

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING & COMPLIANCE DIVISION APPLICATION PROCESSING AND CALCULATIONS	PAGES 31	PAGE 1
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PERMIT TO CONSTRUCT/MINOR TV REVISION
COMPANY NAME

TESORO REFINING AND MARKETING CO
 P.O. BOX 817,
 WILMINGTON, CA 90748-0817

EQUIPMENT LOCATION

2101 E. PACIFIC COAST HIGHWAY
 WILMINGTON, CA 90744
 Facility ID#: 800436
 Facility Type: NOx & SOx RECLAIM (Cycle 1), Title V

EQUIPMENT DESCRIPTION

Additions are shown as underlined and deletions are shown as ~~strikeouts~~.
 Section H: Permit to Construct

APPLICATION NO. 524237

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions and Requirements	Conditions
PROCESS 12: TREATING/STRIPPING					P13.1
System 1: HCOD TRATING UNIT					S13.2, S13.5
TANK, HOLDING, TK-7001,COKER BLOWDOWN, HEIGHT: 32 FT ; DIAMETER: 40 FT A/N: 470005; <u>A/N 524237</u>	D466			BENZENE: (10) [40CFR 61 Subpart FF, #1, 12-4-2003]; HAP: (10) [40CFR 63 Subpart CC, #4, 6-23-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	E336.2, H23.40
OIL WATER SEPARATOR, V-1743,COKER SLOP WATER CPI, 300 GPM A/N: 470005; <u>A/N 524237</u>	D460			BENZENE: (10) [40CFR 61 Subpart FF, #1, 12-4-2003]; HAP: (10) [40CFR 63 Subpart CC, #4, 6-23-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	E336.2, H23.40

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OIL WATER SEPARATOR, V-1768,SLOP WATER CPI, 300 GPM A/N: 470005; <u>A/N 524237</u>	D461			BENZENE: (10) [40CFR 61 Subpart FF, #1, 12-4-2003]; HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	E336.2, H23.40
FLOATATION UNIT, V-1168, IGFU SOUTH, 700 GPM CAPACITY A/N: 470005; <u>A/N 524237</u>	D458			BENZENE: (10) [40CFR 61 Subpart FF, #1, 12-4-2003]; HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	E336.2, H23.40
FLOATATION UNIT, V-1166, IGFU NORTH, 300 GPM CAPACITY A/N: 470005; <u>A/N 524237</u>	D459			BENZENE: (10) [40CFR 61 Subpart FF, #1, 12-4-2003]; HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	E336.2, H23.40
AIR FLOATATION UNIT, DISSOLVED AIR FLOATATION (DAF), TK-158, EFFLUENT WATER DAF, HEIGHT: 11 FT 4 IN; DIAMETER: 45 FT A/N: 470005; <u>A/N 524237</u>	D463	C472C473		BENZENE: (10) [40CFR 61 Subpart FF, #1, 12-4-2003]; HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	<u>E336.X,</u> <u>E54.XX</u> H23.40
TANK, SURGE, TK-159A, DAF EFFLUENT, HEIGHT: 10 FT ; DIAMETER: 16 FT A/N: 470005; <u>A/N 524237</u>	D464	C472C473		BENZENE: (10) [40CFR 61 Subpart FF, #1, 12-4-2003]; HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	<u>E336.X,</u> <u>E54.XX</u> H23.40
TANK, TK-149, CPI OIL SLUDGE, HEIGHT:9 FT ; DIAMETER: 9 FT A/N: 470005; <u>A/N 524237</u>	D462			BENZENE: (10) [40CFR 61 Subpart FF, #1, 12-4-2003]; HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	E336.2, H23.40

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TANK, FLOCCULATION, TK-267, HEIGHT: 14 FT ; DIAMETER: 12 FT A/N: 470005; <u>A/N 524237</u>	D465	C472C473		BENZENE: (10) [40CFR 61 Subpart FF, #1, 12-4-2003]; HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	<u>E336.X,</u> <u>E54.XX</u> H23.40
TANK, COLLECTION, TK-148 OILY SLUDGE, 100 BBL A/N: 470005; <u>A/N 524237</u>	D467			BENZENE: (10) [40CFR 61 Subpart FF, #1, 12-4-2003]; HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	E336.2, H23.40
TANK, NO. 47, DAF FLOAT, 2000 GALS; DIAMETER: 6 FT 4 IN; HEIGHT: 8 FT 8 IN A/N: 470005; <u>A/N 524237</u>	D471	C472C473		BENZENE: (10) [40CFR 61 Subpart FF, #1, 12-4-2003]; HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	<u>E336.X,</u> <u>E54.XX</u> H23.40
VESSEL, V-1748, DAF AIR PRESSURIZATION, WITH NITROGEN BLANKET A/N: 470005; <u>A/N 524237</u>	D1304			BENZENE: (10) [40CFR 61 Subpart FF, #1, 12-4-2003]; HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	H23.40
ADSORBER, V-2315/V-2316, ACTIVATED CARBON, CONNECTED IN SERIES, EACH 1000 POUNDS, 2,000 POUNDS TOTAL A/N: 470005; <u>A/N 524237</u>	C472	D463D464 D465D471		BENZENE: (10) [40CFR 61 Subpart FF, #1, 12-4-2003]; HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	D90.4, E153.1, H23.40
ADSORBER, V-2313/V-2314, ACTIVATED CARBON (SPARE), CONNECTED IN SERIES, EACH 1,000 POUNDS, 2,000 POUNDS TOTAL A/N: 470005; <u>A/N 524237</u>	C473	D463D464 D465D471		BENZENE: (10) [40CFR 61 Subpart FF, #1, 12-4-2003]; HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	D90.4, E153.1, H23.40

