



OCT 18 2011

Steven Gregory
Pacific Energy Resources Inc
2630 Fountain View Drive, Suite 128
Houston, TX 77057

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: S-1110922

Dear Mr. Gregory:

Enclosed for your review and comment is the District's analysis of Pacific Energy Resources Inc's application for an Authority to Construct for three new tanks and 50 thermally enhanced oil recovery (TEOR) wells served by a new vapor control system including a flare, at the Chico-Martinez Oil Field's Mitchel Lease within the heavy oil production stationary source in the western Kern County fields.

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. Richard Edgehill of Permit Services at (661) 392-5617.

Sincerely,

David Warner
Director of Permit Services

DW: RUE/cm

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061
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Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585



OCT 18 2011

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-1110922

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of Pacific Energy Resources Inc's application for an Authority to Construct for three new tanks and 50 thermally enhanced oil recovery (TEOR) wells served by a new vapor control system including a flare, at the Chico-Martinez Oil Field's Mitchel Lease within the heavy oil production stationary source in the western Kern County fields.

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. Richard Edgehill of Permit Services at (661) 392-5617.

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Tel: 661-392-5500 FAX: 661-392-5585

Bakersfield Californian

**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 Pacific Energy Resources Inc for three new tanks and 50 thermally enhanced oil recovery (TEOR) wells served by a new vapor control system including a flare, at the Chico-Martinez Oil Field's Mitchel Lease within the heavy oil production stationary source in the western Kern County fields.

The analysis of the regulatory basis for this proposed action, Project #S-1110922, is available for public inspection at 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.

San Joaquin Valley Air Pollution Control District

Authority to Construct Application Review

New Tanks, Flare and TEOR Operation

| | | | |
|-------------------|--|----------------|------------------|
| Facility Name: | Pacific Energy Resources, Inc | Date: | October 11, 2011 |
| Mailing Address: | 2630 Fountain View Drive Suite 128 Houston, TX 77057 | Engineer: | Richard Edgehill |
| Contact Person: | Steven Gregory and Scott Faulkenburg (Environtech Consultants) | Lead Engineer: | Allan Phillips |
| Telephone: | (661) 332-2153 (SG) (661) 377-0073 X 15, 345-8263, cell (SF) | | |
| Application #(s): | S-3187-21-0 through '-25-0 | | |
| Project #: | 1110922 | | |
| Deemed Complete: | July 14, 2011 | | |

I. Proposal

Pacific Energy Resources, Inc (Pacific) is requesting Authorities to Construct for three new tanks and 50 thermally enhanced oil recovery (TEOR) wells served by a new vapor control system including a flare. Collected tank and casing vent vapors will be combusted in an existing 0.75 MMBtu/hr permit exempt heater, existing steam generator S-3187-19, or flare when the heater and steam generator are unavailable.

The project triggers BACT and public notice. Offsets are not required.

ATCs S-3187-15-0 through '-18-0, which authorized one 2000 bbl wash tank, two 1000 bbl stock tanks, and one 250 bbl drain tank will be canceled upon implementation of the proposed ATCs.

II. Applicable Rules

| | |
|--------------------|---|
| District Rule 2020 | Exemptions (12/20/07) |
| District Rule 2201 | New and Modified Stationary Source Review Rule (4/21/11) |
| District Rule 4001 | New Source Performance Standards, Subpart Kb (Amended 4/14/99) |
| | This subpart does not apply to vessels with a design capacity $\leq 1,589.874 \text{ m}^3$ ($\leq 420,000$ gallons) used for petroleum or condensate stored, processed, or treated prior to custody transfer. The capacity of these tanks is $\leq 420,000$ gallons, and they store crude oil prior to custody transfer; therefore, this subpart does not apply to the tanks in this project. |
| District Rule 4101 | Visible Emissions (2/17/05) |
| District Rule 4102 | Nuisance (12/17/92) |
| District Rule 4307 | Boilers, Steam Generators and Process Heaters – 2.0 MMBtu/hr to 5.0 MMBtu/hr (5/19/11) – heater is rated less than 2.0 MMBtu/hr – exempt |

District Rule 4308 Boilers, Steam Generators and Process Heaters – 0.075 MMBtu/hr to 2.0 MMBtu/hr (5/19/11) – heater is existing – **exempt**
District Rule 4311 Flares (6/18/09)
District Rule 4401 Steam-Enhanced Crude Oil Production Wells (12/14/06)
District Rule 4623 Storage of Organic Liquids (5/19/05)
District Rule 4801 Sulfur Compounds (12/17/92)
CH&SC 41700 Health Risk Assessment
CH&SC 42301.6 School Notice
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 project site is located within the Chico-Martinez Oil Field's Mitchel Lease, Section 35, Township 28S, Range 20E in the heavy oil production stationary source in western Kern County.

This facility is not within 1,000 feet of a K-12 school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

IV. Process Description

Pacific operates a crude oil production facility for the processing of crude oil at the Chico-Martinez lease. Crude oil production, from up to 50 new TEOR wells, will be sent to a separator and wash tank prior to being stored in stock tanks for shipping (custody transfer). Vapors from tanks S-3187-20 through '-22 and TEOR operation S-3187-25 will be collected by a new vapor control system and sent to a permit exempt heater, existing steam generator (ATC S-3187-19-0) or new flare (ATC S-3187-24).

A process flow diagram is included in **Attachment I**.

V. Equipment Listing

S-3817-20-0: 5,000 BBL FIXED ROOF CRUDE OIL WASH TANK SERVED BY VAPOR CONTROL SYSTEM INCLUDING PERMIT EXEMPT 2-PHASE SEPARATOR SHARED WITH S-3187-21-0 AND '-22-0 AND VENTED TO STEAM GENERATOR S-3187-19, FLARE S-3187-24, OR PERMIT EXEMPT HEATER(S) (CHICO MARTINEZ LEASE)

S-3187-21-0: 5,000 BBL FIXED ROOF CRUDE OIL STOCK TANK SERVED BY VAPOR CONTROL SYSTEM LISTED ON S-3187-20 (CHICO MARTINEZ LEASE)

S-3187-22-0: 5,000 BBL FIXED ROOF CRUDE OIL STOCK TANK SERVED BY VAPOR CONTROL SYSTEM LISTED ON S-3187-20 (CHICO MARTINEZ LEASE)

S-3187-23-0: 1,000 BBL FIXED ROOF CRUDE OIL DRAIN TANK WITH PV VALVE (CHICO MARTINEZ LEASE)

S-3187-24-0: 20.8 MMBTU/HR AIR ASSISTED OR COANDA EFFECT FLARE SERVING THE VAPOR CONTROL SYSTEM LISTED ON PERMIT S-3187-20

S-3187-25-0: THERMALLY ENHANCED OIL RECOVERY (TEOR) OPERATION SERVING UP TO 50 STEAM ENHANCED WELLS SERVED BY A CASING GAS COLLECTION SYSTEM CONNECTED TO TANK VAPOR CONTROL SYSTEM LISTED ON S-3187-20, AND VENTED TO STEAM GENERATOR S-3187-19, FLARE S-3187-24, OR PERMIT EXEMPT HEATER(S)

VI. Emission Control Technology Evaluation

S-3187-20 through '-22

Tank vapors are captured and routed to incineration devices (permit exempt heater, steam generator, or flare). As fugitive emissions from the tanks and vapor control system were estimated using component counts and CAPCOA "no leak" emission factors, leaks exceeding 10,000 ppmv are a violation of the permit and must be repaired promptly and diligently as required by a fugitive emissions components I&M Program. With the "no leak" permit condition and I&M program, the vapor control efficiency is expected to be at least 99%.

S-3187-23

The drain tank will be equipped with a pressure-vacuum (PV) relief vent valve set to within 10% of the maximum allowable working pressure of the tank. The PV-valve will reduce VOC wind induced emissions from the tank vent.

S-3187-24

The flare is required by permit condition (CEQA) to have destruction efficiency > 98%.

S-3187-25

The new wells will emit VOCs from fugitive emissions components. Applicant will be required to monitor the number of fugitive emissions components and resulting emissions and to implement an I&M program consistent with the requirements of District Rule 4401. Furthermore, as fugitive emissions from the tanks and vapor control system were estimated using using component counts and CAPCOA "no leak" emission factors, leaks exceeding 10,000 ppmv are a violation of the permit.

VII. General Calculations

A. Assumptions

- The equipment operates 8760 hours per year (applicant)

- The tank heater, separator, and produced water tanks are exempt from permit (please see compliance section) and therefore no emissions calculations are performed.

S-3187-20 through '-22

- Only fugitive VOCs emitted from components in gas service are calculated. Components handling produced fluids with an API gravity less than 30° are not counted pursuant to District policy SSP 2015
- Fugitives components associated with the tanks are from the tank up to the vapor control system trunk line.

Fugitive Emissions Component Counts (Gas Service only)

| | Valves | Pump Seals | Others | Connectors | Flanges | Open Ended Lines |
|--------------------------------------|--------|------------|--------|------------|---------|------------------|
| S-3187-20 wash | 82 | 0 | 15 | 190 | 46 | 2 |
| S-3187-20 vapor control system (VCS) | 5 | 4 | 5 | 100 | 5 | 4 |
| S-3187-21 stock | 16 | 0 | 1 | 90 | 22 | 2 |
| S-3187-22 stock | 16 | 0 | 1 | 90 | 22 | 2 |

S-3187-23

- Drain tank throughput: typ limit 0.5 psia, throughput 5 bbl/day, temperature 150 deg F, additional parameters are included in **Attachment II**.

S-3187-24

- Flare gas heating value: 1000 Btu/scf
- Flare gas flow rate: 500 mscf/day (20.83 MMBtu/hr), 45,000 mscf/yr (45,000 MMBtu/yr, 2160 hr/yr)
- Pilot gas emissions are assumed to be negligible
- Sulfur content of flared gas: 20 gr S/100 scf (please refer to representative gas analysis in **Attachment III**)
- F factor, 8578 dscf @ 0% O₂ (60 deg F)/MMBtu

S-3187-25

Fugitive Emissions Component Counts (Gas Service only)

| | Valves | Pump Seals | Others | Connectors | Flanges | Open Ended Lines |
|----------------|--------|------------|--------|------------|---------|------------------|
| TEOR operation | 202 | 0 | 283 | 347 | 54 | 0 |

B. Emission Factors

Tanks S-3187-20 through '-22 and TEOR Operation S-3187-25

Fugitive component emissions are calculated using the "revised screening" emissions factors of CARB/CAPCOA "California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities" (please see **Attachment IV**).

