

# San Joaquin Valley Air Pollution Control District

## Authority to Construct Application Review

Installation of Light Oil Unloading Rack and Two Internal Floating Roof Light Oil Storage Tanks

Facility Name: Bakersfield Crude Terminal, LLC  
Mailing Address: 3020 Old Ranch Pkwy, Ste 300  
Seal Beach, CA 90740  
Contact Person: Michael Ernst  
Telephone: 916-817-4790  
Fax: 916-817-4747  
E-Mail: [Michael.Ernst@hdrinc.com](mailto:Michael.Ernst@hdrinc.com)  
Application #(s): S-8165-1-0, '-2-0 and '-3-0  
Project #: S-1121576  
Deemed Complete: June 11, 2012

Date: July 25, 2012  
Engineer: Kris Rickards  
Lead Engineer: Rich Karrs

*RWK*  
*7-26-12*

---

### I. Proposal

Bakersfield Crude Terminal, LLC (hereafter referred to as BCT) has requested an Authority to Construct (ATC) permit for the installation of a railcar unloading and light oil transfer and storage facility in Taft. This facility will unload railcars either directly to pipelines or to one of two proposed 150,000 barrel fixed roof internal floating roof tanks.

### II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (4/21/11)  
Rule 2520 Federally Mandated Operating Permits (6/21/01)  
Rule 4001 New Source Performance Standards (4/14/99)  
Rule 4002 National Emissions Standards for Hazardous Air Pollutants (5/20/04)  
Rule 4101 Visible Emissions (2/17/05)  
Rule 4102 Nuisance (12/17/92)  
Rule 4623 Storage of Organic Liquids (May 19, 2005)  
Rule 4624 Transfer of Organic Liquids (12/20/07)  
CH&SC 41700 Health Risk Assessment  
CH&SC 42301.6 School Notice  
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)  
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

### III. Project Location

The equipment will be located at the corner of South Lake Road and Sanitago Road in Taft within Section 13, Township 32S, Range 25E. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

#### **IV. Process Description**

BCT proposes to install and operate a railcar unloading terminal that will unload light oil from up to two unit trains (168,000 bbl) per day. Offloading will be accomplished using a maximum of fifteen 50 hp pumps with an approximate flow rate of 6,000 bbl/hour for each unloading station (12,000 bbl/hour maximum) and is expected to operate 14 hours/day. This unloading operation may transfer light oil either to storage tanks for subsequent transfer to pipelines or it may bypass tanks and go directly to pipelines.

Transfer to pipelines will be accomplished using two 150 hp crude oil booster pumps, each with a flow rate of 3,500 bbl/hour. Maximum rail-to-pipeline transfer is 168,000 bbl/day and 61,320,000 bbl/year.

Each internal floating roof tank will have a capacity of approximately 150,000 bbl. During normal offloading operations, 5,000 bbl/hour and 70,000 bbl/day will be transferred to the tanks. Maximum combined throughput for both tanks is 168,000 bbl/day and 25,550,000 bbl/year. Two 400 hp pumps (one per tank) will pump oil from storage to the booster pumps prior to entering pipelines.

Please also see process diagram in Appendix D.

#### **V. Equipment Listing**

S-8165-1-0: 150,000 BBL (6,300,000 GALLON) INTERNAL FLOATING ROOF CRUDE OIL STORAGE TANK WITH METAL SHOE PRIMARY SEAL AND WIPER SECONDARY SEAL

S-8165-2-0: 150,000 BBL (6,300,000 GALLON) INTERNAL FLOATING ROOF CRUDE OIL STORAGE TANK WITH METAL SHOE PRIMARY SEAL AND WIPER SECONDARY SEAL

S-8165-3-0: ORGANIC LIQUID TRANSFER OPERATION WITH LIGHT CRUDE OIL RAILCAR UNLOADING RACK AND ASSOCIATED OFFLOADING TRANSFER AND BOOSTER PUMPS

#### **VI. Emission Control Technology Evaluation**

Emissions from unloading volatile organic liquids from railcars include both fugitive VOC emissions from the components of the loading rack and VOC emissions from residual organic liquids lost in disconnecting the loading rack equipment from railcars. Dry-break couplers will also be used to minimize emissions and limited to 3.2 mL/disconnect (proposed connectors have a residual average loss of 3.02 mL/disconnect per BCT).

Emissions from the internal floating roof tanks will be reduced as the tanks are equipped with a metal shoe primary seal and wiper secondary seal that minimize VOC emissions due to evaporation by reducing the air space above the surface of the stored organic liquid. This configuration will result in at least 95% control of emissions from the tanks.

## VII. General Calculations

### A. Assumptions

#### Internal Floating Roof Tanks, S-8165-1 and '-2:

- This facility may operate 24 hours per day, 365 days per year
- VOC is the only pollutant emitted from this operation
- Tank factors and characteristics are provided by applicant (see Tanks 4.0 summary in Appendix E for tank characteristics detail)
- All hydrocarbons in the oil stream are VOCs (VOC content = 100%)
- All liquids stored and transferred will be light crude oil (per Applicant)
- All fugitive component emissions from the tanks will be included on the railcar unloading rack permit
- Maximum daily crude oil throughput is limited so that daily tank emissions will be less than 100 lb/day
- Maximum combined annual crude oil throughput is limited to 25,550,000 bbl/year

#### Railcar Unloading Rack, S-8165-3:

- This facility may operate 24 hours per day, 365 days per year
- VOC is the only pollutant emitted from this operation
- All hydrocarbons in the oil stream are VOCs (VOC content = 100%)
- All liquids transferred will be light crude oil (per Applicant)
- Fugitive component emissions are calculated using Marketing Terminal Average Emission Factors (Table 2-3 of EPA bulletin 453/R-95-017)
- Disconnects are limited to 208/day, 75,920/year and 3.2 mL/disconnect (per Applicant)
- Crude oil density = 7.1 lb/gallon (AP-42, Table 7.1-2)

### B. Emission Factors

Marketing Terminal Average Emission Factors (Table 2-3 of EPA bulletin 453/R-95-017):

VOC Emission Factors		
Equipment Type	Light Liquid Emission Factor (kg/hr/source)	Light Liquid Emission Factor (lb/hr/source)
Valves	4.3E-05	9.5E-05
Pump Seals	5.4E-04	1.2E-03
Others	1.3E-04	2.9E-04
Connectors	8.0E-06	1.8E-05

### C. Calculations

#### 1. Pre-Project Potential to Emit (PE1)

Since these are new emissions units, PE1 = 0 for all pollutants.

## 2. Post Project Potential to Emit (PE2)

### S-8165-1-0 and -2-0:

The potential to emit for the tanks was performed using the Tanks 4.0 program. The detail report including input data is located in Appendix E.

Daily emissions are calculated assuming a maximum daily throughput of crude with an RVP of 11.0 psia not to exceed 100 lb-VOC/day. Using Tanks 4.0 (see summary in Appendix E), the following daily throughput limit is calculated using the annual emissions and annual tank throughput:

$$\begin{aligned} (13,961 \text{ lb-VOC/year}) / (365 \text{ days/year}) &= 38.2 \text{ lb-VOC/day for a daily throughput of:} \\ (12,775,000 \text{ bbl/year}) / (365 \text{ days/year}) &= 35,000 \text{ bbl/day} \end{aligned}$$

Then using the 100 lb-pollutant/day threshold before public noticing is required:

$$(100 \text{ lb-VOC/day}) / (38.2 \text{ lb-VOC/day}) \times (35,000 \text{ bbl/day}) = 91,623 \text{ bbl/day per tank.}$$

Fugitive emissions from components in light oil service that connect the tanks, through the two oil pumps, to the pipeline will be listed with components on the organic liquid loading rack.

Emissions from each tank are summarized in the table below:

<b>Post Project Potential to Emit (PE2)</b>		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
<b>VOC</b>	<b>100.0</b>	<b>9,460</b>

### S-8165-3-0:

Emissions from the unloading rack will consist of disconnect losses and fugitive emissions from components in light oil service from the railcars to the tank.

Disconnect losses are calculated as follows:

$$\begin{aligned} \left( \frac{208 \text{ disconnects}}{\text{day}} \right) \frac{3.2 \text{ mL}}{\text{disconnect}} \left( \frac{0.000264 \text{ gallons}}{\text{mL}} \right) \frac{7.1 \text{ lb}}{\text{gallon}} &= 1.2 \frac{\text{lb} \cdot \text{VOC}}{\text{day}} \\ \left( \frac{75,920 \text{ disconnects}}{\text{year}} \right) \frac{3.2 \text{ mL}}{\text{disconnect}} \left( \frac{0.000264 \text{ gallons}}{\text{mL}} \right) \frac{7.1 \text{ lb}}{\text{gallon}} &= 455 \frac{\text{lb} \cdot \text{VOC}}{\text{year}} \end{aligned}$$

Using marketing terminal average emission factors and component counts provided by BCT, the following fugitive emissions that will be listed on the unloading rack permit are calculated.

<b>Fugitive Emissions from Components</b>				
Equipment Type	Number of Components per tank	Light Liquid Emission Factor (lb/hr/source)	Fugitive VOC Emissions (lb/day)	Fugitive VOC Emissions (lb/yr)
Valves	350	9.5E-05	0.8	291
Pump Seals	19	1.2E-03	0.5	200
Others	0	2.9E-04	0.0	0
Connectors	800	1.8E-05	0.3	126
Total =			1.7	617

Emissions from the unloading rack are summarized in the table below:

<b>Post Project Potential to Emit (PE2)</b>		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
Disconnect Losses	1.2	455
Fugitive Emissions	1.7	617
<b>Total VOC</b>	<b>2.9</b>	<b>1,072</b>

### 3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to District Rule 2201, the SSPE1 is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of Emission Reduction Credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions (AER) that have occurred at the source, and which have not been used on-site.

Since this is a new facility, there are no valid ATCs, PTOs, or ERCs at the Stationary Source; therefore, the SSPE1 is equal to zero.

### 4. Post Project Stationary Source Potential to Emit (SSPE2)

Pursuant to District Rule 2201, the SSPE2 is the PE from all units with valid ATCs or PTOs at the Stationary Source and the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site.

<b>SSPE2 (lb/year)</b>					
Permit Unit	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
S-8165-1-0	0	0	0	0	9,460
S-8165-2-0	0	0	0	0	9,460
S-8165-3-0	0	0	0	0	1,072
<b>SSPE2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>19,992</b>

## 5. Major Source Determination

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. However, for the purposes of determining major source status, the SSPE2 shall not include the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site."

Major Source Determination (lb/year)					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE1	0	0	0	0	0
SSPE2	0	0	0	0	19,992
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	No	No	No	No	No

As seen in the table above, the facility is not an existing Major Source and is not becoming a Major Source as a result of this project.

## 6. Baseline Emissions (BE)

The BE calculation (in lbs/year) is performed pollutant-by-pollutant for each unit within the project to calculate the QNEC, and if applicable, to determine the amount of offsets required.

Pursuant to District Rule 2201, BE = PE1 for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to District Rule 2201.

Since these are new emissions units, BE = PE1 = 0 for all pollutants.

## 7. SB 288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 as "any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."

Since this facility is not a major source for any of the pollutants addressed in this project, this project does not constitute an SB 288 major modification.

## 8. Federal Major Modification

District Rule 2201 states that a Federal Major Modification is the same as a "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

Since this facility is not a Major Source for any pollutants, this project does not constitute a Federal Major Modification. Additionally, since the facility is not a major source for PM<sub>10</sub> (140,000 lb/year), it is not a major source for PM<sub>2.5</sub> (200,000 lb/year).

### **9. Quarterly Net Emissions Change (QNEC)**

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. Detailed QNEC calculations are included in Appendix G.

## **VIII. Compliance**

### **Rule 2201 New and Modified Stationary Source Review Rule**

#### **A. Best Available Control Technology (BACT)**

##### **1. BACT Applicability**

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions\*:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined by the rule.

\*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

##### **a. New emissions units – PE > 2 lb/day**

As seen in Section VII.C.2 above, the applicant is proposing to install two new tanks and a railcar unloading operation with a PE greater than 2 lb/day for VOC for each permit. BACT is triggered for VOC since the PE is greater than 2 lbs/day.