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TANK, COLLECTION, TK-6002/6003, SLUDGE, 2 TOTAL, 6000 BBL A/N: 470005; <u>A/N 524237</u>	D469			BENZENE: (10) [40CFR 61 Subpart FF, #1, 12-4-2003]; HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	E336.1, H23.1, H23.40
TANK, TK-156, SLUDGE FEED TANK, 2600 GALS A/N: 470005; <u>A/N 524237</u>	D709			BENZENE: (10) [40CFR 61 Subpart FF, #1, 12-4-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	H23.40
OIL WATER SEPARATOR, V-1745, FILTRATE CPI, 150 GPM A/N: 470005; <u>A/N 524237</u>	D703			BENZENE: (10) [40CFR 61 Subpart FF, #1, 12-4-2003]; HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	E71.3, H23.40
SUMP, UNDERGROUND, FIXED COVER, PUMP STATION, TK-125A, WATER DRAW COLLECTION, 3000BBL A/N:470006	D807			HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003];	E336.2,
SUMP, UNDERGROUND, FIXED COVER, PUMP STATION, TK-125B, WATER DRAW COLLECTION, 3000 BBL A/N:470007	D808			HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003];	E336.2,
SUMP, UNDERGROUND, FIXED COVER, PUMP STATION, TK-125C, WATER DRAW COLLECTION, 3000 BBL A/N:470008	D809			HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003];	E336.2,
TANK, VTK-01, IGFU POLYMER, WITH NITROGEN BLANKET, 2100 GALS A/N: 470005; <u>A/N 524237</u>	D1305				

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TANK, VTK-02, PEROXIDE, WITH NITROGEN BLANKET, 7000 GALS A/N: 470005; <u>A/N 524237</u>	D1306				
TANK, VTK-03, DAF POLYMER, WITH NITROGEN BLANKET, 2100 GALS A/N: 470005; <u>A/N 524237</u>	D1307				
TANK, V-56X-MKT, HYDROGEN PEROXIDE, WITH NITROGEN BLANKET, 7000 GALS A/N: 470005; <u>A/N 524237</u>	D1308				
DRAIN SYSTEM COMPONENT A/N: 470005; <u>A/N 524237</u>	D1495			HAP:(10) [40CFR 63 Subpart CC, #4, 6-23-2003];	H23.17
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: 470005; <u>A/N 524237</u>	D1459				H23.5
PROCESS 21: AIR POLLUTION CONTROL					
SYSTEM 3: REFINERY VAPOR RECOVERY COMPRESSORS SYSTEM					S11.3, S13.4, S15.11, S18.1
COMPRESSOR, C-68, INGERSOLL-RAND, TWO-STAGE, 350 H.P. A/N: <u>524238</u> / 519210	D641				
COMPRESSOR, C-69, INGERSOLL-RAND, TWO-STAGE, 350 H.P. A/N: <u>524238</u> / 519210	D642				H23.4

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COMPRESSOR, C-104, INGERSOLL-RAND, TWO- STAGE, 350 H.P. A/N: 524238/ 519210	D643				
COMPRESSOR, C-105, INGERSOLL-RAND, TWO- STAGE, 350 H.P. A/N: 524238/ 519210	D644				
DRUM, VAPOR RECOVERY KNOCKOUT, V-2380, LENGTH: 11 FT; DIAMETER: 54 FT A/N: 524238/ 519210	D1662				
POT, V-556, CONDENSATE POT #4, HEIGHT: 6 FT; DIAMETER:9 FT A/N: 524238/ 519210	D886				
DRUM, SUCTION, V-1135, LENGTH: 22 FT 6 IN; DIAMETER: 9 FT A/N: 524238/ 519210	D887				
DRUM, DEA FLASH, V- 1491, LENGTH: 40 FT; DIAMETER: 4 FT A/N: 524238/ 519210	D1663				
DRUM, <u>SOUR WATER</u> <u>FLASH DRUM AND BACK</u> <u>UP</u> DEA SKIM, V-1490, LENGTH: 30 FT; DIAMETER: 12 FT A/N: 524238/ 519210	D1615				

