

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 1
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

PERMIT TO OPERATE
Application No. 308942
PERMIT TO CONSTRUCT
Application No. 516645

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 / PROJECT SUMMARY

The V-1800 Fuel Mix Drum is the primary component of the LSFO Fuel Mix Drum System permit unit, which is Process 21, System 18 in the Chevron El Segundo Refinery RECLAIM/Title V permit. The fuel drum is located in the refinery's Low Sulfur Fuel Oil (LSFO) Plant.

Chevron submitted A/N 516645 for installation of a filter/coalescer on the fuel line from the V-1800 Fuel Mix Drum to process heater F-1160. Installation of the filter/coalescer is a modification of the LSFO Fuel Mix Drum System permit unit.

EQUIPMENT DESCRIPTION:

The LSFO Fuel Mix Drum is currently operating under permit to construct / temporary permit to operate in Section H of the RECLAIM/Title V facility permit. This document includes evaluation for issuance of a regular permit to operate in Section D of the facility permit under application number (A/N) 308942 and evaluation for issuance of a permit to construct in Section H of the facility permit under A/N 516645. The equipment descriptions and permit conditions that will be included in Sections D and H of the RECLAIM/Title V permit are shown below. In these proposed permit pages, new text is indicated by underline and deleted text is indicated by strikeout. The applicable pages from Section H of Chevron's current RECLAIM/Title V permit are contained [in the engineering file](#).

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 2
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

Section D: Facility Description and Equipment Specific Conditions

Description	ID No.	Connected To	RECLAIM Source Type	Emissions and Requirements	Conditions
Process 21: Miscellaneous Petroleum					
System 18: LSFO Fuel Gas Mix Drum System					
DRUM, MIX, V-1800, FUEL GAS, HEIGHT: 19 FT; DIAMETER: 8 FT 6 IN. A/N: 308942	D833				
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: 308942	D3694				H23.3

Section H: Permit to Construct and Temporary Permit to Operate

Description	ID No.	Connected To	RECLAIM Source Type	Emissions and Requirements	Conditions
Process 21: Miscellaneous Petroleum					
System 18: LSFO Fuel Gas Mix Drum System					
DRUM, MIX, V-1800, FUEL GAS, HEIGHT: 19 FT; DIAMETER: 8 FT 6 IN. A/N: 308942 516645	D833				
<u>FILTER, COALESCER, J-1160, FUEL GAS, HEIGHT: 1 FT; DIAMETER: 7 FT</u> A/N: <u>516645</u>	<u>D4367</u>				<u>K171.32</u>
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: 308942 516645	D3694				H23.3

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]

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 3
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

[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]f22

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) 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, 22, 23, 25, 26, 27; Process 20, System 18, 19; **Process 21, System 18]**

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, 22, 23, 25, 26, 27; Process 20, System 18; **Process 21, System 18]**

Note: Chevron has verified that there is no venting of fuel gas from the LSFO Fuel Mix Drum System during normal operation. Therefore, this condition will be removed from the permit for this permit unit.

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

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 4
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

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

[Devices subject to this condition : D3576, D3577, D3581, D3584, D3586, D3588, D3595, 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, D3678, D3679, D3680, D3681, D3682, D3684, D3685, D3691, D3692, D3693, **D3694**, D3760, D3802, D3866, D4086, D4087, D4088]

K171.32 The operator shall provide to the District the following items:

Final Drawings and/or specifications of the equipment installed/constructed/ modified shall be submitted to the District within 60 days after its construction.

A recalculation of the fugitive emissions based on actual components installed and removed from service shall be submitted to the SCAQMD within 60 days after completion.

A listing of all new valves categorized by tag no., size, type, application, and service shall be submitted to the SCAQMD within 60 days after completion.

[**RULE 1303(b)(2)-Offset, 5-10-1996**]

[Devices subject to this condition: **D4367**]

FEE ANALYSIS

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

Summary of Fee Analysis

A/N	Equipment Description	BCAT/ CCAT	Fee Schedule	Fee Type	Fiscal Year (1)	Fee
516645	LSFO Fuel Gas Mix Drum System	354200 (2) (BCAT)	C	Modification	10-11	\$ 3,313.05
516645	LSFO Fuel Gas Mix Drum System	354200 (2) (BCAT)	C	Expedited Permit Processing [301(v)]	10-11	\$ 1,656.53
516647	RECLAIM/Title V Permit	555009 (BCAT)	na.	Facility Permit Amendment	10-11	\$ 1,723.07
					Total Fee	\$ 6,692.65
					Fees Paid	\$ 8,581.91
					Refund Due	\$ 1,889.26

(1) Based on the date that the application was submitted.