##### **b. Relocation of emissions units – PE > 2 lb/day**

As discussed in Section I above, there are no emissions units being relocated from one stationary source to another; therefore BACT is not triggered.

##### **c. Modification of emissions units – AIPE > 2 lb/day**

As discussed in Section I above, there are no modified emissions units associated with this project. Therefore BACT is not triggered.

**d. SB 288/Federal Major Modification**

As discussed in Section VII.C.7 above, this project does not constitute an SB 288 or Federal Major Modification for any emissions. Therefore BACT is not triggered for any pollutant.

**2. BACT Guideline**

BACT Guideline 7.3.3 applies to floating roof organic liquid storage tanks  $\geq 471$  bbl and  $\geq 0.5$  psia TVP. BACT Guideline 7.1.14 applies to light crude oil unloading racks. (See Appendix B)

**3. Top-Down BACT Analysis**

Per Permit Services Policies and Procedures for BACT, a Top-Down BACT analysis shall be performed as a part of the application review for each application subject to the BACT requirements pursuant to the District's NSR Rule.

Pursuant to the attached Top-Down BACT Analysis (see Appendix C), BACT has been satisfied with the following:

S-8165-1-0 and -2-0:

VOC: 95% Control (Primary metal shoe seal with secondary wiper seal, or equal)

S-8165-3-0:

VOC: Use of dry-break couplers or equivalent on unloading lines with an average disconnect loss of no greater than 8 mL liquid per disconnect

**B. Offsets**

**1. Offset Applicability**

Offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals to or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The SSPE2 is compared to the offset thresholds in the following table.

Offset Determination (lb/year)					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
SSPE2	0	0	0	0	19,992
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	No	No	No	No	No

## **2. Quantity of Offsets Required**

As seen above, the SSPE2 is not greater than the offset thresholds for all the pollutants; therefore offset calculations are not necessary and offsets will not be required for this project.

## **C. Public Notification**

### **1. Applicability**

Public noticing is required for:

- a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- c. Any project which results in the offset thresholds being surpassed, and/or
- d. Any project with an SSPE of greater than 20,000 lb/year for any pollutant.

#### **a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications**

New Major Sources are new facilities, which are also Major Sources. As shown in Section VII.C.5 above, the SSPE2 is not greater than the Major Source threshold for any pollutant. Therefore, public noticing is not required for this project for new Major Source purposes.

As demonstrated in VII.C.7, this project does not constitute an SB 288 or Federal Major Modification; therefore, public noticing for SB 288 or Federal Major Modification purposes is not required.

#### **b. PE > 100 lb/day**

Applications which include a new emissions unit with a PE greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. As seen in Section VII.C.2 above, this project does not include a new emissions unit which has daily emissions greater than 100 lb/day for any pollutant; therefore public noticing for PE > 100 lb/day purposes is not required.

#### **c. Offset Threshold**

The SSPE1 and SSPE2 are compared to the offset thresholds in the following table.

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO <sub>x</sub>	0	0	20,000 lb/year	No
SO <sub>x</sub>	0	0	54,750 lb/year	No
PM <sub>10</sub>	0	0	29,200 lb/year	No
CO	0	0	200,000 lb/year	No
VOC	0	19,992	20,000 lb/year	No

As detailed above, there were no thresholds surpassed with this project; therefore public noticing is not required for offset purposes.

**d. SSIPE > 20,000 lb/year**

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE = SSPE2 – SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table.

SSIPE Public Notice Thresholds					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO <sub>x</sub>	0	0	0	20,000 lb/year	No
SO <sub>x</sub>	0	0	0	20,000 lb/year	No
PM <sub>10</sub>	0	0	0	20,000 lb/year	No
CO	0	0	0	20,000 lb/year	No
VOC	19,992	0	19,992	20,000 lb/year	No

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore public noticing for SSIPE purposes is not required.

**2. Public Notice Action**

As discussed above, this project will not result in emissions, for any pollutant, which would subject the project to any of the noticing requirements listed above. Therefore, public notice will not be required for this project.

**D. Daily Emission Limits (DELs)**

DELs and other enforceable conditions are required by Rule 2201 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. The DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

S-8165-1-0 and '-2-0:

- {271} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
- Maximum throughput of tank shall not exceed 91,623 bbl/day. [District Rule 2201]
- Maximum combined throughput of tanks listed on permits S-8165-1 and '-2 shall not exceed 25,550,000 bbl/year. [District Rule 2201]
- Annual emissions from tanks listed on S-8165-1 and '-2 shall not exceed 18,920 lb-VOC/year. [District Rule 2201]
- The Reid Vapor Pressure (RVP) of liquid introduced, placed, or stored in the tank shall be less than 11.0 psia. [District Rules 2201 and 4623, and 40 CFR 60.110b(b)]
- If any shipment of organic liquid with an RVP greater than 8.3 psia is introduced, placed, or stored in this tank in any calendar year, compliance with annual combined emission limit for tanks listed on S-8165-1 and '-2 shall be demonstrated by calculating and maintaining an annual emissions summary using the EPA's TANKS program. [District Rules 2201 and 4623, and 40 CFR 60.110b(b)]

S-8165-3-0:

- There shall be no more than 208 disconnects per day and 75,920 disconnects per year. [District Rule 2201]
- Fugitive emissions from components shall not exceed 1.7 lb-VOC/day nor 617 lb-VOC/year based on EPA's "Marketing Terminal Average Emission Factors," Table 2-3 of EPA Bulletin 453/R-95-017, Protocol for Equipment Leak Emission Estimates. [District Rule 2201]
- Loading of any material into railcars is not permitted. [District Rule 2201]
- Maximum liquid spillage for liquids from organic liquid transfer operation shall not exceed 3.2 milliliters/disconnect based on an average from 3 consecutive disconnects. [District Rules 2201 and 4624]
- Components serving this operation shall be maintained in a leak-free condition. [District Rule 2201]

**E. Compliance Assurance**

**1. Source Testing**

Pursuant to District Policy APR 1705, source testing is not required to demonstrate compliance with Rule 2201.

**2. Monitoring**

No monitoring is required to demonstrate compliance with Rule 2201.

**3. Recordkeeping**

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201.

The following condition(s) are listed on the permit to operate:

S-8165-1 and -2:

- Operator shall maintain daily and annual records of the throughput of materials transferred into tank, the results of any required leak inspections, and annual tank emissions if any liquid is introduced, placed, or stored in the tank that has an RVP greater than 8.3 psia. [District Rules 2201 and 4623]

S-8165-3:

- Daily and annual records of the throughputs of materials transferred, the results of any required leak inspections, and the quantity and type of components in service shall be maintained. [District Rules 2201 and 4624]
- Daily and annual records of the number of disconnects shall be maintained. [District Rule 2201]
- Permit holder shall maintain accurate component count and resultant emissions according to EPA's "Marketing Terminal Average Emission Factors," Table 2-3 of EPA Bulletin 453/R-95-017, Protocol for Equipment Leak Emission Estimates. [District Rule 2201]

**4. Reporting**

No reporting is required to demonstrate compliance with Rule 2201.

**Rule 2520 Federally Mandated Operating Permits**

Since this facility's potential emissions do not exceed any major source thresholds of Rule 2201, this facility is not a major source, and Rule 2520 does not apply.

**Rule 4001 New Source Performance Standards (NSPS)**

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60. 40 CFR Part 60, Subpart Kb applies to Volatile Organic Liquid Storage Vessels for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984.

The new tanks in this project are subject to the requirements of 40 CFR Part 60, Subpart Kb as they have a capacity >10,000 bbls. The requirements for this New Source Performance Standard are discussed as follows:

**40 CFR 60.112b**

(a)(1)(i) This section requires that the internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside a storage vessel that has a fixed roof. The internal floating roof shall be floating on the liquid surface at all times, except during initial fill and during those intervals when the storage vessel is completely emptied or subsequently emptied and refilled. When the roof is resting on the leg supports, the process of

filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible.

(ii) Each internal floating roof shall be equipped with one of the following closure devices between the wall of the storage vessel and the edge of the internal floating roof:

(B) Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous.

(iii) Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface.

(iv) Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use.

(v) Automatic bleeder vents shall be equipped with a gasket and are to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports.

(vi) Rim space vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting.

(vii) Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least 90 percent of the opening.

(viii) Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover.

(ix) Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.

Paragraph (b) applies to storage vessels with a design capacity greater than or equal to 75 m<sup>3</sup> which contains a VOL that, as stored, has a maximum true vapor pressure greater than or equal to 76.6 kPa (equivalent to 11.1 psia).

According to the Tanks 4.0.9d report in Appendix E, the maximum bulk storage temperature will occur in July with a temperature of 77 °F.

With a maximum annual RVP of 8.3 psia, the RVP is converted to TVP using the California Air Resources Board Technical Guidance to the Criteria and Guidelines Regulation for AB 2588 (Partial Excerpt from pages 102, 103 and 104) as follows:

$$TVP = (RVP)e^{[C_o(IRTEMP-ITEMP)]}$$

Where:  $C_o$  = Constant dependent upon the value of RVP (from Table C-3)  
 $ITEMP$  =  $1/559.69^{\circ}R$   
 $IRTEMP$  =  $1/(T_s + 459.69^{\circ}R)$   
 $T_s$  = Temperature of the stored fluid in  $^{\circ}F$

$$8.3e^{\left[-6.477.5\left(\left(\frac{1}{77+459.69}\right)-\left(\frac{1}{559.69}\right)\right)\right]} = 5.05 \text{ psia}$$

Since the maximum TVP will not be above 11.1 psia, paragraph (b) does not apply.

The following conditions will ensure compliance with section 40 CFR 60.112b:

- The internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside a storage vessel that has a fixed roof. The internal roof shall be floating on the liquid surface except during initial fill and when the storage vessel is completely emptied or subsequently emptied and refilled. When the roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible. Whenever the permittee intends to land the roof on its legs, the permittee shall notify the APCO in writing at least five days prior to performing the work. [District Rule 4623, and 40 CFR 60.112b(a)(i)]
- The internal floating roof tank shall be equipped with two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous. [40 CFR 60.112b(a)(ii-B)]
- Each opening in a non-contact internal floating roof, except for automatic bleeder vents (vacuum breaker vents) and rim space vents, shall provide a projection below the liquid surface. [District Rule 4623, and 40 CFR 60.112b(a)(iii)]
- Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use. [District Rule 4623, and 40 CFR 60.112b(a)(iv)]
- Automatic bleeder vents shall be equipped with a gasket and shall be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports. [District Rule 4623, and 40 CFR 60.112b(a)(v)]
- Rim vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting. [District Rule 4623, and 40 CFR 60.112b(a)(vi)]
- Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The well shall have a slit fabric cover that covers at least 90% of the opening. The fabric cover must be impermeable. [District Rule 4623, and 40 CFR 60.112b(a)(vii)]

- Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover. The fabric sleeve must be impermeable. [District Rule 4623, and 40 CFR 60.112b(a)(viii)]
- Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover. [40 CFR 60.112b(a)(ix)]

#### **40 CFR 60.113b**

The owner or operator of each storage vessel as specified in §60.112b(a) shall meet the requirements of paragraph (a), (b), or (c) of this section. The applicable paragraph for a particular storage vessel depends on the control equipment installed to meet the requirements of §60.112b.

This equipment complies with paragraph (a) therefore the following is applicable:

(a) After installing the control equipment required to meet §60.112b(a)(1) (permanently affixed roof and internal floating roof), each owner or operator shall:

(1) Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), prior to filling the storage vessel with VOL. If there are holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric or defects in the internal floating roof, or both, the owner or operator shall repair the items before filling the storage vessel.