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DRUM, DEA SKIM, V-1139, SPARE, LENGTH: 26 FT; DIAMETER: 8 FT A/N: 524238/ 519210	D1316				
POT, V-1865, CONDENSATE POT #1, HEIGHT: 8 FT; DIAMETER: 8 FT A/N: 524238/ 519210	D890				
POT, V-1866, CONDENSATE POT #2, HEIGHT: 8 FT; DIAMETER: 4 FT A/N: 524238/ 519210	D891				
POT, V-1867, CONDENSATE POT #3, HEIGHT: 8 FT; DIAMETER: 4 FT A/N: 524238/ 519210	D892				
POT, V-1868, CONDENSATE POT #5, HEIGHT: 8 FT; DIAMETER: 4 FT A/N: 524238/ 519210	D893				
POT, V-1871, CONDENSATE POT #6, HEIGHT: 8 FT; DIAMETER: 4 FT A/N: 524238/ 519210	D894				
POT, V-1872, CONDENSATE POT #7, HEIGHT: 8 FT; DIAMETER: 4 FT A/N: 524238/ 519210	D895				
POT, V-1873, CONDENSATE POT #8, HEIGHT: 8 FT; DIAMETER: 4 FT A/N: 524238/ 519210	D896				

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BACKGROUND

These applications were received by the AQMD on June 21, 2011 from Tesoro Refining And Marketing Co. These applications are for alteration of the HCOD Treating Unit (Process 12, System 1) and the Refinery Vapor Recovery System (Process 21, System 3) at Tesoro’s Los Angeles Refinery. Currently, the following equipment associated with Dissolved Air Flootation (DAF) operations, D463, D464, D465, D471, at the HCOD Treating Unit are connected to carbon adsorbers C462 and C463 listed in this system. However, these applications are to connect the Dissolved Air Flootation Equipment to the existing refinery vapor recovery system. The existing carbon adsorbers will remain in place and will be used as back-up control equipment.

Tesoro requests modifications to the Facility Permit as follows:

- Alteration to the HCOD Treating Unit to connect DAF equipment (D463, D464, D465, D471) to the Vapor Recovery System
- Alteration to the Vapor Recovery System to connect the vent gases from the DAF HCOD treating unit equipment (D463, D464, D465, D471).

Tesoro operates two waste water treatment systems at their refinery. They are referred as the high chemical oxygen demand (HCOD) system and low chemical oxygen demand (LCOD) system. The HCOD treating unit treats the contaminated process water or spent water with high VOC content while LCOD is only used for all wasted water with VOC content lower than 5 mg/liter.

The table below lists all the permitted devices in the permit unit (new device is underlined, modified device is **bolded**, and deleted device is ~~strikethrough~~. The third column shows the most recent application number associated with previous permit action. The last column shows the application number associated with this proposed modification.

Permit Unit	List of Permitted Devices in the Permit Unit (System)	Application No. Associated with Current Permit	Status of Permit Prior to this Proposed modification	Application No. for This Proposed Modification
HCOD Treating unit Process 12,	D466,D460,D461,D458, D459, D463,D464 ,D462, D465 ,D467, D471 ,D130	470005	Permit to Operate issued for previous	524337

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System 1	4,C472,C473,D469,D709,D703,D807,D808,D809 D1305,D1306,D1307 D1308,D1495,D1459		modification	
Vapor recovery system Process21, System 3	D642, D643, 644,D1662, D886,D887,D1663,D1615 D1316,D890, D891, D892, D893, D894, D895, D896, D1477	519210	Permit to Construct issued for previous modification	524338

FEE ANALYSIS

Table 2 lists permit processing fees and equipment information.

Table 2 – Summary of Permit Processing Fees

A/N	Equipment Description	BCAT/CCAT	Fee Schedule	Fee Type	Fee	XPP Fee	Total Fee
524237	HCOD Treating Unit	294955	E	Modification	\$5,257.06	\$2,628.53	\$7,885.59
524238	Vapor recovery System	59 (CCAT)	E	Modification P/C	\$5,257.06	\$2,628.53	\$7,885.59
524236	Permit Amendment	555009		Title V Significant Amendment	\$1,723.07		\$1,723.07
Total Permit Processing							\$17,494.25

PROCESS DESCRIPTION

In the DAF (Dissolved Air Flotation) Unit, air flotation technology is used to enhance oil removal from wastewater by increasing the density difference between the particles of oil and water. The oil floats to the surface. Coagulants and flocculants (polymers) are injected into the wastewater stream to assist in this separation by enlarging the particles of oil. The oily float collects on the surface of the water. The float is then removed from the DAF system.

The DAF works by introducing air to a wastewater stream at an elevated pressure in order to create water that is supersaturated with air. When this stream is introduced into the water

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ahead of the DAF Tank, the pressure is reduced to atmospheric, and the air is released as small bubbles. These bubbles attach to the oil and float the oil to the surface.

