vessel loading, etc.) that are located in a major source and emit or have equipment contacting one or more of the hazardous air pollutants (HAPs) listed in Table 1 of this subpart.

Applicability for Equipment Leaks: The equipment leak standards for existing sources as specified in 63.648 are applicable to fugitive components that are “in organic hazardous air pollutant service”. In “organic hazardous air pollutant service” is defined as a piece of equipment that either contains or contacts a fluid (liquid or gas) that is at least 5% by weight of total organic HAPs as determined according to 63.180(d).

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None of the streams in the No. 2 Resid Stripper and Waste Gas Compressor Station contain 5% organic HAP so none of the fugitive components' are subject to this regulation. The No. 2 Crude Unit, Merox Plant, LSFO VRS and LSFO Flare each contain some fugitive components that contact fluids with at least 5% by weight of total organic HAPs are subject to this regulation. These fugitive components are subject to the equipment leak standards for existing sources as specified in 63.648. The "Emissions and Requirements" column for "Fugitive emission, miscellaneous" devices D3576, D3651, D3678 and D3679 for these permit units contain "HAP: 40CFR 63 Subpart CC, #5A, 6-23-2003" to denote that some fugitive components in each of these permit units are subject to the equipment leak standards of this regulation.

This regulation refers to the fugitive component monitoring requirements of NSPS Subpart VV and NESHAP Subpart H with exceptions that are specifically noted in the regulation. In general, the equipment leak inspection and monitoring requirements of District Rule 1173 are more stringent than this regulation but pertinent requirements of this regulation have been incorporated into Chevron's Leak Detection and Repair (LDAR) Program for fugitive emissions. It is expected that Chevron will comply with the requirements of this regulation.

Applicability for Miscellaneous Process Vents: *Miscellaneous process vent* is defined as "a gas stream containing greater than 20 parts per million by volume organic HAP that is continuously or periodically discharged during normal operation of a petroleum refining process unit. Miscellaneous process vents include gas streams that are discharged directly to the atmosphere, gas streams that are routed to a control device prior to discharge to the atmosphere, or gas streams that are diverted through a product recovery device prior to control or discharge to the atmosphere".

The definition of a *miscellaneous process vent* at 40CFR63.641 specifies a number of vent streams that are not considered to be *miscellaneous process vents*, which are subject to the requirements of this rule. Some of the streams that are included in this list of exempt streams are:

- Gaseous streams routed to a fuel gas system
- Relief valve discharges
- "Episodic or nonroutine releases such as those associated with startup, shutdown, malfunction, maintenance, depressuring, and catalyst transfer operations.
- Sulfur plant vents

The discharge streams from the subject PRVs are exempt streams that are not subject to the miscellaneous process vent requirements of this regulation.

REGULATION XI: SOURCE SPECIFIC STANDARDS

RULE 1118: EMISSIONS FROM REFINERY FLARES

Background

This rule was adopted on February 13, 1998 and subsequently amended on November 4, 2005. It applies to all gas flares used at petroleum refineries, sulfur recovery plants and hydrogen production plants. The LSFO Flare is subject to the requirements of this rule as an emergency service flare. The purpose of Rule 1118 as adopted in 1998 was to monitor and gather data on refinery flares for evaluation of the need of additional controls to minimize flaring events. The

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primary requirements of 1998 version were submission and approval of a monitoring plan [1118(c)(1)], monitoring of release events, and quarterly reporting of monitoring results. The remainder of this section contains an evaluation of the requirements of the current version of this rule.

Current Requirements

Flare Pilot [1118(c)(1)(A)] - Maintain a pilot flame present at all times a flare is operational. The LSFO Flare is equipped with a thermocouple to monitor the existence of the pilot light. An infrared camera is utilized as a secondary device to monitor the intensity of the pilot flame.

Annual Leak Survey [1118(c)(1)(C)] - Conduct an annual acoustical or temperature leak survey of all pressure relief devices (PRDs) connected directly to a flare and repair leaking pressure relief devices no later than the next turnaround. The survey shall be conducted no earlier than 90 days prior to the scheduled process unit turnaround. This requirement is not applicable since there are no PRVs connected directly to the LSFO flare. The water seal and LSFO VRS prevent any PRV leakage from flowing to the flares.

Specific Cause Analysis [1118(c)(1)(D)] - Conduct a Specific Cause Analysis (SCA) for any flare event, excluding planned shutdown, planned startup and turnarounds, with emissions exceeding either:

- o 100 pounds of VOC;
- o 500 pounds of sulfur dioxide;
- o 500,000 standard cubic feet of vent gas combusted

This analysis must be submitted to the District within 30 days of the event unless an extension is granted [1118(i)(3)]. For the period of 2010 – 2012, the LSFO Flare had flaring events on Dec. 27, 2010 and May 8, 2012 that exceeded one or more of the thresholds above. As required, Chevron submitted SCAs for each of these events within 30 days of the event. Chevron also submitted an SCA for a large flaring event on November 30, 2011 that did not exceed any of the thresholds above. Continued compliance with this analysis and reporting requirement is expected.

Relative Cause Analysis [1118(c)(1)(E)] - Conduct an analysis and determine the relative cause of any other flare events where more than 5,000 standard cubic feet of vent gas are combusted. When it is not feasible to determine relative cause, state the reason why it was not feasible to make the determination.

During the period of 2010 – 2012, Chevron had two LSFO Flare events during which more than 5,000 standard cubic feet of vent gas were combusted but that did not exceed any of the thresholds of 1118(c)(1)(D). Chevron performed the required Relative Cause Analysis for these events, which occurred on Jan. 7, 2010 and July 19, 2010. Reports of these analyses are contained in Chevrons' quarterly reports using a code system developed by the District. For example, flaring due to equipment failure is assigned a District Relative Cause Code of 3. Continued compliance with this requirement is expected.

Evaluation of Options for Reduction in Flaring [1118(c)(3)] - Submit an evaluation of options to reduce flaring during planned shutdowns, startups and turnarounds, including, but not limited to slower vessel depressurization and storing vent gases. Chevron specified that they will use the following steps to minimize flaring during planned shutdowns, startups and turnarounds:

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- Create an equipment depressurization schedule that accounts for flare gas recovery capacity and the sources to be depressurized.
- Ensure the flare gas recovery compressors are in reliable condition for full availability prior to the event
- Review the shutdown and startup procedure prior to the event
- Review the shutdown and startup procedures after the event and revise if necessary
- Investigate flaring events causes by planned shutdown, startups and turnarounds to identify and implement corrective actions.

Flare Minimization [1118(c)(4)] - Operate all flares in such a manner that minimizes all flaring and that no vent gas is combusted except during emergencies, shutdowns, startups, turnarounds or essential operational needs. Chevron upgraded the LSFO VRS compressors in 2007 – 2008 to assist in compliance with this requirement. With the current excess capacity of the LSFO VRS during normal operation, connection of the new PRVs to the LSFO VRS is not expected to impact compliance with this requirement.