Tank S-3187-23

Both the daily and annual PE's are based on the results from the District's Microsoft Excel spreadsheets for Tank Emissions - Fixed Roof Crude Oil less than 26° API located in **Attachment II**. The spreadsheet for tanks was developed using the equations for fixed-roof tanks from EPA AP-42, Chapter 7.1. See Calculations **Attachment II**.

S-3187-24 flare

| Pollutant | Emission Factor (lb/MMBtu) | Source |
|-----------|----------------------------|----------------|
| NOx | 0.068 | AP-42/FYI-83 |
| SOx | 0.057* | 20 grS/scf |
| PM10 | 0.026 | FYI-83-nonBACT |
| CO | 0.37 | FYI-83 |
| VOC | 0.063 | FYI-83 |

*20 grS/100 scf x scf/0.001 MMBtu x lb/7000 gr x 2 lbSO2/lb S = 0.057 lbSO2/MMBtu

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Since all of the equipment is new, PE1 = 0 for all pollutants.

2. Post Project Potential to Emit (PE2)

Fugitive Emissions

S-3187-20 (wash tank)

82 x 0.001852 lb/day valve + 15 x 0.007778 lb/day other + 190 x 0.0006349 lb/day connector + 46 x 0.001482 lb/day flange + 2 x 0.00127 lb/day open ended line

= 0.5 lb/day (168) lb/yr.

S-3187-20 (VRU)

5 x 0.001852 lb/day valve + 5 x 0.007778 lb/day other + 100 x 0.0006349 lb/day connector + 5 x 0.001482 lb/day flange + 4 x 0.0527 lb/day pump seal

= 0.3 lb/day (120) lb/yr.

S-3187-21 (stock tank)

16 x 0.001852 lb/day valve + 1 x 0.007778 lb/day other + 90 x 0.0006349 lb/day connector + 22 x 0.001482 lb/day flange + 2 x 0.00127 lb/day open ended line

= 0.1 lb/day (47) lb/yr.

S-3187-22 (stock tank)

16 x 0.001852 lb/day valve + 1 x 0.007778 lb/day other + 90 x 0.0006349 lb/day connector + 22 x 0.001482 lb/day flange + 2 x 0.00127 lb/day open ended line

= 0.1 lb/day (47) lb/yr.

S-3187-24 Flare Combustion Emissions

NO_x: (0.068 lbs/MMBtu)(500 MMBtu/day) = 34.0 lb/day

SO_x: (0.057 lb/MMBtu) (500 MMBtu/day) = 28.5 lb/day

PM₁₀: (0.026 lb/MMBtu) (500 MMBtu/day) = 13.0 lb/day

CO: (0.37 lbs/MMBtu) (500 MMBtu/day) = 185.0 lb/day

VOC: (0.063 lbs/MMBtu) (500 MMBtu/hr) = 31.5 lb/day

NO_x: (0.068 lbs/MMBtu)(45,000 MMBtu/yr) = 3,060 lb/yr

SO_x: (0.057 lb/MMBtu) (45,000 MMBtu/yr) = 2565 lb/yr

PM₁₀: (0.026 lb/MMBtu) (45,000 MMBtu/yr) = 1170 lb/yr

CO: (0.37 lbs/MMBtu) (45,000 MMBtu/yr) = 16,650 lb/yr

VOC: (0.063 lbs/MMBtu) (45,000 MMBtu/yr) = 2,835 lb/yr

S-3187- 25 50 TEOR wells

202 x 0.001852 lb/day valve + 283 x 0.007778 lb/day other + 347 x 0.0006349 lb/day connector + 54 x 0.001482 lb/day flange

= 2.88 lb/day (1050) lb/yr.

| PE2 | | | | | | | | | | |
|----------------------------------|-----------------|-------|-----------------|-------|------------------|-------|--------|--------|--------|-------|
| Permit Unit | NO _x | | SO _x | | PM ₁₀ | | CO | | VOC | |
| | lb/day | lb/yr | lb/day | lb/yr | lb/day | lb/yr | lb/day | lb/yr | lb/day | lb/yr |
| S-3187-20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 168 |
| VRU | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.3 | 120 |
| S-3187-21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 47 |
| S-3187-22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 47 |
| S-3187-23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.7 | 620 |
| S-3187-24 (flare) | 34.0 | 3,060 | 28.5 | 2565 | 13.0 | 1170 | 185.0 | 16,650 | 31.5 | 2,835 |
| S-3187-25 (TEOR operation) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.9 | 1050 |
| Total | 34 | 3,060 | 28.5 | 2565 | 13.0 | 1170 | 185.0 | 16,650 | 37.1 | 5129 |

Greenhouse Gas (GHG) Emissions (District Policy APR 2015)

Flare S-3187-24

CO₂ Emissions: 20.83 MMBtu/hr x 116.7 lb/MMBtu

= 2430.86 lb-CO₂e/hour

CH₄ Emissions: 20.83 MMBtu/hr x 0.011 lb/Btu x 23 lb-CO₂e per lb-CH₄

=5.27 lb-CO₂e/hour

N₂O Emissions : 20.83 MMBtu/hr x 0.00022 lb/Btu x 296 lb-CO₂e per lb-N₂O

= 1.35 lb-CO₂e/hour

Total = 2430.86 + 5.27 + 1.35 = 2437.48 lb-CO₂e/hour

2437.48 lb-CO₂e/hour x 2160 hr/year ÷ 2,000 lb/ton = 2,632 tons-CO₂e/year

2,632 short tons-CO₂e/year x 0.9072 metric tons/short ton

= 2388 metric tons/yr > 230 tons-CO₂e/year

As the flare emissions alone are greater than 230 mtonCO₂/yr, GHG emissions for the project are significant (do not round to zero). Applicant has proposed Best Performance Standards for the tanks, TEOR operation, and flare.

Emissions profiles are included in **Attachment V**.

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.

The Pre-Project Stationary Source Potential to Emit (SSPE1) is summarized below.

| Pre Project Stationary Source Potential to Emit [SSPE1] (lb/year)* | | | | | |
|---|-----------------|-----------------|------------------|-------|--------|
| Permit Units | NO _x | SO _x | PM ₁₀ | CO | VOC |
| S-3187-1 | 0 | 0 | 0 | 0 | 3814 |
| S-3187-3 | 0 | 0 | 0 | 0 | 790 |
| S-3187-4 | 0 | 0 | 0 | 0 | 1095 |
| S-3187-12 | 0 | 0 | 0 | 0 | 657 |
| S-3187-14 (ATC) | 0 | 0 | 0 | 0 | 170 |
| S-3187-15 (ATC) | 0 | 0 | 0 | 0 | 288 |
| S-3187-16 (ATC) | 0 | 0 | 0 | 0 | 47 |
| S-3187-17 (ATC) | 0 | 0 | 0 | 0 | 247 |
| S-3187-18 (ATC) | 0 | 0 | 0 | 0 | 247 |
| S-3187-19 (ATC) (preliminary decision) | 6329 | 2122 | 5659 | 55100 | 4095 |
| Pre Project SSPE1 | 6329 | 2122 | 5659 | 55100 | 11,450 |

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.

| Post Project Stationary Source Potential to Emit [SSPE2] (lb/year) | | | | | |
|---|-----------------|-----------------|------------------|--------|--------|
| Permit Units | NO _x | SO _x | PM ₁₀ | CO | VOC |
| S-3187-1 | 0 | 0 | 0 | 0 | 3814 |
| S-3187-3 | 0 | 0 | 0 | 0 | 790 |
| S-3187-4 | 0 | 0 | 0 | 0 | 1095 |
| S-3187-12 | 0 | 0 | 0 | 0 | 657 |
| S-3187-14 | 0 | 0 | 0 | 0 | 170 |
| S-3187-19 (ATC) (preliminary decision) | 6329 | 2122 | 5659 | 55,100 | 4095 |
| S-3187-20 | 0 | 0 | 0 | 0 | 288 |
| S-3187-21 | 0 | 0 | 0 | 0 | 47 |
| S-3187-22 | 0 | 0 | 0 | 0 | 47 |
| S-3187-23 | 0 | 0 | 0 | 0 | 620 |
| S-3187-24 | 3060 | 2565 | 1170 | 16,650 | 2,835 |
| S-3187-25 | 0 | 0 | 0 | 0 | 1050 |
| Post Project SSPE (SSPE2) | 9,389 | 4,687 | 6,829 | 71,750 | 15,508 |

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."

| Major Source Determination (lb/year) | | | | | |
|--------------------------------------|-----------------|-----------------|------------------|---------|--------|
| | NO _x | SO _x | PM ₁₀ | CO | VOC |
| Pre-Project SSPE (SSPE1) | 6329 | 2122 | 5659 | 55100 | 11,450 |
| Post Project SSPE (SSPE2) | 9,389 | 4,687 | 6,829 | 71,750 | 15,508 |
| 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 also 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 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.

S-3187-20 through '-25:

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 SB288 major modification.

8. Federal Major Modification

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 PM₁₀ (140,000 lb/year), it is not a major source for PM_{2.5} (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 below.

Since the emissions units are new QNEC = PE2/4.

VIII. Compliance

Rule 2020 Exemptions

Produced Water Tanks

The 5000 bbl produced water clarifier tank and 1000 bbl produced water surge tank are permit exempt pursuant to Section 6.6.1.

Separator

The separator vessel is less than 100 bbls in capacity and separates heavy oil from gas and therefore exempt per Rule 2020 Section 6.6.2.