The DAF system removes oil, selenium and solids from the water using ferric sulfate and polymer-assisted dissolved air flotation. Oil attaches to minute air bubbles that form in the DAF Tank TK-158 (D463) and floats to the surface of the water in the tank.

The float and the solids in Tank 158 go to Tank 47. From Tank 47, the float and solids material goes, sometimes, first to Tank 6002 and then to Tank 7201, or it goes directly to Tank 7201. The material in this tank then goes to Sierra (our centrifuge contractor) and then is recycled to the coker.

The effluent water from the DAF is pumped to the Blended Effluent tank (TK-25013) to be blended with the LCOD effluent water.

DAF system tanks Tk-267(D465) -Mix Tank, TK-158 (D463)- DAF, TK-47(D471) -DAF Skim, and Tk-159A(D464)-DAF Effluent are currently blanketed with nitrogen. Nitrogen is also bubbled through the feed with polymer injection to coagulate oil and allow for skim removal. These tanks vent a combination of nitrogen and small amounts of hydrocarbon emitted from the water to a header that runs to a carbon canister system. The carbon canister system has two banks of carbon with two canisters per bank operating in parallel. When carbon spends on one bank, the other bank is lined up and the spent bank is replaced with fresh carbon.

This project routes the inlet of the carbon canisters to the refinery vapor recovery system, thus eliminating the need for carbon canisters and the associated costs of carbon replacement.

The project includes installation of new piping, pipe supports, and a vapor recovery regulator system (Shan & Jurs Valves).

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Equipment Evaluation for the Existing Vapor Recovery System

The existing Vapor Recovery System includes four compressors -Devices D641, D642, D643 and D644. This system of compressors and pipes gathering vapor from tanks and vessels throughout the refinery, collects organic vapors vents, compresses the vapors, and routes the vapors through absorbers to remove H₂S prior to routing to the Refinery fuel system.

The Vapor Recovery System consists of the following components:

- Fuel gas supply headers.
- Vapor recovery headers.
- Vapor recovery compressors
- Compressor discharge headers, which route the collected vapors to the fuel gas system.
- Amine Absorber tower
- Instruments and controls.

The Vapor Recovery System contains four compressors:

C-68	350 HP	Capacity: 150,000 scfh
C-69	350 HP	Capacity: 150,000 scfh
C-104	900 HP	Capacity: 250,000 scfh
C-105	900 HP	Capacity: 250,000 scfh
Total Capacity = 800,000 scfh		

The measured average load on the vapor recovery system is 352,280 scfh.

The current maximum daily average rate from the vapor recovery compressors is 537,960 scfh.

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Increase in Vapor Recovery Volume Load

The annual maximum uncontrolled emissions of VOC from the DAF vent gas stream is 71105 lbs/yr using the maximum design vent gas flow rate (see attached source test for the maximum design vent gas flow rate in the e-mail by Robert Stockdale dated 8/4/2011) and sampled data for the vent flow VOC composition in the email by Robert Stockdale dated 8/11/2011 (see attached composition)

The average hourly mass load is:

$$\text{Mass Load} = \frac{(48,552 \text{ ppmv} \times 37.5 \text{ scfm})}{10^6} \times \frac{28.16 \text{ lb}}{\text{lbmole}} \times \frac{60 \text{ min}}{\text{hr}} = 8.117 \text{ lb/hr}$$

$$\text{Uncontrolled Daily Mass Load} = (8.117 \text{ lb/hr}) (24 \text{ hr/day}) = 194.8 \text{ lbs/day}$$

$$\text{Uncontrolled Yearly Mass Load} = (8.117 \text{ lb/hr}) (24 \text{ hr/day}) (365 \text{ day/yr}) = 71,105 \text{ lbs/yr}$$

The vapor recovery system has 99.9% control efficiency

$$\text{Controlled Daily Mass Load} = 194.8 \times 0.01 = 0.195 \text{ lbs/day}$$

$$\text{Controlled Yearly Mass Load} = 71,105 \times 0.01 = 711 \text{ lbs/yr}$$

$$\text{Volume Load} = (8.117 \text{ lb/hr}) / (\text{vapor density } 0.146 \text{ lb/cf}) = 55.6 \text{ cfh}$$

Maximum Increase in Vapor Recovery Load

The maximum design load to the vapor recovery system is:

$$\text{DAF maximum design flow rate} = 37.5 \text{ scfm} \times 60 \text{ min/hr} = 2.25 \text{ mscfh}$$

$$\text{Maximum Load on VRS} = 2250 \text{ scfh.}$$

The total Volumetric Capacity of the Vapor Recovery System is 800,000 scfh.

The current maximum daily average rate from the vapor recovery compressors is 537,960 scfh which is 67.2% of the total capacity of the VRS.

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The maximum increase in vapor load due to the proposed modification is 0.28 % of the total capacity of the VRS. Thus, the vapor recovery system could handle the extra load of the DAF system.

