



DEC 22 2010

Greg Youngblood  
E&B Natural Resources  
34740 Merced Avenue  
Bakersfield, CA 93308

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Project Number: S-1103331**

Dear Mr. Youngblood:

Enclosed for your review and comment is the District's analysis of E&B Natural Resources's application for an Authority to Construct for installing one 2,000 bbl crude oil stock tank (S-1624-187-0) equipped with a PV vent and decreasing the potential tank throughput of tank S-1624-9-2 from 2000 BBLs/day (one tank capacity) to 1500 BBLs/day, at the Poso Creek-Section 5 Lease (Section 5, Township 28S, Range 27E) in Kern County.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Steve Davidson of Permit Services at (661) 392-5618.

Sincerely,



David Warner  
Director of Permit Services

DW: SDD/cm

Enclosures

**Seyed Sadredin**  
Executive Director/Air Pollution Control Officer

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**Northern Region**  
4800 Enterprise Way  
Modesto, CA 95356-8718  
Tel: (209) 557-6400 FAX: (209) 557-6475

**Central Region (Main Office)**  
1990 E. Gettysburg Avenue  
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**Southern Region**  
34946 Flyover Court  
Bakersfield, CA 93308-9725  
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DEC 22 2010

Mike Tollstrup, Chief  
Project Assessment Branch  
Stationary Source Division  
California Air Resources Board  
PO Box 2815  
Sacramento, CA 95812-2815

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Project Number: S-1103331**

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of E&B Natural Resources's application for an Authority to Construct for installing one 2,000 bbl crude oil stock tank (S-1624-187-0) equipped with a PV vent and decreasing the potential tank throughput of tank S-1624-9-2 from 2000 BBLs/day (one tank capacity) to 1500 BBLs/day, at the Poso Creek-Section 5 Lease (Section 5, Township 28S, Range 27E) in Kern County.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

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**NOTICE OF PRELIMINARY DECISION  
FOR THE PROPOSED ISSUANCE OF  
AN AUTHORITY TO CONSTRUCT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct to E&B Natural Resources for installing one 2,000 bbl crude oil stock tank (S-1624-187-0) equipped with a PV vent and decreasing the potential tank throughput of tank S-1624-9-2 from 2000 BBLs/day (one tank capacity) to 1500 BBLs/day, at the Poso Creek-Section 5 Lease (Section 5, Township 28S, Range 27E) in Kern County.

The analysis of the regulatory basis for this proposed action, Project #S-1103331, is available for public inspection at [http://www.valleyair.org/notices/public\\_notices\\_idx.htm](http://www.valleyair.org/notices/public_notices_idx.htm) and the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 34946 FLYOVER COURT, BAKERSFIELD, CA 93308.**



school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

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

E&B Natural Resources Managements (E&B) owns and operates equipment utilized for the production of crude oil in the heavy oil central stationary source, Facility S-1624. Fluid flows from production wells into a wash tank to be separated into oil and water. From the wash tank, separated water flows into a skim tank where the water is further clarified. Oil flows from the wash tank into primary oil storage tanks, and then to secondary oil storage tanks if overflow protection required. From the oil storage tanks, oil is sold to refineries and loaded out either by crude oil pipeline or tanker trucks. No changes in equipment or method of operation are proposed or expected for the affected crude oil production tanks in this project.

#### Proposed Modification

Facility is proposing a 2,000 bbl stock tank with a PV vent (S-1624-187-0). The increase in VOC emissions will be offset by decreasing the potential tank throughput of tank S-1624-187-9.

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

##### Pre-Project Equipment Description:

PTO S-1624-9-1: 1,980 BBL FIXED ROOF PETROLEUM STORAGE TANK TK-6 (POSO CREEK - SEC 5)

##### Proposed Modification:

S-1624-9-2: MODIFICATION OF 2000 BBL FIXED ROOF PETROLEUM STORAGE TANK TK-6 (POSO CREEK - SEC 5): REDUCE THROUGHPUT ON EXISTING TANK TO 1500 BBL/DAY  
S-1624-187-0: INSTALLATION OF A 2000 BBL FIXED ROOF CRUDE OIL STORAGE TANK WITH P/V VENT

##### Post Project Equipment Description:

S-1624-169-2: 2000 BBL FIXED ROOF PETROLEUM STORAGE TANK TK-6 (POSO CREEK - SEC 5)  
S-1624-187-0: 2000 BBL FIXED ROOF CRUDE OIL STORAGE TANK WITH P/V VENT

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

None of the existing tanks in this project are currently equipped with vapor recovery equipment. E&B Natural Resources qualifies as a small producer per District definition. The tanks in this project exclusively handle produced fluids with true vapor pressures (TVPs) under 0.5 psia, and are therefore not subject to the requirements of Rule 4623.

## VII. General Calculations

### A. Assumptions

- Facility will operate 24 hours per day, 7 days per week, and 52 weeks per year.
- The tanks emit only volatile organic compounds (VOCs),
- The tank paint conditions are good, the color is gray, and the shade is medium. –
- ROC of oil = 0.2 psia (Applicant proposed, based on lab analysis of <0.01 see Attachment II)
- Tank temperature, 144° F (Lab analysis)
- Applicant proposes 200 bbl/day throughput
- VOCs molecular weight, 100 lb/lbmol
- GHG fugitive emissions correspond to methane emissions.
- GWP for CH<sub>4</sub> = 23 lb-CO<sub>2</sub>e per lb-CH<sub>4</sub>

### B. Emission Factors

Both the daily and annual PE's for each permit unit will be based on the results from the District's Microsoft Excel spreadsheets for Tank Emissions - Fixed Roof Crude Oil less than 26° API. The spreadsheet for tanks was developed using the equations for fixed-roof tanks from EPA AP-42, Chapter 7.1. The tank emissions calculations are included in **Attachment III**.

### C. Calculations

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

##### S-1624-9-1:

Daily PE1: 105.6 lb-VOC/day

Annual PE1: 38,546 lb-VOC/Year

##### S-1624-187:

Since unit S-1624-187 is a new emissions units, PE1 = 0 for all pollutants.

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

##### S-1624-9-2:

Daily PE2: 80.6 lb-VOC/day

Annual PE2: 29,421 lb-VOC/year

S-1624-187:

Daily PE2: 6.2 lb-VOC/day  
Annual PE2: 2279 lb-VOC/year

The emissions profiles are included in **Attachment IV**.

