



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES

19

PAGE

1

APPL. NO.

SEE PG 1 & 2

DATE

3/26/2011

PROCESSED BY

SAAndrewis

CHECKED

BY

PERMIT TO CONSTRUCT/OPERATE

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 D: Permit to Operate

Equipment	ID No.	Connected To	RECLAIM Source Type / Monitoring Unit	Emissions and Requirements	Conditions
PROCESS 15: STORAGE TANKS					
SYSTEM 6 : STORAGE TANKS, OTHERS					
STORAGE TANK, FIXED ROOF, TANK 192, 5,460 GALLONS; DIAMETER:9 FT; HEIGHT:11 FT 11", CAUSTIC <u>A/N: 519205</u>	D1670				B59.10, K67.17 E336.2
STORAGE TANK, FIXED ROOF, TANK 138, 5,460 GALLONS; DIAMETER:9 FT; HEIGHT:11 FT 11", CAUSTIC <u>A/N: 519207</u>	D1671				B59.10, K67.17 E336.2
STORAGE TANK, FIXED ROOF, TANK 139, 5,460 GALLONS; DIAMETER:9 FT; HEIGHT:11 FT 11", CAUSTIC <u>A/N: 519208</u>	D1672				B59.10, K67.17 E336.2
STORAGE TANK, FIXED ROOF, TANK 200A, 8,400 GALLONS; DIAMETER:12 FT; HEIGHT:12 FT, CAUSTIC(SPENT) <u>A/N: 519209</u>	D1673				B59.10, K67.17 E336.2



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES
18

PAGE
2

APPL. NO.
See pg 1&2

DATE
3/26/2011

PROCESSED BY
SAAndrawis

CHECKED
BY

Equipment	ID No.	Connec ted To	RECLAIM Source Type / Monitoring Unit	Emissions and Requirements	Conditions
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>519210/ 501287</u>	D641				
COMPRESSOR, C-69, INGERSOLL-RAND, TWO- STAGE, 350 H.P. A/N: <u>519210/ 501287</u>	D642				H23.4
COMPRESSOR, C-104, INGERSOLL-RAND, TWO- STAGE, 350 H.P. A/N: <u>519210/ 501287</u>	D643				
COMPRESSOR, C-105, INGERSOLL-RAND, TWO- STAGE, 350 H.P. A/N: <u>519210/ 501287</u>	D644				
DRUM, VAPOR RECOVERY KNOCKOUT, V-2380, LENGTH: 11 FT; DIAMETER: 54 FT A/N: <u>519210/ 501287</u>	D1662				
POT, V-556, CONDENSATE POT #4, HEIGHT: 6 FT; DIAMETER:9 FT A/N: <u>519210/ 501287</u>	D886				
DRUM, SUCTION, V-1135, LENGTH: 22 FT 6 IN; DIAMETER: 9 FT A/N: <u>519210/ 501287</u>	D887				
DRUM, DEA FLASH, V-1491, LENGTH: 40 FT; DIAMETER: 4 FT A/N: <u>519210/ 501287</u>	D1663				
DRUM, SOUR WATER FLASH DRUM AND BACK UP DEA SKIM, V-1490, LENGTH: 30 FT; DIAMETER: 12 FT A/N: <u>519210/ 501287</u>	D1615				
DRUM, DEA SKIM, V-1139, SPARE, LENGTH: 26 FT; DIAMETER: 8 FT A/N: <u>519210/ 501287</u>	D1316				



