

Bay Area Air Quality Management District
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**Permit Evaluation
and
Statement of Basis
For
Minor Revisions
to the
Major Facility Review Permit
for
Chevron Products Company
Facility #A0010**

Facility Address:
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Richmond, CA 94802

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April 2014

Title V Application #24427

By:

Greg Solomon, PE
Supervising Air Quality Engineer

Title V Permit for Chevron Products Company

Statement of Basis

General Description of an Oil Refinery:

This facility is a typical full-scale oil refinery, which processes crude oils and other feedstocks into refined petroleum products, primarily fuel products such as gasoline and fuel oils. It processes crude oil and distills it, under atmospheric pressure, into its primary components: gases (light ends), gasolines, kerosene and diesels (middle distillates), heavy distillates, and heavy bottoms. The heavy bottoms go on to a vacuum distillation unit to be distilled again, this time under a vacuum, to salvage any light ends or middle distillates that did not get separated under atmospheric pressure; the heaviest bottoms continue on to a coker or an asphalt plant.

Other product components are processed by downstream units to remove less desirable impurities (hydrotreated), cracked (catalytic or hydrocracking), reformed (catalytic reforming), or alkylated (alkylation) to form gasolines and high-octane blending components, or to have sulfur or other impurities removed to make over-the-road diesel (low sulfur) or off-road diesel (higher sulfur). Depending on the process units in a refinery and the crude oil input, an oil refinery can produce a wide range of salable products: many different grades of gasoline and gasoline blend stocks, several grades of diesel, kerosene, jet and aviation fuel, fuel oil, bunker fuels, waxes, solvents, sulfur, coke, asphalt, or chemical plant feedstocks.

A more detailed description of petroleum refinery processes and the resulting air emissions may be found in Chapter 5 of EPA's publication AP-42, Compilation of Air Pollutant Emission Factors. This document may be found at:

<http://www.epa.gov/ttn/chief/ap42/ch05/>

The principal sources of air emissions from the Chevron Products Company refinery are:

- Combustion units (furnaces, boilers, and cogeneration facilities)
- FCC (Fluidized Catalytic Cracking)
- Storage tanks
- Fugitive emissions from pipe fittings, pumps, and compressors
- Sulfur plants
- Wastewater treatment facilities

Combustion unit emissions are generally controlled through the use of burner technology, steam injection (turbines), or selective catalytic reduction. Emissions from the FCCU are controlled through hydrotreating the feed, the use of catalysts to remove impurities, the use of improved catalyst regeneration, CO boilers, and electrostatic precipitators. Storage tank emissions are controlled through the use of add on control and or fitting loss control. Fugitive emissions have been minimized per Regulation 8-18 through the use of inspection and maintenance frequencies. Sulfur plants are equipped with tail gas units to reduce emissions. Wastewater treatment facilities are controlled by covering units, gasketing covers, and add on controls such as, carbon canisters.

The Chevron Richmond Refinery:

On July 3, 1902, the Richmond Refinery began operations. At that time, it was by far the largest refining plant on the Pacific Coast and one of the largest in the world. Over the decades, the Richmond Refinery has steadily expanded. Today, this refinery produces primarily gasoline, jet and diesel fuels, and lubricants.

The refinery receives about 240,000 barrels of oil every day. All crude processed at the Richmond Refinery arrives by tanker. The Long Wharf consists of berths for four tankers and 2 barges. Ships dock at the Wharf and unload their cargo into storage tanks via pipes. The Wharf is equipped with a marine vapor recovery unit capable of achieving 95% reduction of hydrocarbons as the ships are loaded. The refinery has hundreds of storage tanks for crude oil and refined products. The largest tanks on the property can hold 750,000 barrels.

The processing of crude consists of four basic steps: distillation, extraction, conversion, and treating. The refinery has three main processing areas: Distillation & Reforming, Cracking, and Hydroprocessing.

In the Distillation & Reforming Area, there is a single large two-stage crude unit that starts the separation of the crude into light (gas), medium (jet and diesel) and heavy (gas oils) components. It takes the residuum (the bottom of the crude unit) and sends it to the Solvent Deasphalting Plant in the Hydroprocessing Area. Gas oil is extracted from the residuum oil and mixed with a solvent that draws the gas oil away leaving only tar behind. The solvent is then distilled from the gas oil and recycled. The extracted gas oil becomes feedstock for the fluidized catalytic cracking unit (FCCU).

The Richmond Refinery converts gas oil into gasoline, jet and diesel fuels, and lubricating oil, using a series of processing plants. Most of the oil is treated with hydrogen to remove contaminants before the conversion processes begin. Heat and catalysts are then used to convert the gas oil to lighter products.

One conversion method is called cracking because it literally splits (cracks) the heavy hydrocarbon molecules into lighter ones. The Richmond Refinery uses two cracking methods: fluid catalytic cracking and hydrocracking. The FCCU located in the Cracking Area uses high temperature catalyst to crack heavy gas oil mostly into gasoline. Lighter gas oil is converted, using a process called hydrocracking, in the Isomax Unit located in the Hydroprocessing Area. Hydrocracking involves mixing gas oil, hydrogen and catalyst under high pressure and high temperature to make both jet fuel and gasoline. They blend most of the products from the FCCU and the Isomax directly into transportation fuels such as gasoline and jet fuel.

While the cracking process breaks most of the gas oil into gasoline and jet fuel, it also breaks off some pieces that are lighter than gasoline. Since Richmond Refinery's primary focus is on making transportation fuels, they recombine lighter components in the Alkylation Unit. This process takes the small molecules and recombines them in the presences of catalyst to convert them into gasoline components.

Much of the gasoline that comes from the Crude Unit or from the cracking units does not have enough octane to burn well in cars. The refinery's Distillation & Reforming Area contains two reformers, where they rearrange and change gasoline to give it the high-octane cars need. The reforming process removes hydrogen from the low-octane gasoline. The hydrogen is recycled for use in the hydrotreating units.

The products from the Crude Unit and the feeds to the conversion units contain some natural impurities, such as sulfur and nitrogen. Using a process called hydrotreating (a milder version of hydrocracking), these impurities can be removed to reduce air pollution when their fuels are used.

In addition to transportation fuels, the Richmond Refinery also makes lubricating oils and waxes. In the refinery's lube oil facility, heavy gas oil from the Crude Unit is converted into several grades of lubricating oil.

The Richmond Refinery also produces wax from crude oil. Food-grade wax, for example is used to make waterproof corrugate (cardboard boxes) for produce, poultry and seafood, paper cups, sandwich bags, and waxed paper.

A final step is the blending of products. Gasoline, for example, is blended from treated components made in several processing units. Over 75 percent of the Richmond Refinery's products are primary transportation fuels: gasoline, jet and diesel. About 15 percent is fuel oil for ships and power plants. Four percent are lubricating oils for a wide variety of machinery, including cars. The remaining 5 percent is variety of products like propane, aviation gasoline and wax.

This revision includes both minor and administrative changes as a result of several applications. The following is a list of both the Title V and NSR application numbers included in this revision:

24427
21463/21462
22278/22277
23070/23069
22713/22634
23413/23423
21687/21677
22927/22916
22795/22794
22723/22722
22108/21980

The responsible official will be changed to Kory Judd and the facility contact will be changed to Juan Li.

Tank and Waste Water Cluster Index

The Tank and Wastewater Cluster Index will be revised to include S-3229 under Table IV.F.1.10 and Table IV.G.1.6.

Section II

Table II C will be revised to include exemption 2-1-123.3.3 for Source 3194.

Table II A 1 will be revised to include S-4366, S-4367, S-4368, S-4369, and S-4370.

Table II A 1 will be revised to update the annual throughput limits of S-4365, S-4366, S-4367, S-4368, S-4369.

Table II A 1 will be revised to include S-4372.

Table II A 1 will be revised to include S-4373.

Table II A 1 will be revised to include S-4374.

Table II A 1 will be revised to include S-3229.

Table II A 1 will be revised to include S-4440.

Table II A 2 will be revised to include S-1292.

Table II B will be revised to update Description and Limit or Efficiency of A-32105.

Section IV

Table IV.A.2.1 will be revised to include S-6010 and S-6015 subject to permit condition #24921

Table IV.F.1.0 will be revised to include S-4366, S-4367, S-4368, S-4369, and S-4370 subject to permit condition #24604.

Table IV.F.1.0 will be revised to include S-4372 subject to permit condition #24606.

Table IV.F.1.0 will be revised to include S-4373 subject to permit condition #25001.

Table IV.F.1.0 will be revised to include S-4374 subject to permit condition #25479.

Table IV.F.1.5 will be revised to include S-1292 subject to permit condition #25144.

Table IV.F.1.11 will be revised to include S-3229 subject to permit condition #25037.

Table IV.G.1.5 will be revised to include S-3229 subject to permit condition #25037.

Table IV.H. 2.1 will be revised to include S-4440 subject to permit condition #24671.

Section VI

Section VI will be revised to include permit condition #24671

Section VI will be revised to include permit condition #24921.

Section VI will be revised to include permit condition #25144.

Section VI will be revised to include permit condition #25479.

Section VI will be revised to update permit condition #24452.

Section VI will be revised to include permit condition #24604.

Section VI will be revised to update permit condition #24604.

Section VI will be revised to update permit condition #15107.

Section VI will be revised to include permit condition #24606.

Section VI will be revised to include permit condition #25001.

Section VI will be revised to update permit condition #24085.

Section VI will be revised to include permit condition #25037.

Section VII

Table VII.A.2.1 will be revised to include S-6015 subject to permit condition #24921

Table VII.F.1.0 will be revised to update the Type of Limit and Limit for S-4365 subject to permit condition #24452. Table VII.F.1.0 will be updated to include the pressure limit for S-4365.

Table VII.F.1.0 will be revised to update the Type of Limit and Limit for S-25 subject to permit condition #15107.

Table VII.F.1.0 will be revised to include S-4366, S-4367, S-4368, S-4369, and S-4370 subject to permit condition #24604.

Table VII.F.1.0 will be revised to include S-4372 subject to permit condition #24606.

Table VII.F.1.0 will be revised to include S-4373 subject to permit condition #25001.

Table VII.F.1.0 will be revised to include S-4374 subject to permit condition #25479.

Table VII.F.1.5 will be revised to include S-1292 subject to permit condition #25144.

Table VII.F.1.11 will be revised to include S-3229 subject to permit condition #25037.

Table VII.G.1.5 will be revised to include S-3229.

Table VII.G.1.4 Wastewater will be revised to update the Limit and Monitoring Frequency.

Table VII.H.2.1 will be revised to include S-4440 subject to permit condition #24671.

Section IX

No changes.

**EVALUATION REPORT
Chevron Products Co., Plant #10
Application Number 21462**

Background

Chevron Products Co. (Chevron) is proposing to permit six existing Chemical Totes, 400 gallon capacity each (S-25, S-4366 –S-4370) storing only materials with less than 0.5 psia vapor pressure, at its refinery located in Richmond. The application originally had seven Totes but Chevron later realized that one Tote (S-4371/4940) was already permitted. The tanks (S-4366 – S-4369) are used to store corrosion inhibitors Tri-Act 1803 and 1825, S-4370 stores corrosion inhibitor Custamine, and S-25 stores Unisol blue dye. All of these materials within this application have a true vapor pressure less than 0.5 psia and will accept a permit condition limiting the maximum vapor pressures. The emissions calculations were performed using EPA's AP42 Chapter 7.