**Increase in Greenhouse Gas (as CO<sub>2</sub>e):**

VOC is assumed to be 85% of TOC (AP-42 Sec. 5.2); also assume 15% of TOC is CH<sub>4</sub> (methane) if site specific data is not available (2009 AP Compendium, E-6); and GWP for CH<sub>4</sub> is 23 lb-CO<sub>2</sub>e/lb-CH<sub>4</sub> (District Policy APR 2015):

$$\text{Therefore: CH}_4 = (\text{VOC}/0.85) \times 0.15$$

$$\text{Total CH}_4 \text{ from Tanks '178-0} = (2279 \text{ lb/yr})/0.85 \times 0.15 = 402 \text{ lb/yr}$$

$$\begin{aligned} \text{CO}_2\text{e (Mton/yr)} &= \text{CH}_4 \text{ (lb/yr)} \times 1\text{-Mton}/2,200 \text{ lb} \times 23 \\ &= 402 \times 1/2,200 \times 23 \\ &= 4.2 \text{ Mton/yr} \end{aligned}$$

$$4.2 \text{ M-ton/yr} < 230 \text{ M-ton CO}_2\text{e/yr}$$

Per District Policy 2015, project specific greenhouse gas emissions less than or equal to 230 M-tons of CO<sub>2</sub>e/yr are considered to be zero for District permitting purposes.

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

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (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 that have occurred at the source, and which have not been used on-site.

Facility emissions are already above the Offset and Major Source Thresholds for VOC emissions; therefore, SSPE1 calculations are not necessary.

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

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) 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 that have occurred at the source, and which have not been used on-site.

Facility emissions are already above the Offset and Major Source Thresholds for VOC emissions; therefore, SSPE2 calculations are not necessary.

## 5. Major Source Determination

Pursuant to Section 3.24 of District Rule 2201, a Major Source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values. However, Section 3.24.2 states, "for the purposes of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site."

This source is an existing Major Source for VOC emissions and will remain a Major Source for VOC. No change in other pollutants are proposed or expected 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 Section 3.7 of District Rule 2201, BE = Pre-project Potential to Emit 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 Section 3.22 of District Rule 2201.

### Clean Emissions Unit, Located at a Major Source:

Pursuant to Rule 2201, Section 3.12.2 a Clean Emissions Unit is defined as an emissions unit that is equipped with emission control technology that meets the requirements for achieved-in-practice BACT as accepted by the APCO during the five years immediately prior to the submission of the complete application.

S-1624-9: This unit is equipped with a PV vent, which is the achieved-in-practice BACT (Guideline 7.3.1 last updated 10/1/2002) for Fixed Roof Organic Liquid Storage or Processing Tank < 5,000 bbl tank capacity. Therefore, Baseline Emissions (BE) are equal to the Pre-Project Potential to Emit (PE1).

$$BE = PE1 = 38,546 \text{ lb-VOC/yr}$$



New Emissions Unit:

Tank S-1624-186-0 is a new emissions unit, BE = PE1 = 0 for all pollutants:

**7. SB 288 Major Modification**

An SB 288 Major Modification is a Major Modification as defined in 40 CFR Part 51.165 9in effect on 12-19-2002) 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."

The existing tank (S-1624-9) is not considered modified for Federal purposes and does not figure into the calculations to determine if the project triggers an SB 288 or Federal Major Modification, i.e., the tank is not undergoing a physical change or change in the method of operation. The PE of the tank is being re-established as part of netting action to address Rule 2201 offset requirements.

As shown in the table below, the facility does not exceed any of the SB 288 criteria pollutant thresholds; therefore, the project does not constitute a SB 288 Major Modification.

SB 288 Major Modifaction			
Pollutant	SB 288 Threshold (lb/Year)	PE (lb/Year)	SB 288 Threshold
VOC	50,000	2279	No
NOx	50,000	0	No
PM10	30,000	0	No
SOx	80,000	0	No

**8. Federal Major Modification**

A Federal Major Modification is defined as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA and are significant if they exceed the following thresholds:

Federal Major Modifaction	
Pollutant	Federal Major Modifaction Threshold (lb/Year)
VOC	0
NOx	0
PM10	30,000
SOx	80,000

**VOC Emissions Increase (EI) Calculations:**

S-1624-187:

Per District Draft Policy, Implementation of Rule 2201 (as amended on 12/18/08 and effective on 6/10/10) for SB288 Major Modifications and Federal Major Modifications, the emissions increase is the potential to emit and the BAE is equal to zero pounds per year; therefore:

$$IE = 2279 \text{ lb-VOC/year}$$

$$EI = \sum PE2 \text{ (unit S-1624-187)} = 2279 \text{ lb/yr}$$

$$EI = 2279 \text{ lb/yr}$$

<b>Federal Major Modification Significance Thresholds (lb/yr)</b>				
	<b>NOx</b>	<b>SOx</b>	<b>PM<sub>10</sub></b>	<b>VOC</b>
Net Project Increases	0	0	0	2279
Threshold	0	80,000	30,000	0
Federal Major Mod?	No	No	No	Yes

As shown in the above calculations, the project will result in an increase in VOC emissions greater than the Federal Major Modification threshold.

**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 **Attachment V**.

**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 for the following\*:

- 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 a SB288 or Federal Major Modification.

\*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 of this evaluation, the applicant is proposing to install a new crude oil stock tank with a VOC potential to emit greater than 2 lb/day for VOC. Therefore BACT is triggered for VOC.

**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**

The applicant is proposing to decrease the throughput and the emissions for tank S-1624-9-2. Therefore, BACT is not triggered.

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

As discussed above in Section VII.C.7 above, the project results in a Federal Major Modification. Thus BACT is required for all units in the project that were Federally modified and whose emissions were included in making the Federal Major Modification determination. BACT is therefore required for the new but not the existing tank.

**2. BACT Guideline**

BACT Guideline 7.3.1, Petroleum and Petrochemical Production - Fixed Roof Organic Liquid Storage or Processing Tank, < 5,000 bbl Tank Capacity (See Attachment VI) applies to the tanks in this project.

**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.

The applicant is proposing to use PV relief valve on the tank vent set to within 10% of maximum allowable pressure. The technologically feasible option of waste gas incinerated in [steam generator, heater treater, or other fired equipment] and inspection and maintenance program at 99% control are not cost effective; the proposed equipment satisfies the BACT requirement. (see BACT Guideline 7.3.1)

**B. Offsets**

**1. Offset Applicability**

Pursuant to Section 4.5.3, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the post-project stationary source Potential to Emit (SSPE2) equals to or exceeds the offset threshold levels in Table 4-1 or Rule 2201.

The following table compares the post-project facility-wide annual emissions in order to determine if offsets will be required for this project.

<b>Offset Applicability</b>			
<b>Pollutant</b>	<b>SSPE2 (lb/yr)</b>	<b>Offset Threshold Levels (lb/yr)</b>	<b>Offsets Calculations Required?</b>
VOC	> 20,000	20,000	Yes

**2. Quantity of Offsets Required**

As shown in the table above, the SSPE2 meets or exceeds the offset threshold levels. Therefore, offsets calculations will be required.