The following ATC condition is included:

Separator shall process crude oil with 0.8762 specific gravity or higher (30°API or lower) as measured by test method API 2547 or ASTM D-1298-80 and have a capacity of 100 bbl or less. [District Rule 2010] N

Tank Heater

The tank heater is exempt pursuant to Section 6.1.1 which is applicable to

"Steam generators, steam superheaters, water boilers, water heaters, steam cleaners, and closed indirect heat transfer systems that have a maximum input heat rating of 5,000,000 Btu per hour (gross) or less and is equipped to be fired exclusively with:

6.1.1.1 Natural gas containing no more than five (5) percent by weight hydrocarbons heavier than butane and no more than 1.0 grain of total sulfur per 100 standard cubic feet of gas"

The operation is relatively new and no information on the sulfur content and hydrocarbon composition is currently available. However, applicant has stated that the combusted gas is expected to meet the above requirement. The following conditions will be included on ATC:

Permit exempt heater shall be fired only on propane or natural gas/vapor containing no more than five (5) percent by weight hydrocarbons heavier than butane and no more than 1.0 grain of total sulfur per 100 standard cubic feet of gas. [District Rule 2020] N

Hydrocarbon composition of gas combusted in heater shall be determined at startup and annually thereafter using gas chromatographic analyses ASTM D-1945-96, ASTM D-3588-98, GPA 2145-94 and GPA 2261-00. [District Rules 1070 and 2010] N

Permittee shall determine sulfur content of gas combusted in heater for eight consecutive weeks upon startup. After demonstrating compliance for eight consecutive weeks testing may be conducted on a quarterly basis. Weekly gas analysis shall be performed using Draeger tubes and quarterly analysis using ASTM method D3246 or double GC for H₂S and mercaptans. Sulfur content of waste gas shall be measured within one day of restarting unit if the unit has not been in use for more than 7 days. [District Rules 1081 and 2201] N

Permittee shall maintain records of the hydrocarbon composition and sulfur contents of natural/vapor control gas to qualify for permit exemption of heater. [District Rule 1070 and 2020] N

Additionally, fugitive emissions associated with the heater are not assessed according to District policy SSP 2015 which states:

"VOC emissions are not assessed to the following components.

- Fugitive sources associated with permit exempt equipment (pursuant to Rule 2020 6.12)"

Compliance is expected.

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 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 up to 50 TEOR wells (S-3187-25) with a PE greater than 2 lb/day for VOC. BACT is triggered for VOC. Please note that applicant is also proposing to install new 20.8 MMBtu/hr flare (S-3187-24) with PEs greater than 2 lb/day for NOx, CO, and VOC. Pursuant to the definition of an emissions unit (Section 3.17 Rule 2201) and Source Operation (Section 3.46 Rule 1020), the flare is a VOC control device and is not considered an emissions unit and therefore is not subject to BACT.

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. Major Modification

As discussed in Section VII.C.7 above, this project does not constitute a Major Modification; therefore BACT is not triggered.

2. BACT Guideline

BACT Guideline 7.1.1 applies to Thermally Enhanced Oil Recovery – Steam Drive Oil Wells (see **Attachment VI**)

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 **Attachment VII**), BACT has been satisfied with the following:

VOC: Applicant has proposed a vapor control system and inspection and maintenance (I&M) program with non-condensables incinerated at steam generator, permit exempt heater, or flare.

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 of 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.

| Offset Determination (lb/year) | | | | | |
|---------------------------------------|-----------------------|-----------------------|------------------------|-----------|------------|
| | NO_x | SO_x | PM₁₀ | CO | VOC |
| Post Project SSPE (SSPE2) | 9,389 | 4,687 | 6,829 | 71,750 | 15,508 |
| Offset Threshold | 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

Public noticing is required for:

- a. New Major Sources, Federal Major Modifications, and SB288 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 SB288 Major Modifications

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.

As demonstrated in VII.C.7, this project does not constitute a 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 Potential to Emit greater than 100 pounds during any one day for any pollutant will trigger public noticing

requirements The PE2 for flare S-3187-24 is compared to the daily PE Public Notice thresholds in the following table:

| PE > 100 lb/day Public Notice Thresholds | | | |
|--|--------------|-------------------------|--------------------------|
| Pollutant | PE2 (lb/day) | Public Notice Threshold | Public Notice Triggered? |
| NO _x | 34.0 | 100 lb/day | No |
| SO _x | 28.5 | 100 lb/day | No |
| PM ₁₀ | 13.0 | 100 lb/day | No |
| CO | 185.0 | 100 lb/day | Yes |
| VOC | 31.5 | 100 lb/day | No |

Therefore, public noticing for PE > 100 lb/day purposes is required.

c. 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.

| Offset Threshold | | | | |
|-------------------------|-----------------|-----------------|------------------|-------------------------|
| Pollutant | SSPE1 (lb/year) | SSPE2 (lb/year) | Offset Threshold | Public Notice Required? |
| NO _x | 6,329 | 9,389 | 20,000 lb/year | No |
| SO _x | 2,122 | 4,687 | 54,750 lb/year | No |
| PM ₁₀ | 5,659 | 6,829 | 29,200 lb/year | No |
| CO | 55,100 | 71,750 | 200,000 lb/year | No |
| VOC | 11,450 | 15,508 | 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 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:

| Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice | | | | | |
|--|--------------------|--------------------|--------------------|----------------------------------|----------------------------|
| Pollutant | SSPE1 (lb/year) | SSPE2 (lb/year) | SSIPE (lb/year) | SSIPE Public Notice Threshold | Public Notice Required? |
| NO _x | 6,329 | 9,389 | 3,060 | 20,000 lb/year | No |
| SO _x | 2,122 | 4,687 | 2,565 | 20,000 lb/year | No |
| PM ₁₀ | 5,659 | 6,829 | 2565 | 20,000 lb/year | No |
| CO | 55,100 | 71,750 | 16,650 | 20,000 lb/year | No |
| VOC | 11,450 | 15,508 | 4,058 | 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 result in emissions triggering public noticing requirements listed above. Therefore, public notice will not be required for this project.

D. Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.15.1 and 3.15.2, 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.

Proposed Rule 2201 (DEL) Conditions:

S-3187-20

The Permittee shall maintain with the permit accurate fugitive component counts, and the resulting emissions from the tank, using "California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities", Table IV-2c, "Oil and Gas Production Screening Value Ranges (< 10,000 ppmv) Emission Factors". [District Rule 2201] N

VOC emission rate from vapor service components associated with this tank up to the vapor control system trunk line shall not exceed 0.5 lb/day. [District Rule 2201] N

VOC emission rate from vapor control system shall not exceed 0.3 lb/day. [District Rule 2201] N

S-3187-21 and '-22

The Permittee shall maintain with the permit accurate fugitive component counts, and the resulting emissions from the tank, using "California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities", Table IV-2c, "Oil and Gas Production Screening Value Ranges (< 10,000 ppmv) Emission Factors". [District Rule 2201] N

VOC emission rate from vapor service components associated with this tank up to the vapor control system trunk line shall not exceed 0.1 lb/day. [District Rule 2201] N

S-3187-23

Crude oil throughput shall not exceed 5 barrels per day based on a monthly average. [District Rules 2201 and 4623] N

S-3187-24

Flare gas heat input shall not exceed 500 MMBtu/day nor 45,000 MMBtu/yr. [District Rule 2201] N

Emissions shall not exceed any of the following limits: 0.068 lbNO_x/MMBtu, 0.026 lbPM₁₀/MMBtu, 0.37 lbCO/MMBtu or 0.063 lbVOC/MMBtu. [District Rule 2201] N

The sulfur content of the gas being incinerated shall not exceed 20 grain total Sulfur per 100 scf of gas. [District Rule 2201] N

S-3187-25

Emissions rate of VOC associated with the fugitive emissions from TEOR system and ancillary equipment shall not exceed 2.9 lb/day. [District Rule 2201] Y

Permittee shall maintain records of the date and well identification where steam injection or well stimulation occurs, current list of all thermally enhanced production wells associated with this operation, leak inspection results, and accurate fugitive component counts of components in gas service and resulting emissions calculated using the emission factors in the "California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities", Table IV-2c, "Oil and Gas Production Screening Value Ranges (< 10,000 ppmv) Emission Factors". [District Rules 2201 and 4401] Y

Gas leaks exceeding 10,000 ppmv are a violation of this permit. [District Rule 2201] N

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

Tanks S-3187-20 through '22

Monitoring is required by Rule 4623 to ensure that leak-free conditions are maintained and is discussed below.

S-3187-23 Drain Tank

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 2201] N

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 2201] N

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 2201] N

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 2201] N

S-3187-24 flare

Permittee shall determine sulfur content of flared gas weekly for eight consecutive weeks upon startup. After demonstrating compliance for eight consecutive weeks testing may be conducted on a quarterly basis. Weekly gas analysis shall be performed using Draeger tubes and quarterly analysis using ASTM method D3246 or double GC for H₂S and mercaptans. Sulfur content of waste gas shall be measured within one day of restarting unit if the unit has not been in use for more than 7 days. [District Rules 1081 and 2201] N

The higher heating value of the flared gas shall be monitored at least quarterly or upon change of source of flared gas. [District Rules 1070 and 2201] N

S-3187-25 TEOR operation

Fugitive emissions monitoring is required by Rule 4401 and therefore is discussed in that rule section.

3. Recordkeeping

Tanks S-3187-20 through '22

Permittee shall maintain records of annual tank inspections, maintenance, and cleaning to document the participation in the Rule 4623 Fixed Roof Tank Preventative Inspection, Maintenance and Tank Interior Cleaning Program. [District Rule 4623] N

Operator shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 1070 and 4623] N

S-3187-23 Drain Tank

The permittee shall keep accurate records of each organic liquid stored in the tank, including its throughput, storage temperature, TVP, and API gravity. [District Rule 2201] 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

S-3187-24 Flare

Permittee shall keep accurate records of daily and annual flared gas flow rate and heat input in MMBtu/day and MMBtu/yr. [District Rule 2201] N

Records of the gas sulfur content and required gas flow measurements shall be maintained, retained for a period of at least five years, and made available for District inspection upon request. [District Rule 1070] N

Permittee shall keep accurate records of annual throughput, material usage, or other information necessary to demonstrate that facility emissions are less than 10 tons NO_x/yr and 10 tons VOC/yr for exemption from Rule 4311. [District Rule 4311] N

4. Reporting

Drain Tank S-3187-23

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 2201] N

F. Ambient Air Quality Analysis

Section 4.14.1 of this Rule requires that an Ambient Air Quality Analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The Technical Services Division of the SJVAPCD conducted the required analysis. Refer to **Attachment VIII** of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NO_x, CO, and SO_x. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO_x, CO, or SO_x.