(2) The BCAT is being changed from 354950 (Fuel Gas Treating) to 354200 (Fuel Gas Mixing), which is more consistent with the function of this permit unit. It does not perform a treating function.

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 5
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

PERMIT HISTORY

A history of previous permits for the subject permit units is contained in the tables below.

Permit History for LSFO Fuel Gas Mix Drum System (P21S18)

Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
235400	na.	D35273	1/15/99	This permit to operate is for the No. 5 H2S Recovery Plant permit unit, which included the V-1800 fuel mix drum.
308942	12/4/95	na.	na.	Installation of knockout pots V-1005 and V-1110 for separation of liquids from the fuel gas to the F-1000, F-1010, F-1100A, F-1100B, and F-1160 heaters. According to Pete Allen of Chevron, these KO pots were never installed. Also, under this application, the V-1800 fuel mix drum was issued its own permit as the LSFO Fuel Mix Drum System.
516645	na.	na.	na.	Installation of the J-1160 filter/coalescer on the fuel gas line to the No. 4 Crude Unit Vacuum Column Heater F-1160.

COMPLIANCE RECORD REVIEW

There are no ongoing violations for any of the equipment affected by this project. A list of NCs and NOV's issued to Chevron since January 1, 2009 is contained in the engineering file.

PROCESS DESCRIPTION:

The main component of the LSFO Fuel Gas Mix Drum System is the V-1800 Fuel Mix Drum, which receives refinery fuel gas from any combination of the following sources:

- H2S Plants
- Light Ends Caustic Scrubber (C-2860) in the Penex Isomerization Unit (P8S5)
- Acid Knockout Pot (V-5833) in the Alkylation Plant (P8S1)
- Refinery Propane and Butane

Refinery fuel gas is provided from the V-1800 to the following process heaters:

- F-1000 [D504 in P4S14 (Naphtha Hydrotreater No. 3)]
- F-1010 [D502 in P4S14 (Naphtha Hydrotreater No. 3)]
- F-1100 A/B [D82 & D83 in P1S6 (No. 4 Crude Unit)]
- F-1160 [D84 in P1S6 (No. 4 Crude Unit)]
- F-1210 [D364 in P4S2 (LSFO Naphtha Hydrotreater)]
- F-1330 [D3530 in P6S5 (SNR Hydrogen Plant)]
- F-1510 [D466 in P4S12 (Vacuum Resid Desulfurization Unit)]
- F-1520 [D467 in P4S12 (Vacuum Resid Desulfurization Unit)]
- F-1590 [D468 in P4S12 (Vacuum Resid Desulfurization Unit)]
- F-1610 [D451 in P4S10 (Vacuum Gas Oil Desulfurization Unit)]
- F-1660 [D453 in P4S10 (Vacuum Gas Oil Desulfurization Unit)]

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 6
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

The normal operating pressure of the fuel drum is 82 psig and the drum is equipped with two emergency pressure relief valves that are set at 125 psig. As noted in the *Condition Section* of this document, there is no venting of fuel gas during normal operation of this permit unit. Therefore, system condition S15.10 will be removed from the permit for this permit unit.

Chevron is proposing to install a fuel gas filter/coalescer (J-1160) on the fuel gas line to the No. 4 Crude Unit Vacuum Column Heater F-1160 (D84 in P1S6). According to Chevron, the filter/coalescer will improve operation of the F-1160 Heater by removing particulates, which can plug the burners, and entrained liquids, which can cause heater upsets. A drawing of the proposed filter/coalescer installation is contained in the engineering file. The filter/coalescer will have a diameter of 1 foot and height of 7 feet. Fuel gas will enter through a nozzle near the bottom and flow up thru filter elements. Entrained liquids will drop to the bottom of the vessel and particulates will be captured in the filter media. The vessel will not have a pressure relief device or other vent from which fuel gas can be vented to the atmosphere.