Emission Calculations

Chevron submitted emissions estimates using AP42 Chapter 7 with the permitted maximum vapor pressures for each tank/tote. (See attached)

S-25 Chemical Tote, 400 gallon capacity, Storing only materials with less than or equal to 0.5 psia

POC: 17.3 #/y, 0.009 tpy

S-4366 Chemical Tote, 400 gallon capacity, Storing only materials with less than or equal to 0.5 psia

POC: 6.5 #/y, 0.003 tpy (Tri-Act 1825)
POC: 1.8 #/y, 0.001 tpy (Tri-Act 1803)
8.3 #/y, 0.004 tpy

S-4367 Chemical Tote, 400 gallon capacity, Storing only materials with less than or equal to 0.5 psia

POC: 5.9 #/y, 0.003 tpy

S-4368 Chemical Tote, 400 gallon capacity, Storing only materials with less than or equal to 0.5 psia

POC: 6.2 #/y, 0.003 tpy

S-4369 Chemical Tote, 400 gallon capacity, Storing only materials with less than or equal to 0.5 psia

POC: 7.5 #/y, 0.004 tpy

S-4370 Chemical Tote, 400 gallon capacity, Storing only materials with less than or equal to 0.5 psia

POC: 2.89 #/y, 0.001 tpy

Total POC from this application: 0.024 tpy

Plant Cumulative Increase

POC: 0.024 tpy(1.15) – 0.028 tpy (offsets) = 0.0 tpy

Toxic Risk Screening Analysis

<u>TOXIC</u>	<u>EMISSION RATE</u>	<u>TRIGGER LEVEL</u>
cyclohexylamine		N/A
diethylethanolamine		N/A
morpholine		N/A
ethyl benzene		77,000 #/y
xylene		49 #/h, 27,000 #/y

A toxic risk analysis is not required for this application since the toxic emissions did not have respective trigger levels. The total POC emissions from S-25 are much less than the respective toxic emissions trigger levels. S-25 is the only source that has emissions of materials with trigger levels.

Statement of Compliance

This application will comply with Regulation 8-5-117, which is a limited exemption for tanks storing materials with a vapor pressure less than or equal to 0.5 psia. The source will comply with Regulation 8-5-307.3, which requires that the tank be maintained vapor tight if it is pressurized or blanketed with organic gases other than natural gas. This tank will not be pressurized or blanketed.

This application will not trigger BACT since the increase in emissions will be less than 10 pounds per highest day.

This application will require POC offsets since the facility emissions are greater than 50 tons per year. This application requires 0.028 tons per year of POC offsets.

This application is considered ministerial since this source category is covered in Permit Handbook Chapter 4.1.

A toxic risk analysis is not required for this application since the toxic emissions did not have respective trigger levels.

NSPS subpart Kb does not apply to this tank since it is less than 75 cubic meters.

PSD and NESHAPS do not apply to this application.

Recommendation

Recommend that the following equipment be granted a Permit to Operate:

- S-25 Fixed Roof Tank, 400 gallon capacity, storing only materials with a true vapor pressure less than or equal to 0.5psia**
- S-4366 Fixed Roof Tank, 400 gallon capacity, Chemical Tote storing only materials with a true vapor pressure less than or equal to 0.5psia**
- S-4367 Fixed Roof Tank, 400 gallon capacity, Chemical Tote storing only materials with a true vapor pressure less than or equal to 0.5psia**
- S-4368 Fixed Roof Tank, 400 gallon capacity, Chemical Tote storing only materials with a true vapor pressure less than or equal to 0.5psia**
- S-4369 Fixed Roof Tank, 400 gallon capacity, Chemical Tote storing only materials with a true vapor pressure less than or equal to 0.5psia**
- S-4370 Fixed Roof Tank, 400 gallon capacity, Chemical Tote storing only materials with a true vapor pressure less than or equal to 0.5psia**

Conditions

For Plant 10, S-4366 –S-4370

1. The owner/operator of S-4366 shall not exceed a total of 2000 gallons of Tri-Act 1803 and 1825 combined in any consecutive 12 month period.
(cum inc)
2. The owner/operator of S-4367 shall not exceed a total of 1200 gallons of Tri-Act 1803 and 1825 combined in any consecutive 12 month period.
(cum inc)
3. The owner/operator of S-4368 shall not exceed a total of 1600 gallons of Tri-Act 1803 and 1825 combined in any consecutive 12 month period.
(cum inc)

4. The owner/operator of S-4369 shall not exceed a total of 3200 gallons of Tri-Act 1803 and 1825 combined in any consecutive 12 month period. (cum inc)
5. The owner/operator of S-4370 shall not exceed a total of 4000 gallons of Custamine in any consecutive 12 month period. (cum inc)
6. The owner/operator of S-4366 through S-4369 shall only store materials with a true vapor pressure not to exceed 0.36 psia. (8-5-117 and cum inc)
7. The owner/operator of S-4370 shall only store materials with a true vapor pressure not to exceed 0.5 psia. (8-5-117 and cum inc)
8. The owner/operator S-4366 through S-4370 shall maintain a district approved monthly log of all material throughput and vapor pressure at each S-4366 through S-4370 in order to demonstrate compliance with parts 1 through 7. This log shall be kept on site for at least 5 years from the date of entry and made available to district staff upon request. (record keeping)

Condition 15107

For S-25 at Plant #10:

1. The total volume of Automate Blue 8 or Unisol 7 stored in Storage Tank S-25 shall not exceed 60 barrels (2520 gallons) during any consecutive 12 month period (basis: cumulative increase).
2. The owner/operator of S-25 shall only store materials with a true vapor pressure not to exceed 0.5 psia. (8-5-117 and cum inc)
3. In order to demonstrate compliance with the above conditions, Chevron shall maintain the following records in a District-approved log. These records shall be kept on site and made available for District inspection for a period of 5 years from the date that the record was made.
 - a. The purchase records that show the amount of Automate Blue 8 or Unisol 7 purchased per month used at S-25. The purchased amount shall be considered to be equal to the volume of Automate Blue 8 or Unisol 7 stored. The owner/operator of S-25 shall also maintain records of the vapor pressures of the materials used.

by _____ date _____
 Gregory Solomon
 Senior Air Quality Engineer

**EVALUATION REPORT
Chevron Products Co., Plant #10
Application Number 21677**

Background

Chevron Products Co. (Chevron) is proposing to permit an existing S-4372 Chemical Tote, 400 gallon capacity storing only materials with less than 0.5 psia vapor pressure, at its refinery located in Richmond. The tank is used to store NALCO EC9085A, a H₂S scavenger that is mixed with un-hydrotreated fuel oil prior to sale. This material has a true vapor pressure less than 0.5 psia and will accept a permit condition limiting the maximum vapor pressure. The emissions calculation was performed using EPA's AP42 Chapter 7.

Emission Calculations

Chevron submitted an emissions estimate using AP42 Chapter 7 with the permitted maximum vapor pressures for this tank/tote. (See attached)

S-4372 Chemical Tote, 400 gallon capacity, Storing only materials with less than or equal to 0.5 psia

POC: 16.2 #/y, 0.008 tpy

Total POC from this application: 0.008 tpy

Plant Cumulative Increase

POC: 0.008 tpy(1.15) – 0.009 tpy (offsets) = 0.0 tpy

Toxic Risk Screening Analysis

<u>TOXIC</u>	<u>EMISSION RATE</u>	<u>TRIGGER LEVEL</u>
Alkyamine		N/A
Quaternary Ammonium	16.2 #/y	7.1 #/h, 7.7E 3 #/y

A toxic risk analysis is not required for this application since the toxic emissions either did not have or exceed the respective trigger levels.

Statement of Compliance

This application will comply with Regulation 8-5-117, which is a limited exemption for tanks storing materials with a vapor pressure less than or equal to 0.5 psia. The source will comply with Regulation 8-5-307.3, which requires that the tank be maintained vapor tight if it is pressurized or blanketed with organic gases other than natural gas. This tank will not be pressurized or blanketed.

This application will not trigger BACT since the increase in emissions will be less than 10 pounds per highest day.

This application will require POC offsets since the facility emissions are greater than 50 tons per year. This application requires 0.009 tons per year of POC offsets.

This application is considered ministerial since this source category is covered in Permit Handbook Chapter 4.1.

A toxic risk analysis is not required for this application since the toxic emissions did not have respective trigger levels.

NSPS subpart Kb does not apply to this tank since it is less than 75 cubic meters.

PSD and NESHAPS do not apply to this application.

Recommendation

Recommend that the following equipment be granted a Permit to Operate:

S-4372 Fixed Roof Tank, 400 gallon capacity, Chemical Tote, storing only materials with a true vapor pressure less than or equal to 0.5psia

Conditions

For Plant 10, S-4372

1. The owner/operator of S-4372 shall not exceed a total of 5000 gallons of NALCO EC9085A in any consecutive 12 month period. (cum inc)
2. The owner/operator of S-4372 shall only store materials with a true vapor pressure not to exceed 0.5 psia. (8-5-117 and cum inc)
3. The owner/operator of S-4372 shall maintain a district approved monthly log of all material throughput and vapor pressure at S-4372 in order to demonstrate compliance with parts 1 through 2. This log shall be kept on site for at least 5 years from the date of entry and made available to district staff upon request. (record keeping)

by _____ date _____
Gregory Solomon
Senior Air Quality Engineer

**EVALUATION REPORT
Chevron Products Co., Plant #10
Application Number 22277**

Background

Chevron Products Co. (Chevron) is proposing to change the conditions for six existing Chemical Totes, 400 gallon capacity each (S-4365 –S-4370) storing only materials with less than 0.5 psia vapor pressure, at its refinery located in Richmond. These Totes were just recently permitted but Chevron underestimated the required annual throughputs. Tank S-4365 stores Tri-Act 1825 and tanks (S-4366 – S-4369) are used to store corrosion inhibitors Tri-Act 1803 and 1825. Tank S-4370 stores a corrosion inhibitor, Custamine.

Chevron is also requesting to add a permit condition that allows reformulations provided that there's no increase in emissions and the toxic emissions do not exceed any trigger levels contained in Regulation 2-5. This condition will be added but will include a caveat of being district approved and using only district approved calculation methods. This proposed condition, if not worded correctly, could potentially allow a source to be modified without review.

All of these materials within this application have a true vapor pressure less than 0.5 psia and will accept a permit condition limiting the maximum vapor pressures. The emissions calculations were performed using EPA's AP42 Chapter 7.

Emission Calculations

Chevron submitted emissions estimates using AP42 Chapter 7 with the permitted maximum vapor pressures for each tank/tote. (See attached)

Since these sources were previously permitted and provided offsets, per 2-2-605, the increase in emissions will be based on the increase above the currently permitted levels.