The proposed location is in a non-attainment area for PM₁₀. The results of the modeling are as follows:

Criteria Pollutant Modeling Results*

| 24-0 | 1 Hour | 3 Hours | 8 Hours. | 24 Hours | Annual |
|-------------------|-------------------|---------|----------|-------------------|-------------------|
| CO | Pass | X | Pass | X | X |
| NO _x | Pass ¹ | X | X | X | Pass |
| SO _x | Pass | Pass | X | Pass | Pass |
| PM ₁₀ | X | X | X | Pass ² | Pass ² |
| PM _{2.5} | X | X | X | Pass ² | Pass ² |

*Results were taken from the attached PSD spreadsheet.

¹The project was compared to the 1-hour NO₂ National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures.

²The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

This project is not expected to cause or make worse a violation of an air quality standard.

District Rule 4101 Visible Emissions

District Rule 4101, Section 5.0, indicates that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour, which is dark or darker than Ringlemann 1 or equivalent to 20% opacity.

The flare must be steam assist or air assist if steam is unavailable, or Coanda effect and equipped with non-automatic or electronic or ballistic ignition. It will combust only natural gas with a sulfur content not exceeding 1.0 gr/100 scf. Compliance is expected.

A permit condition will be listed on the permit as follows:

- {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

Therefore, compliance with District Rule 4101 requirements is expected.

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)

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 (**Attachment VIII**), the total facility prioritization score including this project was greater than one. Therefore, a health risk assessment 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-3187-24 | 3.34 per million | Yes |

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 required for the flare (S-3187-14) for VOCs authorized by this project because the HRA indicates that the risk is above the District's thresholds for triggering T-BACT requirements. BACT for VOCs will be considered equivalent to TBACT.

The applicable BACT Guideline is 1.4.1 Waste Gas Flare – 15.3 MMBtu/hr, Serving a Tank Vapor Control System (**Attachment VIII**).

VOC: Steam-assisted or air-assisted when steam unavailable (Achieved-in Practice)

The proposed flare is air-assisted or Coanda effect (considered equivalent for VOC control) and steam assist is not available. Therefore, TBACT is satisfied.

District Rule 4311 Flares

This rule limits VOC and NO_x emissions from flares. The flare is a separate stationary source which has a potential to emit less than 10 tons/yr NO_x and 10 tons/yr VOCs. Therefore the facility is exempt from all requirements of the rule except the record-keeping requirements of Section 6.2.4. Section 6.2.4 states that "beginning January 1, 2007 facilities claiming an exemption pursuant to Section 4.3 shall record annual throughput, material usage, or other information necessary to demonstrate an exemption under that section." Facility will keep records of annual volumes of gas combusted in the flares to ensure that NO_x and VOC emissions remain below 10 tons/yr. The following condition is included on the ATC:

Permittee shall keep accurate records of annual throughput, material usage, or other information necessary to demonstrate that facility emissions are less than 10 tons NO/yr and 10 tons VOC/yr for exemption from Riule 4311. [District Rule 4311] N

Therefore compliance is expected.

Rule 4401 Steam-enhanced Crude Oil Production Well Vents

The purpose of this rule is to limit the VOC emissions from steam-enhanced crude oil production well vents. This rule is applicable to all steam-enhanced crude oil production wells and any associated vapor collection and control systems.

Section 3.0, Definitions

Section 3.20.1 defines various types of gas and liquid leaks.

The following condition will be included on the ATCs to ensure compliance:

Gas and liquid leaks are as defined in Section 3.20 of Rule 4401. [District Rule 4401 3.20]

Section 4.0, Exemptions

Section 4.1 states that any steam-enhanced crude oil production well undergoing service or repair during the time the well is not producing is exempt from the requirements of this rule as stated in the following ATC condition:

During the time any steam-enhanced crude oil production well is undergoing service or repair while the well is not producing, it shall be exempt from the emission control requirements of District Rule 4401, 5.0 (as amended December 14, 2006). [District Rule 4401, 4.1]

Section 5.1 Vapor Control System Requirements

An operator shall not operate a steam-enhanced crude oil production well unless the operator complies with the following requirements: The steam-enhanced crude oil production well vent is closed and the front line production equipment downstream of the wells that carry produced fluids (crude oil or mixture of crude oil and water) is connected to a VOC collection and control system as defined in Section 3.0 of Rule 4401, the well vent may be temporarily opened during periods of attended service or repair of the well provided such activity is done as expeditiously as possible with minimal spillage of material and VOC emissions to the atmosphere, the steam-enhanced crude oil production well vent is open and the well vent is connected to a VOC collection and control system as defined in Section 3.0 of Rule 4401. [District Rule 4401, 5.1.1 and 5.1.2]

Section 5.2 Determination of Compliance with Leak Standards:

An operator shall be in violation of this rule if any District inspection demonstrates that one or more of the following conditions in Section 5.2.2 exist at the facility or if any operator inspection conducted pursuant to Section 5.4 of Rule 4401 demonstrates that one or more of the following conditions in Section 5.2.2 exist at the facility: Existence of an open-ended line or a valve located at the end of the line that is not sealed with a blind flange, plug, cap, or a second closed valve that is not closed at all times, except during attended operations as defined by Section 5.2.2.1 of Rule 4401 requiring process fluid flow through the open-ended lines. [District Rule 4401 5.4.2]

An operator shall be in violation of this rule if any District inspection demonstrates that one or more of the following conditions exist at the facility or if any operator inspection conducted pursuant to Section 5.4 of Rule 4401 demonstrates that one or more of the conditions in Section 5.2.2 exist at the facility: existence of a component with any of the following: a major liquid leak, a gas leak greater than 50,000 ppmv, a minor liquid leak or a minor gas leak in excess of the allowable number of leaks allowed by Table 3 of Rule 4401, or a gas leak greater than 10,000 ppmv up to 50,000 ppmv in excess of the allowable number of leaks allowed by Table 3 of Rule 4401. [District Rule 4401 5.2.2]

Section 5.3 Operating Requirements

An operator shall not use any component with a leak as defined in Section 3.0 of Rule 4401, or that is found to be in violation of the provisions of Section 5.2.2 of Rule 4401. However, components that were found leaking may be used provided such leaking components have been identified with a tag for repair, are repaired, or awaiting re-inspection after being repaired within the applicable time frame specified in Section 5.5 of Rule 4401. [District Rule 4401 5.3.1]

Each hatch shall be closed at all times except during sampling or adding of process material through the hatch, or during attended repair, replacement, or maintenance operations, provided such activities are done as expeditiously as possible with minimal spillage of material and VOC emissions to the atmosphere. [District Rule 4401 5.3.2]

An operator shall comply with the requirements of Section 6.7 of Rule 4401 if there is any change in the description of major components or critical components. [District Rule 4401 5.3.3]

Section 5.4 Inspection and Re-Inspection Requirements:

Except for pipes and unsafe-to-monitor components, an operator shall inspect all other components pursuant to the requirements of Section 6.3.3 of Rule 4401 at least once every year. [District Rule 4401 5.4.1]

An operator shall visually inspect all pipes at least once every year. Any visual inspection of pipes that indicates a leak that cannot be immediately repaired to meet the leak standards of this rule shall be inspected within 24 hours after detecting the leak. If a leak is found, the leak shall be repaired as soon as practicable but not later than the time frame specified in Table 4 of Rule 4401. [District Rule 4401 5.4.2]

An operator shall inspect for leaks all accessible operating pumps, compressors, and PRDs in service as follows: 1) An operator shall audio-visually (by hearing and by sight) inspect for leaks all accessible operating pumps, compressors, and PRDs in service at least once each calendar week. 2) Any audio-visual inspection of an accessible operating pump, compressor, and PRD performed by an operator that indicates a leak that cannot be immediately repaired to meet the leak standards of this rule shall be inspected not later than 24 hours after conducting the audio-visual inspection. If a leak is found, the leak shall be repaired as soon as practicable but not later than the time frame specified in Table 4 of this Rule. [District Rule 4401, 5.4.3]

The operator shall also perform the following inspections: 1) An operator shall initially inspect a PRD that releases to the atmosphere as soon as practicable but not later than 24 hours after the discovery of the release. An operator shall re-inspect the PRD not earlier than 24 hours after the initial inspection but not later than 15 calendar days after the initial inspection. 2) An operator shall inspect all new, replaced, or repaired fittings, flanges, and threaded connections within 72 hours of placing the component in service, and 3) Except for PRDs

subject to the requirements of Section 5.4.4.1 of this Rule, an operator shall inspect a component that has been repaired or replaced not later than 15 calendar days after the component was repaired or replaced. [District Rule 4401, 5.4.4]

An operator shall inspect all unsafe-to-monitor components during each turnaround. [District Rule 4401 5.4.7]

District inspection in no way fulfills any of the mandatory inspection requirements that are placed upon operators and cannot be used or counted as an inspection required of an operator. [District Rule 4401 5.4.8]

Section 5.5, Leak Repair Requirements

Upon detection of a leak, an operator shall affix a readily visible weatherproof tag to that leaking component that includes the following information: 1) The date and time of leak detection; 2) The date and time of the leak measurement; 3) For a gaseous leak, the leak concentration in ppmv; 4) For a liquid leak, whether it is a major or minor liquid leak; and 5) Whether the component is an essential component, and unsafe-to-monitor component, or a critical component. [District Rule 4401, 5.5.1]

The tag shall remain affixed to the leaky component until all the following requirements are met: 1) The component is repaired or replaced, 2) The component is re-inspected as set forth in Section 6.3, and 3) The component is found to be in compliance with this Rule. [District Rule 4401, 5.5.2]

An operator shall minimize a component leak in order to stop or reduce leakage to the atmosphere immediately to the extent possible, but not later than one (1) hour after detection of the leak. [District Rule 4401 5.5.3]

Except for leaking critical components or leaking essential components subject to the requirements of Section 5.5.7 of Rule 4401, if an operator has minimized a leak but the leak still exceeds the applicable leak limits as defined in Section 3.0 of Rule 4401, an operator shall comply with at least one of the following requirements as soon as practicable but not later than the time period specified in Table 4 of Rule 4401: Repair or replace the leaking component; or vent the leaking component to a VOC collection and control system as defined in Section 3.0 of Rule 4401, or remove the leaking component from operation. [District Rule 4401 5.5.4]