As mentioned in the *History Section* of this document, the modification proposed under A/N 308942, which included installation of knockout pots V-1005 and V-1110, was never undertaken. These knockout pots were removed from the permit at some time prior to the issuance of the initial Title V permit. The current description of the V-1800 fuel drum in the permit is accurate. Therefore, no changes will be made to the current equipment description in Section D of the permit. The only change in the equipment description in Section H is the addition of a new device that describes the proposed filter/coalescer.

CALCULATIONS

The subject permit unit contains fugitive components (valves, connectors, etc.). Fugitive components that handle gases or liquids that contain VOCs may periodically leak VOC and inorganic/organic toxic air contaminant (TAC) containing gas or liquid to the atmosphere. VOC emissions for these fugitive components are estimated by multiplying the total number of each fugitive component type by an appropriate emission factor. TAC emissions are discussed in the Rule 1401 analysis later in this document.

The pre and post-modification fugitive component counts and emission estimates are contained in [Appendix](#) of this evaluation. The VOC emission factors utilized for the pre and post-modification emission estimates are based on correlation equations from the *California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities* (CARB/CAPCOA - 1999). A VOC concentration of 500 ppmv is utilized in the correlation equations. As seen in the summary table below, the proposed modification causes an increase estimated VOC emissions of 0.72 lb/day.

Summary of Estimated VOC Emission Change for Proposed Modification

Permit Unit	Estimated VOC Emissions (lb/day)(1)		Change in VOC Emissions	
	Pre-Mod	Post-Mod	(lb/day)(1)	(lb/year)
LSFO Fuel Mix Drum	1.92	2.64	0.72	258

(1) 30 day average = annual VOC emissions / 360

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 7
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

Note that the baseline fugitive VOC emissions were not estimated and entered into the District's NSR database for A/N 308942. The NSR entry for A/N 308942 will be updated to 1.92 lb/day.

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. According to the District's CEQA Guidelines, the net emission increase thresholds for significant effect are:

VOC: 55 lb/day
 PM10: 150 lb/day
 CO: 274 lb/day

CEQA analysis is not required for the proposed modification since there is the VOC emission increase of 0.72 lb/day is less than the 55 lb/day threshold and there are no other significant environmental impacts. On the 400-CEQA form, Chevron marked "No" to all of the additional criterion that may trigger CEQA. For these reasons, CEQA does not apply.

Rule 212: Standards for Approving Permits

212(c)(1): Public notice is required for a project if any of the modified permit unit(s) are located within 1000 feet of a school. Public notice is not required under this clause since none of the permit units to be modified under this project are located with 1000-foot of a school. The nearest school to the subject permit unit is the St. Anthony Catholic School, which is more than 1400 ft. from the V-1800 fuel drum.

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. The Rule 212(g) emission thresholds are shown below. The estimated increase in VOC emissions of 0.72 lb/day for the installation of the filter/coalescer is well below the VOC threshold of 30 lb/day.

CO: 220 lb/day
 NOx: 40 lb/day
 VOC: 30 lb/day
 PM10: 60 lb/day
 SOx: 30 lb/day

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 the Rule 1401 analysis later in this document, the increase in MICR due to the installation of the filter/coalescer is well below one-in-a-million.

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 8
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

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.

As discussed previously, the increase in estimated VOC emissions of 0.72 lb/day is well below the Rule 212(g) threshold of 30 lb/day.

For all these reasons, public notice is not required under this rule.

Regulation IV - PROHIBITIONS

Rule 401: Visible Emissions

This rule 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 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%.

Visible emissions are not expected from any of the new fugitive components installed under this project. Compliance with this rule is expected.

Rule 402: Nuisance

Refinery fuel gas, which can leak into the atmosphere through fugitive components such as valves, flanges, connectors, etc., contains low concentrations of odorous reduced sulfur and hydrocarbon compounds. With the construction of the No. 6 H₂S plant, concentrations of odorous sulfur compounds in the fuel gas supplied through the V-1800 fuel drum have been reduced significantly over the last five year period. Additionally, most of the new valves will be bellow-sealed valves (BSVs), which are considered to be leakless valves. There have not been any nuisance complaints for the LSFO (V-1800) Fuel Drum permit unit over the last 5 year period and the proposed modification is not expected to cause a substantial increase in nuisance potential for this permit unit. Compliance with this rule is expected.