EMISSIONS CALCULATIONS.

There is an estimated reduction in emissions resulting from this change. The maximum emission rate from the carbon canister to atmosphere at a 500 ppm concentration limit and a maximum flow rate of 37.5 scfm is 2.0 lbs/day. The vapor recovery system has 99.99% control efficiency, for the emissions calculations, assume 95% control efficiency. The maximum emission rate of the vent stream to the vapor recovery system is estimated to be 0.1 lb/day. The connection to vapor recovery results in an estimated decrease in VOC emissions of 1.9 lbs/day.

There are fugitive emissions from connecting the tanks to vapor recovery system,
There are 6 valves and 12 flanges (see the attached email dated 9/16/2011)

VOC emissions from 12 flanges are =12 x 6.99 lbs /year= 83.88 lbs/year= 0.23 lbs /day

VOC emissions from 6 valves are =6 x 4.55 lbs /year = 27.3 lbs/year = 0.07 lbs /day

Total VOC emissions= 0.3 lbs/day

The increase from the fugitive emissions of 0.3 lb/day is less than the decrease of 1.9 lb/day from connecting to the VRS. Therefore, there is no net increase of VOC emissions.

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RULES EVALUATION:

PART 1 SCAQMD REGULATIONS

Regulation II- PERMITS

Rule 212	Standards for Approving Permits	November 14, 1997
	212 (a)	The applicant is required to show that the equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce, or control the issuance of air contaminants, is so designed, controlled, or equipped with such air pollution control equipment that it may be expected to operate without emitting air contaminants in violation of provisions of Division 26 of the State Health and Safety Code of these rules. The operation of the high chemical oxygen demand (HCOD) waste water system with the connection to the vapor recovery system is expected to comply with this requirement.
	212(c)(1)	Public notification is required if any new or modified permit unit, source under Regulation XX, or equipment under Regulation XXX may emit air contaminants located within 1000 feet from the outer boundary of a school. The source is not within 1000 feet of a school, public notification is therefore not required.
	212(c)(2)	Public notification is required if any new or modified facility has on-site increases exceeding any of the daily maximums specified in subdivision (g) of this rule. The modification of the high chemical oxygen demand (HCOD) waste water system to connect to the vapor recovery system does not have an increase of HC emissions, and does not exceed any of the daily maximums specified, public notification is therefore not required.
	212(c)(3)	Public notification is required if the maximum individual

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	<p>cancer risk (MICR), based on Rule 1401, exceeds one in a million (1×10^{-6}), due to a project's new construction or proposed modification. The modification of the high chemical oxygen demand (HCOD) waste water system to connect to the vapor recovery system does not result in MICR exceeding one in a million, public notification is therefore not required.</p>														
212(g)	<p>This subdivision sets forth the process for federal public notification and distribution and specifies the daily maximum emissions increase as follows:</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: left;"><u>Air Contaminant</u></th> <th style="text-align: left;"><u>Daily Maximum in lbs/day</u></th> </tr> </thead> <tbody> <tr> <td>Volatile Organic Compounds</td> <td>30</td> </tr> <tr> <td>Nitrogen Oxides</td> <td>40</td> </tr> <tr> <td>PM10</td> <td>30</td> </tr> <tr> <td>Sulfur Dioxide</td> <td>60</td> </tr> <tr> <td>Carbon Monoxide</td> <td>220</td> </tr> <tr> <td>Lead</td> <td>3</td> </tr> </tbody> </table> <p>There is no increase of emissions.</p>	<u>Air Contaminant</u>	<u>Daily Maximum in lbs/day</u>	Volatile Organic Compounds	30	Nitrogen Oxides	40	PM10	30	Sulfur Dioxide	60	Carbon Monoxide	220	Lead	3
<u>Air Contaminant</u>	<u>Daily Maximum in lbs/day</u>														
Volatile Organic Compounds	30														
Nitrogen Oxides	40														
PM10	30														
Sulfur Dioxide	60														
Carbon Monoxide	220														
Lead	3														

Regulation IV PROHIBITIONS

<i>Rule 401</i>	<i>Visible Emissions</i>	<i>November 9, 2001</i>
	<p>Visible emissions are not expected under normal operating conditions of the unit.</p>	

<i>Rule 402</i>	<i>Nuisance</i>	<i>May 7, 1976</i>
	<p>Nuisance complaints associated with the above project are not expected under normal operating conditions.</p>	

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Regulation XI Source Specific Standards