The repair period in calendar days shall not exceed 14 days for minor gas leaks, 5 days for major gas leaks less than or equal to 50,000 ppmv, 2 days for gas leak greater than 50,000 ppmv, 3 days for minor liquid leaks, 2 days for major liquid leaks. [District Rule 4401 5.5.4]

The leak rate measured after leak minimization has been performed shall be the leak rate used to determine the applicable repair period specified in Table 4 of Rule 4401. [District Rule 4401 5.5.5]

The time of the initial leak detection shall be the start of the repair period specified in Table 4 of Rule 4401. [District Rule 4401 5.5.6]

If the leaking component is an essential component or a critical component that cannot be immediately shut down for repairs, and if the leak has been minimized but the leak still exceeds the applicable leak standard of this rule, the operator shall repair or replace the essential component or critical component to eliminate the leak during the next process unit turnaround, but in no case later than one year from the date of the original leak detection, whichever comes earlier. [District Rule 4401 5.5.7]

Section 6.1, Recordkeeping and Submissions

Section 6.1 requires that an operator shall maintain the records required by Sections 6.1 and 6.2 for a period of five (5) years. These records shall be made available to the APCO upon request. The following condition will be listed on the ATCs to ensure compliance:

The operator of any steam-enhanced crude oil production well shall maintain records of the date and well identification where steam injection or well stimulation occurs. [District Rule 4401 6.1.1]

An operator of any steam-enhanced crude oil production well shall keep source test records which demonstrate compliance with the control efficiency requirements of the VOC collection and control system as defined in Section 3.0 of Rule 4401. [District Rule 4401 6.1.3]

Operator of any steam-enhanced crude oil production well shall keep an inspection log maintained pursuant to Section 6.4 of Rule 4401. [District Rule 4401 6.1.4]

Records of each calibration of the portable hydrocarbon detection instrument utilized for inspecting components, including a copy of current calibration gas certification from the vendor of said calibration gas cylinder, the date of calibration, concentration of calibration gas, instrument reading of calibration gas before adjustment, instrument reading of calibration gas after adjustment, calibration gas expiration date, and calibration gas cylinder pressure at the time of calibration shall be maintained. [District Rule 4401 6.1.5]

An operator shall maintain copies at the facility of the training records of the training program operated pursuant to Section 6.5 of Rule 4401. [District Rule 4401 6.1.6]

Operator shall keep a copy of the APCO-approved Operator Management Plan at the facility. [District Rule 4401 6.1.7]

Operator shall submit to the APCO not later than June 14, 2007 a list of all gauge tanks, as defined in Section 3.17. The list shall contain the size, identification number, the location of each gauge tank and specify whether the gauge tank is upstream of all front line production equipment. [District Rule 4401 6.1.8]

The results of gauge tank TVP testing conducted pursuant to Section 6.2.3 shall be submitted to the APCO within 60 days after the completion of the testing. [District Rule 4401 6.1.9]

An operator that discovers that a PRD has released shall record the date that the release was discovered, and the identity and location of the PRD that released. An operator shall submit such information recorded during the calendar year to the APCO no later than 60 days after the end of the calendar year. [District Rule 4401 6.1.10]

Section 6.2, Compliance Source Testing

An operator shall source test annually all vapor collection and control systems used to control emissions from steam-enhanced crude oil production well vents to determine the control efficiency of the device(s) used for destruction or removal of VOC. Compliance testing shall be performed annually by source testers certified by ARB. Testing shall be performed during June, July, August, or September of each year if the system's control efficiency is dependent upon ambient air temperature. [District Rule 4401 6.2.1]

If approved by EPA, ARB, and the APCO, an operator need not comply with the annual testing requirement of Section 6.2.1 if all uncondensed VOC emissions collected by a vapor collection and control system are incinerated in fuel burning equipment, an internal combustion engine or in a smokeless flare. [District Rule 4401 6.2.2]

If approved by EPA, ARB, and the APCO, an operator need not comply with the annual testing requirement of Section 6.2.1 for a vapor control system which does not have a VOC destruction device. [District Rule 4401 6.2.3]

An operator seeking approval pursuant to Section 6.2.2 or Section 6.2.3 shall submit a written request and supporting information to the APCO. The District shall evaluate the request and if approved by the APCO, the District shall provide EPA and ARB with a copy of the evaluation and shall request EPA and ARB approval. The District evaluation and the APCO request shall be deemed approved unless EPA or ARB objects to such approval in writing within 45 days of the receipt of the APCO request. [District Rule 4401 6.2.4]

An operator shall comply with the following requirements for each gauge tank, as defined in Section 3.0 of Rule 4401: Conduct periodic TVP testing of each gauge tank at least once every 24 months during summer (July - September), and whenever there is a change in the source or type of produced fluid in the gauge tank, the TVP testing shall be conducted at the actual storage temperature of the produced fluid in the gauge tank using the

applicable TVP test method specified in Section 6.4 of Rule 4623 (Storage of Organic Liquids). The operator shall submit the TVP testing results to the APCO as specified in Section 6.1.9 of Rule 4401. [District Rule 4401 6.2.3]

Section 6.3, Test Methods

Section 6.3.1 specifies that the control efficiency of any VOC control device, measured and calculated as carbon, shall be determined by EPA Method 25, except when the outlet concentration must be below 50 ppm in order to meet the standard, in which case EPA Method 25a may be used. EPA Method 18 may be used in lieu of EPA Method 25 or EPA Method 25a provided the identity and approximate concentrations of the analytes/compounds in the sample gas stream are known before analysis with the gas chromatograph and the gas chromatograph is calibrated for each of those known analyte/compound to ensure that the VOC concentrations are neither under- or over-reported.

The control efficiency of any VOC control device, measured and calculated as carbon, shall be determined by EPA Method 25, except when the outlet concentration must be below 50 ppm in order to meet the standard, in which case EPA Method 25a may be used. EPA Method 18 may be used in lieu of EPA Method 25 or EPA Method 25a provided the identity and approximate concentrations of the analytes/compounds in the sample gas stream are known before analysis with the gas chromatograph and the gas chromatograph is calibrated for each of those known analyte/compound to ensure that the VOC concentrations are neither under- or over-reported. [District Rule 4401 6.3.1]

VOC content shall be analyzed by using the latest revision of ASTM Method E168, E169, or E260 as applicable. Analysis of halogenated exempt compounds shall be performed by using ARB Method 432. [District Rule 4401 6.3.2]

Leak inspection, other than audio-visual, and measurements of gaseous leak concentrations shall be conducted according to EPA Method 21 using an appropriate portable hydrocarbon detection instrument calibrated with methane. The instrument shall be calibrated in accordance with the procedures specified in EPA Method 21 or the manufacturer's instruction, as appropriate, not more than 30 days prior to its use. The operator shall record the calibration date of the instrument. Where safety is a concern, such as measuring leaks from compressor seals or pump seals when the shaft is rotating, a person shall measure leaks by placing the instrument probe inlet at a distance of one (1) centimeter or less from the surface of the component interface. [District Rule 4401 6.3.3]

The VOC content by weight percent (wt.%) shall be determined using American Society of Testing and Materials (ASTM) D1945 for gases and South Coast Air Quality Management District (SCAQMD) Method 304-91 or the latest revision of ASTM Method E168, E169 or E260 for liquids. [District Rule 4401 6.3.4]

Section 6.4 Inspection Log

Operator shall maintain an inspection log in which an operator records, at a minimum, all of the following information for each inspection performed: The total number of components inspected, total number and percentage of leaking components found by component type, location, type, and name or description of each leaking component and description of any unit where the leaking component is found, date of leak detection and the method of leak detection. For gaseous leaks, the leak concentration in ppmv, and for liquid leaks record whether the leak is a major liquid leak or a minor liquid leak. the date of repair, replacement, or removal from operation of leaking components, identify and location of essential components and critical components found leaking that cannot be repaired until the next process unit turnaround or not later than one year after leak detection, whichever comes earlier, methods used to minimize the leak from essential components and critical components found leaking that cannot be repaired until the next process unit turnaround or not later than one year after leak detection, whichever comes earlier, the date of re-inspection and the leak concentration in ppmv after the component is repaired or is replaced, the inspector's name, business mailing address, and business telephone number, date and signature of the facility operator responsible for the inspection and repair program certifying the accuracy of the information recorded in the log. [District Rule 4401 6.4]

Section 7.0, Compliance Schedule

Section 7.0 establishes a compliance schedule for existing and new steam-enhanced crude oil production wells. The wells in this project are expected to operate in compliance with the requirements of this rule. Therefore, no further discussion is required.

By January 30 of each year, an operator shall submit to the APCO for approval, in writing, an annual report indicating any changes to an existing Operator Management Plan. [District Rule 4401, 6.7]

Compliance is expected.

Rule 4623, Storage of Organic Liquids

The purpose of this rule is to limit volatile organic compound (VOC) emissions from the 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.

S-3187-20 through '22 (wash and stock tanks)

The affected tanks are served by a vapor control system that has a control efficiency of at least 95%. This rule also requires the tank and tank vapor control system to be maintained in a leak-free condition. Leak-free is defined in the rule as no readings on a portable VOC detection device greater than 10,000 ppmv above background and no dripping of organic liquid at a rate of more than 3 drops per minute.