(2) For Vessels equipped with a liquid-mounted or mechanical shoe primary seal, visually inspect the internal floating roof and the primary seal or the secondary seal (if one is in service) through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill. If the internal floating roof is not resting on the surface of the VOL inside the storage vessel, or there is liquid accumulated on the roof, or the seal is detached, or there are holes or tears in the seal fabric, the owner or operator shall repair the items or empty and remove the storage vessel from service within 45 days. If a failure that is detected during inspections required in this paragraph cannot be repaired within 45 days and if the vessel cannot be emptied within 45 days, a 30-day extension may be requested from the Administrator in the inspection report required in §60.115b(a)(3). Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions the company will take that will assure that the control equipment will be repaired or the vessel will be emptied as soon as possible.

(3) For vessels equipped with a double-seal system as specified in §60.112b(a)(1)(ii)(B):

- (i) Visually inspect the vessel as specified in paragraph (a)(4) of this section at least every 5 years; or
- (ii) Visually inspect the vessel as specified in paragraph (a)(2) of this section.

(4) Visually inspect the internal floating roof, the primary seal, the secondary seal (if one is in service), gaskets, slotted membranes and sleeve seals (if any) each time the storage vessel is emptied and degassed. If the internal floating roof has defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric, or the secondary seal has holes, tears, or other openings in the seal or the seal fabric, or the gaskets no longer close

off the liquid surfaces from the atmosphere, or the slotted membrane has more than 10 percent open area, the owner or operator shall repair the items as necessary so that none of the conditions specified in this paragraph exist before refilling the storage vessel with VOL. In no event shall inspections conducted in accordance with this provision occur at intervals greater than 10 years in the case of vessels conducting the annual visual inspection as specified in paragraphs (a)(2) and (a)(3)(ii) of this section and at intervals no greater than 5 years in the case of vessels specified in paragraph (a)(3)(i) of this section.

(5) Notify the Administrator in writing at least 30 days prior to the filling or refilling of each storage vessel for which an inspection is required by paragraphs (a)(1) and (a)(4) of this section to afford the Administrator the opportunity to have an observer present. If the inspection required by paragraph (a)(4) of this section is not planned and the owner or operator could not have known about the inspection 30 days in advance or refilling the tank, the owner or operator shall notify the Administrator at least 7 days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the Administrator at least 7 days prior to the refilling.

The following conditions will ensure compliance with section 40 CFR 60.113b:

- Permittee shall visually inspect the internal floating roof, the primary seal, and the secondary seal prior to filling the storage vessel. If there are holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric or defects in the internal floating roof, or both, the owner or operator shall repair the items before filling the storage vessel. [40 CFR 60.113b(a)(1)]
- Permittee shall visually inspect the internal floating roof and the primary seal or the secondary seal through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill. If the internal floating roof is not resting on the surface of the volatile organic liquid inside the storage vessel, or there is liquid accumulated on the roof, or the seal is detached, or there are holes or tears in the seal fabric, the owner or operator shall repair the items or empty and remove the storage vessel from service within 45 days. If a failure that is detected during inspections required in this paragraph cannot be repaired within 45 days and if the vessel cannot be emptied within 45 days, a 30-day extension may be requested from the District in the inspection report required in §60.115b(a)(3). Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions the company will take that will assure that the control equipment will be repaired or the vessel will be emptied as soon as possible. [40 CFR 60.112b(a)(2)]
- After installation of the internal floating roof tank, the permittee shall visually inspect the vessel as specified in paragraph 40 CFR 60.113b(a)(4) of this section at least every 5 years or Visually inspect the vessel as specified in paragraph 40 CFR 60.113b(a)(2) of this section. [40 CFR 60.113b(a)(3)]
- Permittee shall visually inspect the internal floating roof, the primary seal, the secondary seal, gaskets, slotted membranes and sleeve seals (if any) each time the storage vessel is emptied and degassed. If the internal floating roof has defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric, or the secondary seal has holes, tears, or other openings in the seal or the seal fabric, or the gaskets no longer close off the liquid surfaces from the atmosphere, or the slotted membrane has more than 10 percent open area, the owner or operator shall repair the items as necessary so that none of the conditions specified exist before refilling the storage vessel with VOL. [40 CFR 60.112b(a)(4)]

- Permittee shall notify the District in writing at least 30 days prior to the filling or refilling of each storage vessel for which an inspection is required by paragraphs (a)(1) and (a)(4) of this section to afford the District the opportunity to have an observer present. If the inspection required by paragraph (a)(4) of this section is not planned and the owner or operator could not have known about the inspection 30 days in advance or refilling the tank, the owner or operator shall notify the District at least 7 days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the District at least 7 days prior to the refilling. [40 CFR 60.112b(a)(5)]

#### **40 CFR 60.114b**

This section addresses alternative emission limits that are not required on this equipment; therefore this section is not applicable.

#### **40 CFR 60.115b**

The owner or operator of each storage vessel as specified in §60.112b(a) shall keep records and furnish reports as required by paragraphs (a), (b), or (c) of this section depending upon the control equipment installed to meet the requirements of §60.112b. The owner or operator shall keep copies of all reports and records required by this section, except for the record required by (c)(1), for at least 2 years. The record required by (c)(1) will be kept for the life of the control equipment.

(a) After installing control equipment in accordance with §60.112b(a)(1) (fixed roof and internal floating roof), the owner or operator shall meet the following requirements:

- (1) Furnish the Administrator with a report that describes the control equipment and certifies that the control equipment meets the specifications of §60.112b(a)(1) and §60.113b(a)(1). This report shall be an attachment to the notification required by §60.7(a)(3).
- (2) Keep a record of each inspection performed as required by §60.113b (a)(1), (a)(2), (a)(3), and (a)(4). Each record shall identify the storage vessel on which the inspection was performed and shall contain the date the vessel was inspected and the observed condition of each component of the control equipment (seals, internal floating roof, and fittings).
- (3) If any of the conditions described in §60.113b(a)(2) are detected during the annual visual inspection required by §60.113b(a)(2), a report shall be furnished to the Administrator within 30 days of the inspection. Each report shall identify the storage vessel, the nature of the defects, and the date the storage vessel was emptied or the nature of and date the repair was made.
- (4) After each inspection required by §60.113b(a)(3) that finds holes or tears in the seal or seal fabric, or defects in the internal floating roof, or other control equipment defects listed in §60.113b(a)(3)(ii), a report shall be furnished to the Administrator within 30 days of the inspection. The report shall identify the storage vessel and the reason it did not meet the specifications of §61.112b(a)(1) or §60.113b(a)(3) and list each repair made.

The following conditions will ensure compliance with section 40 CFR 60.113b:

- The permittee shall submit to the APCO a report that describes the control equipment and certifies that the control equipment meets the specifications of 40 CFR 60.112b(a)(1) and 40 CFR 60.113b(a)(1). This report shall be an attachment to the notification required by 40 CFR 60.7(a)(3). [40 CFR 60.115b(a)(1)]
- The permittee shall keep a record of each inspection performed as required by 40 CFR 60.113b(a)(1), (a)(2), (a)(3), and (a)(4). Each record shall identify the storage vessel on which the inspection was performed and shall contain the date the vessel was inspected and the observed condition of each component of the control equipment (seals, internal floating roof, and fittings). [40 CFR 60.115b(a)(2)]
- If any of the conditions described in 40 CFR 60.113b(a)(2) are detected during the annual visual inspection required by 40 CFR 60.113b(a)(2), a report shall be furnished to the District within 30 days of the inspection. Each report shall identify the storage vessel, the nature of the defects, and the date the storage vessel was emptied or the nature of and date the repair was made. [40 CFR 60.115b(a)(3)]
- After each inspection required by 40 CFR 60.113b(a)(3) that finds holes or tears in the seal or seal fabric, or defects in the internal floating roof, or other control equipment defects listed in 40 CFR 60.113b(a)(3)(ii), a report shall be furnished to the Administrator within 30 days of the inspection. The report shall identify the storage vessel and the reason it did not meet the specifications of 40 CFR 60.112b(a)(1) or 40 CFR 60.113b(a)(3) and list each repair made. [40 CFR 60.115b(a)(4)]

#### **40 CFR 60.116b**

Paragraph (a) requires the owner or operator to keep copies of all records required by this section, except for the record required by paragraph (b) of this section, for at least 2 years. The record required by paragraph (b) of this section will be kept for the life of the source.

The recordkeeping requirement of District Rule 1070 supersedes the 2-year recordkeeping retention requirements of this paragraph.

Paragraph (b) requires the owner or operator of each storage vessel as specified in §60.110b(a) to keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel.

The Permit to Operate that will be retained and made available will list the capacity of the tank for as long as the unit is in service. Therefore, the District Permit to Operate will satisfy this requirement.

Paragraph (c) requires, except as provided in paragraphs (f) and (g) of this section, the owner or operator of each storage vessel to either with a design capacity greater than or equal to 151 m<sup>3</sup> storing a liquid with a maximum true vapor pressure greater than or equal to 3.5 kPa or with a design capacity greater than or equal to 75 m<sup>3</sup> but less than 151 m<sup>3</sup> storing a liquid with a maximum true vapor pressure greater than or equal to 15.0 kPa shall maintain a record of the VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period.

Except as provided in paragraph (g) of this section, paragraph (d) requires the owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m<sup>3</sup> storing a liquid with a maximum true vapor pressure that is normally less than 5.2 kPa or with a design capacity greater than or equal to 75 m<sup>3</sup> but less than 151 m<sup>3</sup> storing a liquid with a maximum true vapor pressure that is normally less than 27.6 kPa to notify the Administrator within 30 days when the maximum true vapor pressure of the liquid exceeds the respective maximum true vapor pressure values for each volume range.

These tanks store fluid with a TVP >5.2 kPa (equivalent to 0.75 psia) and are larger than 151 m<sup>3</sup> (equivalent to 950 bbls); therefore, the requirements of this paragraph are not applicable to these tanks.

(e) Available data on the storage temperature may be used to determine the maximum true vapor pressure as determined below:

(1) For vessels operated above or below ambient temperatures, the maximum true vapor pressure is calculated based upon the highest expected calendar-month average of the storage temperature. For vessels operated at ambient temperatures, the maximum true vapor pressure is calculated based upon the maximum local monthly average ambient temperature as reported by the National Weather Service.

(2) For crude oil or refined petroleum products the vapor pressure may be obtained by the following:

(i) Available data on the Reid vapor pressure and the maximum expected storage temperature based on the highest expected calendar-month average temperature of the stored product may be used to determine the maximum true vapor pressure from nomographs contained in API Bulletin 2517 (incorporated by reference—see §60.17), unless the Administrator specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s).

(ii) The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kPa or with physical properties that preclude determination by the recommended method is to be determined from available data and recorded if the estimated maximum true vapor pressure is greater than 3.5 kPa.

(3) For other liquids, the vapor pressure:

(i) May be obtained from standard reference texts, or

(ii) Determined by ASTM D2879–83, 96, or 97 (incorporated by reference—see §60.17);  
or

(iii) Measured by an appropriate method approved by the Administrator; or

(iv) Calculated by an appropriate method approved by the Administrator.

These tanks will exclusively store crude oils and will be subject to the test requirements of 40 CFR 60.116(b)(e)(2) only.

Paragraph (f) applies to vessels storing a waste mixture of indeterminate or variable composition.

These tanks will not be storing waste material; therefore this paragraph does not apply.

Paragraph (g) exempts operators from the requirements of paragraphs (c) and (d) on vessels equipped with a closed vent system and control device meeting the specification of §60.112b or with emissions reductions equipment as specified in 40 CFR 65.42(b)(4), (b)(5), (b)(6), or (c).

Since these tanks are not equipped with closed vent systems or operate with equipment as specified in 40 CFR 65.42(b)(4), (b)(5), (b)(6) the requirements of paragraphs (c) and (d) are applicable.

The following conditions will ensure compliance with this section:

- The permittee shall maintain a record of the Volatile Organic Liquid (VOL) stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period. [40 CFR 60.116b(c)]

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60. However, no subparts of 40 CFR Part 60 apply to rail car unloading operations.

#### **Rule 4002 National Emission Standards for Hazardous Air Pollutants (NESHAPs)**

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63. However, no subparts of 40 CFR Part 61 or 40 CFR Part 63 apply to organic liquid storage tanks or rail car unloading operations.

#### **Rule 4101 Visible Emissions**

Rule 4101 states that no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity). As emissions from this equipment consist only of fugitive VOC emissions, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity.