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES
19

PAGE
3

APPL. NO.
See pg 1&2

DATE
3/26/2011

PROCESSED BY
SAAndrawis

CHECKED
BY

Equipment	ID No.	Connec ted To	RECLAIM Source Type / Monitoring Unit	Emissions and Requirements	Conditions
POT, V-1865, CONDENSATE POT #1, HEIGHT: 8 FT; DIAMETER: 8 FT A/N: <u>519210/ 501287</u>	D890				
POT, V-1866, CONDENSATE POT #2, HEIGHT: 8 FT; DIAMETER: 4 FT A/N: <u>519210/ 501287</u>	D891				
POT, V-1867, CONDENSATE POT #3, HEIGHT: 8 FT; DIAMETER: 4 FT A/N: <u>519210/ 501287</u>	D892				
POT, V-1868, CONDENSATE POT #5, HEIGHT: 8 FT; DIAMETER: 4 FT A/N: <u>519210/ 501287</u>	D893				
POT, V-1871, CONDENSATE POT #6, HEIGHT: 8 FT; DIAMETER: 4 FT A/N: <u>519210/ 501287</u>	D894				
POT, V-1872, CONDENSATE POT #7, HEIGHT: 8 FT; DIAMETER: 4 FT A/N: <u>519210/ 501287</u>	D895				
POT, V-1873, CONDENSATE POT #8, HEIGHT: 8 FT; DIAMETER: 4 FT A/N: <u>519210/ 501287</u>	D896				
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: <u>519210/ 501287</u>	D1477				H23.5_

- | | |
|--|--|
| * (1) Denotes RECLAIM emission factor | (2) Denotes RECLAIM emission rate |
| (3) Denotes RECLAIM concentration limit | (4) Denotes BACT emission limit |
| (5)(5A)(5B) Denotes command and control emission limit | (6) Denotes air toxic control rule limit |
| (7) Denotes NSR applicability limit | (8)(8A)(8B) Denotes 40 CFR limit(e.g. NSPS, NESHAPS, etc.) |
| (9) See App B for Emission Limits | (10) See Section J for NESHAP/MACT requirements |

** Refer to Section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

 <p>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</p> <p>ENGINEERING AND COMPLIANCE DIVISION</p> <p>APPLICATION PROCESSING AND CALCULATIONS</p>	PAGES 18	PAGE 4
	APPL. NO. See pg 1&2	DATE 3/26/2011
	PROCESSED BY SAAndrewis	CHECKED BY

FEE ANALYSIS

All fees shown in Table 1 have been paid by the applicant.

Table 1 – Summary of Fee Analysis

A/N	Equipment Description	BCAT/CCAT	Fee Schedule	Fee Type	Fee	XPP Fee	Total Fee
519201	Permit Amendment	555009 (BCAT)		FP –RECLAIM/ Title V Significant Amendment	\$1,723.07		\$1,723.07
519205	Storage tank	300901	B	P/O NO P/C	\$3,314.90	\$1,047.30	\$4,189.20
519207	Storage tank	300901	B	P/O NO P/C	\$3,314.90	\$1,047.30	\$4,189.20
519208	Storage tank	300901	B	P/O NO P/C	\$3,314.90	\$1,047.30	\$4,189.20
519209	Storage tank	300901	B	P/O NO P/C	\$3,314.90	\$1,047.30	\$4,189.20
519210	Refinery Vapor recovery system	59 (CCAT)	E	P/C	\$5,257.06	\$2,628.53	\$7,885.59
Total							\$26,365.46

BACKGROUND

These applications were received by the AQMD on February 25, 2011 from Tesoro Refining And Marketing Co to permit four caustic storage tanks and connect them to the existing refinery vapor recovery system.

NOV P58202 was issued to Tesoro on 2-16-2011 for failure to obtain a written permit for one of the caustic tanks. See the attached NOV in attachment 1. The equipment in question, are 4 caustic tanks that had not previously been permitted since the material stored does not contain VOCs. However, one tank (Tk-200A) contains spent caustic, the spent caustic stored in the tank has low VOC concentration and the VOC's that are entrained in the spent caustic have been found to flash off when entering the tank. All of the tanks share manifolds and have a common suction / fill line. Since the four caustic tanks are connected, they have entrained VOCs. It is the shared line that will be connected to the vapor recovery system resulting in vapor recovery across all tanks. See the Tanks Data and the MSDS of the four tanks that was submitted by Tesoro in the application.

Currently, each tank is not permitted, per Rule 219(m)(1)(C) "Equipment Not Requiring a Written Permit".