**2. Quantity of Offsets Required**

Per Sections 4.7.1 and 4.7.3, the quantity of offsets in pounds per year for VOC is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

Offsets Required (lb/year) =  $(\Sigma[PE2 - BE] + ICCE) \times DOR$ , for all new or modified emissions units in the project,

Where,

PE2 = Post Project Potential to Emit, (lb/year)

BE = Baseline Emissions, (lb/year)

ICCE = Increase in Cargo Carrier Emissions, (lb/year)

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = Pre-project Potential to Emit 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)

There are no increases in NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, CO, or cargo carrier emissions

The facility is proposing to modify one unit (S1624-9) and install one new unit (S1624-186). The modified unit is a clean emissions unit; therefore, BE for the clean unit is equal to PE1 and zero for the new unit.

Offsets can be determined as follows:

$$\text{Offsets Required (lb/year)} = (\Sigma[\text{PE2} - \text{BE}] + \text{ICCE}) \times \text{DOR}$$

$$\text{Offsets Required (lb/year)} = [\text{PE2} - \text{BE}]_{-9} + [\text{PE2} - \text{BE}]_{-186}$$

$$\text{Offsets Required (lb/year)} = [29,421 - 38,546] + [2279 - 0]$$

$$\text{Offsets Required (lb/year)} = -6,846$$

Since project results in no increase in emission, offsets are not required for this project.

## C. Public Notification

### 1. Applicability

Public noticing is required for:

- a. Any new Major Source, which is a new facility that is also a Major Source,
- b. SB288 and Federal Major Modifications,
- c. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- d. Any project which results in the offset thresholds being surpassed, and/or
- e. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

#### a. New Major Source

New Major Sources are new facilities, which are also Major Sources. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes.

#### b. SB 288 and Federal Major Modification

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

As demonstrated in VII.C.8 this project constitutes a Federal Major Modification; therefore, public noticing for Federal Major Modification purposes is required.

#### c. PE > 100 lb/day

Applications which include a new emissions unit with a Potential to Emit 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.

**d. Offset Threshold**

The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

<b>Offset Threshold</b>				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
VOC	>20,000 lb/year	>20,000 lb/year	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.

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

Public notification is required for any permitting action that results in a Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e.  $SSIPE = SSPE2 - SSPE1$ . The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table:

<b>Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice</b>					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
VOC	>20,000	> 20,000	-6,846	20,000 lb/year	No

As demonstrated above, the SSIPEs for NO<sub>x</sub> and CO were not greater than 20,000 lb/year; therefore public noticing for SSIPE purposes is not required.

**2. Public Notice Action**

As discussed above, this project will result in VOC emissions greater than the Federal Major Modification threshold; therefore, public notice will not be required for this project.

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

Daily Emission Limits, DELs, are required by Rule 2201 Section 5.7.2.

DELs for the emission units in this project will be included on the ATCs in the form of tanks' throughput and the tank contents' maximum true vapor pressure (TVP). The permittee will be required to maintain accurate records of tank content TVP and tanks monthly average daily throughput to validate the DEL.

## **E. Compliance Assurance**

### **1. Source Testing**

The permittee will be required to perform periodic TVP testing for all tanks in this project using the latest EPA and CARB approved version of the Lawrence Berkeley National Laboratory "Test Method for Vapor Pressure of Reactive Organic Compounds in Heavy Crude Oil Using Gas Chromatograph" to validate non-applicability of Rule 4623. The testing shall be conducted once every 24 month period or every time when the source of liquid stored is changed.

### **2. Monitoring**

Monitoring is not required.

### **3. Recordkeeping**

Record keeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. The following conditions will appear on the permits:

- Permittee shall maintain monthly records of average daily crude oil throughput and shall keep accurate records of each organic liquid stored in the tank, including its storage temperature, TVP, and API gravity. [District Rule 2201] N
- 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 Rule 2201] N

### **4. Reporting**

No reporting is required to demonstrate compliance with Rule 2201.

## **Rule 2520 Federally Mandated Operating Permits**

Since this facility's emissions exceed the major source thresholds of District Rule 2201, this facility is a major source. However, this facility has elected to comply with Rule 2530, which, per Section 4.6 of Rule 2520, exempts it from the requirements of Rule 2520.

## **Rule 2530 Federally Enforceable Potential to Emit**

The purpose of this rule is to restrict the emissions of a stationary source so that the source may elect to be exempt from the requirements of Rule 2520. Per Section 6.1 of Rule 2530, this facility has elected exemption from the requirements of Rule 2520 by ensuring actual emissions from the stationary source in every 12-month periods to not exceed the following: ½ the major source thresholds for NO<sub>x</sub>, VOCs, CO, and PM<sub>10</sub>; 50 tons per year SO<sub>2</sub>; 5 tons per year of a single HAP; 12.5 tons per year of any combination of HAPs; 50 percent of any lesser

threshold for a single HAP as the EPA may establish by rule; and 50 percent of the major source threshold for any other regulated air pollutant not listed in 6.1.1 and 6.1.6 of Rule 2530.

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

This rule incorporates the New Source Performance Standards from 40 CFR Part 60. 40 CFR Part 60, Subpart Kb could potentially apply to the new storage tank.

Pursuant to 60.110b (b), Subpart Kb does not apply to a vessel with a design capacity less than or equal to 1,589.874 cubic meters (10,000 barrels) used for petroleum storage at a production facility prior to custody transfer. Since this vessel has a capacity less than or equal to 1,589.874 cubic meters and is used at a production facility prior to custody transfer, Subpart Kb does not apply.

Therefore, the requirement of this subpart is not applicable to this project.

#### **Rule 4102 Nuisance**

Section 4.0 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. Therefore, compliance with this rule is expected.

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

The District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, 3/2/01) requires that a Risk Management Review is performed for any increase in hourly or annual emissions of Hazardous Air Pollutants (HAPs). HAPs are limited to substances included on the list in CH&SC 44321 and that have an OEHHA approved health risk value.

A health risk analysis was not required as there is no increase in emissions.

#### **Rule 4623 – Storage of Organic Liquids**

This rule applies to any tank with a capacity of 1,100 gallons or greater in which any organic liquid is placed, held, or stored.

According to Section 4.4, tanks exclusively receiving and or storing organic liquids with a TVP less than 0.5 psia are exempt from this Rule except for complying with Sections 6.2, 6.3.6, 6.4 and 7.2. Therefore, because the applicant has proposed a vapor pressure of Reactive Organic Compounds (ROC) of 0.2 the following condition shall be placed on the ATC:

{This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.2 psia under all storage conditions. [District Rule 2201 and 4623] N



According to the information provided by the applicant, E&B Natural Resources produces on average less than 6,000 barrels per day of crude oil from all operations within the county and does not engage in refining, transportation, or marketing of refined petroleum products. Therefore, under Section 3.29 of this rule and District Rule 1020, Section 3.45, this facility is a small producer.