#### **Rule 4102 Nuisance**

Rule 4102 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained.

The following condition will ensure compliance with this rule:

- {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

**California Health & Safety Code 41700 (Health Risk Assessment)**

District Policy APR 1905 – *Risk Management Policy for Permitting New and Modified Sources* specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

An HRA is not required for a project with a total facility prioritization score of less than one. According to the Technical Services Memo for this project (**Appendix F**), the total facility prioritization score including this project was greater than one. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project.

The cancer risk for this project is shown below:

HRA Summary		
Unit	Cancer Risk	T-BACT Required
S-8165-1	0.03 per million	No
S-8165-2	0.04 per million	No
S-8165-3	0.76 per million	No

**Discussion of T-BACT**

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is not required for this project because the HRA indicates that the risk is not above the District’s thresholds for triggering T-BACT requirements; therefore, compliance with the District’s Risk Management Policy is expected.

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification not have acute or chronic indices, or a cancer risk greater than the District’s significance levels (i.e. acute and/or chronic indices greater than 1 and a cancer risk greater than 10 in a million). As outlined by the HRA Summary in Appendix F of this report, the emissions increases for this project was determined to be less than significant.

**Rule 4623 Storage of Organic Liquids**

This rule applies to any tank with a design capacity of 1,100 gallons or greater used to store organic liquid with a True Vapor Pressure (TVP) of 0.5 psia or greater. Since these tanks are greater than 1,100 gallons and store organic liquid with a TVP >0.5 psia they are subject to this rule.

**Section 5.1** requires that, except for small producers who are required to comply with the VOC control system requirements in Section 5.1.2, an operator shall not place, hold, or store organic liquid in any tank unless such tank is equipped with a VOC control system identified in

Table 1. The specifications for the VOC control system are described in Sections 5.2, 5.3, 5.4, 5.5, and 5.6.

**Section 5.1.1** identifies VOC control systems required for organic liquids storage tanks.

Tank Design Capacity (gallon)	True Vapor Pressure (TVP) of Organic Liquid		
	0.5 < TVP (psia) <1.5	1.5 < TVP (psia) <11	11 < TVP (psia)
1,100 to 19,800	Pressure Vacuum Relief Valve, Or Internal Floating Roof, Or External Floating Roof, Or Vapor Recovery System	Pressure Vacuum Relief Valve, Or Internal Floating Roof, Or External Floating Roof, Or Vapor Recovery System	Pressure Vessel, Or Vapor Recovery System
>19,800 to 39,600	Pressure Vacuum Relief Valve, Or Internal Floating Roof, Or External Floating Roof, Or Vapor Recovery System	Internal Floating Roof, Or External Floating Roof, Or Vapor Recovery System	Pressure Vessel, Or Vapor Recovery System
>39,600	Internal Floating Roof, Or External Floating Roof, Or Vapor Recovery System	Internal Floating Roof, Or External Floating Roof, Or Vapor Recovery System	Pressure Vessel, Or Vapor Recovery System

The tank design capacity is 6.3 million gallons and storing organic fluid with a TVP less than 11 psia. Therefore, the internal floating roof design satisfies the requirements of this section. The following condition will be listed on the ATCs to ensure compliance with the maximum TVP limit for which these internal floating roof tanks can store:

- The Reid Vapor Pressure (RVP) of liquid introduced, placed, or stored in the tank shall be less than 11.0 psia. [District Rules 2201 and 4623, and 40 CFR 60.110b(b)]
- If any shipment of organic liquid with an RVP greater than 8.3 psia is introduced, placed, or stored in this tank in any calendar year, compliance with annual combined emission limit for tanks listed on S-8165-1 and -2 shall be demonstrated by calculating and maintaining an annual emissions summary using the EPA's TANKS program. [District Rules 2201 and 4623, and 40 CFR 60.110b(b)]

**Section 5.1.2** applies to small producers. This facility does not produce oil; therefore this section does not apply.

**Section 5.1.3** requires all tanks to be maintained in a leak-free condition except the primary and secondary seals, floating roof deck fittings, and floating roof automatic bleeder vents of internal floating roof tanks.

The following condition will ensure compliance with this rule:

- A leak-free condition is defined as a condition without a gas leak. A gas leak is defined as a reading in excess of 10,000 ppmv, above background, as measured by a portable hydrocarbon detection instrument in accordance with the procedures specified in EPA Test Method 21. A reading in excess of 10,000 ppmv above background, except for primary and secondary seals, floating roof deck fittings, and floating roof automatic bleeder vents is a violation of this permit and Rule 4623 and shall be reported as a deviation. [District Rule 4623]

**Section 5.3** applies to external floating roof tanks and through Section 5.4, internal floating roof tanks as well. The requirements of this section will be evaluated in the Section 5.4 discussion.

**Section 5.3.2** allows for seal designs other than set forth in Sections 5.3.2.1 through 5.3.2.3 provided such designs have been published in the Federal Register pursuant to CFR 40 Part 60: Subpart Kb paragraph 60.114b.

BCT has requested that the vertical distance from the liquid surface to the top of the metallic primary shoe seal be 12" as opposed to the Rule 4623 required 18". Since this seal design satisfies Subpart Kb (paragraph 60.112b) it is not considered an alternative as described by paragraph 60.114b and does not require publishing in the Federal Register.

Therefore, the following modified standard conditions will be listed on the permit:

- {2555 modified} The metallic shoe-type seal shall be installed so that one end of the shoe extends into the stored liquid and the other end extends a minimum vertical distance of 12 inches above the stored liquid surface. [District Rule 4623]
- {2513 modified} The geometry of the metallic-shoe type seal shall be such that the maximum gap between the shoe and the tank shell shall be no greater than 3 inches for a length of at least 12 inches in the vertical plane above the liquid. [District Rule 4623]

**Section 5.4.1** requires internal floating roof tanks to be equipped with seals that meet the criteria set forth in Section 5.3 (Specifications for External Floating Roof Tanks), except for complying with the requirement specified in Section 5.3.2.1.3.

Each tank is of riveted construction and will utilize a mechanical shoe primary seal. Therefore, the applicant must meet all the specifications listed in Section 5.3.2.2, except that internal floating roof tanks only require a minimum 18 inches of vertical distance above the stored liquid surface. The following conditions will be placed on each permit to ensure compliance with this section:

- {2534} Gaps between the tank shell and the primary seal shall not exceed 2 1/2 inches. [District Rule 4623]
- {2535} The cumulative length of all primary seal gaps greater than 1 1/2 inches shall not exceed 10% of the circumference of the tank. [District Rule 4623]
- {2536} The cumulative length of all primary seal gaps greater than 1/8 inch shall not exceed 30% of the circumference of the tank. [District Rule 4623]

- {2537} No continuous gap in the primary seal greater than 1/8 inch wide shall exceed 10% of the tank circumference. [District Rule 4623]
- {2538} No gap between the tank shell and the secondary seal shall exceed 1/2 inch. [District Rule 4623]
- {2539} The cumulative length of all gaps between the tank shell and the secondary seal, greater than 1/8 inch shall not exceed 5% of the tank circumference. [District Rule 4623]
- {2555 modified} The metallic shoe-type seal shall be installed so that one end of the shoe extends into the stored liquid and the other end extends a minimum vertical distance of 12 inches above the stored liquid surface. [District Rule 4623]
- {2513 modified} The geometry of the metallic-shoe type seal shall be such that the maximum gap between the shoe and the tank shell shall be no greater than 3 inches for a length of at least 12 inches in the vertical plane above the liquid. [District Rule 4623]
- {2514} There shall be no holes, tears, or openings in the secondary seal or in the primary seal envelope that surrounds the annular vapor space enclosed by the roof edge, seal fabric, and secondary seal. [District Rule 4623]
- {2543} The secondary seal shall allow easy insertion of probes up to 2 1/2 inches in width in order to measure gaps in the primary seal. [District Rule 4623]
- {2544} The secondary seal shall extend from the roof to the tank shell and shall not be attached to the primary seal. [District Rule 4623]

**Section 5.4.2** lists equivalent seals. These tanks will be equipped with standard seals and will not require the exceptions listed in this section. Therefore this section does not apply.

**Section 5.5.1** requires all openings in the roof used for sampling or gauging, except pressure-vacuum valves to be set to within ten (10) percent of the maximum allowable working pressure of the roof, shall provide a projection below the liquid surface to prevent belching of liquid and to prevent entrained or formed organic vapor from escaping from the liquid contents of the tank and shall be equipped with a cover, seal, or lid. The cover, seal, or lid shall at all times be in a closed position, with no visible gaps and be gastight, except when the device or appurtenance is in use.

The following condition will be listed on each permit as follows:

- {2517} All openings in the roof used for sampling and gauging, except pressure-vacuum valves which shall be set to within 10% of the maximum allowable working pressure of the roof, shall provide a projection below the liquid surface to prevent belching of liquid and to prevent entrained or formed organic vapor from escaping from the liquid contents of the tank and shall be equipped with a cover, seal or lid that shall be in a closed position at all times, with no visible gaps and be gas tight, except when the device or appurtenance is in use. [District Rule 4623]

**Section 5.5.2.1** requires internal floating roof deck fittings to meet the following requirements:

- {2556 Modified} Each opening in a non-contact internal floating roof, except for automatic bleeder vents (vacuum breaker vents) and rim space vents, shall provide a projection below the liquid surface. [District Rule 4623, and 40 CFR 60.112b(a)(iii)]

- {2557 Modified} Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use. [District Rule 4623, and 40 CFR 60.112b(a)(iv)]
- {2558 Modified} Automatic bleeder vents shall be equipped with a gasket and shall be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports. [District Rule 4623, and 40 CFR 60.112b(a)(v)]
- {2559 Modified} Rim vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting. [District Rule 4623, and 40 CFR 60.112b(a)(vi)]
- {2560 Modified} Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The well shall have a slit fabric cover that covers at least 90% of the opening. The fabric cover must be impermeable. [District Rule 4623, and 40 CFR 60.112b(a)(vii)]
- {2561 Modified} Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover. The fabric sleeve must be impermeable. [District Rule 4623, and 40 CFR 60.112b(a)(viii)]

**Section 5.6** applies to vapor recovery systems. These tanks will not be equipped with vapor recovery; therefore this section is not applicable.

**Section 6.1.4** requires the owner or operator perform visual inspections and conduct actual gap measurements according to the timelines specified in this section.

The following conditions will be placed on each permit to ensure compliance with the requirements of this section:

- {2562} The permittee shall visually inspect the internal floating roof, and its appurtenant parts, fittings, etc. and measure the gaps of the primary seal and/or secondary seal prior to filling the tank for newly constructed, repair, or rebuilt internal floating roof tanks. If holes, tears, or openings in the primary seal, the secondary seal, the seal fabric or defects in the internal floating roof or its appurtenant parts, components, fittings, etc., are found, they shall be repaired prior to filling the tank. [District Rule 4623]
- {2563} The permittee shall visually inspect, through the manholes, roof hatches, or other openings on the fixed roof, the internal floating roof and its appurtenant parts, fittings, etc., and the primary seal and/or secondary seal at least once every 12 months after the tank is initially filled with an organic liquid. There should be no visible organic liquid on the roof, tank walls, or anywhere. Other than the gap criteria specified by this rule, no holes, tears, or other openings are allowed that would permit the escape of vapors. Any defects found are violations of this rule. [District Rule 4623]
- {2564} The permittee shall conduct actual gap measurements of the primary seal and/or secondary seal at least once every 60 months. [District Rule 4623]

**Section 6.2** applies to uncontrolled fixed roof tanks only.

**Section 6.3** requires the owner or operator to retain accurate records required by this rule for a period of five years. The following condition will be placed on each permit to ensure compliance with this section:

- All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rules 1070 and 4623]

**Section 6.3.5** requires an operator to submit the reports of the floating roof tank inspections conducted in accordance with the requirements of Section 6.1 to the APCO within five calendar days after the completion of the inspection only for those tanks that failed to meet the applicable requirements of Sections 5.2 through 5.5. The inspection report for tanks that have been determined to be in compliance with the requirements of Sections 5.2 through 5.5 need not be submitted to the APCO, but the inspection report shall be kept on-site and shall be made available upon request by the APCO. The inspection report shall contain all necessary information to demonstrate compliance with the provisions of this rule.