H2S Limit [1118(c)(5)] - Effective January 1, 2009, a refinery shall prevent the combustion in any flare of vent gas with a hydrogen sulfide concentration in excess of 160 ppm, averaged over three hours, excluding any vent gas resulting from an emergency, shutdown, startup, process upset or relief valve leakage. The LSFO flare is tagged with condition B61.11, which specifies this H2S limit. Compliance with this requirement is expected since the LSFO VRS has adequate capacity to collect and recover all vents gases during normal operation of the permit units that vent to the VRS/Flare.

Performance Targets [1118(d)] - A refinery shall minimize flare SO₂ emissions and meet the following performance targets for SO₂ emissions. Compliance with the performance targets are determined at the end of each calendar year based on the facility's annual flare sulfur dioxide emissions normalized over the crude oil processing capacity in calendar year 2004.

- Calendar Years 2006 and 2007: 1.5 tons per million barrels of crude processing capacity
- Calendar Years 2008 and 2009: 1.0 tons per million barrels of crude processing capacity
- Calendar Years 2010 and 2011: 0.7 tons per million barrels of crude processing capacity
- Beginning in calendar year 2012: 0.5 tons per million barrels of crude processing capacity

If a refinery exceeds the performance targets for any calendar year, the owner or operator must:

- Submit a Flare Minimization Plan, and
- Pay the District mitigation fees. The rule includes a sliding fee schedule based on the relative amount of the exceedance. The rule includes a 60 day public review period for the Flare Minimization plan prior to approval of the plan.

Chevron has a total of six (6) flares that are subject to this rule. As seen in the table below, Chevrons' SO₂ emissions from flaring were below the targets for 2006 – 2012.

SO₂ Emissions from Flaring

Year	SO ₂ Target (ton/yr)(1)	SO ₂ Emissions (ton/yr)
2006	142.7	25.3
2007	142.7	49.3

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2008	95.2	43.7
2009	95.2	58.5
2010	66.6	22.8
2011	66.6	9.8
2012	47.6	10.7

(1) Based on crude capacity of 95.16 MMbbl/yr

With the large margin of compliance and the anticipated infrequency of venting episodes for the subject PRVs, the proposed connection of the PRVs to the LSFO VRS and Flare is not expected to impact Chevron's ability to achieve their SO₂ performance targets.

Monitoring and Recording Requirements [1118(g)(3)] - The monitoring and recording requirements for emergency and general service flares are summarized in the following table:

Operating Parameter	Monitoring and Recording Requirement
Gas Flow	Measured and Recorded Continuously with Flow Meter(s) and/or On/Off Flow Indicator(s)
Gas Higher Heating Value	Continuously Measured and Recorded with a Higher Heating Value Analyzer
Total Sulfur Concentration	Semi-Continuously Measured and Recorded with a Total Sulfur Analyzer

Chevron has installed the required monitoring and recording system. A letter of final certification of the flare monitoring system was issued by the District on September 28, 2012. The main components of the certified flare monitoring system are summarized in the table below.

Monitor Type	Make	Model No.	Method of Detection	Range
Flow	Panametrics	GF868	Ultrasonic	0 – 250 fps
HHV	Siemens	Maxum II	GC/TCD	0 – 3000 Btu/scf
Total Sulfur	Siemens	Maxum II	GC / Pyrolysis / FPD	10 – 600 ppmv; 450 ppmv – 2%; 1.5 – 25%

Color Video Monitors [1118(g)(7)] - Monitor all flares for visible emissions using color video monitors with date and time stamp, capable of recording a digital image of the flare and flame at a rate of no less than one frame per minute. According to Chevron, the required cameras and recorders have been installed and are recording images at a rate of once per minute.

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Flare Monitoring and Recording Plan [1118(g)(7)] - By June 30, 2006, submit a revised Flare Monitoring and Recording Plan, which shall include all information specified at 1118(f)(3) [1118(f)(1)(A)]. They must comply with the existing plan until a revised plan is approved. A facility must start monitoring and recording in accordance with the Revised Flare Monitoring and Recording Plan within 6 months after the plan is approved [1118(g)]. Chevron submitted this plan (AN 458606) on June 30, 2006. Chevron has also submitted two addendums to the plan. Chevrons plan submittal is currently being reviewed by the District.

Flare Inquiry Phone Service [1118(i)(1)] - Provide a 24 hour telephone service for access by the public for inquiries about flare events Chevron's 24 hour Community Hotline number is (310) 615-5342. This number is listed on the District's web site.

Notification of Unplanned Flare Events [1118(i)(2)] - Notify the Executive Officer by telephone within one hour of any unplanned flare event with emissions exceeding either 100 pounds of VOC or 500 pounds of sulfur dioxide, or exceeding 500,000 standard cubic feet of flared vent gas. Compliance with this notification requirement is expected.

Notification of Planned Flare Events [1118(i)(4)] - Notify the District at least 24 hours prior to the start of a planned flare event with emissions exceeding either 100 pounds of VOC or 500 pounds of sulfur dioxide, or 500,000 standard cubic feet of combusted vent gas. These notifications are made through the District's Flare Event Notification web page. A record of all notifications can be accessed through the web page.

Quarterly Report [1118(i)(5)] - Submit a quarterly report in an electronic format approved by the District within 30 days after the end of each quarter. Chevron has submitted all required quarterly reports. Continued compliance with this requirement is expected.

RULE 1173: CONTROL OF VOLATILE ORGANIC COMPOUND LEAKS FROM COMPONENTS OF PETROLEUM FACILITIES AND CHEMICAL PLANTS

This rule is intended to control volatile organic compound (VOC) leaks from fugitive components at refineries, chemical plants, oil and gas production fields, natural gas processing plants, and pipeline transfer stations. It contains identification requirements, leak standards, inspection requirements, maintenance and repair requirements, and recordkeeping and reporting requirements for fugitive components.

Chevron has an existing fugitive emission component leak detection and repair (LDAR) program for compliance with the requirements of this rule. Where applicable, new components installed under this project will be integrated into this LDAR program. Compliance with the requirements of this regulation is expected.

This rule also contains monitoring requirements for process PRVs that vent directly to the atmosphere. The subject PRVs are subject to the process PRV monitoring requirements of this rule. According to 1173(h)(1), the operator of a refinery shall continuously monitor atmospheric PRVs located on process equipment by installing tamper-proof electronic valve monitoring devices capable of recording the duration of each release and quantifying the amount of the compounds released. The operator may utilize continuous parameter monitors as part of their PRV monitoring system. Chevron has installed the required monitoring on all of their process PRVs that vent directly to the atmosphere.