The following conditions are included on the ATC:

This tank shall be fully enclosed and maintained in a leak-free condition. [District Rules 2201 and 4623] N

All piping, valves, and fittings shall be constructed and maintained in a leak-free condition. [District Rules 2201 and 4623] N

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. [District Rules 2201 and 4623] N

All piping, fittings, and valves on this tank shall be inspected annually by the facility operator in accordance with EPA Method 21, with the instrument calibrated with methane, to ensure compliance with the leaking provisions of this permit. [District Rules 2201 and 4623] N

Operator shall maintain an inspection log containing the following 1) Type of component leaking; 2) Date and time of leak detection, and method of detection; 3) Date and time of leak repair, and emission level of recheck after leak is repaired; 4) Method used to minimize the leak to lowest possible level within 8 hours after detection. [District Rules 2201 and 4623] N

Operator shall visually inspect tank shell, hatches, seals, seams, cable seals, valves, flanges, connectors, and any other piping components directly affixed to the tank and within five feet of the tank at least once per year for liquid leaks, and with a portable hydrocarbon detection instrument conducted in accordance with EPA Method 21 for gas leaks. Operator shall also visually or ultrasonically inspect as appropriate, the external shells and roofs of uninsulated tanks for structural integrity annually. [District Rules 2201 and 4623] N

Upon detection of a liquid leak, defined as a leak rate of greater than or equal to 30 drops per minute, operator shall repair the leak within 8 hours. For leaks with a liquid leak rate of between 3 and 30 drops per minute, the leaking component shall be repaired within 24 hours after detection. [District Rules 2201 and 4623] N

Upon detection of a gas leak, the operator shall take on of the following actions: 1) eliminate the leak within 8 hours after detection; or 2) if the leak cannot be eliminated, then minimize the leak to the lowest possible level within 8 hours after detection by using best maintenance practices, and eliminate the leak within 48 hours after minimization. In no event shall the total time to minimize and eliminate a leak exceed 56 hours after detection. [District Rules 2201 and 4623]N

Components found to be leaking either liquids or gases shall be immediately affixed with a tag showing the component to be leaking. Operator shall maintain records of the liquid or gas leak detection readings, date/time the leak was discovered, and date/time the component was repaired to a leak-free condition. [District Rules 2201 and 4623] N

Leaking components that have been discovered by the operator that have been immediately tagged and repaired within the timeframes specified in District Rule 4623, Table 3 shall not constitute a violation of this rule. Leaking components as defined by District Rule 4623 discovered by District staff that were not previously identified and/or tagged by the operator, and/or any leaks that were not repaired within the timeframes specified in District Rule 4623, Table 3 shall constitute a violation of this rule. [District Rules 2201 and 4623] N

If a component type for a given tank is found to leak during an annual inspection, operator shall conduct quarterly inspections of that component type on the tank or tank system for four consecutive quarters. If no components are found to leak after four consecutive quarters, the operator may revert to annual inspections. [District Rules 2201 and 4623] N

Any component found to be leaking on two consecutive annual inspections is in violation of this rule, even if covered under the voluntary inspection and maintenance program. [District Rule s 2201 and 4623] N

Compliance with the requirements of this rule is expected.

S-3187-23-0 (Drain Tank)

Pacific Energy Resources Inc produces 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, the facility is a small producer and Section 3.29 of this rule and District Rule 1020, Section 3.45, are applicable.

According to Section 4.3, except for complying with Sections 6.3.4 and 7.2, a small producer's tank with a throughput of 50 barrels of crude oil per day or less is exempt from the requirements of this rule.

The proposed tank will contain crude oil with a throughput of not exceeding 5 bbls of crude oil per day. Therefore, the following conditions shall be placed on the ATC:

Permittee's crude oil production shall average less than 6,000 bbl/day from all operations within Kern County and permittee shall not engage in refining, transporting, or marketing of refined petroleum products. [District Rule 4623] N

Crude oil throughput shall not exceed 5 barrels per day based on a monthly average. [District Rules 2201 and 4623] N

Compliance with the requirements of this rule is expected.

District Rule 4801 Sulfur Compounds

A person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: 0.2 % by volume calculated as SO₂, on a dry basis averaged over 15 consecutive minutes.

Using the ideal gas equation and the emission factors presented in Section VII, the sulfur compound emissions from the flare are calculated as follows:

$$\text{Volume SO}_2 = \frac{n RT}{P}$$

With:

N = moles SO₂

T (Standard Temperature) = 60°F = 520°R

P (Standard Pressure) = 14.7 psi

R (Universal Gas Constant) = $\frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ\text{R}}$

$$\frac{0.057 \text{ lb} - \text{SO}_x}{\text{MMBtu}} \times \frac{\text{MMBtu}}{8,578 \text{ dscf}} \times \frac{1 \text{ lb} \cdot \text{mol}}{64 \text{ lb}} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ\text{R}} \times \frac{520^\circ\text{R}}{14.7 \text{ psi}} \times \frac{1,000,000 \cdot \text{parts}}{\text{million}} = 39.4 \frac{\text{parts}}{\text{million}}$$

$$\text{Sulfur Concentration} = 39.4 \frac{\text{parts}}{\text{million}} < 2,000 \text{ ppmv (or 0.2\%)} < 2,000 \text{ ppmv (or 0.2\%)}$$

Therefore, compliance with District Rule 4801 requirements is expected.

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; 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 no other agency has or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project. Project specific impacts on global climate change were evaluated consistent with the adopted District policy – *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. The District's engineering evaluation (this document – **Attachment X**) demonstrates that the project includes Best Performance Standards (BPS) for each class and category of greenhouse gas emissions unit. 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)).

California Health & Safety Code 42301.6 (School Notice)

This facility is not located within 1,000 feet of a school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IX. RECOMMENDATION

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue Authorities to Construct S-3187-20-0 through '-25-0 subject to the permit conditions on the attached draft Authority to Construct in **Attachment XI**.

X. BILLING INFORMATION

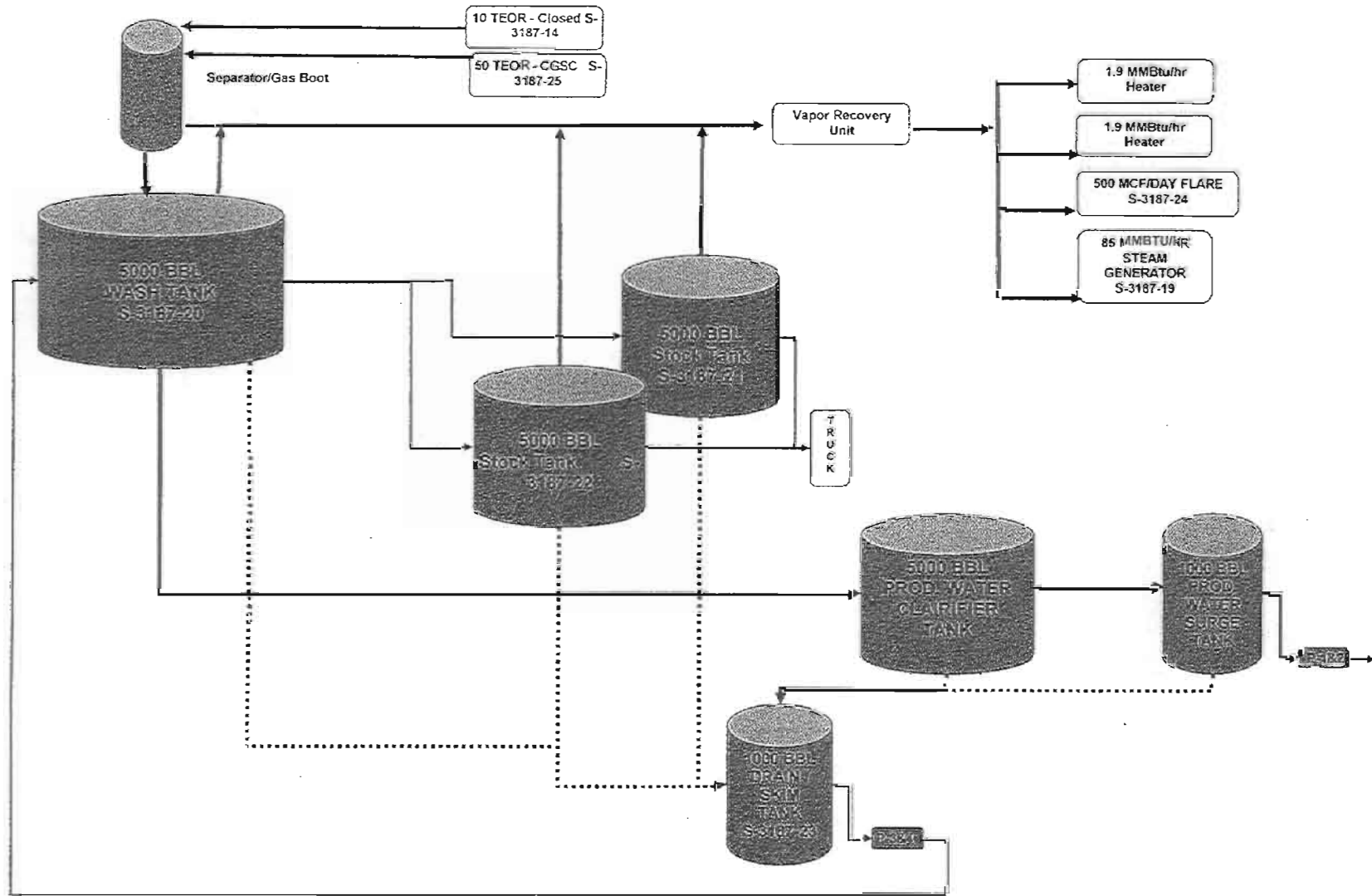
| Permit Number | Fee Schedule | Fee Description | Annual Fee |
|---------------|--------------|-------------------------|------------|
| S-3187-20-0 | 3020-5S-E | 210,000 gallons | \$99.00 |
| S-3187-21-0 | 3020-5S-E | 42,000 gallons | \$99.00 |
| S-3187-22-0 | 3020-5S-E | 42,000 gallons | \$99.00 |
| S-3187-23-0 | 3020-5S-C | 42,000 gallons | \$63.00 |
| S-3187-24-0 | 3020-02-H | 20.8 MMBtu/hr | \$1030.00 |
| S-3187-25-0 | 3020-09S-A | 50 small producer wells | \$233.50 |

Attachments

- Attachment I: Process Diagram
- Attachment II: Drain Tank Emissions Calculations
- Attachment III: Representative Gas Analysis
- Attachment IV: Fugitive Emissions
- Attachment V: Emissions Profile
- Attachment VI: BACT Guideline
- Attachment VII: BACT Analysis
- Attachment VIII: HRA
- Attachment IX: BACT Guideline 1.4.1
- Attachment X: Best Performance Standards for Tanks, TEOR Operation, and Flare
- Attachment XI: Draft ATCs