Rule 1123	Refinery Process Turnaround	December 7, 1990
(b) Requirements	<p>(1) During process turnarounds, the operator shall not depressurize any vessel containing organic materials unless the vapors released from the vessel are collected and contained for use as fuel or sent to a gas disposal system until the pressure in the vessel is below 5 psig, or is within 10 % above the minimum gauge pressure at which the vapors can be collected, whichever is lower.</p> <p>(2) If the refinery uses inert gas displacement or vacuum eduction for process turnaround, the refinery operator shall submit a Rule 1123 plan per Rule 1123(b)(2). Tesoro submitted R1123 plan under A/N 474117 and it was approved and was issued 7/21/10.</p>	
(c) Recordkeeping	<p>The operator is required to maintain a record of each refinery process unit turnaround containing at a minimum the date the unit was shut down, the approximate vessel hydrocarbon concentration when hydrocarbons were first discharged into the atmosphere, and the approximate amount of hydrocarbons emitted into the atmosphere.</p>	
	<p>Each process unit with a vessel containing organic materials will contain a system condition (S13.4) that specifies that the devices in the systems are subject to Rule 1123.</p>	
Rule 1173	Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants	December 6, 2002
	<p>The proposed modification will flanges that are subject to control of fugitive emissions. Tesoro has an approved Inspection and Maintenance (I&M) Program (A/N 477506). Tesoro will include the new components into their I&M program.</p>	

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Rule1176	<i>Sumps and wastewater Separators</i>	<i>(September 13,1996)</i>
	<p>The purpose of this rule is to limit VOC emissions from waste water 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</p>	
(e)(1)	<p>Wastewater Systems Emissions. This wastewater treatment is expected to continue to meet the 500 ppm limit in Rule1176. The modification will not increase the wastewater treatment capacity.</p>	
(e)(2)	<p>Sumps and wastewater Separators. No new sumps or wastewater separators will be installed in the system.</p>	
(e)(3)	<p>Sewer Lines. No new sewer lines will be installed in the system.</p>	
(e)(4)	<p>Process drains. No new process drains will be installed in the system.</p>	
(e)(5)	<p>Junction boxes. No new junction boxes will be installed in the system.</p>	
(e)(6)	<p>APC Devices. The vapor recovery system has 99.99% control efficiency.</p>	
(e)(7)	<p>Additional requirements for drain system components (DSCs) at Petroleum refineries. Tesoro complies with the control requirements of this paragraph according to subparagraphs (e)(7)(A): Control of Repeat Emitting DSCs. The refinery is required to inspect, monitor, and maintain the wastewater system, closed vent system, and all DSCs according to the schedule outlined in the Table 2 of the rule. Tesoro submits quarterly reports to the District with the information required in (g)(2)(B).</p>	

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Regulation XIII. New Source Review

REG XIII	New Source Review	(Amended December 6, 2002) Application Deem Complete Date: July 21, 2011
BACT: 1303(a)	<p>BACT has been included in the design of the proposed project. BACT means the most stringent emission limitation or control technique which:</p> <ol style="list-style-type: none"> (1) has been achieved in practice for such category or class of source; or (2) is contained in any State Implementation Plan (SIP) approved by the US EPA for such category or class of source. A specific limitation or control technique shall not apply if the owner or operator of the proposed source demonstrates to the satisfaction of the Executive Officer or designee that such limitations or control technique is not presently achievable; or (3) is any other emission limitation or control technique, found by the Executive Officer or designee to be technologically feasible for such class or category of sources or for a specific source, and cost effective as compared to measures as listed in the Air Quality Management Plan (AQMP) or rules adopted by the District Governing Board. <p>BACT for the DAF tanks is compliance with Rule 1176. Since this application does not result in a net emission increase of any non-attainment air contaminant, BACT does not apply. However, the DAF tanks will be connected to vapor recovery system which is BACT for tanks. Compliance is expected.</p> <p><i>Rule 1303(b):-This subdivision lists the following requirements for a permit to construct for any new or modified source which results in a net emission increase of any non-attainment air contaminant at a facility.</i></p> <p><i>Rule 1303(b)(1):-Modeling</i></p> <p><i>Rule 1303(b)(2):-Emissions Offsets</i></p> <p><i>Rule 1303(b)(3) Sensitive Zone Requirements:</i></p>	

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REG	New Source	(Amended December 6, 2002)
XIII	Review	Application Deem Complete Date: July 21, 2011
	<i>Rule 1303(b)(4) Facility Compliance</i> <i>Rule 1303(b)(5) Major Polluting Facilities</i> <i>(A) Alternative Analysis</i> <i>(B) Statewide Compliance</i> <i>(C) Protection of Visibility</i> <i>(D) California Environmental Quality Act (CEQA)</i>	
	<p>Since the subject application does not result in a net emission increase of any non-attainment air contaminant, all the requirements of this subdivision do not apply.</p>	

Regulation XIV. Toxics and Other Non-Criteria Pollutants

Rule 1401	New Source Review of Toxic Air	May 3, 2002
	Contaminants	Application Deem Complete Date: July 21, 2011
	<p>There is no increase in any toxic or carcinogenic air pollutants as a result of this project. The operational emission from the proposed project will have no increase of emissions. Therefore, the Rule 1401 is not applicable [Rule 1401(g)]</p>	