Rule 404: Particulate Matter - Concentration

This rule sets concentration limits for total PM (solid and condensable) emissions. The only emissions from the subject permit unit are in the form of VOC leakage from fugitive components. No PM emissions are expected.

Rule 405: Solid Particulate Matter – Weight

This rule sets solid PM mass emission limits for the processing of solid materials. The subject permit unit does not have PM emissions.

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 9
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

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)])

The subject permit unit does not have CO emissions. It is specified in Rule 2001(j) that facilities operating under the provisions of the RECLAIM program shall be required to comply concurrently with all provisions of District rules and regulations, except those provisions applicable to NO_x emissions under the rules listed in Table 1 and those provisions applicable to SO_x emissions of the rules listed in Table 2. Rule 407 is listed in Table 2 of Rule 2001 so sources at the refinery are not subject to this rule. Additionally, reduced sulfur compound concentrations in the fuel gas are routinely below 40 ppmv.

Rule 409: Combustion Contaminants

This rule contains a 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). In Rule 102, combustion contaminants are defined as “are particulate matter discharged into the atmosphere from the burning of any kind of material containing carbon in a free or combined state”.

The subject permit unit does not have PM emissions.

Regulation IX - NEW SOURCE PERFORMANCE STANDARDS (NSPS)

Subpart GGG—Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced After January 4, 1983, and on or Before November 7, 2006 and Subpart GGGa—Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced After November 7, 2006

The following are affected facilities under these subparts:

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

Equipment is defined as “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”.

Modification is defined in 40CFR60 Subpart A (§60.2) as “any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.”

Process unit is defined in §60.590 as “components assembled to produce intermediate or final products from petroleum, unfinished petroleum derivatives, or other intermediates; a process unit

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 10
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product”.

The LSFO Fuel Mix Drum System is not subject to this regulation since it is not a process unit as defined in this regulation.

40CFR60: Subpart QQQ: Standards of Performance for VOC Sources from Petroleum Refinery Wastewater Systems

This regulation is applicable to a facility located in petroleum refineries for which construction, modification, or reconstruction commenced after May 4, 1987. The following are separate affected facilities under this regulation:

- An individual drain system (all process drains connected to the first common downstream junction box, together with their associated sewer lines and junction boxes, downstream to the receiving oil-water separator)
- An oil-water separator
- An aggregate facility (individual drain system together with ancillary downstream sewer lines and oil-water separators)

The subject permit unit is not currently subject to the requirements of this regulation. Chevron is not proposing to install any new drains. Therefore, the subject permit unit will not become subject to this regulation.

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

40CFR61: Subpart FF: National Emission Standard for Benzene Waste Operations

Chevron is subject to the control requirements of this regulation since the Total Annual Benzene (TAB) for the refinery is above the 10 Mg/yr threshold. This regulation contains standards for storage tanks, surface impoundments, containers, individual drain systems, oil-water separators, treatment processes, and closed vent systems/ control devices.

Compliance with the requirements of this regulation will not be impacted by this project since the LSFO Fuel Mix Drum System does not handle, create, or process any benzene waste.

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. This subpart took effect on August 18, 1998 and was last amended on April 25, 2001.

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).

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 11
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

None of the streams in this permit unit contain 5% or more total organic HAP content by weight. Therefore, none of the fugitive components in this permit unit are subject to this regulation.

Regulation XI: SOURCE SPECIFIC STANDARDS

Rule 1173: Control of Volatile Organic Compound Leaks and Releases from Components at 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.

Each of the subject permit units have fugitive components that are subject to the requirements of this rule. Chevron will be adding some new components that will be subject to this regulation and removing some components that are currently subject to this rule. Chevron has an existing fugitive emission component inspection and monitoring (I&M) program for compliance with the requirements of this rule. Where applicable, new components installed under this project will be integrated into this I&M program.

Compliance with the requirements of this rule is expected.