Applicant also states that the crude oil ROC is 0.2 and the tank has a 2000 bbl capacity. Daily throughput is limited to 200 bbls. Therefore the following conditions will apply:

Fluid throughput shall not exceed 200 bbl/day. [District Rule 2201] N

This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.2 psia under all storage conditions. [District Rule 2201 and 4623] N

{2483} For crude oil with an API gravity of 26 degrees or less, the TVP shall be determined using the latest version of the Lawrence Berkeley National Laboratory "test Method for Vapor pressure of Reactive Organic Compounds in Heavy Crude Oil Using Gas Chromatograph", as approved by ARB and EPA. [District Rule 4623] N

{2913} The permittee shall keep accurate records of each organic liquid stored in the tank, including its storage temperature, TVP, and API gravity. [District Rules 4623] N

{2490} 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 Rule 4623] N

Compliance with the requirements of 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)**

The California Environmental Quality Act (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 San Joaquin Valley Unified Air Pollution Control District (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.
- 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 no other agency has or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project.

The District's engineering evaluation (this document) demonstrates that the project would not result in an increase in project specific greenhouse gas emissions. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

### **District CEQA Findings**

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15031 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

### **IX. Recommendation**

Compliance with all applicable rules and regulations is expected. Issue Authorities to Construct S-1624-9-2 and '-187-0 subject to the permit conditions on the attached draft Authorities to Construct in **Attachment VIII**.

### **X. Billing Information**

<b>Annual Permit Fees</b>			
<b>Permit Number</b>	<b>Fee Schedule</b>	<b>Fee Description</b>	<b>Annual Fee</b>
S-1624-9-2	3020-05S-D	84,000 gallon tank	\$75.00
S-1624-187-0	3020-05S-D	84,000 gallon tank	\$75.00

### **Attachments**

- I: PTO S-1624-9-1
- II: Lab Analysis
- III: Emissions Calculations
- IV: Emissions Profiles

V: Quarterly Net Emissions Change  
VI: BACT Guideline 7.3.1  
VII: BACT Analysis & Top-Down BACT Analysis  
VIII: Draft ATCs

**ATTACHMENT I**

PTO S-1624-9-1

# San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1624-9-1

EXPIRATION DATE: 06/30/2013

SECTION: 5 TOWNSHIP: 28S RANGE: 27E

## EQUIPMENT DESCRIPTION:

1,980 BBL FIXED ROOF PETROLEUM STORAGE TANK TK-6 (POSO CREEK - SEC 5)

## PERMIT UNIT REQUIREMENTS

---

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. To maintain status as a small producer, permittee's crude oil production shall average less than 6000 bbl/day from all operations within Kern County and permittee shall not engage in refining, transporting, or marketing of refined petroleum products. [District Rules 3020 & 4623]
3. When this tank is not operated (dormant for Rule 4623), all liquids shall be removed and the produced crude oil inlet line shall be physically disconnected. [District Rule 2080]
4. Results of TVP test on material introduced to this tank upon reactivation shall be submitted to the District within 60 days of recommencing operation of this tank. [District Rule 2080]
5. Permittee shall notify the District at least seven (7) calendar days prior to recommencing operation. [District Rule 1070]
6. Instead of testing each uncontrolled fixed roof tank, the permittee may conduct a TVP test of the organic liquid stored in a representative tank provided the requirements of Sections 6.2.1.1.1 through 6.2.1.1.5 of Rule 4623 are met. [District Rule 4623]
7. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.5 psia under all storage conditions. [District Rule 4623]
8. Permittee shall conduct true vapor pressure (TVP) testing of the organic liquid stored in this tank at least once every 24 months during summer (July - September), and/or whenever there is a change in the source or type of organic liquid stored in this tank in order to maintain exemption from the rule. [District Rule 4623]
9. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D 287 e1 "Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method). Sampling for API gravity shall be performed in accordance with ASTM Method D 4057 "Standard Practices for Manual Sampling of Petroleum and Petroleum Products." [District Rule 4623]
10. For crude oil with an API gravity of 26 degrees or less, the TVP shall be determined using the latest version of the Lawrence Berkeley National Laboratory "test Method for Vapor pressure of Reactive Organic Compounds in Heavy Crude Oil Using Gas Chromatograph", as approved by ARB and EPA. [District Rule 4623]
11. The TVP testing shall be conducted at actual storage temperature of the organic liquid in the tank. The permittee shall also conduct an API gravity testing. [District Rule 4623]
12. Permittee shall submit the records of TVP and API gravity testing to the APCO within 45 days after the date of testing. The records shall include the tank identification number, Permit to Operate number, type of stored organic liquid, TVP and API gravity of the organic liquid, test methods used, and a copy of the test results. [District Rule 4623]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

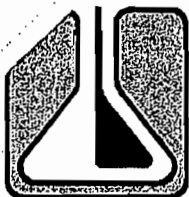
These terms and conditions are part of the Facility-wide Permit to Operate.

13. The permittee shall keep accurate records of each organic liquid stored in the tank, including its storage temperature, TVP, and API gravity. [District Rule 4623]
14. 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 Rule 4623]

These terms and conditions are part of the Facility-wide Permit to Operate.

## **ATTACHMENT II**

Lab Analysis



**ZALCO LABORATORIES, INC.**  
Analytical & Consulting Services

4309 Armour Avenue  
Bakersfield, California 93308

(661) 395-0539  
FAX (661) 395-3069

Enviro Technologies Consultants, Inc. 5400 Rosedale Hwy Bakersfield, CA 93308	Project: Master Project Number: Project Manager: Scott Faulkenberg	Work Order No.: 1001240 Reported: 02/03/2010
---	--	---

Lab ID: 1001240-01 Client ID: E & B Section 5

Analyte	Results	RL	Units	Dilution	Flag	Method	Date Prepared	Date Analyzed	Analyst
<b>API Gravity</b>									
API Gravity @ 60F, Hydrometer	13.0		60/60F	1		ASTM D 287	1/21/10	1/21/10	JAH
<b>Total Vapor Pressure, Reactive Organic Compounds (ROCs)</b>									
Total Vapor Pressure, ROCs	<0.01	0.01	psia	1		LBNL	1/21/10	1/21/10	LTB
<b>Total Vapor Pressure, ROCs Test Conditions</b>									
Tank Temperature	144		°F	1		LBNL	1/21/10	1/21/10	LTB
Test, Atmospheric Pressure	14.03		psia	1		LBNL	1/21/10	1/21/10	LTB
Test, Barometric Pressure	28.55		In. of Hg	1		LBNL	1/21/10	1/21/10	LTB
Test Temperature	144.1		°F	1		LBNL	1/21/10	1/21/10	LTB





**ZALCO LABORATORIES, INC.**  
Analytical & Consulting Services

4309 Armour Avenue  
Bakersfield, California 93308

(661) 395-0539  
FAX (661) 395-3069

Wednesday, September 02, 2009

Greg Youngblood  
E & B Natural Resources Corp.  
1600 Norris Road  
Bakersfield, CA 93308  
TEL: (661) 619-7813  
FAX (661) 392-7579

RE:

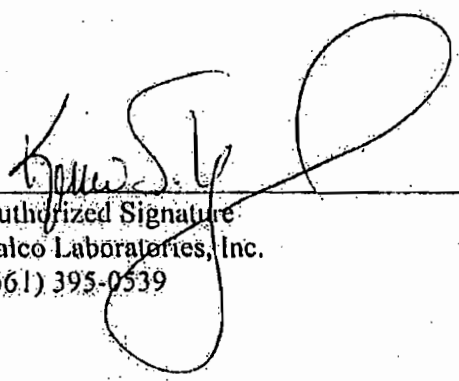
Order No.: 0909015

Dear Greg Youngblood:

Zalco Laboratories, Inc. received 1 sample(s) on 9/1/2009 for the analyses presented in the following report.