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Chevron has been monitoring their atmospheric PRVs since the end of 2004 as required by this rule. None of the subject PRVs that are being connected to the LSFO VRS/Flare have had a release during the 8 year period that they have been monitored.

According to R1173(h)(4), an operator was required to submit an atmospheric PRV compliance plan to specify the design of the monitoring system and the inventory of atmospheric PRVs that are being monitored. Chevron has submitted several revisions to their plan over the years. Most of the revisions were related to a change in the inventory of atmospheric PRVs due to the connection of PRVs to a VRS/flare. The current plan was approved under A/N 516861 on January 28, 2011. Chevron will be required to submit a plan revision to cover the connection of the subject atmospheric PRVs to the LSFO VRS/Flare.

REGULATION XIII - NEW SOURCE REVIEW

As specified in Rule 1301, Regulation XIII, sets forth pre-construction review requirements for new, modified, or relocated facilities, to ensure that the operation of such facilities does not interfere with progress in attainment of the national ambient air quality standards (NAAQS), and that future economic growth within the South Coast Air Quality Management District (District) is not unnecessarily restricted. The specific air quality goal of this regulation is to achieve no net increases from new or modified permitted sources of nonattainment air contaminants or their precursors.

The South Coast Air Basin (SOCAB) is designated in attainment of the NAAQSs for CO, NO_x and SO_x. The following are currently considered nonattainment air contaminants that are subject to new source review (NSR): NO_x, SO_x, PM_{2.5}, PM₁₀, and VOC. NO_x and VOC are included since they are precursors for ozone. NO_x, SO_x and VOC are included as PM_{2.5} and PM₁₀ precursors.

NSR requirements for these attainment pollutants are specified in the following rules:

- Rule 1303 – PM₁₀ and VOC (all facilities); NO_x and SO_x (non-RECLAIM facilities)
- Rule 1325 – PM_{2.5}
- Rule 2005 – NO_x and SO_x (RECLAIM facilities)

CO, Ammonia and Ozone Depleting Compounds (ODCs) are subject to only the BACT requirements of Rule 1303. Since Chevron is a RECLAIM facility, it is subject to the NSR requirements for NO_x and SO_x specified in Rule 2005 of the RECLAIM regulation (Regulation XX). However, emergency flares are exempt from the requirements of regulation XX (RECLAIM). Therefore, emergency flares are subject to the requirements of Rule 1303.

RULE 1303: REQUIREMENTS

This rule allows the Executive Officer to deny a Permit to Construct for any new, modified or relocated source which results in an emission increase of CO, PM₁₀, VOC, any ozone depleting compound, or ammonia, unless BACT is used. This rule also requires modeling and offset (among other requirements) if there is a net increase in NO_x, PM₁₀ or VOC emissions for any new or modified source.

This connection of the subject PRVs to the LSFO VRS and Flare will not cause an increase in CO, PM₁₀, ammonia or ozone depleting compounds during startup, shutdown or normal

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operation of the No. 2 Crude Unit, No. 2 Resid Stripper, Merox Plant, Waste Gas Compressor Station, LSFO VRS and LSFO Flare. The increase in estimated fugitive VOC emissions for these permit units is summarized in the table below.

Permit Unit	Appl. No.	Estimated VOC Emission Increase	
		(lb/day)(1)	(lb/yr)
No. 2 Crude Unit (P1S3)	530643	5.83	2098
No. 2 Resid Stripper (P1S13)	530644	0.58	210
Merox Plant (P12S18)	530645	0.62	222
LSFO Flare (P20S7)	530646	2.06	743
LSFO VRS (P20S10)	530647	0.80	287
Waste Gas Compressor Station (P20S19)	530648	0.43	156
Total		10.32	3714

(1) 30-day average = annual VOC emission increase/360.

1303(a)(1): Best Available Control Technology (BACT): Any new or modified source which results in an emission increase of any nonattainment air contaminant, any ozone depleting compound, or ammonia, must employ BACT for the new or relocated source or for the actual modification to an existing source. Per District policy, BACT is required for any increase in emissions that exceeds 1.0 lb per day on a maximum daily basis.

BACT is required for the VOC service fugitive components installed in the No. 2 Crude Unit and the LSFO Flare since these permit units have an increase in estimated VOC emissions greater than 1 lb/day. BACT for VOC service fugitive components is outlined below.

- Valves: Bellow-sealed valves are required with the following exemptions.
 1. Heavy liquid service (i.e., streams with a vapor pressure <0.1 psia @ 100 °F (kerosene) based on the most volatile class present > 20% by volume)
 2. Control valve
 3. Instrument tubing application
 4. Applications requiring torsional valve stem motion
 5. Applications where valve failure could pose safety hazard (e.g., drain valves with valve stem in horizontal position)
 6. Retrofit/special applications with space limitation (special applications such as skid mounted standard packaged systems)
 7. Valves not commercially available

Valves installed where Bellow-sealed valves are not available will be subject to a leak rate of less than 500 ppmv by EPA Method 21 and an approved I&M program.

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Permit condition S31.20 specifies the requirement to install bellow-sealed (leakless) valves except for the exempt applications listed above. This condition also specifies that Chevron must submit a list of all non-leakless valves to the District prior to the startup of the cogeneration unit. This system condition will be added to the No. 2 Crude Unit and LSFO Flare permit units.

- Relief Valves: BACT for emergency pressure relief valves (PRVs) is connection to a closed vent system. The subject PRVs are not subject to this requirements since they are existing PRVS. However, they are being connected to the LSFO VRS, which is a closed vent system.
- Process Drain: BACT for new process drains is installation of p-traps or seal pots and inclusion in an approved LDAR program. Chevron proposes to install 3 new process drains in the No. 2 Crude Unit. According to Chevron, these new process drains will be equipped with p-traps for VOC control.
- Pumps: BACT for light liquid pumps is double mechanical seals or equivalent. Chevron is installing one new light liquid pump in the LSFO Flare permit unit. Chevron has confirmed that this pump will be equipped with double mechanical seals.
- Flanges: BACT for new flanges is compliance with ANSI/API standards and inclusion in an approved LDAR program. New flanges will comply with these requirements.
- Compressors: Chevron is not proposing to install any new compressors.

1303(b) – The following requirements apply to any new or modified source which results in a net emission increase of any nonattainment air contaminant.

1303(b)(1): Modeling - The applicant must substantiate with modeling that the new facility or modification will not cause a violation, or make significantly worse an existing violation of any state or national ambient air quality standards at any receptor location in the District. According to 1306(b), the new total emissions for modified sources shall be calculated on a pound per day basis for determination of BACT and modeling applicability. The modeling procedures are discussed in Appendix A to the rule. It is specified in Appendix A of this rule that modeling is not required for VOC or SOx. Therefore, under this rule, modeling is required for NOx and PM10 only.