The following permit condition will be listed on each permit as follows:

- {2532} Permittee shall submit the reports of the floating roof tank inspections to the APCO within five calendar days after the completion of the inspection only for those tanks that failed to meet the applicable requirements of Rule 4623, Sections 5.2 through 5.5. The inspection report for tanks that that have been determined to be in compliance with the requirements of Sections 5.2 through 5.5 need not be submitted to the APCO, but the inspection report shall be kept on-site and made available upon request by the APCO. The inspection report shall contain all necessary information to demonstrate compliance with the provisions of Rule 4623. [District Rule 4623]

**Section 6.3.7** requires an operator to maintain the records of the external floating roof or internal floating roof landing activities that are performed pursuant to Sections 5.3.1.3 and 5.4.3. The records shall include information on the TVP, API gravity, and type of organic liquid stored in the tank, the purpose of landing the roof on its legs, the date of roof landing, duration the roof was on its legs, the level or height at which the tank roof was set to land on its legs, and the lowest liquid level in the tank. The operator shall keep the records at the facility (or on-site) for a period of five years. The records shall be made available to the APCO upon request.

The following permit conditions will be listed on each permit as follows:

- {2565} Permittee shall maintain the records of the internal floating roof landing activities that are performed pursuant to Rule 4623, Sections 5.3.1.3 and 5.4.3. The records shall include information on the true vapor pressure (TVP), API gravity, storage temperature, type of organic liquid stored in the tank, the purpose of landing the roof on its legs, the date of roof landing, duration the roof was on its legs, the level or height at which the tank roof was set to land on its legs, and the lowest liquid level in the tank. [District Rule 4623]

## **Conclusion**

These tanks are expected to comply with all requirements of District Rule 4623.

## **Rule 4624 Transfer of Organic Liquid**

The purpose of this rule is to limit VOC emissions from the transfer of organic liquids.

BCT proposes to operate a Class 1 organic liquid transfer facility as defined in the rule (Section 3.8). The liquid transfer facility will be used to unload a variety of light oils. No loading of liquid is proposed.

**Section 5.1** lists the requirements for Class 1 transfer facilities and require the transfer operation not to exceed 0.08 lb of VOC per 1,000 gallon transferred. In addition, the transfer of organic fluid must be routed to either a vapor collection and control system (Section 5.1.2.1); a fixed roof or floating roof container that meets the requirements of Rule 4623 (Sections 5.1.2.2 and 5.1.2.3); a pressure vessel with an APCO-approved vapor control system meeting the requirement specified in Rule 4623; or a closed VOC emissions control system.

BCT will transfer the light oil either into internal floating roof tanks or directly into outgoing pipelines. The following conditions will be included on the ATC:

- For this Class 1 organic liquid transfer facility, the emission of VOC from the transfer operation shall not exceed 0.08 pounds per 1,000 gallons of organic liquid transferred. [District Rule 4624]
- All unloaded liquids and gases shall be routed to one of the following systems: a vapor collection and control system; a fixed roof container that meets the control requirements specified in Rule 4623 (Storage of Organic Liquids); a floating roof container that meets the control requirements specified in Rule 4623 (Storage of Organic Liquids); or a pressure vessel equipped with an APCO-approved vapor recovery system that meets the control requirements specified in Rule 4623 (Storage of Organic Liquids); or a closed VOC emission control system. [District Rule 4624]

**Section 5.2** lists requirements for a Class 2 organic liquid transfer facility and is not applicable.

**Section 5.3** requires transfer operations utilizing a container that meets the control requirements of Rule 4623 to meet the emission control requirements of Sections 5.1 and 5.2 to comply with leak inspection requirements of Section 5.9. These following conditions will ensure compliance with these sections:

- The operator of an organic liquid transfer facility shall inspect the vapor collection system, the vapor disposal system, and each transfer rack handling organic liquids for leaks during transfer at least once every calendar quarter using the test method prescribed in Section 6.3.8 of Rule 4624. [District Rule 4624]
- A floating roof container that meets the applicable control requirements of Section 5.0 of Rule 4623 (Storage of Organic Liquids) shall be considered not leaking when receiving unloaded liquids for compliance with Rule 4624. [District Rule 4624]
- All equipment that is found leaking shall be repaired or replaced within 72 hours. If the leaking component cannot be repaired or replaced within 72 hours, the component shall be taken out of service until such time the component is repaired or replaced. The repaired or replacement equipment shall be reinspected the first time the equipment is in operation after the repair or replacement. [District Rule 4624]

- An operator may apply for a written approval from the APCO to change the inspection frequency from quarterly to annually provided no leaks were found during the inspections required under provisions of Sections 5.9.1 and 5.9.2 of Rule 4624 during five consecutive quarterly inspections. Upon identification of any leak during an annual inspection the frequency shall revert back to quarterly and the operator shall contact the APCO in writing within 14 days. [District Rule 4624]

**Sections 5.4, 5.5, 5.7, and 5.8** apply to loading operations. This facility will not be loading any vessels; therefore these sections do not apply.

**Section 5.6** requires the transfer rack to be designed, installed, maintained and operated such that there are no leaks and no excess organic liquid drainage at disconnections. The following condition will ensure compliance with this section:

- Maximum liquid spillage for liquids from organic liquid transfer operation shall not exceed 3.2 milliliters/disconnect based on an average from 3 consecutive disconnects. [District Rules 2201 and 4624]

BCT will be required to keep records of the throughputs of materials unloaded (Section 6.1.3) as stated in the following condition:

- Operator shall keep records of the throughputs of materials transferred, the results of any required leak inspections, and the quantity and type of components in service. [District Rules 2201 and 4624]

Compliance testing requirements of **Section 6.2** for Class 1 Organic Liquid Transfer Facilities (applicable to unloading only) are not required if unloaded liquids/gases are sent to a floating roof container that meets the control requirements specified in Rule 4623. Therefore, the requirements of this section do not apply.

Compliance with this rule is expected.

#### **California Health & Safety Code 42301.6 (School Notice)**

The District has verified that this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

#### **California Environmental Quality Act (CEQA)**

CEQA requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The District adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities;
- Identify the ways that environmental damage can be avoided or significantly reduced;
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and

- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

**Greenhouse Gas (GHG) Significance Determination**

It is determined that another agency has prepared an environmental review document for the project. The District is a Responsible Agency for the project because of its discretionary approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CEQA Guidelines §15381). As a Responsible Agency, the District is limited to mitigating or avoiding impacts for which it has statutory authority. The District does not have statutory authority for regulating greenhouse gas emissions. The District has determined that the applicant is responsible for implementing greenhouse gas mitigation measures, if any, imposed by the Lead Agency.

**District CEQA Findings**

The District is a Responsible Agency for the project because of its discretionary approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CEQA Guidelines §15381). The District's engineering evaluation of the project (this document) demonstrates that compliance with District rules and permit conditions would reduce Stationary Source emissions from the project to levels below the District's significance thresholds for criteria pollutants. The District has determined that no additional findings are required (CEQA Guidelines §15096(h)).

**IX. Recommendation**

Compliance with all applicable rules and regulations is expected. Issue ATCs S-8165-1-0, '-2-0 and '-3-0 subject to the permit conditions on the attached draft ATCs in **Appendix A**.

**X. Billing Information**

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-8165-1-0	3020-05-G	6,300,000 gallon	\$382.00
S-8165-2-0	3020-01-G	6,300,000 gallon	\$382.00
S-8165-3-0	3020-01-H	Maximum of 2,650 elec hp	\$1,030.00

**Appendices**

- A: Draft ATCs
- B: BACT Guidelines
- C: BACT Analyses
- D: Process Diagram
- E: Tanks 4.0 Summary
- F: HRA Summary
- G: Quarterly Net Emissions Change
- H: Emissions Profiles

# **APPENDIX A**

---

Draft ATCs

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

**PERMIT NO:** S-8165-1-0

**LEGAL OWNER OR OPERATOR:** BAKERSFIELD CRUDE TERMINAL, LLC  
**MAILING ADDRESS:** 3020 OLD RANCH PARKWAY  
SUITE J 300  
SEAL BEACH, CA 90740

**LOCATION:** SOUTH LAKE ROAD AND SANITAGO ROAD  
TAFT, CA

**EQUIPMENT DESCRIPTION:**  
150,000 BBL (6,300,000 GALLON) INTERNAL FLOATING ROOF CRUDE OIL STORAGE TANK WITH METAL SHOE  
PRIMARY SEAL AND WIPER SECONDARY SEAL

**CONDITIONS**

1. {271} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. Maximum throughput of tank shall not exceed 91,623 bbl/day. [District Rule 2201]
4. Maximum combined throughput of tanks listed on permits S-8165-1 and '-2 shall not exceed 25,550,000 bbl/year. [District Rule 2201]
5. Annual emissions from tanks listed on S-8165-1 and '-2 shall not exceed 18,920 lb-VOC/year. [District Rule 2201]
6. The Reid Vapor Pressure (RVP) of liquid introduced, placed, or stored in the tank shall be less than 11.0 psia. [District Rules 2201 and 4623, and 40 CFR 60.110b(b)]
7. If any shipment of organic liquid with an RVP greater than 8.3 psia is introduced, placed, or stored in this tank in any calendar year, compliance with annual combined emission limit for tanks listed on S-8165-1 and '-2 shall be demonstrated by calculating and maintaining an annual emissions summary using the EPA's TANKS program. [District Rules 2201 and 4623, and 40 CFR 60.110b(b)]

CONDITIONS CONTINUE ON NEXT PAGE

**YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT.** This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

**DAVID WARNER**, Director of Permit Services  
S-8165-1-0: Jul 28 2012 10:58AM - RICKARDK : Joint Inspection Required with RICKARDK

8. The internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside a storage vessel that has a fixed roof. The internal roof shall be floating on the liquid surface except during initial fill and when the storage vessel is completely emptied or subsequently emptied and refilled. When the roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible. Whenever the permittee intends to land the roof on its legs, the permittee shall notify the APCO in writing at least five days prior to performing the work. [District Rule 4623, and 40 CFR 60.112b(a)(i)]
9. The internal floating roof tank shall be equipped with two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous. [40 CFR 60.112b(a)(ii-B)]
10. A leak-free condition is defined as a condition without a gas leak. A gas leak is defined as a reading in excess of 10,000 ppmv, above background, as measured by a portable hydrocarbon detection instrument in accordance with the procedures specified in EPA Test Method 21. A reading in excess of 10,000 ppmv above background, except for primary and secondary seals, floating roof deck fittings, and floating roof automatic bleeder vents is a violation of this permit and Rule 4623. [District Rule 4623]
11. {2534} Gaps between the tank shell and the primary seal shall not exceed 2 1/2 inches. [District Rule 4623]
12. {2535} The cumulative length of all primary seal gaps greater than 1 1/2 inches shall not exceed 10% of the circumference of the tank. [District Rule 4623]
13. {2536} The cumulative length of all primary seal gaps greater than 1/8 inch shall not exceed 30% of the circumference of the tank. [District Rule 4623]
14. {2537} No continuous gap in the primary seal greater than 1/8 inch wide shall exceed 10% of the tank circumference. [District Rule 4623]
15. {2538} No gap between the tank shell and the secondary seal shall exceed 1/2 inch. [District Rule 4623]
16. {2539} The cumulative length of all gaps between the tank shell and the secondary seal, greater than 1/8 inch shall not exceed 5% of the tank circumference. [District Rule 4623]
17. The metallic shoe-type seal shall be installed so that one end of the shoe extends into the stored liquid and the other end extends a minimum vertical distance of 12 inches above the stored liquid surface. [District Rule 4623]
18. The geometry of the metallic-shoe type seal shall be such that the maximum gap between the shoe and the tank shell shall be no greater than 3 inches for a length of at least 12 inches in the vertical plane above the liquid. [District Rule 4623]
19. {2542} There shall be no holes, tears, or openings in the secondary seal or in the primary seal envelope that surrounds the annular vapor space enclosed by the roof edge, seal fabric, and secondary seal. [District Rule 4623]
20. {2543} The secondary seal shall allow easy insertion of probes up to 2 1/2 inches in width in order to measure gaps in the primary seal. [District Rule 4623]
21. {2544} The secondary seal shall extend from the roof to the tank shell and shall not be attached to the primary seal. [District Rule 4623]
22. {2517} All openings in the roof used for sampling and gauging, except pressure-vacuum valves which shall be set to within 10% of the maximum allowable working pressure of the roof, shall provide a projection below the liquid surface to prevent belching of liquid and to prevent entrained or formed organic vapor from escaping from the liquid contents of the tank and shall be equipped with a cover, seal or lid that shall be in a closed position at all times, with no visible gaps and be gas tight, except when the device or appurtenance is in use. [District Rule 4623]
23. Each opening in a non-contact internal floating roof, except for automatic bleeder vents (vacuum breaker vents) and rim space vents, shall provide a projection below the liquid surface. [District Rule 4623, and 40 CFR 60.112b(a)(iii)]
24. Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use. [District Rule 4623, and 40 CFR 60.112b(a)(iv)]