We appreciate your business and look forward to serving you in the future. Please feel free to call our office if you have any questions regarding these test results.

Sincerely,

  
Authorized Signature  
Zalco Laboratories, Inc.  
(661) 395-0539



**ZALCO LABORATORIES, INC.**  
Analytical & Consulting Services

4309 Armour Avenue  
Bakersfield, California 93308

(661) 395-0539  
FAX (661) 395-3069

E & B Natural Resources Corp.  
1600 Norris Road  
Bakersfield CA 93308

Laboratory No: 0909015-001  
Date Received: 09/01/09  
Date Analyzed: 09/02/09  
Purchase Order:

Attention: Greg Youngblood

Test Code: 1610

Sample Description: Willeox Gas  
Sampled: 09/01/2009 @ 14:18 PM by Rick Ogletree

Chromatographic Analysis, ASTM D-1945-96, ASTM D-3588-98, GPA 2145-94, GPA 2261-00

Constituent:	Mole %	Weight %	Gas Liquids, Gallons per 1000 cubic feet	CTIONS% Carbon, C
Oxygen	0.287	0.53		68.68
Nitrogen	1.524	2.48		
Carbon Dioxide	3.231	8.27		Hydrogen, H 22.29
Carbon Monoxide	0.000	0.00		
Hydrogen Sulfide	0.000	0.00		Oxygen, O 6.55
Methane	94.904	88.58		
Ethane	0.043	0.08		
Propane	0.000	0.00	0.00	Nitrogen, N 2.48
IsoButane	0.000	0.00	0.00	
n-Butane	0.002	0.01	0.00	
IsoPentane	0.000	0.00	0.00	Sulfur, S 0.00
n-Pentane	0.000	0.00	0.00	
Hexanes +	0.010	0.05	0.00	
<b>Totals:</b>	<b>100.00</b>	<b>100.00</b>	<b>0.00</b>	<b>100.00</b>

Gas Properties calculated at STP: degrees F.	60.00	H/C Ratio:
Measurement Base Pressure at STP: psia	14.696	0.32

Gross Btu/Cu.Ft., Dry Gas HHV	961.8	Relative Gas Density, Ideal gas:	0.5935
Ideal Gross Btu/Lb, Dry Gas HHV	21190.6	Specific Gravity, (Air = 1) Real gas:	0.5943
Net Btu/Cu.Ft., Dry Gas LHV	866.0	Real Gas Density, Lb/Cu.Ft.	0.04539
Ideal Net Btu/Lb, Dry Gas LHV	19080.2	Specific Volume, Cu.Ft./Lb	22.0331
Gross Btu/Cu.Ft., water saturated	943.1	Compressibility, 'z'	0.9980

	Gross or HHV:	Net or LHV:
"F" Factor, DSCF/MMBtu at 60F	8531.2	9474.8
"F" Factor, DSCF/MMBtu at 68F	8661.1	9619.1
"F" Factor, DSCF/MMBtu at 70F	8694.0	9656.6
"FC" Factor, DSCF CO2/MMBtu60F	1024.8	1138.1
"FC" Factor, DSCF CO2/MMBtu68F	1040.4	1155.4

*Robert Cortez*  
Robert Cortez, Laboratory Manager

## **ATTACHMENT III**

### **Emissions Calculations**

<b>Tank Input Data</b>	
permit number (S-xxxx-xx-xx)	S-1624-9-1
facility tank I.D.	--
nearest city {1: Bakersfield, 2: Fresno, 3: Stockton}	1
tank ROC vapor pressure (psia)	0.5
liquid bulk storage temperature, Tb (°F)	144
is this a constant-level tank? (yes, no)	no
will flashing losses occur in this tank (only if first-line tank)? (yes, no)	no
breather vent pressure setting range (psi)	0.06
diameter of tank (feet)	30
capacity of tank (bbl)	2,000
conical or dome roof? {c, d}	c
shell height of tank (feet)	16
average liquid height (feet)	8
are the roof and shell the same color? (yes,no)	yes
For roof:	
color {1:Spec Al, 2:Diff Al, 3:Light, 4:Med, 5:Red, 6:White}	4
condition {1: Good, 2: Poor}	1
-----This row only used if shell is different color from roof-----	4
-----This row only used if shell is different color from roof-----	1

<b>Liquid Input Data</b>	<b>A</b>	<b>B</b>
maximum daily fluid throughput (bbl)		2,000
maximum annual fluid throughput (bbl)	730,000	730,000
-----This row only used if flashing losses occur in this tank-----		100
-----This row only used if flashing losses occur in this tank-----		36,500
molecular weight, Mw (lb/lb-mol)		100

<b>Calculated Values</b>	<b>A</b>	<b>B</b>
daily maximum ambient temperature, T <sub>ax</sub> (°F)		77.65
daily minimum ambient temperature, T <sub>an</sub> (°F)		53.15
daily total solar insolation factor, I (Btu/ft <sup>2</sup> -day)		1648.9
atmospheric pressure, P <sub>a</sub> (psia)		14.47
water vapor pressure at daily maximum liquid surface temperature (T <sub>lx</sub> ), P <sub>vx</sub> (psia)	123.7	1.8891
water vapor pressure at daily minimum liquid surface temperature (T <sub>ln</sub> ), P <sub>vn</sub> (psia)	112.9	1.3971
water vapor pressure at average liquid surface temperature (T <sub>la</sub> ), P <sub>va</sub> (psia)	118.3	1.6225
roof outage, H <sub>ro</sub> (feet)		0.3125
vapor space volume, V <sub>v</sub> (cubic feet)		5875.76
paint factor, alpha		0.68
vapor density, W <sub>v</sub> (lb/cubic foot)		0.0081
daily vapor temperature range, delta T <sub>v</sub> (degrees Rankine)		49.04
vapor space expansion factor, K <sub>e</sub>		0.1184