Connection of the subject PRVS to the LSFO VRS and Flare will not cause any increase in NOx or PM10 emissions during startup, shutdown or normal operation of the subject permit units.

1303(b)(2): Offsets – Unless exempt from offsets requirements pursuant to Rule 1304, emission increases shall be offset by either Emission Reduction Credits approved pursuant to Rule 1309, or by allocations from the Priority Reserve. Per District policy, offsets are required for any increase in emissions that exceeds 0.41 lb per day on a maximum daily basis. It is also District policy that offsets are calculated on a project basis.

The total VOC emission increase for the project is 10.32 lb/day (30-day average). Total VOC ERCs required for the project are $10.32 \times 1.2 = 12.38$ lb/day, which rounds down to 12 lb/day. Chevron currently has sufficient VOC ERC's to cover this 12 lb/day of offsets. The VOC

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offset requirements will be attributed to the subject permit units in the District NSR database as shown in the table below.

Summary of VOC ERC Requirements

Application Number	Permit Unit	Emission Increase (lb/day)	ERCs (lb/day)
530643	No. 2 Crude Unit	5.83	7
530644	No. 2 Resid Stripper	0.58	1
530645	Merox Plant	0.80	1
530646	LSFO Flare	2.06	2
530647	LSFO VRS	0.62	1
530648	Waste Gas Compressor Station	0.43	0
Total		10.32	12

1303(b)(3) - Sensitive Zone Requirements: This section pertains to Emission Reduction Credits (ERCs) for facilities in the South Coast Air Basin (SOCAB). Except for credits that are obtained from the Priority Reserve, facilities are subject to the Sensitive Zone requirements (H&SC Section 40410.5) for ERCs. A facility in zone 1 may obtain ERCs originated in zone 1 only, and a facility in zone 2A may obtain ERCs from either zone 1 or zone 2A.

The El Segundo Refinery is located in Zone 1. Chevron will utilize ERC certificate no. AQ011196 or an ERC derived from AQ011196 to offset the VOC emission increase. These ERCs were originally generated under ERC certificate number AQ001497 in 1995 for shutdown of two degreasers at an ALCOA facility (ID 017418) located in Vernon, which is in Zone 1.

1303(b)(4) - Facility Compliance: The facility must be in compliance with all applicable rules and regulations of the District.

According to the best knowledge of this reviewer, this facility is currently in compliance with all applicable rules and regulations. There are no outstanding NOV's and no known violations.

1303 (b)(5) - Major Polluting Facilities: Any new major polluting facility or major modification at an existing major polluting facility must comply with the requirements summarized below. A major modification is defined in 1302(r) as any modification at an existing major source that will cause

- an increase of one pound per day or more, of the facility's potential to emit (PTE) for NO_x or VOC if the facility is located in the SOCAB, or
- an increase of 40 tons per year or more, of the facility's PTE for SO_x, or
- an increase of 15 tons per year or more, of the facility's PTE for PM₁₀; or,
- an increase of 50 tons per year or more, of the facility's PTE for CO.

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Connection of the subject PRVs to the LSFO VRS and Flare is a major modification since it causes an increase in estimated VOC emissions of more than 1 lb/day.

- (A) *Alternative Analysis* – Applicant must conduct an analysis of alternative sites, sizes, production processes, and environmental control techniques for such proposed source and demonstrate that the benefits of the proposed project outweigh the environmental and social costs associated with that project.

As specified at 1303(b)(5)(D)(iii), the requirements for an alternative analysis under this subparagraph may be met through compliance with the California Environmental Quality Act if the proposed project has been analyzed by an environmental impact report pursuant to Public Resources Code Section 21002.1 and Title 14 California Code of Regulations Section 15080 et seq. As discussed earlier, the final EIR for the PRO Project, which was performed as required by CEQA, was certified on May 9, 2008. An addendum to the FEIR was certified on May 13, 2010.

The original scope of the PRO Project, as analyzed in the FEIR, included construction of a new VRS and flare and connection of the subject PRVs to a new VRS and flare. Due to this change in project description, Chevron is required to prepare an addendum to the FEIR to reflect the change in the original project proposal. The permits to construct for connection of the subject PRVs to the LSFO Flare and VRS will not be issued until the addendum is certified. Certification of the addendum will satisfy the requirements of 1303(b)(5)(A)

- (B) *Statewide Compliance*: The applicant must demonstrate that all major stationary sources, as defined in the jurisdiction where the facilities are located, that are owned or operated by the applicant in the State of California are subject to emission limitations and are in compliance or on a schedule for compliance with all applicable emission limitations and standards under the Clean Air Act.

A March 4, 2013 letter from Ms. Susan Worley, the Health, Environmental, and Safety Manager at the El Segundo Refinery, indicating that all major sources owned or operated by Chevron U.S.A. Inc. in California are in compliance or are on a schedule for compliance with all applicable standards emission limitations and standards under the Clean Air Act is contained in engineering file.

- (C) *Protection of Visibility* - A modeling analysis for plume visibility is required if the net emission increase exceeds 15 tons/yr of PM10 or 40 tons/yr of NOx. Modeling is not required since the connection of the subject PRVs to the LSFO VRS/Flare will not cause a net increase in the emission of NOx or PM10 during normal operation.

- (D) *Compliance through California Environmental Quality Act* – As discussed previously, CEQA requirements have been fulfilled. (See CEQA Evaluation).

RULE 1325: FEDERAL PM2.5 NEW SOURCE REVIEW PROGRAM

This NSR rule for PM2.5 and its precursors NOx and SO2 was adopted by the District's Governing Board on June 3, 2011. The No. 2 Crude Unit, No. 2 Resid Stripper, Merox Plant and Waste Gas Compressor Station, and LSFO VRS are not subject to any requirements under this

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regulation since they do not emit PM_{2.5}, NO_x or SO₂. The LSFO Flare emits PM_{2.5}, NO_x and SO₂ emissions.

The substantive definitions and requirements of this rule have been directly incorporated from Title 40 of the Code of Federal Regulations (CFR) Part 52.21 - *Prevention of Significant Deterioration of Air Quality*. With an abundance of caution, pertinent EPA guidance re calculation methodology for 40CFR52.21 is utilized to estimate PM_{2.5}, NO_x and SO₂ emission increases for the project. Two concepts in EPA guidance that are considered are debottlenecking and aggregation.

Debottlenecking - According to EPA guidance, the total increase in emissions that are included in determining if there will be a post-change significant emissions increase includes: (1) Increases occurring at all new or modified units, and (2) any other increases at existing emissions units not being modified that experience emissions increases as a result of the change. This guidance is not pertinent to this project since the connection of the subject PRVs to the LSFO VRS and Flare has no impact on emissions from non-modified sources at the refinery.