Rule 1176: Sumps and Wastewater Separators

The purpose of this rule is to limit VOC emissions from wastewater systems located at petroleum refineries, on-shore oil production fields, off-shore oil production platforms, chemical plants, and industrial facilities. The rule specifies requirements for wastewater sumps, separators, sewer lines, process drains, junction boxes, and air pollution control equipment.

The liquid collected in the subject filter/coalescer will be hard piped into the refinery wastewater drain system. Compliance with this rule is not expected to be impacted by the proposed project.

Regulation XIII - NEW SOURCE REVIEW

Rule 1303: Requirements (December 6, 2002)

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 any nonattainment air contaminant, 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 any nonattainment air contaminants for any new or modified source. The definition of "Source" in Rule 1302(ao) 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."

The South Coast Air Basin (SOCAB) is designated in attainment for CO, NO_x and SO_x. The following are currently considered nonattainment air contaminants: NO_x, SO_x, PM₁₀, and VOC. VOC & NO_x are included since they are precursors for ozone. VOC, NO_x, and SO_x are included as PM-10 precursors. NO_x and SO_x emissions from RECLAIM Facilities are regulated

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 12
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

under Regulation XX (RECLAIM). New Source Review requirements for NO_x and SO_x are specified in Rule 2005. For CO, sources are subject to only the BACT requirement of this regulation.

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.

The VOC emission increase for the proposed modification is 0.72 lb/day. Therefore, BACT is not required. The subject permit unit does not emit CO or PM10.

1303(b) – The following requirements apply to any new or modified source which results in a net emission increase of any nonattainment air contaminant. The subject tank is subject to these requirements since the proposed increase in crude oil throughput will cause a net increase in maximum potential VOC emissions.

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 that modeling is not required for VOC or SO_x.

Modeling is not required for the subject modification since the LSFO Fuel Mix Drum System emits only VOC.

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 0.5 lb per day on a maximum daily basis. It is also District policy that offsets are calculated on a project basis. Since the refinery is located in the South Coast Air Basin (SOCAB), an offset ratio of 1.2-to-1.0 is required.

Offsets are required. The increase in VOC emissions under this application is 0.72 lb/day. The resulting estimated offset of 0.86 (0.72 x 1.2) lb/day is rounded off to 1.0 lb/day. Chevron will utilize ERC Certificate AQ011047 for this VOC offset.

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. AQ011047, which is for 10 lb/day of VOC. These ERCs were originally generated under

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 13
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

ERC certificate number AQ000535 in 1991 at an AMVAC Chemical Corp. facility (ID 016865) located in Los Angeles, 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. Enforcement records were reviewed to determine current facility compliance status. According to the best knowledge of this reviewer, the Chevron El Segundo Refinery is currently in compliance with all applicable rules and regulations of the District.

1303 (b)(5) - Major Polluting Facilities: Any new major polluting facility (source) or major modification at an existing major polluting facility (source) must comply with the requirements of this section, which include:

- (A) *Alternative Analysis*
- (B) *Statewide Compliance*
- (C) *Protection of Visibility*
- (D) *Compliance through California Environmental Quality*

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 NOx 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 SOx, 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.

The requirements of this section are not applicable since the increase in estimated VOC emissions for the proposed modification is less than 1 lb/day.

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.

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 14
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

Analysis – There is an increase in estimated TAC emissions so a Tier 1 Risk Analysis must be performed. The V-1800 is located about 175 meters from the nearest fence line so the 100 meter commercial and residential screening levels are utilized. The only TAC found in measureable quantities in a recently collected and analyzed sample of fuel gas from the V-1800 Fuel Mix Drum was propylene. The propylene content was measured at 6.2% on a mass basis. Refinery fuel gas does not contain heavier TACs such as BETX and hexane that are routinely found in refinery product and liquid waste streams. The sample was not analyzed for H2S but the total reduced sulfur in the fuel gas is routinely below 40 ppmv.

H2S –As discussed in the calculation section, the total increase in VOC emissions from the new fugitive components is 258 lb/yr (0.029 lb/hr). If it is conservatively assumed that the 10% of the fuel gas is VOC, so the total amount of fuel gas being emitted from the fugitive components is 2580 lb/yr [(258 lb VOC/hr)(1 lb fuel gas/ 0.1 lb VOC)] or 0.29 lb/hr. Using a conservative H2S level of 100 ppmw, the total H2S emissions are estimated at 0.26 lb/yr or 0.00003 lb/hr.