Written permits are not required for:

(m) Storage and Transfer Equipment

(1) Equipment used exclusively for the storage and transfer of fresh,

 <p>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</p> <p>ENGINEERING AND COMPLIANCE DIVISION</p> <p>APPLICATION PROCESSING AND CALCULATIONS</p>	PAGES 19	PAGE 5
	APPL. NO. See pg 1&2	DATE <u>3/26/2011</u>
	PROCESSED BY SAAndrewis	CHECKED BY

commercial or purer grades of:

(A) Sulfuric acid or phosphoric acid with an acid strength of 99 percent

or less by weight.

(B) Nitric acid with an acid strength of 70 percent or less by weight.

*(C) Water based solutions of salts or **sodium hydroxide***

However, since the four tanks have entrained VOCs and NOV was issued for failure to obtain a written permit, Tesoro submitted the subject applications for permitting the four caustic tanks (Tk-200A, Tk-138, Tk-139 and Tk-192) and that the permit reflect that these tanks together are vented to the Refinery Vapor Recovery System. These applications are for venting the tanks to vapor recovery in the event entrained vapors are released during filling of Tank 200A from the Alkylation unit. The tanks, however, are not storing organic liquids having a true vapor pressure of 0.1 psia or higher.

Tesoro requests modifications to its Facility Permit as follows:

- Addition of one existing spent caustic tank and three fresh caustic tanks in the facility permit
- Alteration to the Vapor Recovery System to connect the vent gases from the four caustic Tanks which share the same manifold line.

The application for Alternation to the Vapor Recovery System (VRS) shows that the proposed increase of vented vapors will not exceed the rated capacity of the VRS.

COMPLIANCE RECORD REVIEW

The facility's compliance history for the past 2 years indicates one NOV (P52842) is still pending (see Attachment 1). P52842 was issued to Tesoro on 4-27-10 for multiple violations of Rule 1189(c)(3). An emergency hearing was conducted at the AQMD Hearing Board on 4-28-10 and the facility was denied a variance. Tesoro is expected to be placed under an abatement order by the District to have this compliance issue resolved. Note that the HGU-2 unit has been shutdown since 4-6-10 and is not expected to operate till a variance or order of abatement is granted. The NOV details are with Attachment 1.

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION APPLICATION PROCESSING AND CALCULATIONS	PAGES 18	PAGE 6
	APPL. NO. See pg 1&2	DATE <u>3/26/2011</u>
	PROCESSED BY SAAndrewis	CHECKED BY

PROCESS DESCRIPTION

The Alkylation Unit ('Alky') uses liquid sulfuric acid as a catalyst to promote the alkylation reaction. The alkylation reaction combines butane (C₄) olefins (i.e., **propylenes, butylenes, butanes, or amylenes**) primarily from the FCCU with isobutane (iC₄) in the presence of the liquid sulfuric acid. Sulfuric acid is very corrosive. After the reaction occurs, the product leaving the reactors still has a small amount of acid in it. This acid in the product must be removed, or neutralized.

The Alky uses caustic to neutralize acidic product streams. This occurs in two caustic treating vessels in the Alky unit, the 'DIB Caustic Wash' and the 'Depropanizer Caustic Wash'. Both of these vessels are situated upstream of the DIB column and Depropanizer column, respectively. The DIB and Depropanizer columns are used to purify the product streams. Neither column is designed to run streams containing sulfuric acid, so the DIB Caustic Wash and Depropanizer Caustic Wash remove the acid before the product is introduced into the column.

Over time, the caustic in these vessels becomes 'spent' and must be replaced. The spent caustic is pressured over to a caustic degasser. The purpose of the degasser is to drop the pressure and remove light hydrocarbon entrained in the caustic. The caustic degasser is on level control and pumps to Tank 200A to maintain the level set point. The DIB Caustic Wash must be 'dropped' approximately 6 times a week. Volume of these vessels, drop rates and approximate volume/drop are included in the table on page 7&8 of this evaluation.