S-4365 Chemical Tote, 400 gallon capacity, Storing only materials with less than or equal to 0.5 psia

Total POC:	25.1 #/y
Baseline POC:	<u>-10.34 #/y</u>
Increase:	14.8 #/y, 0.01 tpy

S-4366 Chemical Tote, 400 gallon capacity, Storing only materials with less than or equal to 0.5 psia

Total POC:	19.0 #/y
Baseline POC:	<u>-8.3 #/y</u>
Increase:	10.7 #/y, 0.005 tpy

S-4367 Chemical Tote, 400 gallon capacity, Storing only materials with less than or equal to 0.5 psia

Total POC: 12.8 #/y
Baseline POC: -5.9 #/y
Increase: 6.9 #/y, 0.003 tpy

S-4368 Chemical Tote, 400 gallon capacity, Storing only materials with less than or equal to 0.5 psia

Total POC: 12.8 #/y
Baseline POC: -5.9 #/y
Increase: 6.9 #/y, 0.003 tpy

S-4369 Chemical Tote, 400 gallon capacity, Storing only materials with less than or equal to 0.5 psia

Total POC: 25.1 #/y
Baseline POC: -7.5 #/y
Increase: 17.6 #/y, 0.01 tpy

Total POC from this application: 56.9 #/y, 0.031 tpy

Plant Cumulative Increase

POC: 0.031 tpy(1.15) – 0.036 tpy (offsets) = 0.0 tpy

Toxic Risk Screening Analysis

<u>TOXIC</u>	<u>EMISSION RATE</u>	<u>TRIGGER LEVEL</u>
cyclohexylamine		N/A
diethylethanolamine		N/A
morpholine		N/A
ethyl benzene		77,000 #/y
xylene		49 #/h, 27,000 #/y

A toxic risk analysis is not required for this application since the toxic emissions did not have respective trigger levels. The total POC emissions from this application are much less than the respective toxic emissions trigger levels.

Statement of Compliance

This application will comply with Regulation 8-5-117, which is a limited exemption for tanks storing materials with a vapor pressure less than or equal to 0.5 psia. The source will comply with Regulation 8-5-307.3, which requires that the tank

be maintained vapor tight if it is pressurized or blanketed with organic gases other than natural gas. This tank will not be pressurized or blanketed.

This application will not trigger BACT since the increase in emissions will be less than 10 pounds per highest day.

This application will require POC offsets since the facility emissions are greater than 35 tons per year. This application requires 0.036 tons per year of POC offsets.

This application is considered ministerial since this source category is covered in Permit Handbook Chapter 4.1.

A toxic risk analysis is not required for this application since the toxic emissions did not have respective trigger levels.

NSPS subpart Kb does not apply to these tanks since all are less than 75 cubic meters.

PSD and NESHAPS do not apply to this application.

Recommendation

Recommend that the following equipment be granted a Permit to Operate:

- S-4365 Tri-Act 1825 Chemical Tote, Fixed Roof Tank, 400 gallon capacity, storing only materials with a true vapor pressure less than or equal to 0.5 psia**
- S-4366 Tri-Act 1803 & 1825 Chemical Tote, Fixed Roof Tank, 400 gallon capacity, Chemical Tote storing only materials with a true vapor pressure less than or equal to 0.5 psia – Power Plant**
- S-4367 Tri-Act 1803 & 1825 Chemical Tote, Fixed Roof Tank, 400 gallon capacity, Chemical Tote storing only materials with a true vapor pressure less than or equal to 0.5 psia - RLOP**
- S-4368 Tri-Act 1803 & 1825 Chemical Tote, Fixed Roof Tank, 400 gallon capacity, Chemical Tote storing only materials with a true vapor pressure less than or equal to 0.5 psia - SRU**
- S-4369 Tri-Act 1803 & 1825 Chemical Tote, Fixed Roof Tank, 400 gallon capacity, Chemical Tote storing only materials with a true vapor pressure less than or equal to 0.5 psia – LSFO/D&R**

Conditions

For Plant 10, S-4366 –S-4370

1. The owner/operator of S-4366 shall not exceed a total of 10,000 gallons of Tri-Act 1803 and 1825 combined in any consecutive 12 month period. (cum inc)
2. The owner/operator of S-4367 shall not exceed a total of 5000 gallons of Tri-Act 1803 and 1825 combined in any consecutive 12 month period. (cum inc)
3. The owner/operator of S-4368 shall not exceed a total of 5000 gallons of Tri-Act 1803 and 1825 combined in any consecutive 12 month period. (cum inc)
4. The owner/operator of S-4369 shall not exceed a total of 15,000 gallons of Tri-Act 1803 and 1825 combined in any consecutive 12 month period. (cum inc)
5. The owner/operator of S-4370 shall not exceed a total of 4000 gallons of Custamine in any consecutive 12 month period. (cum inc)
6. The owner/operator of S-4366 through S-4370 shall only store materials with a true vapor pressure not to exceed 0.5 psia. (8-5-117 and cum inc)
7. The owner/operator of S-4366 through S-4370 may change formulations of chemicals described in this permit condition subject to district approval, provided that the owner/operator demonstrates that the source will not be modified per 2-1-234, there will be no increase in emissions, and that the emissions of toxic air contaminants will not equal or exceed the chronic trigger levels specified in Regulation 2-5. (2-1-301, 2-5)
8. The owner/operator S-4366 through S-4370 shall maintain a district approved monthly log of all material throughput and vapor pressure at each S-4366 through S-4370 in order to demonstrate compliance with parts 1 through 7. This log shall be kept on site for at least 5 years from the date of entry and made available to district staff upon request. (record keeping)

Condition 24452

Plant 10

Application 20760

S-4365

1. The owner/operator of S-4365 shall not exceed 15,000 gallons of Tri-Act 1825 in any consecutive 12 month period. (cum inc)
2. The owner/operator of S-4365 shall only store materials with a true vapor pressure not to exceed 0.5 psia. (8-5-117 and cum inc)
3. The owner/operator of S-4365 may change formulations of chemicals described in this permit condition subject to district approval, provided that the owner/operator demonstrates that the source will not be modified per 2-1-234, there will be no increase in emissions, and that the emissions of toxic air contaminants will not equal or exceed the chronic trigger levels specified in Regulation 2-5. (2-1-301, 2-5)
4. The owner/operator of S-4365 shall maintain a district

approved monthly log of all material throughput and vapor pressure at S-4365. This log shall be kept on site for at least 5 years from the date of entry and made available to district staff upon request.
(record keeping)

by _____ date _____
Gregory Solomon
Senior Air Quality Engineer

EVALUATION REPORT
Chevron Products Co., Plant #10
Application Number 22634

Background

Chevron Products Co. (Chevron) is proposing to modify the following equipment:

S-6015 D&R Flare, 950,000 Btu/hr HHV maximum capacity of purge and pilot, 1.635E6 pounds per hour maximum capacity, equipped with Steam assist,

at its refinery located in Richmond. Chevron has asserted that this application should be treated as an alteration but Chevron originally proposed to both changing the burner tip and increasing the flare capacity from 878,900 pounds per hour to 1.635E6 pounds per hour, which meets the definition of a modification per 2-1-234.1. As a general rule, when a source has an increase in emissions, including an increase in the potential to emit it is not an alteration but a modification. As mentioned above, this application meets the definition of a modified source. Chevron also requested that the district consider the flare to be an abatement device. The flare has always been considered both a source and an abatement device by the district. Chevron requested that the district use its older policy of only the pilot and purge constituting the source portion. This policy changed with the adoption of Regulations 12-11 and 12-12, which further restrict flaring activities that can be readily minimized. This change had the result of adding predictable and planned emissions from flares to the source and moved flares further away from being considered an abatement device.

Chevron's application asserts that this S-6015 Flare is now required due to changes in a calculation for required Flare capacity from API. This calculation was not provided for review even though it was requested on several occasions. Chevron's proposal includes changing the burners in S-6015 and originally it proposed to increase the capacity. Chevron later decided to retain the existing capacity in order to have this permit treated more like an altered sources as opposed to a modified source. However, if Chevron requests an increase in capacity of this Flare it should be considered a modification since physical modifications are being made within this application and Chevron is accepting an enforceable permit condition limits at existing capacity to avoid being considered modified at this time.

Chevron originally asserted that this S-6015 would only be used for worst case scenarios or catastrophic failure since S-6010 currently handles the entire South Yard of the refinery. However, Chevron was not willing to accept conditions that were consistent with this type of operation and was requesting potential use during startups and shutdowns. The district currently limits emissions from flares including the elimination of flaring during startups and shutdowns since these reductions have occurred through both the permitting and flare Minimization Plan (FMP) processes. At least on other refinery has accepted permit conditions that prohibit flaring during startups and shutdowns.

Condition 469 was used to offset the original pilot and purge from S-6015. There will be adequate offsets from the previous application to fully offset pilot and purge from S-6015. However, emissions from startups and shutdowns would also require offsets but Chevron has agreed to accept baseline emissions limits

from S-6010 to apply to both S-6010 and S-6015. This approach will prevent an increase in flaring in the South Yard as a result of this application. Chevron would not accept a permit condition limiting the operation of S-6015 to not be used for startups and/or shutdowns. However, Chevron will accept a permit condition limiting the vent gas to 170,000 pounds per hour, which is consistent with the smokeless capacity of S-6010. Chevron will also accept a permit condition that will limit when S-6015 begins to see vent gas to within 90% of S-6010's smokeless capacity. Originally, it seemed that S-6015 would not break the water seal until approximately 170,000 pounds per hour but Chevron expressed concern that the potential of S-6010 exceeding its smokeless capacity is greater if S-6015 is set to see vent gas at the same threshold. The district proposed to keep S-6015 within 10% of 170,000 pounds per hour, which will both limit the flaring of S-6015 during startups and shutdowns and should help S-6010 from exceeding the smokeless capacity.

This is consistent with flare permits recently issued at Tesoro Refinery.

S-6015 Flare also has potential CEQA and PSD implications since the Flare has not been operated in nearly a decade. For PSD that would make the baseline essentially zero. However, if Chevron agrees to limited use of S-6015 both CEQA and PSD issues should be resolved since the emissions would be lower than the respective trigger levels and related only to safety and unpredictable catastrophic/emergency events.

Emission Calculations

Fugitive Component Emissions

The fugitive emissions were estimated to be 0.649 tpy POC. See attached spreadsheet for the emissions calculation.

Plant Cumulative Increase

Chevron will accept permit conditions that will limit the use of S-6015 to correspond to more catastrophic events and not to be used for startups and shutdowns, which are more predictable and avoidable therefore, the only emission increases are expected to be from the fugitive components as a result of this application.

POC: $0.649 \text{ tpy} - 0.750 \text{ tpy} = 0.0 \text{ tpy}$

Toxic Risk Screening Analysis

A toxic risk analysis is not required for this application since the emissions are not expected to exceed any respective trigger level in the table in Regulation 2-5 as a result of this application.

Statement of Compliance

This project is expected to comply with Regulation 6-1-301, 305, and 310, which require that particulate matter emissions not exceed a Ringelmann 1.0, visible emissions not cause a public nuisance, and that particulate matter emissions not exceed 0.15 gr/dscf.

S-6015 D&R Flare is expected to be subject to all applicable parts of both NSPS Subparts A and J.

S-6015 is expected to comply with both Regulations 12-11 and 12-12, which require the installation of monitoring equipment (flow, hydrocarbon, and sulfur) and also be required to be included in the refinery's Flare Minimization Plan.

The fugitive components added as a result of this project are expected to comply with Regulation 8-18, which limits the concentration, repair and monitoring frequencies.

The fugitive components will also require 0.750 tons per year of offsets.

These sources will continue to comply with all applicable requirements specified in the most recent facility Title V permit.

This application is not subject to CEQA since the evaluation is a ministerial action outlined in the Permit Handbook Chapter 2.4.

A toxic risk analysis is not required for this application as stated above.

NESHAPS and PSD do not apply.