CONDITIONS CONTINUE ON NEXT PAGE

25. Automatic bleeder vents shall be equipped with a gasket and shall be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports. [District Rule 4623, and 40 CFR 60.112b(a)(v)]
26. Rim vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting. [District Rule 4623, and 40 CFR 60.112b(a)(vi)]
27. Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The well shall have a slit fabric cover that covers at least 90% of the opening. The fabric cover must be impermeable. [District Rule 4623, and 40 CFR 60.112b(a)(vii)]
28. Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover. The fabric sleeve must be impermeable. [District Rule 4623, and 40 CFR 60.112b(a)(viii)]
29. Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover, [40 CFR 60.112b(a)(ix)]
30. {2562} The permittee shall visually inspect the internal floating roof, and its appurtenant parts, fittings, etc. and measure the gaps of the primary seal and/or secondary seal prior to filling the tank for newly constructed, repair, or rebuilt internal floating roof tanks. If holes, tears, or openings in the primary seal, the secondary seal, the seal fabric or defects in the internal floating roof or its appurtenant parts, components, fittings, etc., are found, they shall be repaired prior to filling the tank. [District Rule 4623]
31. {2563} The permittee shall visually inspect, through the manholes, roof hatches, or other openings on the fixed roof, the internal floating roof and its appurtenant parts, fittings, etc., and the primary seal and/or secondary seal at least once every 12 months after the tank is initially filled with an organic liquid. There should be no visible organic liquid on the roof, tank walls, or anywhere. Other than the gap criteria specified by this rule, no holes, tears, or other openings are allowed that would permit the escape of vapors. Any defects found are violations of this rule. [District Rule 4623]
32. {2564} The permittee shall conduct actual gap measurements of the primary seal and/or secondary seal at least once every 60 months. [District Rule 4623]
33. {2532} Permittee shall submit the reports of the floating roof tank inspections to the APCO within five calendar days after the completion of the inspection only for those tanks that failed to meet the applicable requirements of Rule 4623, Sections 5.2 through 5.5. The inspection report for tanks that have been determined to be in compliance with the requirements of Sections 5.2 through 5.5 need not be submitted to the APCO, but the inspection report shall be kept on-site and made available upon request by the APCO. The inspection report shall contain all necessary information to demonstrate compliance with the provisions of Rule 4623. [District Rule 4623]
34. {2565} Permittee shall maintain the records of the internal floating roof landing activities that are performed pursuant to Rule 4623, Sections 5.3.1.3 and 5.4.3. The records shall include information on the true vapor pressure (TVP), API gravity, storage temperature, type of organic liquid stored in the tank, the purpose of landing the roof on its legs, the date of roof landing, duration the roof was on its legs, the level or height at which the tank roof was set to land on its legs, and the lowest liquid level in the tank. [District Rule 4623]
35. Operator shall maintain daily and annual records of the throughput of materials transferred into tank, the results of any required leak inspections, and annual tank emissions if any liquid is introduced, placed, or stored in the tank that has an RVP greater than 8.3 psia. [District Rules 2201 and 4623]
36. All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rules 1070 and 4623]

DRAFT

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

**PERMIT NO:** S-8165-2-0

**LEGAL OWNER OR OPERATOR:** BAKERSFIELD CRUDE TERMINAL, LLC  
**MAILING ADDRESS:** 3020 OLD RANCH PARKWAY  
SUITE J 300  
SEAL BEACH, CA 90740

**LOCATION:** SOUTH LAKE ROAD AND SANITAGO ROAD  
TAFT, CA

**EQUIPMENT DESCRIPTION:**  
150,000 BBL (6,300,000 GALLON) INTERNAL FLOATING ROOF CRUDE OIL STORAGE TANK WITH METAL SHOE  
PRIMARY SEAL AND WIPER SECONDARY SEAL

**CONDITIONS**

1. {271} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. Maximum throughput of tank shall not exceed 91,623 bbl/day. [District Rule 2201]
4. Maximum combined throughput of tanks listed on permits S-8165-1 and '-2 shall not exceed 25,550,000 bbl/year. [District Rule 2201]
5. Annual emissions from tanks listed on S-8165-1 and '-2 shall not exceed 18,920 lb-VOC/year. [District Rule 2201]
6. The Reid Vapor Pressure (RVP) of liquid introduced, placed, or stored in the tank shall be less than 11.0 psia. [District Rules 2201 and 4623, and 40 CFR 60.110b(b)]
7. If any shipment of organic liquid with an RVP greater than 8.3 psia is introduced, placed, or stored in this tank in any calendar year, compliance with annual combined emission limit for tanks listed on S-8165-1 and '-2 shall be demonstrated by calculating and maintaining an annual emissions summary using the EPA's TANKS program. [District Rules 2201 and 4623, and 40 CFR 60.110b(b)]

CONDITIONS CONTINUE ON NEXT PAGE

**YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT.** This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

**DRAFT**

DAVID WARNER, Director of Permit Services  
S-8165-2-0: Jul 26 2012 10:58AM - RICKARDK : Joint Inspection Required with RICKARDK

8. The internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside a storage vessel that has a fixed roof. The internal roof shall be floating on the liquid surface except during initial fill and when the storage vessel is completely emptied or subsequently emptied and refilled. When the roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible. Whenever the permittee intends to land the roof on its legs, the permittee shall notify the APCO in writing at least five days prior to performing the work. [District Rule 4623, and 40 CFR 60.112b(a)(i)]
9. The internal floating roof tank shall be equipped with two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous. [40 CFR 60.112b(a)(ii-B)]
10. A leak-free condition is defined as a condition without a gas leak. A gas leak is defined as a reading in excess of 10,000 ppmv, above background, as measured by a portable hydrocarbon detection instrument in accordance with the procedures specified in EPA Test Method 21. A reading in excess of 10,000 ppmv above background, except for primary and secondary seals, floating roof deck fittings, and floating roof automatic bleeder vents is a violation of this permit and Rule 4623. [District Rule 4623]
11. {2534} Gaps between the tank shell and the primary seal shall not exceed 2 1/2 inches. [District Rule 4623]
12. {2535} The cumulative length of all primary seal gaps greater than 1 1/2 inches shall not exceed 10% of the circumference of the tank. [District Rule 4623]
13. {2536} The cumulative length of all primary seal gaps greater than 1/8 inch shall not exceed 30% of the circumference of the tank. [District Rule 4623]
14. {2537} No continuous gap in the primary seal greater than 1/8 inch wide shall exceed 10% of the tank circumference. [District Rule 4623]
15. {2538} No gap between the tank shell and the secondary seal shall exceed 1/2 inch. [District Rule 4623]
16. {2539} The cumulative length of all gaps between the tank shell and the secondary seal, greater than 1/8 inch shall not exceed 5% of the tank circumference. [District Rule 4623]
17. The metallic shoe-type seal shall be installed so that one end of the shoe extends into the stored liquid and the other end extends a minimum vertical distance of 12 inches above the stored liquid surface. [District Rule 4623]
18. The geometry of the metallic-shoe type seal shall be such that the maximum gap between the shoe and the tank shell shall be no greater than 3 inches for a length of at least 12 inches in the vertical plane above the liquid. [District Rule 4623]
19. {2542} There shall be no holes, tears, or openings in the secondary seal or in the primary seal envelope that surrounds the annular vapor space enclosed by the roof edge, seal fabric, and secondary seal. [District Rule 4623]
20. {2543} The secondary seal shall allow easy insertion of probes up to 2 1/2 inches in width in order to measure gaps in the primary seal. [District Rule 4623]
21. {2544} The secondary seal shall extend from the roof to the tank shell and shall not be attached to the primary seal. [District Rule 4623]
22. {2517} All openings in the roof used for sampling and gauging, except pressure-vacuum valves which shall be set to within 10% of the maximum allowable working pressure of the roof, shall provide a projection below the liquid surface to prevent belching of liquid and to prevent entrained or formed organic vapor from escaping from the liquid contents of the tank and shall be equipped with a cover, seal or lid that shall be in a closed position at all times, with no visible gaps and be gas tight, except when the device or appurtenance is in use. [District Rule 4623]
23. Each opening in a non-contact internal floating roof, except for automatic bleeder vents (vacuum breaker vents) and rim space vents, shall provide a projection below the liquid surface. [District Rule 4623, and 40 CFR 60.112b(a)(iii)]
24. Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use. [District Rule 4623, and 40 CFR 60.112b(a)(iv)]

CONDITIONS CONTINUE ON NEXT PAGE

25. Automatic bleeder vents shall be equipped with a gasket and shall be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports. [District Rule 4623, and 40 CFR 60.112b(a)(v)]
26. Rim vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting. [District Rule 4623, and 40 CFR 60.112b(a)(vi)]
27. Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The well shall have a slit fabric cover that covers at least 90% of the opening. The fabric cover must be impermeable. [District Rule 4623, and 40 CFR 60.112b(a)(vii)]
28. Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover. The fabric sleeve must be impermeable. [District Rule 4623, and 40 CFR 60.112b(a)(viii)]
29. Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover. [40 CFR 60.112b(a)(ix)]
30. {2562} The permittee shall visually inspect the internal floating roof, and its appurtenant parts, fittings, etc. and measure the gaps of the primary seal and/or secondary seal prior to filling the tank for newly constructed, repair, or rebuilt internal floating roof tanks. If holes, tears, or openings in the primary seal, the secondary seal, the seal fabric or defects in the internal floating roof or its appurtenant parts, components, fittings, etc., are found, they shall be repaired prior to filling the tank. [District Rule 4623]
31. {2563} The permittee shall visually inspect, through the manholes, roof hatches, or other openings on the fixed roof, the internal floating roof and its appurtenant parts, fittings, etc., and the primary seal and/or secondary seal at least once every 12 months after the tank is initially filled with an organic liquid. There should be no visible organic liquid on the roof, tank walls, or anywhere. Other than the gap criteria specified by this rule, no holes, tears, or other openings are allowed that would permit the escape of vapors. Any defects found are violations of this rule. [District Rule 4623]
32. {2564} The permittee shall conduct actual gap measurements of the primary seal and/or secondary seal at least once every 60 months. [District Rule 4623]
33. {2532} Permittee shall submit the reports of the floating roof tank inspections to the APCO within five calendar days after the completion of the inspection only for those tanks that failed to meet the applicable requirements of Rule 4623, Sections 5.2 through 5.5. The inspection report for tanks that have been determined to be in compliance with the requirements of Sections 5.2 through 5.5 need not be submitted to the APCO, but the inspection report shall be kept on-site and made available upon request by the APCO. The inspection report shall contain all necessary information to demonstrate compliance with the provisions of Rule 4623. [District Rule 4623]
34. {2565} Permittee shall maintain the records of the internal floating roof landing activities that are performed pursuant to Rule 4623, Sections 5.3.1.3 and 5.4.3. The records shall include information on the true vapor pressure (TVP), API gravity, storage temperature, type of organic liquid stored in the tank, the purpose of landing the roof on its legs, the date of roof landing, duration the roof was on its legs, the level or height at which the tank roof was set to land on its legs, and the lowest liquid level in the tank. [District Rule 4623]
35. Operator shall maintain daily and annual records of the throughput of materials transferred into tank, the results of any required leak inspections, and annual tank emissions if any liquid is introduced, placed, or stored in the tank that has an RVP greater than 8.3 psia. [District Rules 2201 and 4623]
36. All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rules 1070 and 4623]