<b>Results</b>	<b>lb/year</b>	<b>lb/day</b>
Standing Storage Loss	2,046	5.61
Working Loss	36,500	100.00
Flashing Loss	N/A	N/A
<b>Total Uncontrolled Tank VOC Emissions</b>	<b>38,546</b>	<b>105.6</b>

<b>Summary Table</b>	
<b>Permit Number</b>	<b>S-1624-9-1</b>
<b>Facility Tank I.D.</b>	<b>--</b>
<b>Tank capacity (bbl)</b>	<b>2,000</b>
<b>Tank diameter (ft)</b>	<b>30</b>
<b>Tank shell height (ft)</b>	<b>16</b>
<b>Conical or Dome Roof</b>	<b>Conical</b>
<b>Maximum Daily Fluid Throughput (bbl/day)</b>	<b>2,000</b>
<b>Maximum Annual Fluid Throughput (bbl/year)</b>	<b>730,000</b>
<b>Maximum Daily Oil Throughput (bbl/day)</b>	<b>N/A</b>
<b>Maximum Annual Oil Throughput (bbl/year)</b>	<b>N/A</b>
<b>Total Uncontrolled Daily Tank VOC Emissions (lb/day)</b>	<b>105.6</b>
<b>Total Uncontrolled Annual Tank VOC Emissions (lb/year)</b>	<b>38,546</b>

<b>Tank Input Data</b>	
permit number (S-xxxx-xx-xx)	S-1624-9
facility tank I.D.	--
nearest city {1: Bakersfield, 2: Fresno, 3: Stockton}	1
tank ROC vapor pressure (psia)	0.5
liquid bulk storage temperature, Tb (°F)	144
is this a constant-level tank? {yes, no}	no
will flashing losses occur in this tank (only if first-line tank)? {yes, no}	no
breather vent pressure setting range (psi)	0.06
diameter of tank (feet)	30
capacity of tank (bbl)	2,000
conical or dome roof? {c, d}	c
shell height of tank (feet)	16
average liquid height (feet)	8
are the roof and shell the same color? {yes,no}	yes
For roof:	
color {1:Spec Al, 2:Diff Al, 3:Light, 4:Med, 5:Red, 6:White}	4
condition {1: Good, 2: Poor}	1
-----This row only used if shell is different color from roof-----	4
-----This row only used if shell is different color from roof-----	1

9-2

<b>Liquid Input Data</b>	<b>A</b>	<b>B</b>
maximum daily fluid throughput (bbl)		1,500
maximum annual fluid throughput (bbl)	547,500	547,500
-----This row only used if flashing losses occur in this tank-----		100
-----This row only used if flashing losses occur in this tank-----		36,500
molecular weight, Mw (lb/lb-mol)		100

<b>Calculated Values</b>	<b>A</b>	<b>B</b>
daily maximum ambient temperature, T <sub>ax</sub> (°F)		77.65
daily minimum ambient temperature, T <sub>an</sub> (°F)		53.15
daily total solar insolation factor, I (Btu/ft <sup>2</sup> -day)		1648.9
atmospheric pressure, P <sub>a</sub> (psia)		14.47
water vapor pressure at daily maximum liquid surface temperature (T <sub>lx</sub> ), P <sub>vx</sub> (psia)	123.7	1.8891
water vapor pressure at daily minimum liquid surface temperature (T <sub>ln</sub> ), P <sub>vn</sub> (psia)	112.9	1.3971
water vapor pressure at average liquid surface temperature (T <sub>la</sub> ), P <sub>va</sub> (psia)	118.3	1.6225
roof outage, H <sub>ro</sub> (feet)		0.3125
vapor space volume, V <sub>v</sub> (cubic feet)		5875.76
paint factor, alpha		0.68
vapor density, W <sub>v</sub> (lb/cubic foot)		0.0081
daily vapor temperature range, delta T <sub>v</sub> (degrees Rankine)		49.04
vapor space expansion factor, K <sub>e</sub>		0.1184

<b>Results</b>	<b>lb/year</b>	<b>lb/day</b>
Standing Storage Loss	2,046	5.61
Working Loss	27,375	75.00
Flashing Loss	N/A	N/A
<b>Total Uncontrolled Tank VOC Emissions</b>	<b>29,421</b>	<b>80.6</b>

<b>Summary Table</b>	
<b>Permit Number</b>	<b>S-1624-9-1</b>
<b>Facility Tank I.D.</b>	--
<b>Tank capacity (bbl)</b>	<b>2,000</b>
<b>Tank diameter (ft)</b>	<b>30</b>
<b>Tank shell height (ft)</b>	<b>16</b>
<b>Conical or Dome Roof</b>	<b>Conical</b>
<b>Maximum Daily Fluid Throughput (bbl/day)</b>	<b>1,500</b>
<b>Maximum Annual Fluid Throughput (bbl/year)</b>	<b>547,500</b>
<b>Maximum Daily Oil Throughput (bbl/day)</b>	<b>N/A</b>
<b>Maximum Annual Oil Throughput (bbl/year)</b>	<b>N/A</b>
<b>Total Uncontrolled Daily Tank VOC Emissions (lb/day)</b>	<b>80.6</b>
<b>Total Uncontrolled Annual Tank VOC Emissions (lb/year)</b>	<b>29,421</b>

9-2

<b>Tank Input Data</b>	
permit number (S-xxxx-xx-xx)	S-1624-9-1
facility tank I.D.	--
nearest city {1: Bakersfield, 2: Fresno, 3: Stockton}	1
tank ROC vapor pressure (psia)	0.2
liquid bulk storage temperature, Tb (°F)	144
is this a constant-level tank? {yes, no}	no
will flashing losses occur in this tank (only if first-line tank)? {yes, no}	no
breather vent pressure setting range (psi)	0.06
diameter of tank (feet)	30
capacity of tank (bbl)	2,000
conical or dome roof? {c, d}	c
shell height of tank (feet)	16
average liquid height (feet)	8
are the roof and shell the same color? {yes,no}	yes
For roof:	
color {1:Spec Al, 2:Diff Al, 3:Light, 4:Med, 5:Red, 6:White}	4
condition {1: Good, 2: Poor}	1
-----This row only used if shell is different color from roof-----	4
-----This row only used if shell is different color from roof-----	1

167-U

<b>Liquid Input Data</b>	<b>A</b>	<b>B</b>
maximum daily fluid throughput (bbl)		200
maximum annual fluid throughput (bbl)	73,000	73,000
-----This row only used if flashing losses occur in this tank-----		100
-----This row only used if flashing losses occur in this tank-----		36,500
molecular weight, Mw (lb/lb-mol)		100