Recommendation

Recommend to issue Chevron a Conditional Authority to Construct for the following equipment:

S-6015 D&R Flare, pilot and purge 2000 scf/hr maximum capacity natural gas only, 878,900 #/hr vent gas maximum capacity, Smokeless capacity 240,000 pounds per hour

Conditions

1. The owner/operator of S-6015 shall not use S-6015 during startups and shutdowns of any equipment vented to S-6015. (cumulative increase, 12-12)
2. The owner/operator of S-6015 shall only use S-6015 when S-6010 exceeds its smokeless capacity of [chevron to provide vendor/manufacture's guarantee of smokeless capacity in pounds per hour]xxx pounds per hour. (cumulative increase)

3. The owner/operator of S-6015 shall use S-6015 only during major power outages and/or emergencies. For the purpose of this condition a major power outage is defined as all of Chevron's Cogens are non-operational and power supply from the utility is also unavailable. [define major power outages] (cumulative increase, 12-12)
4. The owner/operator of S-6015 shall use S-6015 as the main Flare in the South Yard only when S-6010 is down for maintenance. Only during these periods of maintenance of S-6010 shall part 2 not apply. (cumulative increase, 12-12)
5. The owner/operator of S-6015 shall comply with a smokeless capacity for S-6015 of at least 240,000 pounds per hour of vent gas.
6. The owner/operator of S-6015 shall not exceed 300 standard cubic feet per hour of natural gas for flare pilots. The owner/operator of S-6015 shall use only natural gas for pilot and purge. (cumulative increase)
7. The owner/operator of S-6015 shall not exceed 447 standard cubic feet per hour of natural gas for the flare purge. (cumulative increase)
8. The owner/operator of S-6015 shall not exceed 1,635,000 pounds per hour of vent gas. (cumulative increase)
9. The owner/operator of S-6015 shall use steam injection (and staged combustion?) at all times that vent gas is being sent to S-6015. (cumulative increase)
10. The owner/operator of S-6015 shall design S-6015 to maintain a hydrocarbon and carbon monoxide destruction efficiency of at least 98%, on a mass basis . [cumulative increase]
11. The owner/operator of S-6015 shall comply with the monitoring, recordkeeping and reporting requirements for the flare as outlined in Regulation 12-11. The owner/operator of S-6015 shall properly install, maintain, and operate a District-approved total sulfur monitor in the flare gas. The owner/operator shall maintain records of the lower heating value (BTU/scf) of the vented gas for each flaring event. The owner/operator of S-6015 shall properly install, maintain, and operate the pilot and purge monitoring as required in Sections 12-11-503 and 12-11-504 in order to demonstrate compliance with parts 6 and 7. (basis: 12-11 and recordkeeping)
12. The owner/operator of S-6015 shall maintain a district approved monthly log in order to demonstrate compliance with parts 1,2,3,4,8, and 9 including but not limited to dates of all equipment startup and shutdown, start and end dates of maintenance of S-6010. This log shall be kept on site for at least 5 years from the date of entry and be made available to district staff upon request. [Basis: Regulation 12-11 and recordkeeping]

13. The Owner/Operator of S-6015 shall operate the flare in accordance with the District-approved Flare Minimization Plan (FMP) for the Chevron Richmond Refinery. [Basis: Regulation 12-12]

Fugitive component conditions

1. Within 30 days of District's issuance of the Permit to Operate for Application 22634 or the Startup of S-6015, the Owner/Operator shall provide the District's Engineering Division with a final count of all fugitive components and each component's unique permanent identification codes in this project. The owner/operator has been permitted to install the following fugitive components:

70 valves in hydrocarbon service;
85 flanges in hydrocarbon service;
55 connectors in hydrocarbon service;
1 pumps in hydrocarbon service;
3 PSVs in hydrocarbon service.

[Basis: Cumulative Increase, offsets, Regulation 2-5]

2. If any of the fugitive component counts exceed the count stated in Part 1, the plant's cumulative emissions for the project shall be adjusted, subject to APCO approval, to reflect the difference between emissions based on predicted versus actual component counts. The Owner/Operator shall provide to the District all additional required offsets at an offset ratio of 1.15:1 no later than 21 days after submittal of the final POC fugitive count. If the component count increase triggers any additional regulatory review, the owner/operator shall submit an application to address the increased emissions. The

Owner/Operator submitted 0.750 tons per year of POC offset credits corresponding to the component counts in Part 1. If the actual component count is less than the predicted, the total emissions in Part 2 may be adjusted accordingly, subject to APCO approval, and all emission offsets applied by the owner/operator in excess of the fully offset permitted total

POC emissions may be credited back to the owner/operator upon approval by the APCO. [Basis: offsets] adjusted per 10/22/10 submittal

3. The Owner/Operator shall as part of the S-6015 D&R Flare Project install only the following types of valves in hydrocarbon service: (1) bellows sealed, (2) live loaded, (3) graphitic packed, (4) quarter-turn (e.g., ball valves or plug valves), or equivalent as determined by the APCO. [Basis: cumulative increase]
4. The Owner/Operator shall comply with a leak standard of 100 ppm of TOC (measured as C1) at any valves installed as part of the application 22634 in hydrocarbon service unless the Owner/Operator complies with the applicable minimization and repair provisions contained in Regulation 8-18. [Basis: cumulative increase, Regulation 8 Rule 18]
5. The Owner/Operator shall install graphitic-based gaskets, metal ring joints, or equivalent technology as determined by the APCO on all flanges or connectors installed as part of the Jet Additives Project in hydrocarbon service. [Basis: cumulative increase]
6. The Owner/Operator shall comply with a leak standard of 100 ppm of TOC (measured as C1) at any flanges and/or connectors installed as part of application 22634 in hydrocarbon service unless the Owner/Operator complies with the applicable minimization and repair provisions contained in Regulation 8-18. [Basis: cumulative increase, offsets, Regulation 8 Rule 18]
7. The owner/operator of S-6015 fugitive components shall not exceed 500.0 ppm of TOC (measured as C1) at any of the pumps installed as part of application 22634 in hydrocarbon service unless the Owner/Operator complies with the applicable minimization and repair provisions contained in Regulation 8-18. [cumulative increase, offsets, Regulation 8-18]
8. The Owner/Operator shall conduct inspections of fugitive components installed as part of application 22634 in hydrocarbon service in accordance with the frequency below:

Pumps: Quarterly

Valves: Quarterly
Connectors (Not Flanges): Biannual
Flanges: Biannual

[Basis: cumulative increase, Regulations 8 Rule 18]

9. The Owner/Operator shall not exceed 0.649 tons of POC emissions per consecutive 365-day period measured as C1 from for all fugitive components installed as part of application 22634 in hydrocarbon service. Compliance with this provision shall be verified quarterly using methods described in part 10. The results shall be submitted to the District within 30 days of the close of each calendar quarter after

the

District's issuance of the Permit to Operate for Application 22634.[Basis: Cumulative Increase, offsets]

- 10.If all of the fugitive components installed as part of application 22634 in hydrocarbon service are leaking at a rate less than 5000 ppm of TOC (measured as C1) in any calendar quarter, no further verification and no submittal of the results shall be required. If any of the fugitive components installed as part of application 22634 in hydrocarbon service are leaking at a rate equal to or greater than 5,000 ppm of TOC (measured as C1) in any calendar quarter, the owner/operator shall conduct an annual emissions estimate in order to demonstrate compliance with part 9 and shall submit the results to the district within 30 days of the annual emissions calculation. For any calendar quarter in which one or more of these components is leaking at a rate equal to or greater than 10,000 ppm of TOC (measured as C1), the Owner/Operator shall calculate and submit a report of fugitive emissions from all Jet Additives Project fugitive components in hydrocarbon service utilizing District approved methods for the consecutive 12 month period ending with this quarter. This calculation shall continue each quarter until there is not a quarter containing a pegged leaker. For leaking components the owner/operator shall use the modified trapezoidal method and LeakDAS as documented within the application 12842 or other method pre-approved by the District. The Owner/Operator shall include emissions estimates from all Jet Additives Project fugitive components in hydrocarbon service

regardless of the component Rule 8-18 repair status in order to demonstrate compliance with part 9. [Basis: Cumulative Increase, Offsets]

11. The Owner/Operator shall keep a District-approved monthly log of fugitive component counts installed as part of application 22634, each component's unique permanent identification codes, monitoring results, and any annual emissions estimates required per parts 9 and 10 for at least five years from date of entry. The log shall be retained on site and made available to district staff upon request. [Basis: offsets, recordkeeping]

by _____ date _____
Gregory Solomon
Senior Air Quality Engineer

**EVALUATION REPORT
Chevron Products Co., Plant #10
Application Number 22722**

Background

Chevron Products Co. (Chevron) is proposing to install a new S-3229 Recovered Oil Storage Tank, External Floating Roof, Heated (180F), 101,000 barrel capacity, equipped with a Dome storing only materials with less than 10.3 psia vapor pressure, and associated fugitive components at its refinery located in Richmond. Chevron has requested that the tank be permitted to store materials up to 10.3 psia, which is close to the upper vapor pressure range of 11.0 psia requirement within Regulation 8-5. Chevron originally requested 11.0 psia but later changed this request due to discussions with the City of Richmond. This tank will replace some of the tanks proposed within the Renewal Project (12842) since the tank capacity is needed and the Renewal Project has not resolved its EIR issues. The City of Richmond is the lead agency for CEQA purposes and has approved this project. The Tank Project includes the installation of approximately six new/replaced storage tanks. The City of Richmond originally required the Dome for this storage tank but it was later determined that the South Coast has been requiring Domes on external floating roof tanks since 2004 per 1178, which makes the dome a BACT 2 requirement.

The district is also requiring a daily throughput/emissions limit to be used for future modification determinations. Chevron did not want the explicit limit in its permit and wanted to rely on the implied permit condition, which was often used by the district. However, the district's legal division has repeatedly stated that items such as daily throughput/emissions that will be needed in future modification determinations should be explicit limits. Chevron requested that the daily throughput limit be used as a trigger to require a district approved emissions calculation to determine whether the originally permitted emissions (here 16.4 #/day) has been exceeded. In other words, no violation will be issued unless either the permitted daily emissions are exceeded or the calculation is not performed. The emissions calculation was performed at maximum operating conditions for this tank i.e., maximum pumping rate and maximum permitted vapor pressure. This condition may also help determine future modifications caused by increased pumping rates, which is easily missed.

Emission Calculations

Chevron submitted an emissions estimate using Tanks 409 with the permitted maximum vapor pressure of 11.0 psia and heated to 120F. It later changed these parameters to 10.3 psia and 180F due to both discussions with the City of Richmond and the district's proposed permit conditions. (See attached)

S-3229 Recovered Oil Storage Tank, Heated External Floating Roof (180F), 101,000 barrel capacity, equipped with a Dome storing only materials with less than 10.3 psia vapor pressure

POC: 3180.18 #/y, 1.590 tpy

The maximum daily emissions estimate is performed using Tanks 409d assuming the maximum daily throughput times 365 and divide the resulting annual emissions by 365.