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Regulation	Title V Permits	March 16, 2001
XXX	<p><u>Rule 3001(a): Applicability (Amended November 14, 1997)</u></p> <p>Tesoro Refinery is currently subject to Title V. The permit issued for the new cogeneration unit 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.</p> <p>As defined in Rule 3000, a minor Title V permit revision is any revision that :</p> <ol style="list-style-type: none"> 1. Does not require or change a case-by-case evaluation of a RACT or MACT emission limitation; 2. Does not require any significant change in monitoring terms or conditions in the permit; 3. Does not require relaxation of any recordkeeping, or reporting requirement, term, or condition in the Title V permit; 4. Does not result in an increase in emissions of a pollutant subject to New Source review or hazardous air pollutants (HAP); 5. Does not result in an installation of 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; 6. Does not result in a 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; 7. Does not establish or change a permit condition that the facility has accepted to avoid an applicable requirement; 8. Does not result in an emission increase of RECLAIM pollutants over the facility's starting allocation plus NTCs or 	

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higher Allocation amount which has previously undergone a significant permit revision process;

9. Does not violate a regulatory requirement

The Tesoro Los Angeles Refinery has been designated as a Title V facility. The initial Title V permit was issued on November 23, 2009. The modification of the HCOD treating Unit will not increase the VOC emissions, therefore, this Title V permit revision A/N 524236 qualifies as a minor revision, which will be sent to EPA for a 45-day review. Public notice is not required. A final copy of the permit will be submitted to the EPA within 5 working days of its issuance.

PART 2 STATE REGULATIONS

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 thresholds for significant effect are:

NOx 55 pounds per day
 ROG 55 pounds per day
 PM10 150 pounds per day
 CO 550 pounds per day
 SOx 150 lbs per day

The CEQA Applicability Form (400-CEQA) submitted by Tesoro indicates the expected impacts of the project on the environment are not significant since the net emission ROG increase does not trigger the thresholds ROG: 55 LBS/DAY of The District’s CEQA Guidelines. Therefore a CEQA analysis is not required.

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PART 3 FEDERAL REGULATIONS

40CFR Part 63 Subpart CC	National Emission Standard for Hazardous Air Pollutants from Petroleum Refineries
§63.648	<p>This process unit is subject to the equipment leak standards, detection, and repair requirements of 40.CFR63 Subpart CC, Section 63.648. The equipment leak inspection and monitoring requirements of Rule 1173 are in general more stringent than that specified in Section 63.648. Therefore, compliance with the inspection, maintenance, and recordkeeping requirements of this rule are expected.</p>

40CFR60 Subpart QQQ	Standards of Performance for VOC Sources from Petroleum Refinery Wastewater Systems
	<p>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:</p> <ul style="list-style-type: none"> ▪ 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) <p>According Tesoro, this project will not include the installation or modification of any process drains or wastewater system components. Compliance with this rule should not be impacted by the modifications proposed for this project.</p>

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RECOMMENDATIONS

A permit to construct is recommended subject to the following conditions:

PROCESS CONDITION

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

<u>Contaminant</u>	<u>Rule</u>	<u>Rule/Subpart</u>
Benzene	40CFR61, Subpart	FF

[40CFR61 Subpart FF, 12-4-2003]

[Processes subject to this condition: 1, 2, 3, 4, 5, 6, 8, 9, 11, 12, 15]

SYSTEM CONDITIONS

S11.3 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 AQMD Certified Final Environmental Impact Report dated 4-10-2009 for this facility.

This condition shall only apply to equipment listed in Section H of this facility permit.

[CA PRC CEQA, 11-23-1970]

[Systems subject to this condition : Process 2, System 1,6; Process 8, System 1; Process 17, System 4; Process 21, System 3]

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

<u>Contaminant</u>	<u>Rule</u>	<u>Rule/Subpart</u>
VOC	40 CFR 60, Subpart	QQQ

[40 CFR 60 Subpart QQQ, 5-5-1989]

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[Systems subject to this condition: Process 4, System7; Process 6, System 3; Process 12, System 1, 2; Process 23, System 1]

S13.4 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 1 , 2; Process 2, System 1 , 3 , 4 , 6 , 7 , 10; Process 3, System 1 , 2 , 4 , 5; Process 4, System 1 , 3 , 5 , 7 , 9; Process 5, System 1 , 3 , 5; Process 6, System 1 , 3; Process 8, System 1; Process 9, System 1 , 2 , 3 , 4; Process 12, System 5 , 8; Process 19, System 3; Process 21, System 1 , 3]

S13.5 All devices under this system are subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1176

[RULE 1176, 9-13-1996]

[Systems subject to this condition: Process 12, System 1, 2,3, 4, 7; Process 19, System 4]

S15.11 The vent gases from all affected devices of this process/system shall be vented as follows:

All sour gases under normal operating conditions shall be directed to the fuel gas treating system(s) (Process 12, System 8 or Process 4, System 9).