<b>Calculated Values</b>	<b>A</b>	<b>B</b>
daily maximum ambient temperature, T <sub>ax</sub> (°F)		77.65
daily minimum ambient temperature, T <sub>an</sub> (°F)		53.15
daily total solar insolation factor, I (Btu/ft <sup>2</sup> -day)		1648.9
atmospheric pressure, P <sub>a</sub> (psia)		14.47
water vapor pressure at daily maximum liquid surface temperature (T <sub>lx</sub> ), P <sub>vx</sub> (psia)	123.7	1.8891
water vapor pressure at daily minimum liquid surface temperature (T <sub>ln</sub> ), P <sub>vn</sub> (psia)	112.9	1.3971
water vapor pressure at average liquid surface temperature (T <sub>la</sub> ), P <sub>va</sub> (psia)	118.3	1.6225
roof outage, H <sub>ro</sub> (feet)		0.3125
vapor space volume, V <sub>v</sub> (cubic feet)		5875.76
paint factor, alpha		0.68
vapor density, W <sub>v</sub> (lb/cubic foot)		0.0032
daily vapor temperature range, delta T <sub>v</sub> (degrees Rankine)		49.04
vapor space expansion factor, K <sub>e</sub>		0.1184

<b>Results</b>	<b>lb/year</b>	<b>lb/day</b>
Standing Storage Loss	819	2.24
Working Loss	1,460	4.00
Flashing Loss	N/A	N/A
<b>Total Uncontrolled Tank VOC Emissions</b>	<b>2,279</b>	<b>6.2</b>



<b>Summary Table</b>	
<b>Permit Number</b>	<b>S-1624-94</b>
<b>Facility Tank I.D.</b>	--
<b>Tank capacity (bbl)</b>	<b>2,000</b>
<b>Tank diameter (ft)</b>	<b>30</b>
<b>Tank shell height (ft)</b>	<b>16</b>
<b>Conical or Dome Roof</b>	<b>Conical</b>
<b>Maximum Daily Fluid Throughput (bbl/day)</b>	<b>200</b>
<b>Maximum Annual Fluid Throughput (bbl/year)</b>	<b>73,000</b>
<b>Maximum Daily Oil Throughput (bbl/day)</b>	<b>N/A</b>
<b>Maximum Annual Oil Throughput (bbl/year)</b>	<b>N/A</b>
<b>Total Uncontrolled Daily Tank VOC Emissions (lb/day)</b>	<b>6.2</b>
<b>Total Uncontrolled Annual Tank VOC Emissions (lb/year)</b>	<b>2,279</b>

167-0

## **ATTACHMENT IV**

### Emissions Profiles

Permit #: S-1624-9-2	Last Updated
Facility: E&B NATURAL RESOURCES MGMT	11/16/2010 DAVIDSOS

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	29421.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	80.6
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	-2282.0
Q2:	0.0	0.0	0.0	0.0	-2282.0
Q3:	0.0	0.0	0.0	0.0	-2282.0
Q4:	0.0	0.0	0.0	0.0	-2282.0
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-1624-187-0	Last Updated
Facility: E&B NATURAL RESOURCES MGMT	12/08/2010 DAVIDSOS

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	2279.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	6.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	570.0
Q2:	0.0	0.0	0.0	0.0	570.0
Q3:	0.0	0.0	0.0	0.0	570.0
Q4:	0.0	0.0	0.0	0.0	570.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

## **ATTACHMENT V**

### 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:

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

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

VOC Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
S-1624-9	7,355	9,637	-2282
S-1642-187	2279	0	570

## **ATTACHMENT VI**

BACT Guideline 7.3.1

San Joaquin Valley  
Unified Air Pollution Control District

**Best Available Control Technology (BACT) Guideline 7.3.1\***

Last Update: 10/1/2002

**Petroleum and Petrochemical Production - Fixed Roof Organic  
Liquid Storage or Processing Tank, < 5,000 bbl Tank capacity \*\***

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	PV-vent set to within 10% of maximum allowable pressure	99% control ( Waste gas incinerated in steam generator, heater treater, or other fired equipment and inspection and maintenance program; transfer of noncondensable vapors to gas pipeline; reinjection to formation (if appropriate wells are available); or equal).	

\*\* Converted from Determinations 7.1.11 (10/01/02).

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 - Permit Specific BACT Determinations on Next Page(s)**



## ATTACHMENT VII

### BACT Analysis

#### Top Down BACT Analysis

VOC emissions may occur when the produced fluids from the crude oil production wells enter the oil storage tanks.

#### Step 1 - Identify All Possible Control Technologies

BACT Guideline 7.3.1 lists the controls that are considered potentially applicable to fixed-roof organic liquid storage or processing tank <5,000 bbl tank capacity. The VOC control measures are summarized below.

##### *Technologically feasible:*

99% control (waste gas incinerated in steam generator, heater treater, or other fired equipment and inspection and maintenance program; transfer of uncondensed vapors to gas pipeline or reinjection to formation (if appropriate wells are available).

##### *Achieved in Practice:*

PV relief valve set to within 10% of maximum allowable pressure.

#### Step 2 - Eliminate Technologically Infeasible Options

All of the above identified control options are technologically feasible.

#### Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. 99% control (waste gas incinerated in steam generator, heater treater, or other fired equipment and inspection and maintenance program; transfer of uncondensed vapors to gas pipeline or reinjection to formation (if appropriate wells are available).
2. PV relief valve set to within 10% of maximum allowable pressure.

#### Step 4 - Cost Effectiveness Analysis

The annualized capital cost is

$AP = (P) \left\{ \frac{i(1+i)^n}{(1+i)^n - 1} \right\}$ , where

AP = Equivalent Annual Capital Cost of Control Equip.

P = Present value of the control equipment, including installation cost. \$51,200  
(applicant submitted cost for a compressor)

i = interest rate (use 10% per policy)

n = equipment life (assume 10 years per policy)

$AP = (P) \left\{ \frac{(0.1)(1+0.1)^{10}}{(1+0.1)^{10} - 1} \right\}$

$AP = (P) \times (0.16274) = (\$51,200)(0.16274) = \$8,332/\text{year}$

Present value of the control equipment:

VRU-Compressor	\$51,200
Annualized Capital Cost	\$8330
Annualized Maintenance Cost	\$12,000
Annual Seal Replacement Cost	\$4,000
<b>Total Annualized Cost</b>	<b>\$24,261</b>

For calculation of the amount of VOCs removed from the tank (emissions unit) with the vapor control system, 99% control is required by Technologically feasible BACT. The VOCs removed annually are calculated below:

S-1624-187-0:

Annual PE2: 2,279 lb-VOC/year  
99% Control 2,256 lb-VOC/year = 1.13 Ton-VOC/year

Annualized cost =  $\$24,261 / 1.13 \text{ tons/yr}$   
= \$21,470 ton

This is greater than the cost effectiveness threshold for VOCs of \$17,500/ton. Therefore the vapor control system is not cost effective.