Attachment I Process Diagram

Chico Martinez Phase #1 Tank Farm

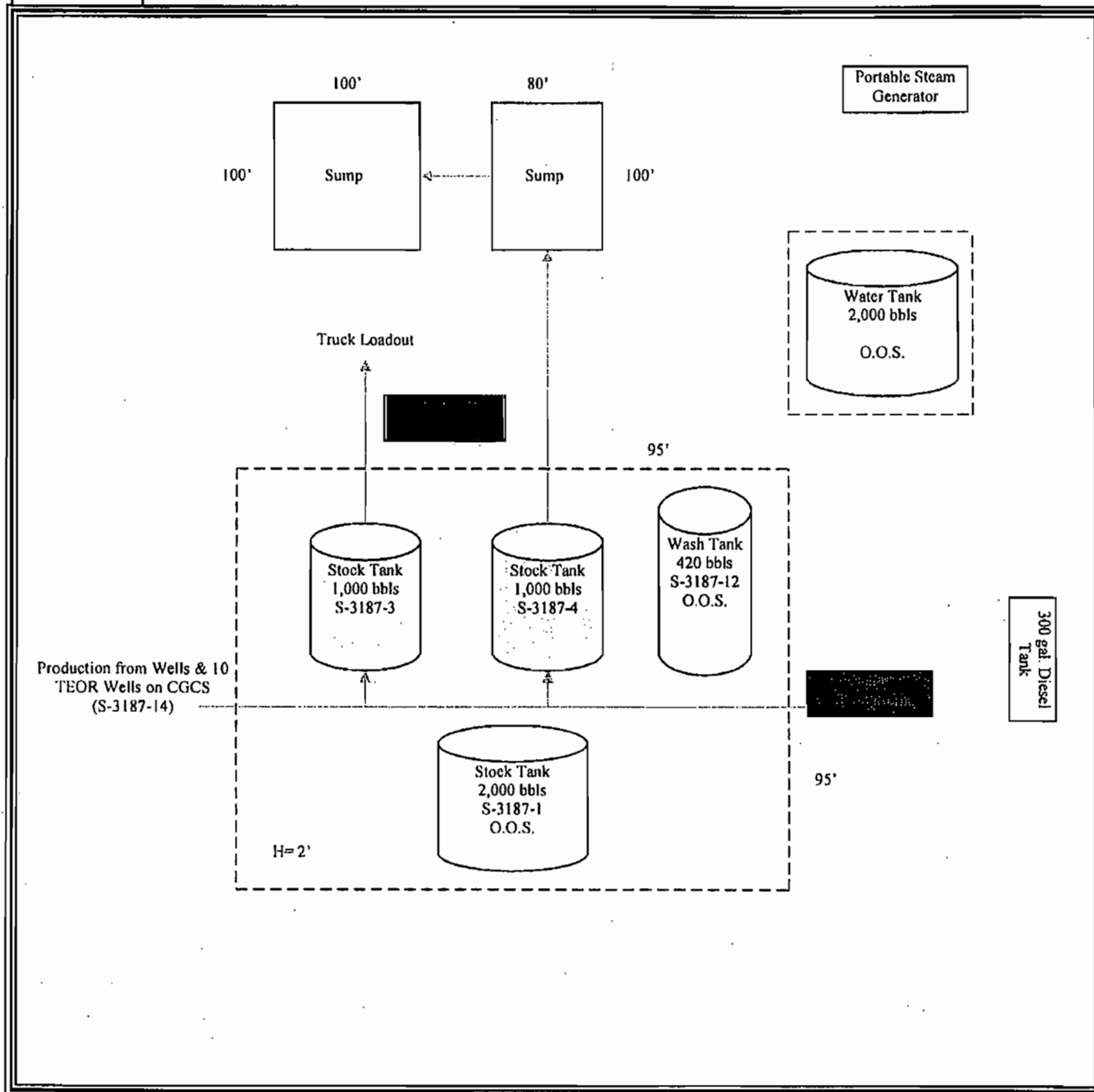


Pacific Energy Resources, Inc.

BUSINESS NAME: Chico Martinez Tank Battery (SW35/T28S/R20E)
SCALE: NONE



Facility Diagram



Attachment II Drain Tank Emissions Calculations

1,000 bbl Drain Tank

| Tank Input Data | |
|--|-----------|
| permit number (S-xxxx-xx-xx) | S-3187-XD |
| facility tank I.D. | |
| nearest city (1: Bakersfield, 2: Fresno, 3: Stockton) | 1 |
| tank ROC vapor pressure (psia) | 0.6 |
| liquid bulk storage temperature, T _b (°F) | 150 |
| 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) | 21.2 |
| capacity of tank (bbl) | 1,000 |
| conical or dome roof? (c, d) | c |
| shell height of tank (feet) | 16 |
| average liquid height (feet) | 12 |
| 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----- | |
| ----- This row only used if shell is different color from roof----- | |

1,008

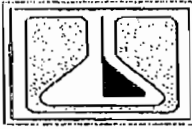
| Liquid Input Data | A | B |
|---|---|-------|
| maximum daily fluid throughput (bbl) | | 5 |
| maximum annual fluid throughput (bbl) | | 1,825 |
| ----- This row only used if flashing losses occur in this tank----- | | |
| ----- This row only used if flashing losses occur in this tank----- | | |
| molecular weight, M _w (lb/lb-mol) | | 100 |

| Calculated Values | A | B |
|---|-------|---------|
| daily maximum ambient temperature, T _{ax} (°F) | | 77.65 |
| daily minimum ambient temperature, T _{an} (°F) | | 53.15 |
| daily total solar insolation factor, I (Btu/ft ² -day) | | 1648.9 |
| atmospheric pressure, P _a (psia) | | 14.47 |
| (psia) | 127.0 | 2.0675 |
| (psia) | 116.2 | 1.5376 |
| water vapor pressure at average liquid surface temperature (T _{la}), P _{va} (psia) | 121.6 | 1.7814 |
| roof outage, H _{ro} (feet) | | 0.2208 |
| vapor space volume, V _v (cubic feet) | | 1489.91 |
| paint factor, alpha | | 0.68 |
| vapor density, W _v (lb/cubic foot) | | 0.0080 |
| daily vapor temperature range, delta T _v (degrees Rankine) | | 49.04 |
| vapor space expansion factor, K _e | | 0.1213 |

| Results | lb/year | lb/day |
|---------------------------------------|---------|--------|
| Standing Storage Loss | 529 | 1.45 |
| Working Loss | 91 | 0.25 |
| Flashing Loss | N/A | N/A |
| Total Uncontrolled Tank VOC Emissions | 620 | 1.7 |

| Summary Table | |
|--|-----------|
| Permit Number | S-3187-XD |
| Facility Tank I.D. | --- |
| Tank capacity (bbl) | 1,000 |
| Tank diameter (ft) | 21.2 |
| Tank shell height (ft) | 16 |
| Conical or Dome Roof | Conical |
| Maximum Daily Fluid Throughput (bbl/day) | 5 |
| Maximum Annual Fluid Throughput (bbl/year) | 1,825 |
| Maximum Daily Oil Throughput (bbl/day) | 0 |
| Maximum Annual Oil Throughput (bbl/year) | --- |
| Total Uncontrolled Daily Tank VOC Emissions (lb/day) | 1.7 |
| Total Uncontrolled Annual Tank VOC Emissions (lb/year) | 620 |

Attachment III Representative Gas Analysis



ZALCO LABORATORIES, INC.
 4309 Armour Avenue, Bakersfield, CA 93308 (661) 395-0539 FAX (661) 395-3069 www.zalcolabs.com
 1103 East Clark Avenue, Suite F-5, Santa Maria, CA 93455 (805) 938-5341 FAX (805) 938-5892

C M O
 2630 Fountain View Dr Ste 128
 Houston TX 77057

Laboratory No: 1105101-07
 Date Received: 05/06/11
 Date Analyzed: 05/06/11

Attention: Steven Gregory

Sample Description: Well # 35-403H
 Sampled: 05/06/2011 @ 11:45 AM by Rick Ogletree

TOTAL SULFUR ANALYSIS, ASTM D3246, GPA-B16/D4810

| Constituent: | Result | Units |
|------------------|--------|---------------|
| Hydrogen Sulfide | 7.7 | ppm |
| Total Sulfur | 12 | gvs S/100 SCF |

Chromatographic Analysis, ASTM D-1945-03, ASTM D-3588-98, GPA 2145-94, GPA 2261-00

| Constituent: | Mole % | Weight % | GPM | GPM | |
|------------------|--------|----------|------|--------------------|----------------------|
| | | | | Fractions | CHONS% |
| Oxygen | 1.180 | 1.12 | | | Carbon, C 14.54 |
| Nitrogen | 64.889 | 54.09 | | | Hydrogen, H 0.77 |
| Carbon Dioxide | 30.939 | 40.52 | | | Oxygen, O 30.59 |
| Carbon Monoxide | 0.000 | 0.00 | | | Nitrogen, N 54.09 |
| Hydrogen Sulfide | 0.001 | 0.00 | | | Sulfur, S 0.00 |
| Methane | 1.239 | 0.59 | | | |
| Ethane | 0.194 | 0.17 | | | |
| Propane | 0.216 | 0.28 | 0.06 | (C3....C3) = 0.06 | |
| Isobutane | 0.043 | 0.07 | 0.01 | | |
| n-Butane | 0.157 | 0.27 | 0.05 | (C3....C4) = 0.12 | |
| Isopentane | 0.050 | 0.11 | 0.02 | | |
| n-Pentane | 0.109 | 0.23 | 0.04 | (C3....C5) = 0.18 | |
| Hexanes | 0.985 | 2.53 | 0.42 | (C3....C6+) = 0.60 | |
| Totals: | 100.00 | 100.00 | 0.60 | 0.97 | 100.00 |

| | |
|---|--------|
| Flammable Gases: | 2.991 |
| Gas Properties calculated @ STP: degrees F: | 60 |
| Measurement Base Pressure @ STP: psia | 14.696 |
| H/C Ratio: 0.05 | |

| Gas State | Dry | | Saturated |
|------------------|--------------|----------|--------------|
| | Btu / Cu. Ft | Btu / lb | Btu / Cu. Ft |
| Gross, Ideal Gas | 81.08 | 915.61 | 79.66 |
| Net, Ideal Gas | 74.65 | 843.06 | 73.35 |
| Gross, Real Gas | 81.20 | | 79.79 |
| Net, Real Gas | 74.77 | | 73.47 |

| | | | | |
|--------------------------------------|---------|-----------------------------------|---------|---------|
| Relative Gas Density; [Air=1] Ideal: | 1.1602 | "F" Factor, DSCF/MMBtu @ 60F | 19947.7 | 21664.2 |
| Specific Gravity, [Air=1] Real gas: | 1.1614 | "F" Factor, DSCF/MMBtu @ 68F | 20251.5 | 21994.1 |
| Real Gas Density, Lb/Cu.Ft.: | 0.0887 | "F" Factor, DSCF/MMBtu @ 70F | 20328.4 | 22077.7 |
| Specific Volume, Cu.Ft./Lb.: | 11.2756 | "FC" Factor, DSCF CO2/MMBtu @ 60F | 5022.8 | 5455.0 |
| Relative Liquid Density @ 60F/60F: | 0.7980 | "FC" Factor, DSCF CO2/MMBtu @ 68F | 5099.3 | 5538.1 |
| Compressibility, 'z': | 0.9984 | | | |
| Fuel kg per kg-mole Molecular wt avg | 33.603 | | | |
| GPM: Gallons per 1000 cubic feet | | | | |