Propylene – For this screening risk analysis, it is conservatively assumed that 50% of the emitted VOC is propylene. Based on this conservative assumption, propylene emissions of 129 lb/yr (258 lb/yr * 0.5) or 0.015 lb/hr are utilized in the Tier 1 Risk Screening.

The results of the Tier 1 Screening Analysis are shown in the table below. Since the Cancer/Chronic and Acute Screening Indexes are less than 1.0, compliance with this rule is achieved.

Summary Results of Tier I Screening Analysis (100 meters)

Permit Unit	Application Number	Total Application Screening Index	
		Cancer/Chronic	Acute
LSFO Fuel Mix Drum System	516645	0.00027	0.00027

Regulation XVII - PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

This regulation is applicable to projects that cause an increase in the emission of any attainment air pollutant. As discussed for Regulation XIII, the South Coast Air Basin is currently in attainment for CO, NOx and SOx. This regulation is not applicable to the subject modification since it does not cause an increase in the emission of CO, NOx or SOx.

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 (NOx), and Oxides of Sulfur (SOx). The Chevron Refinery (ID 800030) is a Cycle II RECLAIM facility.

The subject permit unit is not subject to any requirements under this regulation since it does not emit or cause the emission of any NOx or SOx emissions.

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 15
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

Regulation XXX – TITLE V PERMITS

The permit issued for this project will be issued as a revision of Chevron’s 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

As defined in Rule 3000, a minor Title V permit revision is any revision that:

- (1) does not require or change 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;
- (2) does not violate a regulatory requirement;
- (3) does not require any significant change in monitoring terms or conditions in the permit;
- (4) does not require relaxation of any recordkeeping, or reporting requirement, or term, or condition in the permit;
- (5) does not result in an emission increase of RECLAIM pollutants over the facility starting Allocation plus nontradeable Allocations, or higher Allocation amount which has previously undergone a significant permit revision process;
- (6) does not result in an increase in emissions of a pollutant subject to Regulation XIII - New Source Review or a hazardous air pollutant;
- (7) does not establish or change a permit condition that the facility has assumed to avoid an applicable requirement;
- (8) is not an installation of a new permit unit 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; and,
- (9) is not a modification or reconstruction of an existing permit unit, resulting in new or additional NSPS requirements pursuant to 40 CFR Part 60, or new or additional NESHAP requirements pursuant to 40 CFR Part 61 or 40 CFR Part 63; or,
- (10) incorporates an existing general permit, as defined in subdivision (e) of Rule 3004, and its associated requirements, into another Title V permit.

A de minimis significant Title V permit revision meets all of the requirements above with the exception that it does result in an increase in the emission of HAP, CO, VOC or PM10 that is not greater than the respective threshold below and the total cumulative emission increase of HAP,

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 16
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

CO, VOC or PM10 for all de minimis Title V revisions during the term of the Title V permit is not greater than the respective threshold:

HAP: 30 lb/day
 CO: 220 lb/day
 VOC: 30 lb/day
 PM10: 30 lb/day

Once the cumulative emission increase of HAP, CO, VOC or PM10 for all de minimis revisions issued during the term of the Title V permit exceeds the respective threshold above, all subsequent Title V permit revisions, with an increase of HAP, CO, VOC or PM10, issued during the term of the Title V permit will be significant revisions. Therefore, the cumulative increase in HAP, CO, VOC and PM10 emissions for de minimis revisions must be tracked for each 5-year Title V permit term. The term of the current Title V permit is from October 12, 2009 until October 11, 2014.

The proposed revision meets all of the minor TV revision specifications listed above except that the proposed modification causes an increase in estimated VOC emissions of 0.72 lb/day. Therefore, it qualifies as a de minimis significant revision. The table below contains a summary of the HAP, CO, VOC and PM10 emission increases for all de minimis significant revisions issued during the term of the current Chevron El Segundo Refinery Title V Permit.