Tank Tk-200A stores spent caustic while Tank Nos. Tk-138, Tk-139 and Tk-192 are the fresh caustic tanks. The fresh caustic tanks receive fresh make-up caustic from the treater unit. This caustic is then pumped to various sections of the Alkylation Unit to be used in the process. Caustic tank 200A receives the spent caustic from various sections of the unit. This spent caustic is pumped to the treater unit. All of the tanks share manifolds and have a common suction / fill line. Since the four caustic tanks are connected, they have entrained VOCs. It is the shared line that will be connected to the vapor recovery system resulting in vapor recovery across all tanks. The three fresh caustic tanks Tk-138, Tk-139 and Tk-192 are used to refill the depropanizer and debutanizer caustic wash vessels. The amount of fresh caustic that is purchased and used for this system is the same amount that is spent caustic dropped to Tank 200A. The volumes of fresh to spent are essentially the same. Design data shows that 20° Baume' caustic is sent to the Alky unit about four times a week, at approximately 300 bbls each time.

 <p>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</p> <p>ENGINEERING AND COMPLIANCE DIVISION</p> <p>APPLICATION PROCESSING AND CALCULATIONS</p>	PAGES 19	PAGE 7
	APPL. NO. See pg 1&2	DATE 3/26/2011
	PROCESSED BY SAAndrewis	CHECKED BY

EMISSIONS CALCULATIONS

The emissions calculations from spent caustic tanks below were submitted by Tesoro in the email dated 6/8/2011 and verified by the district engineer.

Spent Caustic from the Alkylation Unit is sent to fixed roof storage tanks that are connected in series. On a weekly basis, there are six loads of spent caustic from the Depropanizer and one load of spent caustic from the DIB Unit being dropped into Tank 200A which is connected to other spent/fresh caustic tanks.

Emissions from this activity are calculated as discussed below.

- Spent caustic sent to these storage tanks contains isobutane and propane. All isobutane and propane are assumed to be vaporized and vented to the vapor recovery system.
- The amount of isobutane and propane in spent caustic is assumed to be the same as the level of solubility in water since spent caustic is comprised mainly of water. Solubility of isobutane at standard condition is 0.00526 lb/ft³ and solubility of propane at standard condition is 0.00478 lb/ft³. (see attached reference)
- Spent caustic from the Depropanizer is sent to the caustic tanks at the average frequency of 6 times per week with an average flow rate of 60 barrels per hour. On an average, each drop lasts approximately 40 minutes.
- Spent caustic from the DIB is sent to the caustic tanks at the average frequency of one time per week with an average flow rate of 200 barrels per hour. Each drop lasts approximately 2 hours.
- Total annual emissions is assumed to include 100% of vapor volume being displaced by the volume of caustic drop-out comprised of VOC and 100% evaporation of isobutane and propane dissolved in caustic (maximum solubility value).

Total VOC vented to vapor recovery from Depropanizer spent caustic drop-out:

VOC from tank volume displacement = (60 bbl/hr) x (42 gal/bbl) / (7.48 gal/scf) / (379 scf/mole) x (58 lb/mole) = 51.55 lb/hr (assume 100% isobutane and propane in vapor volume)

VOC from isobutane dissolved in spent caustic = (60 bbl/hr) x (42 gal/bbl) / (7.48 gal/scf) x (.00526 lb/scf) = 1.77 lb/hr (based on maximum solubility and 100% evaporation)

VOC from propane dissolved in spent caustic = (60 bbl/hr) x (42 gal/bbl) / (7.48 gal/scf) x (.00478 lb/scf) = 1.61 lb/hr (based on maximum solubility and 100% evaporation)

Total VOC vented to VRS in one hour period = 51.55 + 1.77 + 1.61 = 54.93 lb/hr

Total VOC vented to VRS per drop-out (each drop-out is approximately 40 minutes)
= 54.93 lb/hr x 40 min/60 min = 36.62 lb/drop-out

 <p>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</p> <p>ENGINEERING AND COMPLIANCE DIVISION</p> <p>APPLICATION PROCESSING AND CALCULATIONS</p>	PAGES 18	PAGE 8
	APPL. NO. See pg 1&2	DATE 3/26/2011
	PROCESSED BY SAAndrewis	CHECKED BY

**Total VOC vented to VRS/year = 36.62 lb/drop-out x 6 drop-out/week x 52 weeks/year
= 11,425 lb/year.**

Total VOC vented to vapor recovery from DIB spent caustic drop-out:

VOC from tank volume displacement = (200 bbl/hr) x (42 gal/bbl) / (7.48 gal/scf) / (379 scf/mole) x (58 lb/mole) = 171.86 lb/hr (assume 100% isobutane and propane in vapor volume)

VOC from isobutane dissolved in spent caustic = (200 bbl/hr) x (42 gal/bbl) / (7.48 gal/scf) x (.00526 lb/scf) = 5.9 lb/hr (based on maximum solubility and 100% evaporation)

VOC from propane dissolved in spent caustic = (200 bbl/hr) x (42 gal/bbl) / (7.48 gal/scf) x (.00478 lb/scf) = 5.4 lb/hr (based on maximum solubility and 100% evaporation)

Total VOC vented to VRS in one hour period = 171.86 + 5.9 + 5.4 = 183.16 lb/hr

**Total VOC vented to VRS per drop-out (each drop-out is approximately 2 hours)
= 183.16 lb/hr x 2 hours = 366.32 lb/drop-out**

**Total VOC vented to VRS/year
= 366.32 lb/drop-out x 1 drop-out/week x 52 weeks/year = 19,049 lb/year.**

Total Emissions from all sources = 11,425 lb/year + 19,049/year = 30,474 lb/year

Total Emissions Per Year, All Sources	30,474	lbs/yr
Total Emissions Per Year, All Sources after vapor recovery system(99% efficiency)	304.74	lbs/yr
Total Emissions Per month, All Sources	25.40	lbs/month
Total Emissions Per day, All Sources	0.85	lbs/day
Total Emissions per day from each individual caustic tank (4 tanks)	0.21	lbs/day
Total Emissions per hr from each individual caustic tank (4 tanks)	0.009	lbs/hr

 <p>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</p> <p>ENGINEERING AND COMPLIANCE DIVISION</p> <p>APPLICATION PROCESSING AND CALCULATIONS</p>	PAGES 19	PAGE 9
	APPL. NO. See pg 1&2	DATE <u>3/26/2011</u>
	PROCESSED BY SAAndrewis	CHECKED BY

Equipment Evaluation for the Existing Vapor Recovery System

The existing Vapor Recovery System is part of System 3 Process 21 of the Facility Permit and includes 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 352,274 scfh.

The current maximum daily average rate from the vapor recovery compressors is 537,954 scfh.

The following sections detail only the increases in vapor load to the VRS resulting from the proposed connections of the four caustic tanks.

The maximum Increase in Vapor Recovery Volume Load

The annual total uncontrolled emissions of ROG, prior to venting to the VRS will be 30,474 lbs/yr

The average hourly mass and volume loads, using a vapor density of 0.153 lb/cf are:

Mass Load = 54.93 lbs/hr(from the depropanizer) +183.16 lbs(from the DIB) = 238.09 lb/hr

Volume Load = (238.09 lb/hr) / Vapor Density 0.153 lb/cf = 1556.14 cfh

The total Volumetric Capacity of the Vapor Recovery System is 800,000 scfh. Thus, the total increase in vapor load due to the proposed modification is 0.194 % of the total capacity of the VRS

 <p>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</p> <p>ENGINEERING AND COMPLIANCE DIVISION</p> <p>APPLICATION PROCESSING AND CALCULATIONS</p>	PAGES 18	PAGE 10
	APPL. NO. See pg 1&2	DATE <u>3/26/2011</u>
	PROCESSED BY SAAndrewis	CHECKED BY

RULES EVALUATION

Regulation II- PERMITS

Rule 212: Standards for approving and Issuing Public Notice (Amended Nov. 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 four storage tanks and 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 VOC emissions increase with the operation of the caustic storage tanks do not exceed any of the daily maximum specified; public notification is therefore not required.
- 212(c)(3) Public notification is required if the maximum individual 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. This proposed modification does not result in MICR exceeding one in a million, public notification is therefore not required.
- 212(g) This subdivision sets forth the process for federal public notification and distribution and specifies the daily maximum emissions increase. Since the increase in emissions does not exceed the daily maximum specified, federal public notification is not required.