DRAFT

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT

PERMIT NO: S-8165-3-0

LEGAL OWNER OR OPERATOR: BAKERSFIELD CRUDE TERMINAL, LLC  
MAILING ADDRESS: 3020 OLD RANCH PARKWAY  
SUITE J 300  
SEAL BEACH, CA 90740

LOCATION: SOUTH LAKE ROAD AND SANITAGO ROAD  
TAFT, CA

EQUIPMENT DESCRIPTION:  
ORGANIC LIQUID TRANSFER OPERATION WITH LIGHT CRUDE OIL RAILCAR UNLOADING RACK AND ASSOCIATED OFFLOADING, TRANSFER AND BOOSTER PUMPS

**CONDITIONS**

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. There shall be no more than 208 disconnects per day and 75,920 disconnects per year. [District Rule 2201]
3. Fugitive emissions from components shall not exceed 1.7 lb-VOC/day nor 617 lb-VOC/year based on EPA's "Marketing Terminal Average Emission Factors," Table 2-3 of EPA Bulletin 453/R-95-017, Protocol for Equipment Leak Emission Estimates. [District Rule 2201]
4. Loading of any material into railcars is not permitted. [District Rule 2201]
5. Maximum liquid spillage for liquids from organic liquid transfer operation shall not exceed 3.2 milliliters/disconnect based on an average from 3 consecutive disconnects. [District Rules 2201 and 4624]
6. For this Class 1 organic liquid transfer facility, the emission of VOC from the transfer operation shall not exceed 0.08 pounds per 1,000 gallons of organic liquid transferred. [District Rule 4624]
7. All unloaded liquids and gases shall be routed to one of the following systems: a vapor collection and control system; a fixed roof container that meets the control requirements specified in Rule 4623 (Storage of Organic Liquids); a floating roof container that meets the control requirements specified in Rule 4623 (Storage of Organic Liquids); or a pressure vessel equipped with an APCO-approved vapor recovery system that meets the control requirements specified in Rule 4623 (Storage of Organic Liquids); or a closed VOC emission control system. [District Rule 4624]

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director, APCO

DAVID WARNER, Director of Permit Services  
S-8165-3-0: Jul 26 2012 10:58AM - RICKARDK : Joint Inspection Required with RICKARDK

8. Components serving this operation shall be maintained in a leak-free condition. [District Rule 2201]
9. A leak is defined as the dripping of VOC-containing liquid at a rate of more than three (3) drops per minute; or for organic liquids other than gasoline, the detection of any gaseous or vapor emissions with a concentration of VOC greater than 1,000 ppmv above a background as methane when measured in accordance with the test method in Section 6.3.7; gasoline, a concentration of VOC greater than 10,000 ppmv, as methane, above background when measured in accordance with the test method in Section 6.3.7. Any liquid or gas coming from a component undergoing repair or replacement, or during sampling of process fluid from equipment into a container is not considered a leak provided such activities are accomplished as expeditiously as possible and with minimal spillage of material and VOC emissions to the atmosphere. [District Rules 2201 and 4624]
10. The operator of an organic liquid transfer facility shall inspect the vapor collection system, the vapor disposal system, and each transfer rack handling organic liquids for leaks during transfer at least once every calendar quarter using the test method prescribed in Section 6.3.8 of Rule 4624. [District Rule 4624]
11. A floating roof container that meets the applicable control requirements of Section 5.0 of Rule 4623 (Storage of Organic Liquids) shall be considered not leaking when receiving unloaded liquids for compliance with Rule 4624. [District Rule 4624]
12. All equipment that is found leaking shall be repaired or replaced within 72 hours. If the leaking component cannot be repaired or replaced within 72 hours, the component shall be taken out of service until such time the component is repaired or replaced. The repaired or replacement equipment shall be reinspected the first time the equipment is in operation after the repair or replacement. [District Rule 4624]
13. An operator may apply for a written approval from the APCO to change the inspection frequency from quarterly to annually provided no leaks were found during the inspections required under provisions of Sections 5.9.1 and 5.9.2 of Rule 4624 during five consecutive quarterly inspections. Upon identification of any leak during an annual inspection the frequency shall revert back to quarterly and the operator shall contact the APCO in writing within 14 days. [District Rule 4624]
14. Daily and annual records of the throughputs of materials transferred, the results of any required leak inspections, and the quantity and type of components in service shall be maintained. [District Rules 2201 and 4624]
15. Daily and annual records of the number of disconnects shall be maintained. [District Rule 2201]
16. Permit holder shall maintain accurate component count and resultant emissions according to EPA's "Marketing Terminal Average Emission Factors," Table 2-3 of EPA Bulletin 453/R-95-017, Protocol for Equipment Leak Emission Estimates. [District Rule 2201]
17. All records required by this permit shall be retained for a period of at least 5 years and shall be made available to the District upon request. [District Rules 1070 and 4624]

DRAFT

# **APPENDIX B**

---

BACT Guidelines

San Joaquin Valley  
Unified Air Pollution Control District

**Best Available Control Technology (BACT) Guideline 7.1.14\***

Last Update 9/21/2006

**Light Crude Oil Unloading Rack**

Pollutant	Achieved In Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	use of dry-break couplers or equivalent on unloading lines with an average disconnect loss of no greater than 10 ml liquid per disconnect, and fugitive components subject to Rules 4409 or 4455 as applicable	use of dry-break couplers or equivalent on unloading lines with an average disconnect loss of no greater than 8 ml liquid per disconnect, and fugitive components subject to Rules 4409 or 4455 as applicable	

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

**\*This is a Summary Page for this Class of Source**

San Joaquin Valley  
Unified Air Pollution Control District

**Best Available Control Technology (BACT) Guideline 7.3.3\***

Last Update 10/1/2002

**Petroleum and Petrochemical Production - Floating Roof Organic  
Liquid Storage or Processing Tank, = or > 471 bbl Tank capacity, = or > 0.5 psia  
TVP**

<b>Pollutant</b>	<b>Achieved in Practice or contained in the SIP</b>	<b>Technologically Feasible</b>	<b>Alternate Basic Equipment</b>
VOC	95% control (Primary metal shoe seal with secondary wiper seal, or equal)	95% Control (Dual wiper seal with drip curtain or primary metal shoe seal with secondary wiper seal, or equal.)	

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

**\*This is a Summary Page for this Class of Source**

# **APPENDIX C**

---

BACT Analyses

## **Internal Floating Roof Tank Top Down BACT Analysis**

### **1. BACT Analysis for VOC Emissions:**

#### **a. Step 1 - Identify all control technologies**

The SJVUAPCD BACT Clearinghouse guideline 7.3.3, 4<sup>th</sup> quarter 2002, identifies BACT for VOC emissions from a floating roof organic liquid storage tank  $\geq 471$  bbl or  $\geq 0.5$  psia TVP as follows:

- 1) 95% Control (Dual wiper seal, with drip curtain or primary metal shoe seal with secondary wiper seal, or equal.) – Technologically Feasible
- 2) 95% Control (Primary metal shoe seal with secondary wiper seal, or equal). – Achieved in Practice

#### **b. Step 2 - Eliminate technologically infeasible options**

There are no technologically infeasible options to eliminate from step 1.

#### **c. Step 3 - Rank remaining options by control effectiveness**

- 1) 95% Control (Dual wiper seal, with drip curtain or primary metal shoe seal with secondary wiper seal, or equal.) – Technologically Feasible
- 2) 95% Control (Primary metal shoe seal with secondary wiper seal, or equal). – Achieved in Practice

#### **d. Step 4 - Cost Effectiveness Analysis**

The applicant has proposed installing two internal floating roof tanks equipped with a primary metal shoe seal with secondary wiper seal. Since these technologies have the same expected control efficiencies and a primary metal shoe seal with secondary wiper seal is both achieved in practice and technologically feasible, it will be considered the most effective option and a cost effective analysis will not be necessary.

#### **e. Step 5 – Selection of BACT**

The proposed use of an internal floating roof equipped with a primary metal shoe seal with secondary wiper seal resulting in 95% VOC emissions control efficiency satisfies BACT requirements for this operation.

## **Unloading Rack Top Down BACT Analysis**

### **1. BACT Analysis for VOC Emissions:**

#### **a. Step 1 - Identify all control technologies**

The SJVUAPCD BACT Clearinghouse guideline 7.1.14, 3<sup>rd</sup> quarter 2006, identifies BACT for VOC emissions from a light crude oil unloading rack as follows:

- 1) Use of dry-break couplers or equivalent on unloading lines with an average disconnect loss of no greater than 8 ml liquid per disconnect, and fugitive components subject to Rules 4409 or 4455 as applicable – Technologically Feasible
- 2) Use of dry-break couplers or equivalent on unloading lines with an average disconnect loss of no greater than 10 ml liquid per disconnect, and fugitive components subject to Rules 4409 or 4455 as applicable – Achieved in Practice

#### **b. Step 2 - Eliminate technologically infeasible options**

There are no technologically infeasible options to eliminate from step 1.

#### **c. Step 3 - Rank remaining options by control effectiveness**

- 1) Use of dry-break couplers or equivalent on unloading lines with an average disconnect loss of no greater than 8 ml liquid per disconnect, and fugitive components subject to Rules 4409 or 4455 as applicable – Technologically Feasible
- 2) Use of dry-break couplers or equivalent on unloading lines with an average disconnect loss of no greater than 10 ml liquid per disconnect, and fugitive components subject to Rules 4409 or 4455 as applicable – Achieved in Practice

#### **d. Step 4 - Cost Effectiveness Analysis**

The applicant is proposing dry break couplers with an average disconnect loss of no greater than 8 ml liquid per disconnect. This is the highest ranking technologically feasible option, therefore a cost effective analysis will not be necessary.

#### **e. Step 5 – Selection of BACT**

The proposed use of dry break couplers with an average disconnect loss of no greater than 8 ml liquid per disconnect (neither of Rules 4409 or 4455 are applicable to this operation) satisfies BACT for this operation.