Since the cumulative emission increase of HAP, CO, VOC and PM10 for all de minimis significant revisions issued during the current term of the Chevron Title V permit is less than respective threshold, this revision of the Title V permit is a de minimis significant revision. Chevron has submitted Title V permit revision A/N 516647 for processing of this Title V permit revision, which will be sent to EPA for a 45-day review. Public notice is not required. As noted in the table, permits issued under A/Ns 435990 and 437429 will also be included in this Title V revision.

Emission Increases for De Minimis Significant Revisions of Chevron Title V Permit

Equipment Permit Appl. No.	Title V Revision Appl. No.	Emission Increase (lb/day)			
		HAP	CO	VOC	PM10
511207	511206	0	0	1.0	0
435990 (1)	516647	0	0	0.3	0
437429 (1)	516647	0	0	0.4	0
516645	516647	0	0	0.7	0
Cumulative (2)		0	0	2.4	0

- (1) These permits are also being issued in the de minimis significant Title V revision that is being issued under A/N 516647.
- (2) Cumulative emissions increase for all de minimis significant Title V permit revisions since issuance of the initial Title V permit on October 12, 2009. Note that

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 17
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

RECOMMENDATION:

Based on the foregoing evaluation, it is recommended that a Permit to Operate, Section D of the RECLAIM/Title V facility, be issued for A/N 308942 and a Permit to Construct, Section H of the RECLAIM/Title V facility permit, be issued for the modifications proposed in A/N 516645.

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 18
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

**Appendix: LSFO (V-1800) Fuel Drum
Pre-Modification VOC Emission Estimate for Fugitive Components**

Equipment Type	Service	No. of Sources	VOC Emission Factors lbs/yr*	Annual VOC Emission lb/yr
Valves - Sealed Bellow	Gas/Vapor	4	0.00	0.0
	Light Liquid	0	0.00	0.0
Valves - Low emission ≤ 500 ppmv, or Live loaded w/ dual seal system	Gas/Vapor	25	4.55	113.6
	Light Liquid	0	4.55	0.0
	Heavy Liquid	0	4.55	0.0
Flanges	Light Liquid/Vapor	54	6.99	377.5
	Heavy Liquid	0	6.99	0.0
Connectors	Light Liquid/Vapor	70	2.86	200.3
	Heavy Liquid	0	2.86	0.0
Pumps	Light Liquid (double seal)	0	46.83	0.0
	Light Liquid (sealless type)	0	0	0.0
	Heavy Liquid (single seal)	0	46.83	0.0
Compressors	Gas/Vapor	0	9.09	0.0
PRV's	All (To Atmosphere)	0	9.09	0.0
	All (Closed Vent)	2	0	0.0
Drains (with p-trap)	All	0	9.09	0.0

Total Count: 155 Total (lb/yr) 691

Emissions
(lbs/day)
(30-day
Average) 1.92

* 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)

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT OFFICE OF ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS	PAGES 19	PAGE 19
	APPL. NO. 516645	DATE 1/25/11
	PROCESSED BY: Bob Sanford	CHECKED BY

**Appendix: LSFO (V-1800) Fuel Drum
Post-Modification VOC Emission Estimate for Fugitive Components**

Equipment Type	Service	No. of Sources	VOC Emission Factors lbs/yr*	Annual VOC Emission lb/yr
Valves - Sealed Bellow	Gas/Vapor	23	0.00	0.0
	Light Liquid	0	0.00	0.0
Valves - Low emission \leq 500 ppmv, or Live loaded w/ dual seal system	Gas/Vapor	31	4.55	140.9
	Light Liquid	0	4.55	0.0
	Heavy Liquid	0	4.55	0.0
Flanges	Light Liquid/Vapor	73	6.99	510.3
	Heavy Liquid	0	6.99	0.0
Connectors	Light Liquid/Vapor	104	2.86	297.6
	Heavy Liquid	0	2.86	0.0
Pumps	Light Liquid (double seal)	0	46.83	0.0
	Light Liquid (sealless type)	0	0	0.0
	Heavy Liquid (single seal)	0	46.83	0.0
Compressors	Gas/Vapor	0	9.09	0.0
PRV's	All (To Atmosphere)	0	9.09	0.0
	All (Closed Vent)	2	0	0.0
Drains (with p-trap)		0	9.09	0.0

Total Count: 233 Total (lb/yr) 949

Emissions
(lbs/day) 2.64
(30-day Average)

* 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)