 <p>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</p> <p>ENGINEERING AND COMPLIANCE DIVISION</p> <p>APPLICATION PROCESSING AND CALCULATIONS</p>	PAGES 19	PAGE 11
	APPL. NO. See pg 1&2	DATE <u>3/26/2011</u>
	PROCESSED BY SAAndrewis	CHECKED BY

Regulation IV PROHIBITIONS

Rule 401: Visible Emissions

Visible emissions are not expected under normal operating conditions of the caustic tanks.

Rule 402: Nuisance

No Nuisance complaints are expected provided that the operation is conducted according to design. Compliance with Rule 402 is expected.

Rule 463 Organic liquid storage

The District Rule 463 requirements only apply to storage tanks with certain capacities and vapor pressure of the tank content. For tanks with a capacity greater than 39,630 gallons, the District's Rule 463 would only have requirements that apply if the liquid content has a vapor pressure greater than 0.5 psia. The tank capacities are 5,460 gallons, therefore, this rule is not applicable.

Regulation IX- NEW SOURCE PERFORMANCE STANDARDS

Subpart K,Ka,Kb - Standards of Performance for VOL Storage Vessels for Which Construction, Reconstruction, or Modification.

The contents of the subject tank have vapor pressure well below the applicability threshold for vapor pressure. Therefore, Subpart K, Ka, Kb are not applicable to the tanks. Not Applicable

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

Subpart CC: National Emissions Standards for Hazardous air Pollutants for Petroleum Refineries

The subject tanks are storing caustic solution (see the MSDS submitted with application). Therefore, Subpart CC is not applicable.

 <p>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</p> <p>ENGINEERING AND COMPLIANCE DIVISION</p> <p>APPLICATION PROCESSING AND CALCULATIONS</p>	PAGES 18	PAGE 12
	APPL. NO. See pg 1&2	DATE <u>3/26/2011</u>
	PROCESSED BY SAAndrewis	CHECKED BY

Regulation XI - SOURCE SPECIFIC STANDARDS

Rule 1149: Storage Tank Cleaning and degassing

This Rule has requirements for tank cleaning and degassing operations. Emissions from above ground tanks are required to be controlled by one of the following methods: liquid balance, negative pressure displacement and subsequent incinerations, vapor condensation with a refrigeration system, or any other method which controls VOC by at least 90%. The subject tanks will only permitted to store liquid contents with vapor pressure below Rule 1149's applicability limit for vapor pressure. Not Applicable

Rule 1178: Further reductions of VOC Emissions from Storage Tanks at Petroleum Refineries

The subject tanks will only be permitted to store fresh and spent caustic. Not Applicable

Regulation XIII: NEW SOURCE REVIEW

RULE1303: REQUIREMENTS (Amended Dec. 6, 2002)

Rule 1303(a):-Best Available Control Technology

Any new or modified source which results in an emission increase of any nonattainment contaminants must employ BACT for the new or relocated source or for the actual modification to an existing source. BACT is required for any increase of emissions that exceed 1 lb/day on a maximum daily basis. As shown in Emissions, there is an emission increase of 83 lbs/day, therefore, BACT applies for the tanks. The BACT for fixed roof tank is vented to vapor recovery system. The four tanks have common manifold vented to vapor recovery system. The VOC emissions after the VRS is 0.84 lb/day which rounds it off to 1 lb/day, Compliance is expected.

Rule 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 any existing violation of any state or national

 <p>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</p> <p>ENGINEERING AND COMPLIANCE DIVISION</p> <p>APPLICATION PROCESSING AND CALCULATIONS</p>	PAGES 19	PAGE 13
	APPL. NO. See pg 1&2	DATE <u>3/26/2011</u>
	PROCESSED BY SAAndrawis	CHECKED BY

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, therefore, modeling is not required under these applications for the subject tanks.

Rule 1303(b)(2):-Emissions Offsets

This modification will result in increase of VOC emissions of 1 lbs/day. Since the refinery is located in the South Coast Air Basin (SOCAB), an offset ratio of 1.2-to-1 is required. The resulting estimated offset of 1 (0.84 x 1.2) lbs/day is rounded off to 1 lbs/day. Tesoro has an ERC Certificate AQ009633 of 2 lbs/day of ROG, which will be utilized to offset the 1 lbs of ROG increase. See attachment 2 for a copy of ERC certificate.