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

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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 2, System 6; Process 21, System 3, 4]

S18.1 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:

- Hydrogen Generation Units (Process: 6, System: 1 & 3)
- Isomerization Unit (Process: 23, System: 1)
- Fluid Catalytic Cracking Unit (FCCU) (Process: 3, System: 1, 2, 4 & 5)
- Hydrocracking Unit (Process: 8, System: 1)
- Treating/Stripping Units (Process: 12, System: 1 & 7)
- Catalytic Reforming Units (Process: 5, System: 1, 3 & 5)
- Crude Distillation Unit (Process: 1, System: 1 & 2)
- Delayed Coking Unit (DCU) (Process: 2, System: 1, 3, 4, 6 & 10)
- Hydrotreating Units (Process: 4, System: 1, 3, 5, 7 & 9)
- Alkylation Unit (Process: 9, System: 1, 2 & 3)
- Loading/Unloading (Process: 14, System: 4 & 5)

[RULE 1303(a)(1)-BACT, 5-10-1996] [RULE 1118, 11-4-2005]
 [Systems subject to this condition: Process 21, System3, Process 21, System 4]

DEVICE CONDITIONS:

D90.4 The operator shall periodically monitor the VOC concentration at the outlet of the last carbon adsorber 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 day.

[RULE 1303(a)(1) - BACT, 5-10-1996, RULE 3004(a)(4) - Periodic

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Monitoring, 12-12-1997]

[Devices subject to this condition: C472, C473, C1096]

E54.XX The operator is not required to vent this equipment to the following equipment if any of the requirements listed below are met:

Device ID::C472 [ADSORBER V2315/V2316] and C473[ADSORBER V2313/V2314]

Requirement number 1: This equipment is vented to the Vapor Recovery System (Process 21 System 3) which is in full use.

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

[Devices subject to this condition :D463, D464, D465, D471]

E71.3 The operator shall only use this equipment to process the sludge from Equipment ID D469 (TK-6002/6003).

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

[Devices subject to this condition: D703]

E71.10 The operator shall only use this equipment for storing waste water discharged from laboratory operation.

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

[Devices subject to this condition: D1095]

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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 last carbon adsorber. The 500 ppmv refers to VOC concentration.

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

[Devices subject to this condition: C472, C473, C699, C702, C1096]

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

All vent gases from the vacuum trucks used in transferring bottom sludges of this equipment shall be directed to the vapor recovery system or carbon adsorber.

This equipment shall not be operated unless the vapor recovery system/carbon adsorber 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 : D469]

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

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

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The vapor recovery system is consisting of compressors, D641, D642, D643, and/or D644, which can be operated independently to maintain a system vacuum that efficiently collects all vented gases.

The carbon adsorbers is consisting of activated carbon connected in series, each 1,000 pounds, C472 and C473

This equipment shall not be operated unless the vapor recovery system or the carbon adsorbers are in full use and have a valid permit to receive vent gases from this equipment.

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

[Devices subject to this condition :**D463, D464, D465, D471**]

H23.1 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	40 CFR 60, Subpart	Kb

[40CFR 60, Subpart Kb, 10-15-2003]

[Devices subject to this condition: D469, D524, D598, D659, D982, D1001, D1002, D1078]

H23.5 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, 12-6-2002]

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[Devices subject to this condition: D1354, D1355, D1356, D1357, D1359, D1361, D1362, D1363, D1364, D1366, D1367, D1378, D1399, D1408, D1409, D1416, D1419, D1423, D1424, D1425, D1426, D1427, D1428, D1429, D1430, D1431, D1432, D1433, D1434, D1435, D1436, D1437, D1443, D1444, D1451, D1454, D1459, D1460, D1461, D1465, D1466, D1467, D1469, D1470, D1471, D1472, D1473, D1477, D1553, D1556, D1557, D1561]

H23.17 This equipment is subject to the applicable requirements of the following rules or regulations:

<u>Contaminant</u>	<u>Rule</u>	<u>Rule/Subpart</u>
VOC	40CFR60, SUBPART	QQQ

[40CFR 60 SUBPART QQQ, 10-17-2000]

[Devices subject to this condition: D1495, D1496]

H23.40 This equipment is subject to the applicable requirements of the following rules or regulations:

<u>Contaminant</u>	<u>Rule</u>	<u>Rule/Subpart</u>
Benzene	40CFR61, SUBPART	FF

[40 CFR61, SUBPART FF, 12-4-2003]

[Devices subject to this condition: D1458, D459, D460, D461, D462, D463, D464, D465, D466, D467, D469, D471, C472, C473, D526, D544, D546, D562, D563, D565, D567, D572, D573, D575, D576, D577, D578, D579, D608, D611, D623, D625, D626, D627, D628, D633, D639, D703, D709, D1095, C1096, D1304, D1480, D1481, D1482, D1483, D1484, D1485]

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Attachments

1.	NOV's and NC's Issued
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