#### Step 5 - Select BACT

PV relief valve set to within 10% of maximum allowable pressure of the tank.

E&B Natural Resources  
S-1024, 1103331

## **ATTACHMENT VIII**

Draft ATCs

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: S-1624-9-2

LEGAL OWNER OR OPERATOR: E&B NATURAL RESOURCES MGMT  
MAILING ADDRESS: ATTN: GREG YOUNGBLOOD  
1600 NORRIS ROAD  
BAKERSFIELD, CA 93308

LOCATION: HEAVY OIL CENTRAL  
CA

SECTION: 5 TOWNSHIP: 28S RANGE: 27E

**EQUIPMENT DESCRIPTION:**

MODIFICATION OF 2000 BBL FIXED ROOF PETROLEUM STORAGE TANK TK-6 (POSO CREEK - SEC 5): REDUCE THROUGHPUT ON EXISTING TANK TO 1500 BBL/DAY

**CONDITIONS**

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. To maintain status as a small producer, permittee's crude oil production shall average less than 6000 bbl/day from all operations within Kern County and permittee shall not engage in refining, transporting, or marketing of refined petroleum products. [District Rules 3020 & 4623]
3. When this tank is not operated (dormant for Rule 4623), all liquids shall be removed and the produced crude oil inlet line shall be physically disconnected. [District Rule 2080]
4. Results of TVP test on material introduced to this tank upon reactivation shall be submitted to the District within 60 days of recommencing operation of this tank. [District Rule 2080]
5. Permittee shall notify the District at least seven (7) calendar days prior to recommencing operation. [District Rule 1070]
6. VOC emission rate from the tank shall not exceed 80.6 lb/day. [District Rule 2201]
7. Fluid throughput shall not exceed 1500 bbl/day. [District Rule 2201]
8. {2480} This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.5 psia under all storage conditions. [District Rule 4623]

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 1624 9-2 Nov 16 2010 2:41 PM - DAVIDSON Job Inspection - MOI Required

9. {2910} Permittee shall conduct true vapor pressure (TVP) testing of the organic liquid stored in this tank at least once every 24 months during summer (July - September), and/or whenever there is a change in the source or type of organic liquid stored in this tank in order to maintain exemption from the rule. [District Rule 4623]
10. Instead of testing each uncontrolled fixed roof tank, the permittee may conduct a TVP test of the organic liquid stored in a representative tank provided the requirements of Sections 6.2.1.1.1 through 6.2.1.1.5 of Rule 4623 are met. [District Rule 4623]
11. {2482} The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D 287 e1 "Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method). Sampling for API gravity shall be performed in accordance with ASTM Method D 4057 "Standard Practices for Manual Sampling of Petroleum and Petroleum Products." [District Rule 4623]
12. {2483} For crude oil with an API gravity of 26 degrees or less, the TVP shall be determined using the latest version of the Lawrence Berkeley National Laboratory "test Method for Vapor pressure of Reactive Organic Compounds in Heavy Crude Oil Using Gas Chromatograph", as approved by ARB and EPA. [District Rule 4623]
13. {2911} The TVP testing shall be conducted at actual storage temperature of the organic liquid in the tank. The permittee shall also conduct an API gravity testing. [District Rule 4623]
14. {2912} Permittee shall submit the records of TVP and API gravity testing to the APCO within 45 days after the date of testing. The records shall include the tank identification number, Permit to Operate number, type of stored organic liquid, TVP and API gravity of the organic liquid, test methods used, and a copy of the test results. [District Rule 4623]
15. {2913} The permittee shall keep accurate records of each organic liquid stored in the tank, including its storage temperature, TVP, and API gravity. [District Rule 4623]
16. {2490} 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 Rule 4623]

DRAFT

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: S-1624-187-0

LEGAL OWNER OR OPERATOR: E&B NATURAL RESOURCES MGMT  
MAILING ADDRESS: ATTN: GREG YOUNGBLOOD  
1600 NORRIS ROAD  
BAKERSFIELD, CA 93308

LOCATION: HEAVY OIL CENTRAL  
CA

SECTION: 5 TOWNSHIP: 28S RANGE: 27E

EQUIPMENT DESCRIPTION:  
2000 BBL FIXED ROOF CRUDE OIL STORAGE TANK WITH P/V VENT

**CONDITIONS**

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. To maintain status as a small producer, permittee's crude oil production shall average less than 6000 bbl/day from all operations within Kern County and permittee shall not engage in refining, transporting, or marketing of refined petroleum products. [District Rules 3020 & 4623]
3. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.2 psia under all storage conditions. [District Rules 2201 and 4623]
4. VOC emission rate from the tank shall not exceed 6.2 lb/day. [District Rule 2201]
5. Fluid throughput shall not exceed 200 bbl/day. [District Rule 2201]
6. {2910} Permittee shall conduct true vapor pressure (TVP) testing of the organic liquid stored in this tank at least once every 24 months during summer (July - September), and/or whenever there is a change in the source or type of organic liquid stored in this tank in order to maintain exemption from the rule. [District Rule 4623]
7. Instead of testing each uncontrolled fixed roof tank, the permittee may conduct a TVP test of the organic liquid stored in a representative tank provided the requirements of Sections 6.2.1.1.1 through 6.2.1.1.5 of Rule 4623 are met. [District Rule 4623]

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

Sayed Sadredin, Executive Director, APCO

**DRAFT**

DAVID WARNER, Director of Permit Services  
S-1624-187-0 Dec 12 2010 11:33AM - DAV DSJS Joint Inspection - Full Required

8. {2482} The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D 287 e1 "Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method). Sampling for API gravity shall be performed in accordance with ASTM Method D 4057 "Standard Practices for Manual Sampling of Petroleum and Petroleum Products." [District Rule 4623]
9. {2483} For crude oil with an API gravity of 26 degrees or less, the TVP shall be determined using the latest version of the Lawrence Berkeley National Laboratory "test Method for Vapor pressure of Reactive Organic Compounds in Heavy Crude Oil Using Gas Chromatograph", as approved by ARB and EPA. [District Rule 4623]
10. {2911} The TVP testing shall be conducted at actual storage temperature of the organic liquid in the tank. The permittee shall also conduct an API gravity testing. [District Rule 4623]
11. {2912} Permittee shall submit the records of TVP and API gravity testing to the APCO within 45 days after the date of testing. The records shall include the tank identification number, Permit to Operate number, type of stored organic liquid, TVP and API gravity of the organic liquid, test methods used, and a copy of the test results. [District Rule 4623]
12. {2497} Permittee shall maintain monthly records of average daily crude oil throughput and shall keep accurate records of each organic liquid stored in the tank, including its storage temperature, TVP, and API gravity. [District Rule 4623]
13. {2490} 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 Rule 4623]
14. Authority to Construct S-1624-9-2 shall be implemented prior to or concurrently with this ATC [District Rule 2201]

DRAFT