Rule 1303(b)(3) Sensitive Zone Requirements:

Unless credits are obtained from the Priority Reserve, facilities located in the South Coast Air Basin are subject to the Sensitive Zone requirements specified in Health and Safety Code Section 40410.5. A facility in zone 1 may obtain Emission Reduction Credits originated in zone 1 only, and a facility in zone 2A may obtain Emission Reduction Credits from either zone 1 or zone 2A, or both, or demonstrate to the Executive Officer or designee a net air quality benefit in the area impacted by the emissions from the subject facility. Tesoro is in Zone 1 and the ERCs that will be utilized were originated in Zone 1. See attachment 2 for a copy of ERC certificate. Compliance is expected.

Rule 1303(b)(4) Facility Compliance

Tesoro must comply with all applicable Rules and Regulations of the AQMD. According to the enforcement records, Tesoro is currently in compliance with all applicable rules and regulations of the District, except for an NOV P52842, as described in the Compliance Record Review section above.

 <p>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</p> <p>ENGINEERING AND COMPLIANCE DIVISION</p> <p>APPLICATION PROCESSING AND CALCULATIONS</p>	PAGES 18	PAGE 14
	APPL. NO. See pg 1&2	DATE <u>3/26/2011</u>
	PROCESSED BY SAAndrewis	CHECKED BY

Rule 1303(b)(5) Major Polluting Facilities

In addition to the above requirements, any new major polluting facility or major modification at an existing major polluting facility shall comply with the following requirements (Since the increase in estimated maximum VOC emissions under this application is 1 lb/day, the requirements of this section are applicable):

(A) Alternative Analysis

The 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. Since this project is exempt from CEQA analysis, it will be exempt from this requirement per (b)(5)(D)(i)

(B) Statewide Compliance

The applicant must demonstrate prior to the issuance of a Permit to Construct, that all major stationary sources, as defined in the jurisdiction where the facilities are located, that are owned or operated by such person (or by any entity controlling, controlled by, or under common control with such person) 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 letter from Mr. David Reed, the Tesoro Los Angeles Refinery Manager, indicating that all major sources owned or operated by Tesoro Refining and Marketing Company 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. The certification letter dated July 22, 2010, is provided in Attachment 3.

 <p>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</p> <p>ENGINEERING AND COMPLIANCE DIVISION</p> <p>APPLICATION PROCESSING AND CALCULATIONS</p>	PAGES 19	PAGE 15
	APPL. NO. See pg 1&2	DATE <u>3/26/2011</u>
	PROCESSED BY SAAndrewis	CHECKED BY

(C) Protection of Visibility

The applicant must conduct a modeling analysis for plume visibility in accordance with the procedures specified in Appendix B if the net emission increase from the new or modified source exceeds 15 tons/year of PM₁₀ or 40 tons/year of NO_x. There will not be any PM₁₀ or NO_x emissions from this source, therefore, requirements of this subsection do not apply.

(D) California Environmental Quality Act (CEQA)

CEQA requires that the environmental impacts of proposed projects be evaluated and that feasible methods to reduce, avoid or eliminate identified significant adverse impacts of these projects be considered. The CEQA Applicability Form (400-CEQA) indicates that the project does not have any impacts which trigger the preparation of a CEQA document. 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.

Regulation XIV - TOXICS AND OTHER NON-CRITERIA POLLUTANTS

Rule 1401: New Source Review of Carcinogenic Air Contaminants

This rule requires permit applicant to assess the cancer risks due to the cumulative emission impacts of new/modified sources in their facility. There is an increase of VOCs emissions from the four caustic/spent tanks, however, VOCs entrained in the tanks are not toxic compounds (ethane, propane, butane, and pentane). Therefore, Rule 1401 is not Applicable.

PART 2: STATE REGULATIONS

CEQA California Environmental Quality Act

CEQA requires that the environmental impacts of proposed projects be evaluated and that feasible methods to reduce, avoid or eliminate identified significant adverse impacts of these projects be considered. 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.