Aggregation - EPA guidance indicates that a reviewing authority must consider projects to be a single project and must aggregate all of the emissions increases for the projects if the reviewing authority determines that a project is dependent upon another project(s) for its technical or economic viability. This guidance is not pertinent to this project since connections of the subject PRVs to the LSFO VRS and Flare it is not dependent on another project for its technical or economic viability.

As defined in Rule 1325(b)(4) [and 40CFR52.21(b)(2)(i)], a *major modification* is any physical change in or change in the method of operation of a major stationary source that would result in: a significant emissions increase of a regulated NSR pollutant and a significant net emissions increase of that pollutant from the major stationary source. Therefore, it must first be determined if the subject project causes a significant increase in the emissions of PM_{2.5}, NO_x or SO₂.

According to Rule 1325(d)(2) [and 40CFR52.21(a)(2)(iv)(c)], a significant emissions increase of a regulated NSR pollutant is projected to occur for if the sum of the difference between the *projected actual emissions* and the *baseline actual emissions* for each existing emissions unit, equals or exceeds the significant amount for that pollutant. As specified in 1325(b)(13), the significance level is 10 ton/yr for PM_{2.5} and 40 ton/yr for both NO_x and SO₂.

Baseline actual emissions are defined in Rule 1325(b)(1) [and 40CFR52.21(b)(48)(ii)] as the average rate at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the 10-year period immediately preceding either the date the owner or operator begins actual construction of the project, or the date a complete permit application is received by the Administrator. The average rate shall include fugitive emissions to the extent quantifiable, and emissions associated with startups, shutdowns, and malfunctions. A different 24-month period can be selected for each pollutant.

Projected actual emissions are defined at Rule 1325(b)(10) [and 40CFR52.21(b)(41)(i)] as the maximum annual rate at which an existing emissions unit is projected to emit a regulated NSR pollutant in any one of the 5 years (12-month period) following the date the unit resumes regular operation after the project, or in any one of the 10 years following that date, if the project

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involves increasing the emissions unit's design capacity or its potential to emit that regulated NSR pollutant..... The projected emissions shall include fugitive emissions to the extent quantifiable, and emissions associated with startups, shutdowns, and malfunctions but shall exclude that portion of the unit's emissions following the project that an existing unit could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions and that are also unrelated to the particular project, including any increased utilization due to product demand growth.

Based on these definitions, it must be determined if the connection of the subject PRVs to the LSFO Flare will cause any increase in flare PM2.5, NOx and SO2 emissions relative to the baseline emission for the following operating scenarios: startup, normal operation, shutdown and malfunction.

Normal – Connection of the subject PRVs to the LSFO VRS and Flare will not cause an increase in PM2.5, NOx or SO2 emissions during normal operation since the LSFO VRS has adequate capacity to capture any gases that leak through the PRVs.

Startup and Shutdown – The subject PRVs do not vent during startup and shutdown. Therefore, connection of the PRVs to the LSFO VRS and Flare will not impact emissions during startup and shutdown.

Malfunction – Chevron has been monitoring the subject atmospheric PRVs since the end of 2004 as required by District Rule 1173. None of the PRVs have had a release during the 8-year period from the beginning of 2005 through the end of 2012. Based on this history, it is not projected that there will be any releases during the 5-year period following the connection of the PRVs to the LSFO VRS and Flare. Therefore it is not expected that the connection of the subject PRVs will cause an increase in flaring emissions from the LSFO Flare.

Regulation XIV - TOXICS AND OTHER NON-CRITERIA POLLUTANTS

RULE 1401: NEW SOURCE REVIEW OF CARCINOGENIC AIR CONTAMINANTS

Requirements – Rule 1401 contains the following requirements:

- 1) *(d)(1) MICR and Cancer Burden* - The cumulative increase in MICR which is the sum of the calculated MICR values for all toxic air contaminants emitted from the new, relocated or modified permit unit will not result in any of the following:
 - (A) an increased MICR greater than one in one million (1.0×10^{-6}) at any receptor location, if the permit unit is constructed without T-BACT;
 - (B) an increased MICR greater than ten in one million (1.0×10^{-5}) at any receptor location, if the permit unit is constructed with T-BACT;
 - (C) a cancer burden greater than 0.5.
- 2) *(d)(2) Chronic Hazard Index* - The cumulative increase in total chronic HI for any target organ system due to total emissions from the new, relocated or modified permit unit will not exceed 1.0 at any receptor location.
- 3) *(d)(3) Acute Hazard Index* - The cumulative increase in total acute HI for any target organ system due to total emissions from the new, relocated or modified permit unit will not exceed 1.0 at any receptor location.

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Analysis –

All of the new TAC emissions for each of the subject permit units are from new fugitive components. A Tier 1 Health Risk Screening was performed for each of the permit units. As seen in the *Calculation* section of this evaluation, each of the permit units passed the cancer/chronic and acute screening with a large margin. Compliance with the requirements of this regulation is achieved.

REGULATION XVII - PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

The PSD program is the federal New Source Review (NSR) program for pollutants for which an area is in attainment with or unclassified with respect to a National Ambient Air Quality Standard (NAAQS) as well as greenhouse gases (GHG).

RULE 1703 – PSD ANALYSIS (& Associated Rules 1701, 1702, 1704, 1706, 1710 & 1713)

These rules contain the PSD requirements for attainment pollutants and selected unclassified pollutants. As discussed earlier, SOCAB is currently designated as attainment with NAAQSs for CO, NO_x, SO_x, and lead. Therefore, CO, NO_x, SO_x and lead compounds must be evaluated under this rule. According to 1703(a)(2), a permit to construct shall be denied for any permit unit with a net emission increase in an attainment air pollutant unless the permit unit is constructed using BACT for that pollutant. Per SCAQMD policy, BACT is required for any net emission increase that exceeds 1.0 lb per day. Other requirements are specified in 1703(a)(3) for a project (major modification) at a stationary source that causes a significant emission increase of an attainment air pollutant. According to the definition in Rule 1702(s), *significant emission increase* means any attainment air pollutant for which the net cumulative emission increase of that air pollutant is greater than the amount specified as follows: CO – 100 ton/yr, NO_x – 40 ton/yr, SO₂ – 40 ton/yr and lead compounds – 0.6 ton/yr.

On March 3, 2003, the SCAQMD’s PSD delegation was rescinded by EPA. The SCAQMD and EPA signed a “Partial PSD Delegation Agreement” effective July 11, 2007. According to a memo from Mr. Mohsen Nazemi, who is the Deputy Executive Officer of the SCAQMD Engineering and Compliance Division, this Partial Delegation Agreement is intended to delegate the authority and responsibility to the SCAQMD for issuance of initial PSD permits and for PSD permit modifications where the applicant seeks to use the emissions calculation methodology set forth in SCAQMD Regulation XVII instead of those promulgated in 40 CFR 52.21 (NSR Reform).