POC: 16.4 #/highest day

Fugitive Component Emissions

The fugitive emissions estimate assumes that the

<u>Component</u>	<u>count</u>	<u>emissions factor</u>	<u>emissions</u>
Valves	135	0.00375 #/d/v	186.2 #/y
Flanges	98	0.00620 #/d/f	222.7
Pegged flange	1	5.03 #/d/pf	918.0
Pressure relief devices	3	0.0084 #/d/prd	9.2
Pumps	4	0.0411 #/d/p	68.8
Total fugitive emissions tpy			1404.9 #/y, 0.702
due			0.808 tpy offsets
Total POC from this application:			2.29 tpy

Plant Cumulative Increase

POC: 2.29 tpy(1.15) – 2.64 tpy (offsets) = 0.0 tpy

Toxic Risk Screening Analysis

<u>TOXIC</u>	<u>EMISSIONS RATE</u>	<u>TRIGGER LEVEL</u>
<u>From the tank</u>		
1,2,4 trimethylbenzene	49.89 #/y	n/a
Isooctane	154.45	n/a
Benzene	0.68 #/h, 249.23	2.9 #/h, 3.8 #/y
Cresol	88.66	2.3 E4 #/y
Cyclohexane	250	n/a
Ethylbenzene	70.75	4.3E1
Hexane	704.43	2.7E5
Naphthalene	44.11	3.2 #/y
Toluene	0.77 #/h, 282.06	8.2E1 #/h, 1.2E4 #/y
Xylene	0.46 #/h, 166.45	4.9E1 #/h, 2.7E4 #/y
<u>Fugitives</u>		
1,2,4 trimethylbenzene		n/a
Isooctane		n/a
Benzene	0.14 #/h, 49.85 #/y	2.9 #/h, 3.8 #/y

Cresol	17.7	2.3 E4 #/y
Cyclohexane		n/a
Ethylbenzene	14.15	4.3E1
Hexane	140.89	2.7E5
Naphthalene	8.82	3.2 #/y
Toluene	0.15 #/h, 56.4	8.2E1 #/h, 1.2E4 #/y
Xylene	0.09 #/h, 33.29	4.9E1 #/h, 2.7E4 #/y

A toxic risk analysis was required for this application since the toxic emissions exceeded the respective trigger levels. Results from the HRSA for this project indicate that the maximum incremental cancer risk is estimated at 0.7 in a million, the chronic hazard index is 0.0005 and the acute hazard index is 0.05. In accordance with the district's Regulation 2-5 these risk levels are considered acceptable.

Statement of Compliance

This storage tank will comply with Regulation 8-5-301, which requires the use of either an internal or external floating roof tank. The tank will comply with Regulation 8-5-304, which requires that the fittings and seals meet the requirements in sections 320 and 321/322, the floating roof must rest on the surface of the liquid, no liquid leaks through the shell, and no liquid within the pontoons. Sections 320 – 322 address the requirements for fittings, primary and secondary seals. The tank will also comply with Sections 328, 331, and 332, which apply to tank degassing, cleaning, and sludge handling.

The tank will be subject to and comply with the requirements contained in NSPS subpart Kb.

The tank will be subject to and comply with the requirements of NESHAPs Part 61 subpart FF (BWON). The tank design will meet the alternative requirements contained in section 61.351.

The tank will comply with MACT 63.640 (n), which requires compliance with subpart Kb.

The fugitive components will be subject to Regulation 8-18, which requires that valves, flanges not exceed a 100 ppm leak standard and pumps and pressure relief devices and pumps not exceed 500 ppm unless the leak is repaired within either 24 hours or 7 days depending on who discovers it unless it complies with 8-306, which is for non-repairable equipment. Regulation 8-18 also specifies the monitoring frequency for the component types valves, pumps, and pressure relief device. Standard fugitive permit conditions will be imposed that require monitoring for all fugitive equipment and that non-repairable equipment be repaired in a timely manner in order to avoid additional offsets. Based on a Memo for fugitive components by Dan Luscher, the fugitive components are to be linked to the source. The fugitive components will be subject to BACT, which will reduce the concentration of leaks at the pumps to 100 ppm, require the

typical BACT technology that is contained in the BACT/TBACT Workbook, and the monitoring will also be quarterly with the exception of flanges, which will be biannually inspected. The ¾ HP self-contained gear sample pump is not capable of being equipped with the typical BACT control technology of either double mechanical seals or barrier fluid but the pump will satisfy the 100 ppm leak limit specified in part 11 of the permit conditions.

This application triggers BACT since the emissions will be greater than 10 pounds per highest day. BACT 1 is the use of add-on controls such as, carbon or thermal oxidation but for sources with emissions at this level it is not cost effective. BACT 2 will be both the addition of the dome and compliance with specific fitting requirements. Both the dome and the specific fitting requirements will be contained within the permit conditions. The dome is a new requirement for the Bay Area but it has been required in the South Coast since 2004 for external floating roof tanks per rule 1178 with the exception of crude oil tanks. Domes have been required in Texas for tanks that are comparable to crude oil tanks.

This application will require POC offsets since the facility emissions are greater than 35 tons per year. This application requires 2.64 tons per year of POC offsets.

This application is considered ministerial since this source category is covered in Permit Handbook Chapter 4. However, for CEQA purposes the City of Richmond was the lead agency and issued a Negative Declaration on March 18, 2011.

A toxic risk analysis was required for this application since the toxic emissions exceeded the respective trigger levels. Results from the HRSA for this project indicate that the maximum incremental cancer risk is estimated at 0.7 in a million, the chronic hazard index is 0.0005 and the acute hazard index is 0.05. In accordance with the district's Regulation 2-5 these risk levels are considered acceptable.

PSD will not apply to this application.

Recommendation

Recommend that the following equipment be granted an Authority to Construct:

S-3229 Recovered Oil Storage Tank, External Floating Roof Tank equipped with a Dome, Heated (180F max), 101,000 barrel capacity and associated fugitive components
Conditions

For Plant 10, S-3229

1. The owner/operator of S-3229 shall not exceed 6,000,000 barrels of recovered oil in any consecutive 12 month period. (cumulative increase)
2. The owner/operator of S-3229 shall not exceed 38,000 barrels of recovered oil in any calendar day. If the owner/operator of S-3229 exceeds 38,000 barrels of recovered oil in any calendar day, the owner/operator shall conduct a district –approved emissions calculation, within 7 days of the exceeding 38,000 barrels, in order to demonstrate that VOC emissions did not exceed the maximum permitted amount of 16.4 pounds per day. The calculation shall use the actual measured throughput, operating temperature, true vapor pressure and permitted fittings as contained in part 5. (cumulative increase)
3. The owner/operator of S-3229 shall only store materials with a true vapor pressure not to exceed 10.3 psia. (cumulative increase)
4. The owner/operator of S-3229 shall store materials as recovered oil or any other petroleum hydrocarbon material that complies with these conditions and with a benzene content not to exceed 2% by weight, an ethylbenzene content not to exceed 2% by weight, and a naphthalene content not to exceed 2% by weight. In addition all other toxic air contaminant emissions shall not exceed the respective risk screening trigger levels contained in Regulation 2-5. The owner/operator of S-3229 shall sample the contents of the tank on a quarterly basis in order to demonstrate compliance with this part. (2-5)
5. The owner/operator shall control organic emissions from S-3229 by a liquid-mounted primary mechanical seal and a zero-gap secondary wiper seal. There shall be no ungasketed roof fittings. Except for roof legs, each roof fitting shall be of the design, which yields the minimum roof fitting losses. The following list indicates the type of control required for a variety of typical roof fittings. Control techniques for roof fittings not included in this list shall be subject to prior District approval, prior to installing the roof on the tank. (BACT)

Fitting Type	Control Technique
Access hatch	Bolted cover, gasketed
Guide pole/Well	Slotted with a pole sleeve that projects below liquid surface, a zero-gap pole wiper, and gasketed sliding cover with float
Gauge float well	Bolted cover, gasketed
Gauge hatch/Sample well	Weighted mechanical actuation, gasketed
Vacuum breaker	Weighted mechanical actuation, gasketed
Roof drain	none
Roof leg	Adjustable, with vapor

seal boot
Rim vent Weighted mechanical
 actuation, Gasketed (BACT)

6. The owner/operator of S-3229 shall properly install and properly operate a district approved dome on S-3229 that further controls organic emissions. (CEQA and BACT)
7. The owner/operator of S-3229 shall be equipped with a temperature measuring device with a set point temperature of no more than 180F at S-3229. The owner/operator shall sample the tank prior to heating above 120F in order to demonstrate compliance with part 3. (cumulative increase)

S-3229 Recovered Oil Tank– Fugitive component conditions - For the purposes of these permit conditions hydrocarbon service is as defined in the Renewal Project Permit Condition #24136

8. Within 30 days of District's issuance of the Permit to Operate for Application 22722, the Owner/Operator shall provide the District's Engineering Division with a final count of all fugitive components and each component's unique permanent identification codes in this project. The owner/operator has been permitted to install the following fugitive components:

135 valves in hydrocarbon service;
98 flanges in hydrocarbon service;
4 pumps in hydrocarbon service;
3 PRDs in hydrocarbon service.

[Basis: Cumulative Increase, offsets, Regulation 2-5]

9. If any of the fugitive component counts exceed the count stated in Part 8, the plant's cumulative emissions for the project shall be adjusted, subject to APCO approval, to reflect the difference between emissions based on predicted versus actual component counts. The Owner/Operator shall provide to the District all additional required offsets at an offset ratio of 1.15:1 no later than 21 days after submittal of the final POC fugitive count. If the component count increase triggers any additional regulatory review, the owner/operator shall submit an application to address the increased emissions. The Owner/Operator submitted 0.808 tons per year of POC offset credits corresponding to the fugitive component counts in Part 8. If the actual component count is less than the predicted, the total emissions in Part 13 may be adjusted accordingly, subject to APCO approval, and all emission offsets applied by the owner/operator in excess of the fully offset permitted total POC emissions may be credited back to the owner/operator upon approval by the APCO. [Basis: offsets]

10. The Owner/Operator of S-3229 shall install only the following types of fugitive components:

- a. For valves in hydrocarbon service: (1) bellows sealed, (2) live loaded, (3) graphitic packed, (4) quarter-turn (e.g., ball valves or plug valves), or equivalent as determined by the APCO.
- b. For flanges in hydrocarbon service: graphitic-based gaskets, metal ring joints, or equivalent technology as determined by the APCO.