 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION APPLICATION PROCESSING AND CALCULATIONS	PAGES 18	PAGE 16
	APPL. NO. See pg 1&2	DATE <u>3/26/2011</u>
	PROCESSED BY SAAndrawis	CHECKED BY

Reg XXX Title V Permits March 16, 2001

Rule 3001(a): Applicability (Amended November 14, 1997)

The Tesoro Los Angeles Refinery has been designated as a Title V facility. The initial Title V permit was issued on November 23, 2009. Tesoro Refinery is currently subject to Title V. The permit issued for storm water tank will be issued as a revision of the Title V permit. Permit revisions are categorized into the following four types: administrative, minor, de minimus significant and significant.

As defined in Rule 3000(b)(7), a De-Minimus Significant permit revision means any Title V permit revision where the cumulative emission increases of non-RECLAIM pollutants or hazardous air pollutants (HAP) from these permit revisions during the term of the permit are not greater than any of the emission threshold levels in Table below.

De Minimis Emission Threshold Level	
<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

Since the proposed applications for the caustic tanks has an emission increase of VOC and do not exceed the thresholds, the Title V permit revision A/N 519201 qualifies as **a De Minimus Significant 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.

 <p>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</p> <p>ENGINEERING AND COMPLIANCE DIVISION</p> <p>APPLICATION PROCESSING AND CALCULATIONS</p>	PAGES 19	PAGE 17
	APPL. NO. See pg 1&2	DATE <u>3/26/2011</u>
	PROCESSED BY SAAndrewis	CHECKED BY

RECOMMENDATIONS

Since Tesoro is expected to be placed under a variance or order of Abatement for the NOV (P52842) that was issued for HGU-2 unit and this unit has been shutdown since 4-6-2010 and is not expected to operate till a variance or order of abatement is granted. Thus, the District considers this facility to be in compliance with all the permit requirements, and recommends the issuance of the subject permit to construct/operate is recommended subject to the following conditions:

DEVICE CONDITIONS

B. Material/Fuel Type Limits

B59.10 The operator shall only use the following material(s) in this device :

Caustic/Spent Caustic

[RULE 1303, 5-10-1996]

[Devices subject to this condition : D1670,D1671,D1672, D1673]

E. Equipment Operation/Construction Requirements

E 336.2 The operator shall vent the vent gases from this equipment as follows:

All vent gases under normal operating shall be directed to a vapor recovery system consisting of compressors D641, D642, D643 AND OR D644, which can be operated independently to maintain a system vacuum that efficiency collects all vented gases.

This equipment shall not 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; RULE 1303(b)(2)-Offset, 5-10-1996]

[Devices subject to this condition : D458, D459, D460, D461, D462, D466, D467, D520, D521, D526, D531, D533, D534, D544, D546, D547, D548, D550, D551, D552, D553,D554, D555, D556, D557, D558, D559, D560, D561, D562, D563, D564, D565, D566,D567, D569, D571, D572, D573, D574, D575, D576, D577, D578, D579, D589, D584,D592,D593, D594, D595, D596, D597, D598, D599, D600, D602, D603, D604, D606, D607,D608, D611, D613, D614, D615, D616, D617, D619, D620, D622, D623, D624, D625,D626, D627, D628, D631, D633, D634, D636, D637, D639, D640, D807, D808, D809,D982, D998, D1001, D1002, D1500, **D1670,D1671,D1672, D1673**]

K. Record Keeping/Reporting

K67.17 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

Throughput of the stored liquids.

[**RULE 1303(b)(2)-Offset, 5-10-1996** RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]

[Devices subject to this condition : D1533, **D1670,D1671,D1672, D1673**]

 <p>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</p> <p>ENGINEERING AND COMPLIANCE DIVISION</p> <p>APPLICATION PROCESSING AND CALCULATIONS</p>	PAGES 18	PAGE 18
	APPL. NO. See pg 1&2	DATE <u>3/26/2011</u>
	PROCESSED BY SAAndrewis	CHECKED BY

Attachments

1.	NOV's and NC's Issued
2.	ERC Certificate
3.	Certification Compliance Letter