The PRO Project was evaluated under PSD. EPA performed the PSD evaluation since Chevron utilized an emission calculation methodology that is promulgated in 40 CFR 52.21 (NSR Reform) but not included in SCAQMD Regulation XVII. More specifically, Chevron utilized an actual-to-projected actual emissions methodology that follows the procedure for determining the “baseline actual emissions” that is described in 40 CFR 52.21(b)(48). Under this procedure, actual (historical) emissions are defined as the average emission rate, in tons per year, of emissions during any consecutive 24-month period within the 10 year period preceding project construction. A different 24-month period can be utilized for each pollutant.

As stated in the September 8th letter from Gerardo Rios of EPA to Neal Truong of Chevron, EPA concluded “that the PRO Project will not result in a significant emissions increase and therefore

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will not result in a PSD major modification”. Therefore, the project is not subject to PSD permitting requirements. The PRO Project that was evaluated included the construction of a new VRS and flare. Actual CO, NOx and SOx emission increases will be lower than original estimates since the proposed flare will not be constructed.

RULE 1714 – PREVENTION OF SERIOUS DETERIORATION FOR GREENHOUSE GASES

The requirements of this rule apply to Greenhouse Gases (GHGs) “as defined by EPA to mean the air pollutant as an aggregate group of six GHGs: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride”. This rule adopts by reference 40 CFR Part 52.21- *Prevention of Significant Deterioration of Air Quality*, the federal requirements for the PSD program, and specifically exempts those sections of the federal regulation that are not applicable to GHGs.

According to §52.21(b)(49)(i) – (v), the pollutant GHG is subject to requirements under this regulation if either of the following applies:

- A stationary source, which is an existing major stationary source for a regulated non-GHG NSR pollutant, undertakes a “major modification” that subjects the source to PSD permitting requirements for a non-GHG NSR pollutant and the modification will result in an emission increase and net emission increase of at least 75,000 tpy on a CO₂e basis and 0 tpy on a mass basis.
- A stationary source, which is an existing major stationary source that emits or has the potential to emit 100,000 tpy CO₂e, undertakes a modification that will result in an emission increase and net emission increase of at least 75,000 tpy on a CO₂e basis and 0 tpy on a mass basis.

CO₂ equivalent emissions (CO₂e) is determined by multiplying the mass amount of emissions (tpy) for each of the six greenhouse gases by the gas's associated global warming potential (GWP). The only GHGs emitted from the sources in this evaluation are CO₂, methane and N₂O, which GWPs of 1, 21 and 310, respectively.

The same general methodology is utilized to estimate the increase in emissions of CO₂e as described above for Rule 1325. It must be determined if the connection of the subject PRVs to the LSFO VRS/Flare will cause any increase in GHG emissions relative to the baseline emission for the following operating scenarios: startup, normal operation, shutdown and malfunction.

Normal – Connection of the subject PRVs to the LSFO VRS and Flare will not cause an increase in GHG emissions from the LSFO Flare during normal operation since the LSFO VRS has adequate capacity to capture any gases that leak through the PRVs. There may be an increase in GHGs due to leakage of methane from the new fugitive components. For a worst case estimate, it is assumed that the amount of methane leaked to the atmosphere from new fugitive components is equal to the estimated amount of VOC. Therefore, it is estimated that the new fugitive components will cause an increase in methane emissions of 10.3 lb/day.

According to EPA permitting guidance for GHGs, methane has a global warming potential of 21. The CO₂e for this 10.2 lb/day of methane is 39.1 ton [(10.2 lb methane/day x 21 lb CO₂e/lb methane) x 365 day/yr / 2000 lb/ton].

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Startup and Shutdown – The subject PRVs do not vent during startup and shutdown. Therefore, connection of the PRVs to the LSFO VRS and Flare will not impact GHG emissions during startup and shutdown.

Malfunction – Based on the monitoring history of the subject PRVs, it is not projected that there will be any emergency releases from the PRVs during the 5-year period following the connection of the PRVs to the LSFO VRS and Flare. Therefore it is not expected that the connection of the subject PRVs will cause an increase in flaring emissions from the LSFO Flare.

No requirements are triggered under this rule since the total CO₂e emission increase of 39.1 ton/yr is well below the 75,000 ton/yr threshold.

REGULATION XX - REGIONAL CLEAN AIR INCENTIVES MARKET (RECLAIM)

RECLAIM is a market incentive program designed to allow facilities flexibility in achieving emission reduction requirements for Oxides of Nitrogen (NO_x), and Oxides of Sulfur (SO_x). The Chevron Refinery (ID 800030) is a Cycle II RECLAIM facility.

The No. 2 Crude Unit, No. 2 Resid Stripper, Merox Unit, Waste Gas Compressor Station, and LSFO VRS are not subject to this regulation since they do not emit NO_x or SO_x. The LSFO Flare is exempt from the requirements of this regulation. The gas flare exemption is contained at Rule 2011(i) and 2012(k). The definition of a gas flare, as contained in 2011 Attachment E and 2012 Attachment F is “a combustion equipment used to prevent unsafe operating pressures in process units during shutdowns and startups and to handle miscellaneous hydrocarbon leaks and process upsets”. The LSFO Flare qualifies for this exemption.

Regulation XXX – TITLE V PERMITS

The initial Title V permit for the refinery was sent to Chevron on September 29, 2009 with an effective date of October 12, 2009. The permits issued for this project will be issued as a revision of the Title V permit. Permit revisions are categorized into the following four types: *administrative, minor, de minimis significant and significant*. The review and distribution requirements for each revision type are summarized in the following table.

Title V Permit Revisions: Review and Distribution Requirements

Revision Type	Permit Review and Distribution Requirements		
	EPA Review (45-day)	Public Notice (30-day)	Send Final Permit to EPA
Administrative	No	No	Yes
Minor	Yes	No	Yes
De Minimis Significant	Yes	No	Yes
Significant	Yes	Yes	Yes

According the definition in Rule 3000, a significant revision includes any of the following:

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- A) relaxation of any monitoring, recordkeeping, or reporting requirement, term, or condition in the Title V permit;
- B) the addition of equipment or modification to existing equipment or processes that result in an emission increase of non-RECLAIM pollutants or hazardous air pollutants (HAP) in excess of any of the emission threshold levels in the following table:

De Minimis Emission Threshold Level

Air Contaminant	Daily Maximum (lb/day)
HAP	30
VOC	30
NO _x	40
PM-10	30
SO _x	60
CO	220