- c. For pumps in hydrocarbon service: double mechanical seal with barrier fluid, or equivalent as determined by the APCO. This control technology requirement does not apply to the ¾ HP self-contained gear sample pump.
 - d. For pressure relief devices: the three thermal relief valves shall vent back into the tank. [Basis: BACT, cumulative increase]
11. The Owner/Operator shall comply with a leak standard of 100 ppm of TOC (measured as C1) at any pumps, valves, flanges, and/or PRDs installed as part of the application 22722 in hydrocarbon service, unless the Owner/Operator complies with the applicable minimization and repair provisions contained in Regulation 8-18. [Basis: BACT, cumulative increase, Regulation 8 Rule 18, CEQA]
12. The Owner/Operator shall conduct inspections of fugitive components installed as part of application 22722 in hydrocarbon service in accordance with the frequency below:
Pumps: Quarterly
Valves: Quarterly
PRD's: Quarterly
Flanges: Biannual Flanges: Biannual [Basis: BACT, cumulative increase, Regulations 8 Rule 18]
13. The Owner/Operator shall not exceed 0.702 tons of POC emissions per consecutive 365-day period measured as C1 from for all fugitive components installed as part of application 22722 in hydrocarbon service. Compliance with this provision shall be verified quarterly using methods described in part 14. The results shall be submitted to the District within 30 days of the close of each calendar quarter after the District's issuance of the Permit to Operate for Application 22722.[Basis: Cumulative Increase, offsets]
14. If all of the fugitive components installed as part of application 22722 in hydrocarbon service are leaking at a rate less than 5000 ppm of TOC (measured as C1) in any calendar quarter, no further verification and no submittal of the results shall be required. If any of the fugitive components installed as part of application 22722 in hydrocarbon service are leaking at a rate equal to or greater than 5,000 ppm of TOC (measured as C1) in any calendar quarter, the owner/operator shall conduct an annual emissions estimate in order to demonstrate compliance with part 13 and shall submit the results to the district within 30 days of the annual emissions calculation. For any calendar quarter in which one or more of these components is leaking at a rate equal to or greater than 10,000 ppm of TOC (measured as C1), the Owner/Operator shall calculate and submit a report of fugitive emissions from all S-3229 fugitive components in hydrocarbon service utilizing District approved methods for the consecutive 12 month period ending with this quarter in order to demonstrate compliance with part 13. This calculation shall continue each quarter, until there is not a quarter containing a pegged leaker (10,000 ppm or greater). For leaking components the owner/operator shall use the modified trapezoidal method and LeakDAS as documented within the application 12842 or other method pre-approved by the District. The Owner/Operator shall include emissions estimates from all application 22722 fugitive components in hydrocarbon

service regardless of the component Rule 8-18 repair status in order to demonstrate compliance with part 9. [Basis: Cumulative Increase, Offsets]

15. The Owner/Operator shall keep a District-approved log of fugitive component counts installed as part of application 22722, each component's unique permanent identification codes, monitoring results, and any annual emissions estimates required per parts 13 and 14 for at least five years from date of entry. The log shall be retained on site and made available to district staff upon request. [Basis: offsets, recordkeeping]
16. The owner/operator of S-3229 shall maintain a district approved daily log with monthly summaries of all material throughput including emissions calculations as required per part 2, HAP concentrations per part 4, temperature, and vapor pressure at S-3229 in order to demonstrate compliance with parts 1 through 3. This log shall be kept on site for at least 5 years from the date of entry and made available to district staff upon request. (recordkeeping)

by _____ date _____
Gregory Solomon
Senior Air Quality Engineer

**EVALUATION REPORT
Chevron Products Co., Plant #10
Application Number 22794**

Background

Chevron Products Co. (Chevron) is proposing a change in conditions for S-4148 13 Separator, Oil/H₂O abated by A-32105 Two Carbon Drums in series at its refinery located in Richmond. Chevron has requested that the monitoring frequency be relaxed from daily to weekly. The carbon has not experienced breakthrough yet and the system has a water seal that generally prevents flow until the water seal is broken. The original permit conditions limited the outlet of the second/last carbon drum to 30 ppmv C₄, which is much greater than the standard permit condition of 10 ppmv C₁. Chevron has agreed to accept a permit condition of 10 ppmv C₄ as a compromise to fix the original error in the permit condition. This is a reasonable compromise since Chevron is using a monitor that is measuring C₄, which would make the standard permit condition 2.5 ppmv (in order to correspond to 10 ppmv C₁) and the monitor would not be accurate at that level. As part of the compromise, Chevron has also agreed to accept a maximum flowrate permit condition, which is used to demonstrate that the maximum permitted emissions from the Carbon Drums is very low (under 1 #/day). The outlet concentration permit condition was not rewritten into the form of "not to exceed" since the expected emissions are low (less than 1 pound per day).

Emission Calculations

This emissions estimate is provided to demonstrate that the maximum emissions both daily and annual from the Carbon Drums are very low while using the maximum permitted concentration and maximum permitted flowrate.

$$40 \text{ ppmv}/1\text{E}6(70 \text{ cfm})(\text{lbmol}/386 \text{ cf})(12 \text{ lb}/\text{lbmol})(1440 \text{ m}/\text{d})$$
$$= 0.13 \text{ \#/day max}$$

Plant Cumulative Increase

There will be no increase in emissions as a result of this application since it is to reduce the monitoring frequency. However, POC emissions are expected to decrease due to the lower outlet concentration permit condition.

Toxic Risk Screening Analysis

A toxic risk analysis was not required for this application since the toxic emissions are not expected to increase as a result of this application.

Statement of Compliance

S-4148 will continue to comply with Regulation 8-8 including section 302.3, which requires a vapor tight cover and being vented to an abatement device with a collection and destruction efficiency greater than 95% by weight. Section 8-8-303 requires vapor tight gauging and sampling devices. Section 8-8-312 requires that all components of a controlled wastewater system shall be vapor tight.

S-4148 will continue to comply with Regulation 11-12, which refers to compliance with NESHAPs 40 CFR 61 Subpart FF.

S-4148 will continue to comply with 40 CFR 63 subpart cc.

This application will not require offsets since there will be no increase in emissions as a result of this application.

This application is considered ministerial since this source category is covered in Permit Handbook Chapter 3.3.

A toxic risk analysis was not required for this application since the toxic emissions are not expected to increase as a result of this application.

NSPS and PSD will not apply to this application.

Recommendation

Recommend that the following equipment be granted a Change of Conditions:

S-4148 13 Separator, Oil/H2O abated by A-32105 Two Carbon Drums in series, 200 lb each

Conditions

For Plant 10, S-3229

COND# 24085 -----

Conditions for A-32105 Carbon Adsorbers, Calgon VAPOR PAC, 2 drums, 200 lb ea. Abating S-4148 Application # 17446, Plant # 10 A/N 22794

- 1. The owner/operator shall vent Source S-4148 at all times to Abatement device A-32105, two (200 lb minimum capacity) activated carbon vessels

arranged in series. (Basis: Cumulative Increase)

2. The owner/operator of this source shall monitor with a photo-ionization detector (PID), flame-ionization detector (FID), or other method approved in writing by the Air Pollution Control Officer at the following locations:
 - a. At the inlet to the second to last carbon vessel in series.
 - b. At the inlet to the last carbon vessel in series.
 - c. At the outlet of the carbon vessel that is last in series prior to venting to the atmosphere. When using an FID to monitor breakthrough, readings may be taken with and without a carbon filter tip fitted on the FID probe. Concentrations measured with the carbon filter tip in place shall be considered methane for the purposes of these permit conditions.

(Basis: Cumulative Increase)

3. The owner/operator shall record these monitor readings in a monitoring log at the time they are taken. The monitoring results shall be used to estimate the frequency of carbon change-out necessary to maintain compliance with conditions number 4 and 5, and shall be conducted on a weekly basis. The owner/operator of this source may propose for District review, based on actual measurements taken at the site during operation of the source, that the monitoring schedule be changed based on the decline in organic emissions and/or the demonstrated breakthrough rates of the carbon vessels. Written approval by the District's Permit Services Division must be received by the owner/operator prior to a change to the monitoring schedule.

(Basis: Cumulative Increase)

4. The owner/operator shall change out the second to last carbon vessel with unspent carbon upon breakthrough, defined as the detection at its outlet of the higher of the following:
 - a. 10 % of the inlet stream concentration to the Carbon vessel.
 - b. 298 ppmv or greater (measured as C4).

(Basis: Cumulative Increase)

5. a. The owner/operator shall change out the last carbon vessel with unspent carbon upon detection at its outlet of 10 ppmv or greater

(measured as C4).

- b. The owner/operator of S-4148 shall not exceed a flowrate of 70 cfm at the exhaust of A-32105. The flowrate shall be determined by a district approved method. At the time of issuance of application 22794, the flowrate will be determined on an hourly average basis using the change in the level of S-4148 to estimate the volumetric flowrate.
(Basis: Cumulative Increase)

- 6. The owner/operator of this source shall maintain the following records for each month of operation of the source:
 - a. The hours and times of operation.
 - b. Each monitor reading or analysis result for the day of operation they are taken.
 - c. The number of carbon beds removed from service.
 - d. Flowrate measurement information including all the information necessary to determine the flowrate.

All measurements, records and data required to be maintained by the owner/operator shall be retained and made available for inspection by the District for at least five years [Note: This is five years for Title V facilities] following the date the data is recorded. (Basis: Cumulative Increase)

- 7. The owner/operator shall report any non-compliance with parts 4 and/or 5 to the Director of the Compliance & Enforcement Division at the time that it is discovered. The submittal shall detail the corrective action taken and shall include the data showing the exceedance as well at the time of occurrence.
(Basis: Cumulative Increase)

by _____ date _____
Gregory Solomon
Senior Air Quality Engineer

**EVALUATION REPORT
Chevron Products Co., Plant #10
Application Number 22916**

Background

Chevron Products Co. (Chevron) is proposing to permit an existing S-4373 Chemical Tote, 400 gallon capacity storing only materials with less than 0.5 psia vapor pressure, Custamine RO Plant at its refinery located in Richmond. The tank is used to store Custamine CA-066P, a corrosion inhibitor used at the Reverse Osmosis Plant (RO). It is injected into the water in order to reduce the pH to prevent corrosion in the associated piping and equipment. This material has a true vapor pressure less than 0.5 psia and will accept a permit condition limiting the maximum vapor pressure. The emissions calculation was performed using EPA's AP42 Chapter 7.

Emission Calculations

Chevron submitted an emissions estimate using AP42 Chapter 7 with the permitted maximum vapor pressures for this tank/tote. (See attached)

S-4373 Chemical Tote, 400 gallon capacity, Storing only materials with less than or equal to 0.5 psia, Custamine RO Plant

POC: 13.3 #/y, 0.007 tpy

Total POC from this application's tank: 0.007 tpy

Fugitive Component Emissions

Pumps: 2
Valves: 20
Flanges: 18
PSVs: 2

The total fugitive POC emissions were estimated to be 1074.096 #/yr or 0.537 tpy. This estimate assumes only one pegged leaker occurring from the components listed above and not exceeding a total of 180 days of pegged leaker emissions. The estimate also assumes that the components will comply with the concentrations specified in Regulation 8-18.

Plant Cumulative Increase

POC: 0.544 tpy(1.15) – 0.626 tpy (offsets) = 0.0 tpy

Toxic Risk Screening Analysis

<u>TOXIC</u>	<u>EMISSION RATE</u>	<u>TRIGGER LEVEL</u>
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monoethanolamine
methoxypropylamine

N/A
N/A

A toxic risk analysis is not required for this application since the toxic emissions did not have respective trigger levels contained in Table 2-5-1.

Statement of Compliance

This application will comply with Regulation 8-5-117, which is a limited exemption for tanks storing materials with a vapor pressure less than or equal to 0.5 psia. The source will comply with Regulation 8-5-307.3, which requires that the tank be maintained vapor tight if it is pressurized or blanketed with organic gases other than natural gas. This tank will not be pressurized or blanketed.

This application will not trigger BACT since the increase in POC emissions will be less than 10 pounds per highest day.

This application will require POC offsets since the facility POC emissions are greater than 35 tons per year. This application requires 0.626 tons per year of POC offsets.

This application is considered ministerial since this source category is covered in Permit Handbook Chapter 4.1.

A toxic risk analysis is not required for this application since the toxic emissions did not have respective trigger levels.

NSPS subpart Kb does not apply to this tank since it is less than 75 cubic meters.

PSD and NESHAPS do not apply to this application.