# **APPENDIX D**

---

## Process Diagram



# **APPENDIX E**

---

Tanks 4.0 Summary

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

**Identification**

User Identification: BCT 150,000 bbl tanks  
 City: Bakersfield  
 State: California  
 Company:  
 Type of Tank: Internal Floating Roof Tank  
 Description:

**Tank Dimensions**

Diameter (ft): 150.00  
 Volume (gallons): 6,300,000.00  
 Turnovers: 85.17  
 Self Supp. Roof? (y/n): N  
 No. of Columns: 9.00  
 Eff. Col. Diam. (ft): 0.70

**Paint Characteristics**

Internal Shell Condition: Light Rust  
 Shell Color/Shade: White/White  
 Shell Condition: Good  
 Roof Color/Shade: White/White  
 Roof Condition: Good

**Rim-Seal System**

Primary Seal: Mechanical Shoe  
 Secondary Seal: Rim-mounted

**Deck Characteristics**

Deck Fitting Category: Typical  
 Deck Type: Bolted  
 Construction: Sheet  
 Deck Seam: Sheet: 5 Ft Wide  
 Deck Seam Len. (ft): 3,534.29

**Deck Fitting/Status**

**Quantity**

Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	9
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1
Roof Leg or Hanger Well/Adjustable	1
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	58
Stub Drain (1-in. Diameter)/Slit Fabric Seal 10% Open	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	180
	1

Meterological Data used in Emissions Calculations: Bakersfield, California (Avg Atmospheric Pressure = 14.47 psia)

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Liquid Contents of Storage Tank**

**BCT 150,000 bbl tanks - Internal Floating Roof Tank**  
**Bakersfield, California**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Crude oil (RVP 8.3)	All	67.63	61.25	74.00	65.42	6.5745	N/A	N/A	50.0000			207.00	Option 4: RVP=8.3

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Detail Calculations (AP-42)**

**BCT 150,000 bbl tanks - Internal Floating Roof Tank**  
**Bakersfield, California**

Annual Emission Calculations

Rim Seal Losses (lb):	270.5152
Seal Factor A (lb-mole/ft-yr):	0.6000
Seal Factor B (lb-mole/ft-yr (mph) <sup>n</sup> ):	0.4000
Value of Vapor Pressure Function:	0.1503
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.5745
Tank Diameter (ft):	150.0000
Vapor Molecular Weight (lb/lb-mole):	50.0000
Product Factor:	0.4000
Withdrawal Losses (lb):	3,564.9928
Number of Columns:	9.0000
Effective Column Diameter (ft):	0.7000
Annual Net Throughput (gal/yr.):	536,550,000.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0060
Average Organic Liquid Density (lb/gal):	7.1000
Tank Diameter (ft):	150.0000
Deck Fitting Losses (lb):	3,731.3058
Value of Vapor Pressure Function:	0.1503
Vapor Molecular Weight (lb/lb-mole):	50.0000
Product Factor:	0.4000
Tot. Roof Fitting Loss Fact (lb-mole/yr):	1,241.4000
Deck Seam Losses (lb):	1,893.6068
Deck Seam Length (ft):	3,534.2900
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.1400
Deck Seam Length Factor (ft/sqft):	0.2000
Tank Diameter (ft):	150.0000
Vapor Molecular Weight (lb/lb-mole):	50.0000
Product Factor:	0.4000
<b>Total Losses (lb):</b>	<b>9,460.4205</b>

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors		m	Losses(lb)
		KFa(lb-mole/yr)	KFb(lb-mole/(yr mph <sup>n</sup> ))		
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	36.00	5.90	1.20	108.2061
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	42.0801
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungasketed	9	47.00	0.00	0.00	1,271.4212
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1	76.00	0.00	0.00	228.4350
Roof Leg or Hanger Well/Adjustable	58	7.90	0.00	0.00	1,377.2227
Sample Pipe or Well (24-in. Diam.)/Silt Fabric Seal 10% Open	1	12.00	0.00	0.00	36.0687
Stub Drain (1-in. Diameter)	180	1.20	0.00	0.00	648.2364
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	18.6355

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Individual Tank Emission Totals**

**Emissions Report for: Annual**

**BCT 150,000 bbl tanks - Internal Floating Roof Tank**  
**Bakersfield, California**

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Crude oil (RVP 8.3)	270.52	3,564.99	3,731.31	1,893.61	9,460.42

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

**Identification**

User Identification: BCT 150,000 bbl tanks  
 City: Bakersfield  
 State: California  
 Company:  
 Type of Tank: Internal Floating Roof Tank  
 Description:

**Tank Dimensions**

Diameter (ft): 150.00  
 Volume (gallons): 6,300,000.00  
 Turnovers: 85.17  
 Self Supp. Roof? (y/n): N  
 No. of Columns: 9.00  
 Eff. Col. Diam. (ft): 0.70

**Paint Characteristics**

Internal Shell Condition: Light Rust  
 Shell Color/Shade: White/White  
 Shell Condition: Good  
 Roof Color/Shade: White/White  
 Roof Condition: Good

**Rim-Seal System**

Primary Seal: Mechanical Shoe  
 Secondary Seal: Rim-mounted

**Deck Characteristics**

Deck Fitting Category: Typical  
 Deck Type: Bolted  
 Construction: Sheet  
 Deck Seam: Sheet: 5 Ft Wide  
 Deck Seam Len. (ft): 3,534.29

**Deck Fitting/Status**

**Quantity**

Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	9
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1
Roof Leg or Hanger Well/Adjustable	58
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Stub Drain (1-in. Diameter)/Slit Fabric Seal 10% Open	180
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1

Meteorological Data used in Emissions Calculations: Bakersfield, California (Avg Atmospheric Pressure = 14.47 psia)

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Liquid Contents of Storage Tank**

**BCT 150,000 bbl tanks - Internal Floating Roof Tank**  
**Bakersfield, California**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Crude oil (RVP 11.0)	All	67.63	61.25	74.00	65.42	9.5859	N/A	N/A	50.0000			207.00	Option 4: RVP=11

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Detail Calculations (AP-42)**

**BCT 150,000 bbl tanks - Internal Floating Roof Tank**  
**Bakersfield, California**

Annual Emission Calculations

Rim Seal Losses (lb):	477.0194
Seal Factor A (lb-mole/ft-yr):	0.6000
Seal Factor B (lb-mole/ft-yr (mph <sup>2</sup> n)):	0.4000
Value of Vapor Pressure Function:	0.2650
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	9.5859
Tank Diameter (ft):	150.0000
Vapor Molecular Weight (lb/lb-mole):	50.0000
Product Factor:	0.4000
Withdrawal Losses (lb):	3,564.9928
Number of Columns:	9.0000
Effective Column Diameter (ft):	0.7000
Annual Net Throughput (gal/yr):	536,550,000.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0060
Average Organic Liquid Density (lb/gal):	7.1000
Tank Diameter (ft):	150.0000
Deck Fitting Losses (lb):	6,579.6877
Value of Vapor Pressure Function:	0.2650
Vapor Molecular Weight (lb/lb-mole):	50.0000
Product Factor:	0.4000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	1,241.4000
Deck Seam Losses (lb):	3,339.1370
Deck Seam Length (ft):	3,534.2900
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.1400
Deck Seam Length Factor(ft/sqft):	0.2000
Tank Diameter (ft):	150.0000
Vapor Molecular Weight (lb/lb-mole):	50.0000
Product Factor:	0.4000
Total Losses (lb):	13,960.8369

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors		m	Losses(lb)
		KFa(lb-mole/yr)	KFb(lb-mole/(yr mph <sup>2</sup> n))		
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	36.00	5.90	1.20	190.8078
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	74.2030
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	9	47.00	0.00	0.00	2,241.9912
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1	76.00	0.00	0.00	402.8164
Roof Leg or Hanger Well/Adjustable	58	7.90	0.00	0.00	2,428.5588
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1	12.00	0.00	0.00	63.6026
Stub Drain (1-in. Diameter)/	180	1.20	0.00	0.00	1,144.8466
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	32.8613

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Individual Tank Emission Totals**

**Emissions Report for: Annual**

**BCT 150,000 bbl tanks - Internal Floating Roof Tank**  
**Bakersfield, California**

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	
Crude oil (RVP 11.0)	477.02	3,564.99	6,579.69	3,339.14	13,960.84

# **APPENDIX F**

---

HRA Summary

# San Joaquin Valley Air Pollution Control District Risk Management Review

To: Kristopher Rickards – Permit Services  
 From: Kou Thao – Technical Services  
 Date: 7-20-12  
 Facility Name: Bakersfield Crude  
 Location: South Lake Rd & Santiago Rd  
 Application #(s): S-8165- 1-0, -2-0, -3-0  
 Project #: S-1121576

## A. RMR SUMMARY

RMR Summary					
Categories	Crude oil tank (Unit 1-0)	Crude oil tank (Unit 2-0)	Loading rack (Unit 3-0)	Project Totals	Facility Totals
<b>Prioritization Score</b>	1.43	1.43	0.14	2.99	2.99
<b>Acute Hazard Index</b>	0.00	0.00	0.00	0.00	0.00
<b>Chronic Hazard Index</b>	0.01	0.01	0.00	0.02	0.02
<b>Maximum Individual Cancer Risk</b>	2.74E-08	3.74E-08	7.63E-07	8.28E-07	8.28E-07
<b>T-BACT Required?</b>	No	No	No		
<b>Special Permit Conditions?</b>	No	No	No		

### Proposed Permit Conditions

To ensure that human health risks will not exceed District allowable levels; the following permit conditions must be included for:

Unit # 1-0, -2-0, & -3-0

No special conditions are required.

## B. RMR REPORT

### I. Project Description

Technical Services received a request on June 17, 2012, to perform a Risk Management Review for a proposed installation of two 150,000 BBL internal floating roof crude oil tanks and one unloading rack.

## II. Analysis

Technical Services performed a health risk assessment using the Toxic Fugitive Emissions from Oilfield Equipment spreadsheet. The cumulative prioritization scores were greater than 1.0, thus modeling was conducted using the AERMOD model, with the parameters outlined below and meteorological data for 2005-2009 from Bakersfield to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid.

<b>Analysis Parameters Unit 1-0 &amp; 2-0 each</b>			
<b>Source Type</b>	Area	<b>Location Type</b>	Urban
<b>Tank diameter(m)</b>	45.7	<b>Closest Receptor (m)</b>	243
		<b>Type of Receptor</b>	Business
<b>Release Height (m)</b>	14.6	<b>Pollutant Type</b>	VOC
		<b>Emission Rate hourly</b>	4.17 lb/hr
		<b>Emission Rate annual</b>	9,460 lb/hr

<b>Analysis Parameters Unit -3-0</b>			
<b>Source Type</b>	Area	<b>Location Type</b>	Urban
<b>X-Length (m)</b>	548.6	<b>Closest Receptor (m)</b>	243
<b>Y-Length (m)</b>	13.4	<b>Type of Receptor</b>	Business
<b>Release Height (m)</b>	1	<b>Pollutant Type</b>	VOC
		<b>Emission Rate hourly</b>	0.12 lb/hr
		<b>Emission Rate annual</b>	1,072 lb/hr

## III. Conclusion

The acute and chronic indices are below 1.0 and the cancer risk factor associated with the project is less than 1.0 in a million. **In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

To ensure that human health risks will not exceed District allowable levels; the permit conditions listed on page 1 of this report must be included for this proposed unit.

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

## IV. Attachments

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Toxic emissions summary
- D. Prioritization score
- E. Facility Summary

# **APPENDIX G**

---

## Quarterly Net Emissions Change

### Quarterly Net Emissions Change (QNEC)

The Quarterly Net Emissions Change is used to complete the emission profile screen for the District's PAS database. The QNEC shall be calculated as follows:

$QNEC = PE2 - PE1$ , where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.

PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr.

PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr.

Using the values in Sections VII.C.2 and VII.C.6 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

$PE2_{quarterly} = PE2_{annual} \div 4 \text{ quarters/year}$

$PE1_{quarterly} = PE1_{annual} \div 4 \text{ quarters/year}$

<b>S-8163-1-0 &amp; '-2-0 Quarterly NEC [QNEC]</b>			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO <sub>x</sub>	0	0	0
SO <sub>x</sub>	0	0	0
PM <sub>10</sub>	0	0	0
CO	0	0	0
VOC	2,365	0	2,365

<b>S-8163-3-0 Quarterly NEC [QNEC]</b>			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO <sub>x</sub>	0	0	0
SO <sub>x</sub>	0	0	0
PM <sub>10</sub>	0	0	0
CO	0	0	0
VOC	268	0	268

# **APPENDIX H**

---

## **Emissions Profiles**

Permit #: S-8165-1-0	<b>Last Updated</b>
Facility: BAKERSFIELD CRUDE TERMINAL, LLC	07/18/2012 RICKARDK

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	9460.0
Daily Emis. Limit (lb/Day)					100.0
Quarterly Net Emissions Change (lb/Qtr)					
Q1:					2365.0
Q2:					2365.0
Q3:					2365.0
Q4:					2365.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Permit #: S-8165-2-0	<b>Last Updated</b>
Facility: BAKERSFIELD CRUDE TERMINAL, LLC	07/18/2012 RICKARDK

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	9460.0
Daily Emis. Limit (lb/Day)					100.0
Quarterly Net Emissions Change (lb/Qtr)					
Q1:					2365.0
Q2:					2365.0
Q3:					2365.0
Q4:					2365.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Permit #: S-8165-3-0	Last Updated
Facility: BAKERSFIELD CRUDE TERMINAL, LLC	07/18/2012 RICKARDK

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	1072.0
Daily Emis. Limit (lb/Day)					2.9
Quarterly Net Emissions Change (lb/Qtr)					
Q1:					268.0
Q2:					268.0
Q3:					268.0
Q4:					268.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					