- C) cumulative emission increases of non-RECLAIM pollutants or hazardous air pollutants from de minimis significant permit revisions during the term of the permit, in excess of any of the emission threshold levels in the table above. For the purposes of this subparagraph, the de minimis levels for HAP and VOC are not additive if the HAP is a VOC. The de minimis levels for HAP and PM-10 are not additive if the HAP is a PM-10. The HAP de minimis level in this section shall be superseded by any lower HAP de minimis level promulgated by the EPA Administrator, or;
- D) any modification at a RECLAIM facility that results in an emission increase of RECLAIM pollutants over the facility's starting Allocation plus the nontradeable Allocations;
- E) requests for a permit shield when such requests are made outside applications for initial permit or permit renewal issuance;
- F) any revision that requires or changes a case-by-case evaluation of: reasonably available control technology (RACT) pursuant to Title I of the federal Clean Air Act; or maximum achievable control technology (MACT) pursuant to 40 CFR Part 63, Subpart B;
- G) any revision that results in a violation of regulatory requirements;
- H) any revision that establishes or changes a permit condition that the facility assumes to avoid an applicable requirement;
- I) installation of new equipment subject to a New Source Performance Standard (NSPS) pursuant to 40 CFR Part 60, or a National Emission Standard for Hazardous Air Pollutants (NESHAP) pursuant to 40 CFR Part 61 or 40 CFR Part 63; or,
- J) modification or reconstruction of existing equipment, resulting in an emission increase subject to new or additional NSPS requirements pursuant to 40 CFR Part 60, or to new or additional NESHAP requirements pursuant to 40 CFR Part 61 or 40 CFR Part 63.

Upon completion of this project the LSFO Flare will become subject to 40 CFR 60 Subpart Ja and the No. 2 Crude Unit will become subject to 40CFR60 Subpart GGGa. Therefore, the permits for this project qualify as a significant revision of the Title V permit per item J in the definition above. The Title V permit revision will be sent to EPA for a 45 day review period and made available to the public for a 30 day review period.

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CONCLUSION / RECOMMENDATION:

Based on the foregoing evaluation, it is expected that the subject applications will comply with all applicable SCAQMD Rules and Regulations. It is recommended that permits to construct be issued for the proposed modifications to the No. 2 Crude Unit, No. 2 Resid Stripper, Merox Plant, Waste Gas Compressor Station, LSFO VRS and LSFO Flare.

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Appendix A: No. 2 Crude Unit - VOC Emission Estimate for Fugitive Components

Equipment Type	Service	Current Fugitive Component Count (1)	Estimated Post-Construction Fugitive Count (2)	Emission Factor (lb/yr) (3)	Estimated Current Fugitive VOC Emissions	Estimated Post-Construction Fugitive VOC Emissions
Valves - Sealed Bellow	All	278	367	0	0	0
Valves - SCAQMD Approved I & M Program	Gas/Vapor	166	176	4.55	755	801
	Light Liquid	839	857	4.55	3817	3899
	Heavy Liquid	2223	2223	4.55	10115	10115
Flanges	Light Liquid/Vapor	3067	3240	6.99	21438	22648
	Heavy Liquid	4515	4515	6.99	31560	31560
Connectors	Light Liquid/Vapor	2885	3167	2.86	8251	9058
	Heavy Liquid	4447	4447	2.86	12718	12718
Pumps	Light Liquid (sealless type)	0	0	0	0	0
	Light Liquid (double seal)	19	19	46.83	890	890
	Heavy Liquid (single seal)	24	24	17.21	413	413
Compressors	Gas/Vapor	0	0	9.09	0	0
PRV's	All (To Atmosphere)	8	0	9.09	73	0
	All (Closed Vent)	94	108	0	0	0
Drains (with p-trap)	All	259	262	9.09	2354	2382
Total				lb/yr	92385	94483
				lb/day (4)	256.62	262.45

- ✓ (1) Count of current fugitive components provided by Mr. Peter Allen in an October 25, 2012 email.
- ✓ (2) Estimate of the number of fugitive components to be installed and removed provided by Mr. Peter Allen in the Health Risk Assessment sent via an October 3rd, 2012 email.
- ✓ (3) Fugitive emission factors based on correlation equations from the *California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities* (CARB/CAPCOA - 1999)
- ✓ (4) 30-day average emissions based on annual emissions divided by 360.

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Appendix A: No. 2 Resid Stripper - VOC Emission Estimate for Fugitive Components

Equipment Type	Service	Current Fugitive Component Count (1)	Estimated Post-Construction Fugitive Count (2)	Emission Factor (lb/yr) (3)	Estimated Current Fugitive VOC Emissions	Estimated Post-Construction Fugitive VOC Emissions
Valves - Sealed Bellow	All	82	91	0	0	0
Valves - SCAQMD Approved I & M Program	Gas/Vapor	43	49	4.55	196	223
	Light Liquid	0	0	4.55	0	0
	Heavy Liquid	2904	2904	4.55	13213	13213
Flanges	Light Liquid/Vapor	310	333	6.99	2167	2328
	Heavy Liquid	5999	5999	6.99	41933	41933
Connectors	Light Liquid/Vapor	424	438	2.86	1213	1253
	Heavy Liquid	6061	6061	2.86	17334	17334
Pumps	Light Liquid (sealless type)	0	0	0	0	0
	Light Liquid (double seal)	0	0	46.83	0	0
	Heavy Liquid (single seal)	31	31	17.21	534	534
Compressors	Gas/Vapor	0	0	9.09	0	0
PRV's	All (To Atmosphere)	2	0	9.09	18.18	0
	All (Closed Vent)	93	97	0	0	0
Drains (with p-trap)	All	28	28	9.09	254.52	255
Total				lb/yr	76862	77072
				lb/day (4)	213.51	214.09

- ✓ (1) Count of current fugitive components provided by Mr. Peter Allen in an October 17, 2012 email.
- ✓ (2) Estimate of the number of fugitive components to be installed and removed provided by Mr. Peter Allen in the Health Risk Assessment sent via an October 3rd, 2012 email.
- ✓ (3) Fugitive emission factors based on correlation equations from the *California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities* (CARB/CAPCOA - 1999)
- ✓ (4) 30-day average emissions based on annual emissions divided by 360.