Recommendation

Recommend that the following equipment be granted a Permit to Operate:

S-4373 Fixed Roof Tank, 400 gallon capacity, Chemical Tote, storing only materials with a true vapor pressure less than or equal to 0.5psia, Custamine RO Plant

Conditions

For Plant 10, S-4373

1. The owner/operator of S-4373 shall not exceed a total of 28,000 gallons of Corrosion inhibitor in any consecutive 12 month period. (cum inc)
2. The owner/operator of S-4373 shall only store materials with a true vapor pressure not to exceed 0.5 psia. (8-5-117 and cum inc)

3. The owner/operator of S-4373 may change the chemicals described in application 22916 subject to district approval, provided that the owner/operator demonstrates to the satisfaction of the district that the source will not be modified per 2-1-234, there will be no increase in emissions, and the emissions of toxic air contaminants will not equal or exceed any trigger levels specified in Regulation 2.5. (2-1-301, 2-5)
4. The owner/operator of S-4373 shall maintain a district approved monthly log of all material throughput, the date in which throughput is added and the amount added, material safety and data sheets for material stored, and vapor pressure of material stored at S-4373 in order to demonstrate compliance with parts 1 through 3. This log shall be kept on site for at least 5 years from the date of entry and made available to district staff upon request. (record keeping)

S-4373 Chemical Tote– Fugitive component conditions - For the purposes of these permit conditions hydrocarbon service is as defined in the Renewal Project Permit Condition #24136

5. Within 30 days of District's issuance of the Permit to Operate for Application 22916, the Owner/Operator shall provide the District's Engineering Division with a final count of all fugitive components and each component's unique permanent identification codes in this project. The owner/operator has been permitted to install the following fugitive components:
 - 20 valves in hydrocarbon service;
 - 18 flanges in hydrocarbon service;
 - 2 pumps in hydrocarbon service;
 - 2 PSVs in hydrocarbon service.
 [Basis: Cumulative Increase, offsets, Regulation 2-5]
6. If any of the fugitive component counts exceed the count stated in Part 5, the plant's cumulative emissions for the project shall be adjusted, subject to APCO approval, to reflect the difference between emissions based on predicted versus actual component counts. The Owner/Operator shall provide to the District all additional required offsets at an offset ratio of 1.15:1 no later than 21 days after submittal of the final POC fugitive count. If the component count increase triggers any additional regulatory review, the owner/operator shall submit an application to address the increased emissions. The Owner/Operator submitted 0.618 tons per year of POC offset credits corresponding to the fugitive component counts in Part 5. If the actual component count is less than the predicted, the total emissions in Part 11 may be adjusted accordingly, subject to APCO approval, and all emission offsets applied by the owner/operator in excess of the fully offset permitted total POC emissions may be credited back to the owner/operator upon approval by the APCO. [Basis: offsets]
7. The Owner/Operator of S-4373 shall install only the following types of components:
 - a. For valves in hydrocarbon service: (1) bellows sealed, (2) live loaded, (3) graphitic packed, (4) quarter-turn (e.g., ball valves or plug valves), or equivalent as determined by the APCO.

- b. For flanges in hydrocarbon service: graphitic-based gaskets, metal ring joints, or equivalent technology as determined by the APCO.
 - c. For pumps in hydrocarbon service: double mechanical seal with barrier fluid, or equivalent as determined by the APCO. [Basis: cumulative increase]
8. The Owner/Operator shall comply with a leak standard of 100 ppm of TOC (measured as C1) at any valves, flanges, and/or PSVs installed as part of the application 22916 in hydrocarbon service unless the Owner/Operator complies with the applicable minimization and repair provisions contained in Regulation 8-18. [Basis: cumulative increase, Regulation 8 Rule 18]
 9. The owner/operator of S-4373 fugitive components shall not exceed 500.0 ppm of TOC (measured as C1) at any of the pumps installed as part of application 22916 in hydrocarbon service unless the Owner/Operator complies with the applicable minimization and repair provisions contained in Regulation 8-18. [cumulative increase, offsets, Regulation 8-18]
 10. The Owner/Operator shall conduct inspections of fugitive components installed as part of application 22916 in hydrocarbon service in accordance with the frequency below:
 Pumps: Quarterly
 Valves: Quarterly
 PSV's: Quarterly
 Flanges: Biannual Flanges: Biannual [Basis: cumulative increase, Regulations 8 Rule 18]
 11. The Owner/Operator shall not exceed 0.537 tons of POC emissions per consecutive 365-day period measured as C1 from for all fugitive components installed as part of application 22916 in hydrocarbon service. Compliance with this provision shall be verified quarterly using methods described in part 12. The results shall be submitted to the District within 30 days of the close of each calendar quarter after the District's issuance of the Permit to Operate for Application 22916.[Basis: Cumulative Increase, offsets]
 12. If all of the fugitive components installed as part of application 22916 in hydrocarbon service are leaking at a rate less than 5000 ppm of TOC (measured as C1) in any calendar quarter, no further verification and no submittal of the results shall be required. If any of the fugitive components installed as part of application 22916 in hydrocarbon service are leaking at a rate equal to or greater than 5,000 ppm of TOC (measured as C1) in any calendar quarter, the owner/operator shall conduct an annual emissions estimate in order to demonstrate compliance with part 11 and shall submit the results to the district within 30 days of the annual emissions calculation. For any calendar quarter in which one or more of these components is leaking at a rate equal to or greater than 10,000 ppm of TOC (measured as C1), the Owner/Operator shall calculate and submit a report of fugitive emissions from all S-4373 fugitive components in hydrocarbon service utilizing District approved methods for the consecutive 12 month period ending with this quarter in order to demonstrate compliance with part 11. This calculation shall continue each quarter until there is not a quarter containing a pegged

leaker. For leaking components the owner/operator shall use the modified trapezoidal method and LeakDAS as documented within the application 12842 or other method pre-approved by the District. The Owner/Operator shall include emissions estimates from all fugitive components included in part 5 (application 22916) in hydrocarbon service regardless of the component Rule 8-18 repair status in order to demonstrate compliance with part 11. [Basis: Cumulative Increase, Offsets]

13. The Owner/Operator shall keep a District-approved monthly log of fugitive component counts installed as part of application 22916 and each component's unique permanent identification codes per part 5, monitoring results, and any annual emissions estimates required per parts 11 and 12 for at least five years from date of entry. The log shall be retained on site and made available to district staff upon request. [Basis: offsets, recordkeeping]

by _____ date _____
Gregory Solomon
Senior Air Quality Engineer

**EVALUATION REPORT
Chevron Products Co., Plant #10
Application Number 23069**

Background

Chevron Products Co. (Chevron) is proposing to permit an existing S-4374 Flocculent Chemical Tote, 400 gallon capacity storing only materials with less than 0.5 psia vapor pressure, FCCU Plant and the associated fugitive components at its refinery located in Richmond. The tank is used to store flocculent, which is used as a flocculent and slurry settler for the heavy cycle oil product from the FCCU. The flocculent is used to improve the quality of the heavy cycle oil by removing fine foulant material (catalyst, corrosion by-products, etc.). The flocculent material helps these unwanted materials bind together and also settle at the bottom of the storage tank and remove these materials from the bulk solution. This material has a true vapor pressure less than 0.5 psia and will accept a permit condition limiting the maximum vapor pressure. The emissions calculation was performed using EPA's AP42 Chapter 7.

After a very long review period by Chevron, the district has agreed to annual monitoring for connectors and flanges. Chevron is aware that if there was a pegged leaker in either of these categories, the risk of non-compliance with the emissions limit increases significantly. Chevron is willing to accept this risk of non-compliance since it asserts that pegged leakers in this type of service is unlikely. Chevron is also aware that once the standard template is included in the permit handbook chapter, these "one-off" type of permit conditions may not be appropriate.

Emission Calculations

Chevron submitted an emissions estimate using AP42 Chapter 7 with the permitted maximum vapor pressures for this tank/tote. (See attached)

S-4374 Flocculent Chemical Tote, 400 gallon capacity, Storing only materials with less than or equal to 0.5 psia, FCCU Plant and associated fugitive components

POC: 32.1 #/y, 0.016 tpy

Total POC from this application's tank: 0.016 tpy

Fugitive Component Emissions

Pumps: 2
Valves: 6
Flanges: 2
Connectors: 14

The total fugitive POC emissions were estimated to be 1024.5 #/yr or 0.512 tpy. This estimate assumes only one pegged leaker occurring from the components listed above and not exceeding a total of 180 days of pegged leaker emissions.

The estimate also assumes that the components will comply with the concentrations specified in Regulation 8-18.

Plant Cumulative Increase

POC: 0.528 tpy(1.15) – 0.607 tpy (offsets) = 0.0 tpy

Toxic Risk Screening Analysis

<u>TOXIC</u>	<u>EMISSION RATE</u>	<u>TRIGGER LEVEL</u>
Naphthalene	105.7 #/y	3.2 #/yr
1,2,4 trimethylbenzene		N/A
Isobutanol		N/A

A toxic risk analysis is required for this application since the naphthalene emissions exceed the respective trigger level contained in Table 2-5-1.

Statement of Compliance

This application will comply with Regulation 8-5-117, which is a limited exemption for tanks storing materials with a vapor pressure less than or equal to 0.5 psia. The source will comply with Regulation 8-5-307.3, which requires that the tank be maintained vapor tight if it is pressurized or blanketed with organic gases other than natural gas. This tank will not be pressurized or blanketed.

This application will not trigger BACT since the increase in POC emissions will be less than 10 pounds per highest day.

This application will require POC offsets since the facility POC emissions are greater than 35 tons per year. This application requires 0.607 tons per year of POC offsets.

This application is considered ministerial since this source category is covered in Permit Handbook Chapter’s 3.4 and 4.

A toxic risk analysis is not required for this application since the toxic emissions did not have respective trigger levels.

NSPS subpart Kb does not apply to this tank since it is less than 75 cubic meters.

PSD and NESHAPS do not apply to this application.

Recommendation

Recommend that the following equipment be granted a Permit to Operate:

S-4374 Fixed Roof Tank, 400 gallon capacity, Chemical Tote, Flocculent, storing only materials with a true vapor pressure less than or equal to 0.5 psia, FCCU Plant

Conditions

For Plant 10, A/N 23069, S-4374

1. The owner/operator of S-4374 shall not exceed a total of 10,000 gallons of Flocculent in any consecutive 12 month period. (cum inc)
2. The owner/operator of S-4374 shall only store materials with a true vapor pressure not to exceed 0.5 psia. (8-5-117 and cum inc)
3. The owner/operator of S-4374 may change the chemicals described in application 23069 provided that the owner/operator demonstrates that there will be no increase in emissions (32 pounds POC in any consecutive 12 month period) and the emissions of toxic air contaminants will not equal or exceed any trigger levels specified in Regulation 2-5. (2-1-301, 2-5)
4. The owner/operator of S-4374 shall maintain a district approved monthly log of all material throughput, material safety data sheets for material stored, and vapor pressure of material stored at S-4374 in order to demonstrate compliance with parts 1 through 3 including emissions calculations in order to demonstrate compliance with part 3. This log shall be kept on site for at least 5 years from the date of entry and made available to district staff upon request. (record keeping)

S-4374 Chemical Tote– Fugitive component conditions - For the purposes of these permit conditions hydrocarbon service is as defined in the Renewal Project Permit Condition #24136

5. Within 30 days of District's issuance of the Permit to Operate for Application 23069, the Owner/Operator shall provide the District's Engineering Division with a final count of all fugitive components and each component's unique permanent identification codes in this project. The owner/operator has been permitted to install the following fugitive components:
6 valves in hydrocarbon service;
2 flanges in hydrocarbon service;
2 pumps in hydrocarbon service;
14 connectors in hydrocarbon service.
[Basis: Cumulative Increase, offsets, Regulation 2-5]
6. If any of the fugitive component counts exceed the count stated in Part 5, the plant's cumulative emissions for the project shall be adjusted, subject to APCO approval, to reflect the difference between emissions based on predicted versus actual component counts. The Owner/Operator shall provide to the District all additional required offsets at an offset ratio of