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Appendix A: Merox Unit - VOC Emission Estimate for Fugitive Components

Equipment Type	Service	Current Fugitive Component Count (1)	Estimated Post-Construction Fugitive Count (2)	Emission Factor (lb/yr) (3)	Estimated Current Fugitive VOC Emissions	Estimated Post-Construction Fugitive VOC Emissions
Valves - Sealed Bellow	All	52	76	0	0	0
Valves - SCAQMD Approved I & M Program	Gas/Vapor	43	41	4.55	196	187
	Light Liquid	238	238	4.55	1083	1083
	Heavy Liquid	186	186	4.55	846	846
Flanges	Light Liquid/Vapor	682	715	6.99	4767	4998
	Heavy Liquid	390	390	6.99	2726	2726
Connectors	Light Liquid/Vapor	724	737	2.86	2071	2108
	Heavy Liquid	384	384	2.86	1098	1098
Pumps	Light Liquid (sealless type)	3	3	0	0	0
	Light Liquid (double seal)	3	3	46.83	140	140
	Heavy Liquid (single seal)	0	0	17.21	0	0
Compressors	Gas/Vapor	0	0	9.09	0	0
PRV's	All (To Atmosphere)	8	4	9.09	73	36
	All (Closed Vent)	6	11	0	0	0
Drains (with p-trap)	All	15	15	9.09	136	136
Total				lb/yr	13137	13359
				lb/day (4)	36.49	37.11

- (1) Count of current fugitive components provided by Mr. Peter Allen in an August 7, 2012 email.
- (2) Estimate of the number of fugitive components to be installed and removed provided by Mr. Peter Allen in the Health Risk Assessment sent via an October 3rd, 2012 email.
- (3) Fugitive emission factors based on correlation equations from the *California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities* (CARB/CAPCOA - 1999)
- (4) 30-day average emissions based on annual emissions divided by 360.

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Appendix A: LSFO Flare - VOC Emission Estimate for Fugitive Components

Equipment Type	Service	Current Fugitive Component Count (1)	Estimated Post-Construction Fugitive Count (2)	Emission Factor (lb/yr) (3)	Estimated Current Fugitive VOC Emissions	Estimated Post-Construction Fugitive VOC Emissions
Valves - Sealed Bellow	All	132	141	0	0	0
Valves - SCAQMD Approved I & M Program	Gas/Vapor	169	173	4.55	769	787
	Light Liquid	43	65	4.55	196	296
	Heavy Liquid	186	186	4.55	846	846
Flanges	Light Liquid/Vapor	637	703	6.99	4453	4914
	Heavy Liquid	0	0	6.99	0	0
Connectors	Light Liquid/Vapor	966	1006	2.86	2763	2877
	Heavy Liquid	384	384	2.86	1098	1098
Pumps	Light Liquid (sealless type)	0	0	0	0	0
	Light Liquid (double seal)	9	10	46.83	421	468
	Heavy Liquid (single seal)	2	2	17.21	34	34
Compressors	Gas/Vapor	0	0	9.09	0	0
PRV's	All (To Atmosphere)	0	0	9.09	0	0
	All (Closed Vent)	12	12	0	0	0
Drains (with p-trap)	All	0	0	9.09	0	0
Total				lb/yr	10580	11321
				lb/day (4)	29.39	31.45

- ✓ (1) Count of current fugitive components provided for PC A/N 526609
- ✓ (2) Estimate of the number of fugitive components to be installed and removed provided by Mr. Peter Allen in the Health Risk Assessment sent via an October 3rd, 2012 email.
- ✓ (3) Fugitive emission factors based on correlation equations from the *California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities* (CARB/CAPCOA - 1999)
- ✓ (4) 30-day average emissions based on annual emissions divided by 360.

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Appendix A: LSFO VRS - VOC Emission Estimate for Fugitive Components

Equipment Type	Service	Current Fugitive Component Count (1)	Estimated Post-Construction Fugitive Count (2)	Emission Factor (lb/yr) (3)	Estimated Current Fugitive VOC Emissions	Estimated Post-Construction Fugitive VOC Emissions
Valves - Sealed Bellow	All	741	761	0	0	0
Valves - SCAQMD Approved I & M Program	Gas/Vapor	334	340	4.55	1520	1547
	Light Liquid	0	0	4.55	0	0
	Heavy Liquid	0	0	4.55	0	0
Flanges	Light Liquid/Vapor	795	824	6.99	5557	5760
	Heavy Liquid	0	0	6.99	0	0
Connectors	Light Liquid/Vapor	2378	2398	2.86	6801	6858
	Heavy Liquid	0	0	2.86	0	0
Pumps	Light Liquid (sealless type)	0	0	0	0	0
	Light Liquid (double seal)	5	5	46.83	234	234
	Heavy Liquid (single seal)	0	0	17.21	0	0
Compressors	Gas/Vapor	3	3	9.09	27.27	27
PRV's	All (To Atmosphere)	0	0	9.09	0	0
	All (Closed Vent)	2	2	0	0	0
Drains (with p-trap)	All	0	0	9.09	0	0
Total				lb/yr	14139	14426
				lb/day (4)	39.28	40.07

- ✓ (1) Count of current fugitive components provided for PC A/N 526608
- ✓ (2) Estimate of the number of fugitive components to be installed and removed provided by Mr. Peter Allen in the Health Risk Assessment sent via an October 3rd, 2012 email.
- ✓ (3) Fugitive emission factors based on correlation equations from the *California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities* (CARB/CAPCOA - 1999)
- ✓ (4) 30-day average emissions based on annual emissions divided by 360.

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Appendix A: Waste Gas Compressor Station - VOC Emission Estimate for Fugitive Components

Equipment Type	Service	Current Fugitive Component Count (1)	Estimated Post-Construction Fugitive Count (2)	Emission Factor (lb/yr) (3)	Estimated Current Fugitive VOC Emissions	Estimated Post-Construction Fugitive VOC Emissions
Valves - Sealed Bellow	All	70	80	0	0	0
Valves - SCAQMD Approved I & M Program	Gas/Vapor	121	123	4.55	551	560
	Light Liquid	97	97	4.55	441	441
	Heavy Liquid	0	0	4.55	0	0
Flanges	Light Liquid/Vapor	575	592	6.99	4019	4138
	Heavy Liquid	0	0	6.99	0	0
Connectors	Light Liquid/Vapor	748	761	2.86	2139	2176
	Heavy Liquid	0	0	2.86	0	0
Pumps	Light Liquid (sealless type)	0	0	0	0	0
	Light Liquid (double seal)	2	2	46.83	94	94
	Heavy Liquid (single seal)	0	0	17.21	0	0
Compressors	Gas/Vapor	2	2	9.09	18.18	18
PRV's	All (To Atmosphere)	1	0	9.09	9	0
	All (Closed Vent)	8	10	0	0	0
Drains (with p-trap)	All	6	6	9.09	55	55
Total				lb/yr	7326	7482
				lb/day (4)	20.35	20.78

- (1) Count of current fugitive components provided by Mr. Peter Allen in an August 7, 2012 email.
- (2) Estimate of the number of fugitive components to be installed and removed provided by Mr. Peter Allen in the Health Risk Assessment sent via an October 3rd, 2012 email.
- (3) Fugitive emission factors based on correlation equations from the *California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities* (CARB/CAPCOA - 1999)
- (4) 30-day average emissions based on annual emissions divided by 360.