- 1.15:1 no later than 21 days after submittal of the final POC fugitive count. If the component count increase triggers any additional regulatory review, the owner/operator shall submit an application to address the increased emissions. The Owner/Operator submitted 0.589 tons per year of POC offset credits corresponding to the fugitive component counts in Part 5. If the actual component count is less than the predicted, the total emissions in Part 11 may be adjusted accordingly, subject to APCO approval, and all emission offsets applied by the owner/operator in excess of the fully offset permitted total POC emissions may be credited back to the owner/operator upon approval by the APCO. [Basis: offsets]
7. The Owner/Operator of S-4374 shall install only the following types of components:
 - a. For valves in hydrocarbon service: (1) bellows sealed, (2) live loaded, (3) graphitic packed, (4) quarter-turn (e.g., ball valves or plug valves), or equivalent as determined by the APCO.
 - b. For flanges in hydrocarbon service: graphitic-based gaskets, metal ring joints, or equivalent technology as determined by the APCO.
 - c. For pumps in hydrocarbon service: double mechanical seal with barrier fluid, or equivalent as determined by the APCO. [Basis: cumulative increase]
 8. The Owner/Operator shall comply with a leak standard of 100 ppm of TOC (measured as C1) at any valves, flanges, and/or connectors installed as part of the application 23069 in hydrocarbon service unless the Owner/Operator complies with the applicable minimization and repair provisions contained in Regulation 8-18. [Basis: cumulative increase, Regulation 8 Rule 18]
 9. The owner/operator of S-4374 fugitive components shall not exceed 500.0 ppm of TOC (measured as C1) at any of the pumps installed as part of application 23069 in hydrocarbon service unless the Owner/Operator complies with the applicable minimization and repair provisions contained in Regulation 8-18. [cumulative increase, offsets, Regulation 8-18]
 10. The Owner/Operator shall conduct inspections of fugitive components installed as part of application 23069 in hydrocarbon service in accordance with the frequency below:
Pumps: Quarterly
Valves: Quarterly
Connectors: annual
Flanges: annual [Basis: cumulative increase, Regulations 8 Rule 18]
 11. The Owner/Operator shall not exceed 0.512 tons of POC emissions per consecutive 365-day period measured as C1 from for all fugitive components installed as part of application 23069 in hydrocarbon service. Compliance with this provision shall be verified quarterly using methods described in part 12. The results shall be submitted to the District within 30 days of the close of each calendar quarter after the District's issuance of the Permit to Operate for Application 23069 as required by part 12.[Basis: Cumulative Increase, offsets]

12. If all of the fugitive components installed as part of application 23069 in hydrocarbon service are leaking at a rate less than 5000 ppm of TOC (measured as C1) in any calendar quarter, no further verification and no submittal of the results shall be required. If any of the fugitive components installed as part of application 23069 in hydrocarbon service are leaking at a rate equal to or greater than 5,000 ppm of TOC (measured as C1) in any calendar quarter, the owner/operator shall conduct an annual emissions estimate in order to demonstrate compliance with part 11 and shall submit the results to the district within 30 days of the annual emissions calculation. For any calendar quarter in which one or more of these components is leaking at a rate equal to or greater than 10,000 ppm of TOC (measured as C1), the Owner/Operator shall calculate and submit a report of fugitive emissions from all S-4374 fugitive components in hydrocarbon service utilizing District approved methods for the consecutive 12 month period ending with this quarter in order to demonstrate compliance with part 11. This calculation shall continue each quarter until there is not a quarter containing a pegged leaker. For leaking components the owner/operator shall use the modified trapezoidal method and LeakDAS as documented within the application 12842 (Renewal Project) or other method pre-approved by the District. The Owner/Operator shall include emissions estimates from all fugitive components included in part 5 (application 23069) in hydrocarbon service regardless of the component Rule 8-18 repair status in order to demonstrate compliance with part 11. [Basis: Cumulative Increase, Offsets]
13. The Owner/Operator shall keep a District-approved monthly log of fugitive component counts installed as part of application 23069 and each component's unique permanent identification codes per part 5, monitoring results, and any annual emissions estimates required per parts 11 and 12 for at least five years from date of entry. The log shall be retained on site and made available to district staff upon request. [Basis: offsets, recordkeeping]

by _____ date _____
Gregory Solomon
Supervising Air Quality Engineer

**EVALUATION REPORT
Chevron Products Co., Plant #10
Application Number 23423**

Background

Chevron Products Co. (Chevron) is proposing to establish enforceable permit conditions for:

**S-1292 External Floating Roof Storage Tank, 4,834,000 gallon capacity
storing materials not to exceed 0.8 psia vapor pressure**

at its refinery located in Richmond. Chevron has retained its permits for this source for many years. However, for roughly the last 10 years it has been in diesel service. The tank is incorrectly identified as exempt in the Title V permit. Chevron submitted a TV permit application in order to correct the Title V permit. The tank was originally permitted to store JP-8, Jet A and diesel fuel which are usually exempt. However, Chevron explained that this is not a finished product tank. The tank often stores materials with an initial boiling point less than 302F which require permitting. It appears that is the reason this tank was permitted originally since it can be on the edge of requiring a permit and being exempt. This permit application attempts to make it clear that the tank is both subject to permits and to regulation 8-5.

Chevron submitted data that demonstrates that the tank has stored 4802 K barrels/yr jet fuel in 1988. Chevron also submitted information showing that at times in the past the vapor pressure of the materials in the tank were over 2.0 psia. Going forward, the vapor pressure for the permitted materials will not exceed a maximum of 0.8 psia, and a monthly average of 0.5 psia. Chevron ran its model to determine the vapor pressure range of these materials as the materials exist today. Chevron also noted that the IBP can vary based on the distillation curves. This is how the permit conditions for minimum, monthly, and annual IBP were determined. The new permit conditions limit the tank's operation to be consistent with its historical usage, which prevents this application from being considered a modification per 2-1-234.3. These conditions will be considered enforceable. Any changes that could potentially increase emissions will be considered a modification.

Future permit actions will also have to determine the daily emissions to be used as a potential basis for a modification since this application did not establish a daily emissions/throughput limit. This tank will be considered altered and not new or modified, and thus will not be subject to maximum daily emission limits under this permit action.

Also, for the Title V permit, this tank will be placed on the non-NSR and non-grandfathered source list in Table II, which supports the enforceable conditions. The conditions were established to reproduce the historical operation of this tank but it was also noted that some piping tie-in occurred in the early 1990's, which potentially could have changed the tank's grandfathered status.

Emission Calculations

No emissions calculations are required since the tank will accept permit conditions consistent with historical operation per 2-1-234.3.

Plant Cumulative Increase

There will be no increase in emissions as a result of this application. The owner/operator is accepting permit conditions consistent with 2-1-234.3 in order to avoid the source being considered modified. However, the permit conditions established using 2-1-234.3 are considered enforceable.

Toxic Risk Screening Analysis

A toxic risk analysis was not required for this application since the toxic emissions will not increase as a result of this application.

Statement of Compliance

This storage tank will comply with Regulation 8-5-301, which requires the use of either an internal or external floating roof tank. The tank will comply with Regulation 8-5-304, which requires that the fittings and seals meet the requirements in sections 320 and 321/322, the floating roof must rest on the surface of the liquid, no liquid leaks through the shell, and no liquid within the pontoons. Sections 320 – 322 address the requirements for fittings, primary and secondary seals. The tank will also comply with Sections 328, 331, and 332, which apply to tank degassing, cleaning, and sludge handling.

There was no increase in fugitive emissions/components as a result of this application. The fugitive components will be subject to Regulation 8-18, which requires that valves and flanges not exceed a 100 ppm leak standard and pumps and pressure relief devices and pumps not exceed 500 ppm unless the leak is repaired within either 24 hours or 7 days depending on who discovers it, unless it complies with 8-306, which is for non-repairable equipment. Regulation 8-18 also specifies the monitoring frequency for the component types valves, pumps, and pressure relief device.

This application will not trigger BACT since the tank is not considered to be new or modified and is accepting enforceable permit conditions based on historical usage per 2-1-234.3.

This application will not require offsets since the application is not expected to increase emissions beyond permitted levels.

This application is considered ministerial since this source category is covered in Permit Handbook Chapter 4.

A toxic risk analysis was not required for this application since the toxic emissions are not expected to increase as a result of this application.

NSPS, NESHAPs, MACT, and PSD will not apply to this application.

Recommendation

Recommend that the following equipment be granted a Change in Conditions:

S-1292 External Floating Roof Storage Tank, 4,834,000 gallon capacity storing materials not to exceed 0.8 psia vapor pressure

Conditions

For Plant 10, S-1292
Application 23423

1. The owner/operator of S-1292 shall not exceed 4,802,722 barrels throughput of JP-8, Jet A or similar initial boiling point range stock that complies with parts 2, 3 and 4 of this condition during any consecutive 12-month period. The owner/operator shall comply with the applicable provisions of Regulation 8-5 for all stock changes. If the tank is returned to only diesel service or other exempt stock per District Regulation 2-1-123, the throughput limit shall not apply after testing of the material from the top layer of the material in the tank demonstrates per Regulation 8-5-606.1 that the owner/operator meets the requirements of the exemption. (cumulative increase)
2. The owner/operator of S-1292 shall store only JP-8, Jet A, or similar jet fuel with an initial boiling point range that complies with both the limits in parts 3 and 4, or exempt stock. If the owner/operator stores materials other than JP-8 and Jet A and with similar boiling point range stock, the owner/operator of S-1292 shall demonstrate to the satisfaction of the APCO that there will be no increase in any TAC/HAP emissions above the trigger levels contained in District Regulation 2, Rule 5. (cumulative increase, 2-5)
3. The owner/operator of S-1292 shall monitor the initial boiling point (IBP), at a minimum, on a weekly basis, unless there has not been any material added and/or removed since the last sample, and the IBP shall be maintained at a minimum of 290 degrees F on a monthly average basis and 302 degrees F on any consecutive 12 month average basis. The owner/operator of S-1292 shall not store materials with an IBP less than 275F. (cumulative increase)
4. The owner/operator of S-1292 shall not exceed a true vapor pressure (TVP) of 0.8 psia. The owner/operator of S-1292 shall measure the true vapor pressure at a minimum on a monthly basis and additionally shall measure the true vapor pressure each time the type of stock stored in the tank is changed. The owner/operator shall not exceed an average true

vapor pressure of 0.5 psia on a monthly average basis. (cumulative increase, 8-5)

5. When the owner/operator of S-1292 is storing JP8, Jet A or similar material, the owner/operator of S-1292 shall comply with all applicable requirements of Reg. 8-5 as if S-1292 was storing a material with a true vapor pressure greater than 0.5 psia. (cumulative increase, 8-5)
6. The owner/operator of S-1292 shall tag, inspect, and include in Chevrons LDAR program all fugitive components associated with S-1292 for compliance with Reg. 8-18 including the provisions contained within section 8-18-400. (8-18)
7. The owner/operator of S-1292 shall maintain records of the daily tank throughput, a minimum of monthly records of contents and all lab results to confirm compliance with parts 1 through 6. These records may be in the form of computer generated data that shall be made available to District personnel upon request. These records shall be kept on file for a minimum of 5 years from the date of entry. (Record keeping, 8-5-501)

by _____ date _____
Gregory Solomon
Senior Air Quality Engineer