Steven Gregory
 ZALCO LABORATORIES, INC.
 4309 Armour Avenue, Bakersfield, CA 93308
 1103 East Clark Avenue, Suite F-5, Santa Maria, CA 93455

Attachment IV Fugitive Emissions Calculations

FACILITY NAME

Project # , Permit Unit #

5-3187-20 WSH

Fugitive Emissions Using Screening Emission Factors

California Implementation Guidelines for Estimating Mass Emissions
of Fugitive Hydrocarbon Leaks at Petroleum Facilities

Table IV-2c. Oil and Gas Production

* Screening Value Ranges Emission Factors

Percentage of components with $\geq 10,000$ ppmv leaks allowed? 0 %
 Weight percentage of VOC in the total organic compounds in gas (neglect non-organics)? 100 %
 Weight percentage of VOC in the total organic compounds in oil (neglect non-organics)? 100 %

| Equipment Type | Service | Component Count | Total allowable leaking components | Screening Value EF - TOC | | VOC emissions (lb/day) |
|------------------|------------------|-----------------|------------------------------------|-------------------------------|------------------------------------|------------------------|
| | | | | < 10,000 ppmv (lb/day/source) | $\geq 10,000$ ppmv (lb/day/source) | |
| Valves | Gas/Light Liquid | 82 | 0 | 1.852E-03 | 7.333E+00 | 0.15 |
| | Light Crude Oil | 0 | 0 | 1.005E-03 | 3.741E+00 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 7.408E-04 | N/A* | 0.00 |
| Pump Seals | Gas/Light Liquid | 0 | 0 | 5.270E-02 | 4.709E+00 | 0.00 |
| | Light Crude Oil | 0 | 0 | 1.402E-02 | 4.709E+00 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | N/A | N/A | N/A |
| Others | Gas/Light Liquid | 15 | 0 | 7.778E-03 | 7.281E+00 | 0.12 |
| | Light Crude Oil | 0 | 0 | 6.931E-03 | 3.757E-01 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 3.016E-03 | N/A* | 0.00 |
| Connectors | Gas/Light Liquid | 190 | 0 | 6.349E-04 | 1.370E+00 | 0.12 |
| | Light Crude Oil | 0 | 0 | 5.291E-04 | 1.238E+00 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 4.233E-04 | 4.233E-04 | 0.00 |
| Flanges | Gas/Light Liquid | 46 | 0 | 1.482E-03 | 3.228E+00 | 0.07 |
| | Light Crude Oil | 0 | 0 | 1.270E-03 | 1.376E+01 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 1.217E-03 | N/A* | 0.00 |
| Open-ended Lines | Gas/Light Liquid | 2 | 0 | 1.270E-03 | 2.905E+00 | 0.00 |
| | Light Crude Oil | 0 | 0 | 9.524E-04 | 1.175E+00 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 7.937E-04 | 3.762E+00 | 0.00 |

* Emission factor not available. All components from equipment type and service will be assessed as < 10,000 ppmv

Total VOC Emissions = 0.5 lb/day

5-3187-21 + 22

FACILITY NAME
Project # , **Permit Unit #**

stock

Fugitive Emissions Using Screening Emission Factors

California Implementation Guidelines for Estimating Mass Emissions
of Fugitive Hydrocarbon Leaks at Petroleum Facilities
Table IV-2c. Oil and Gas Production
Screening Value Ranges Emission Factors

Percentage of components with $\geq 10,000$ ppmv leaks allowed? 0 %
 Weight percentage of VOC in the total organic compounds in gas (neglect non-organics)? 100 %
 Weight percentage of VOC in the total organic compounds in oil (neglect non-organics)? 100 %

| Equipment Type | Service | Component Count | Total allowable leaking components | Screening Value: EF - TOC | | VOC emissions (lb/day) |
|------------------|------------------|-----------------|------------------------------------|-------------------------------|------------------------------------|------------------------|
| | | | | < 10,000 ppmv (lb/day/source) | $\geq 10,000$ ppmv (lb/day/source) | |
| Valves | Gas/Light Liquid | 16 | 0 | 1.852E-03 | 7.333E+00 | 0.03 |
| | Light Crude Oil | 0 | 0 | 1.005E-03 | 3.741E+00 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 7.408E-04 | N/A* | 0.00 |
| Pump Seals | Gas/Light Liquid | 0 | 0 | 5.270E-02 | 4.709E+00 | 0.00 |
| | Light Crude Oil | 0 | 0 | 1.402E-02 | 4.709E+00 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | N/A | N/A | N/A |
| Others | Gas/Light Liquid | 1 | 0 | 7.778E-03 | 7.281E+00 | 0.01 |
| | Light Crude Oil | 0 | 0 | 6.931E-03 | 3.757E-01 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 3.016E-03 | N/A* | 0.00 |
| Connectors | Gas/Light Liquid | 90 | 0 | 6.349E-04 | 1.370E+00 | 0.06 |
| | Light Crude Oil | 0 | 0 | 5.291E-04 | 1.238E+00 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 4.233E-04 | 4.233E-04 | 0.00 |
| Flanges | Gas/Light Liquid | 22 | 0 | 1.482E-03 | 3.228E+00 | 0.03 |
| | Light Crude Oil | 0 | 0 | 1.270E-03 | 1.376E+01 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 1.217E-03 | N/A* | 0.00 |
| Open-ended Lines | Gas/Light Liquid | 2 | 0 | 1.270E-03 | 2.905E+00 | 0.00 |
| | Light Crude Oil | 0 | 0 | 9.524E-04 | 1.175E+00 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 7.937E-04 | 3.762E+00 | 0.00 |

* Emission factor not available. All components from equipment type and service will be assessed as < 10,000 ppmv

Total VOC Emissions = 0.1 lb/day

FACILITY NAME
 Project # , Permit Unit #

5-3187-20 VRU

Fugitive Emissions Using Screening Emission Factors

California Implementation Guidelines for Estimating Mass Emissions
 of Fugitive Hydrocarbon Leaks at Petroleum Facilities
 Table IV-2c. Oil and Gas Production
 Screening Value Ranges Emission Factors

Percentage of components with $\geq 10,000$ ppmv leaks allowed? 0 %
 Weight percentage of VOC in the total organic compounds in gas (neglect non-organics)? 100 %
 Weight percentage of VOC in the total organic compounds in oil (neglect non-organics)? 100 %

| Equipment Type | Service | Component Count | Total allowable leaking components | Screening Value EF | | VOC emissions (lb/day) |
|------------------|------------------|-----------------|------------------------------------|-------------------------------|------------------------------------|------------------------|
| | | | | < 10,000 ppmv (lb/day/source) | $\geq 10,000$ ppmv (lb/day/source) | |
| Valves | Gas/Light Liquid | 5 | 0 | 1.852E-03 | 7.333E+00 | 0.01 |
| | Light Crude Oil | 0 | 0 | 1.005E-03 | 3.741E+00 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 7.408E-04 | N/A* | 0.00 |
| Pump Seals | Gas/Light Liquid | 4 | 0 | 5.270E-02 | 4.709E+00 | 0.21 |
| | Light Crude Oil | 0 | 0 | 1.402E-02 | 4.709E+00 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | N/A | N/A | N/A |
| Others | Gas/Light Liquid | 5 | 0 | 7.778E-03 | 7.281E+00 | 0.04 |
| | Light Crude Oil | 0 | 0 | 6.931E-03 | 3.757E-01 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 3.016E-03 | N/A* | 0.00 |
| Connectors | Gas/Light Liquid | 100 | 0 | 6.349E-04 | 1.370E+00 | 0.06 |
| | Light Crude Oil | 0 | 0 | 5.291E-04 | 1.238E+00 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 4.233E-04 | 4.233E-04 | 0.00 |
| Flanges | Gas/Light Liquid | 5 | 0 | 1.482E-03 | 3.228E+00 | 0.01 |
| | Light Crude Oil | 0 | 0 | 1.270E-03 | 1.376E+01 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 1.217E-03 | N/A* | 0.00 |
| Open-ended Lines | Gas/Light Liquid | 0 | 0 | 1.270E-03 | 2.905E+00 | 0.00 |
| | Light Crude Oil | 0 | 0 | 9.524E-04 | 1.175E+00 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 7.937E-04 | 3.762E+00 | 0.00 |

* Emission factor not available. All components from equipment type and service will be assessed as < 10,000 ppmv

Total VOC Emissions = 0.3 lb/day

FACILITY NAME
 Project # , Permit Unit #

5-3187-25
 TEOR

Fugitive Emissions Using Screening Emission Factors

California Implementation Guidelines for Estimating Mass Emissions
of Fugitive Hydrocarbon Leaks at Petroleum Facilities

Table IV-2c. Oil and Gas Production
 Screening Value Ranges Emission Factors

Percentage of components with $\geq 10,000$ ppmv leaks allowed? 0 %
 Weight percentage of VOC in the total organic compounds in gas (neglect non-organics)? 100 %
 Weight percentage of VOC in the total organic compounds in oil (neglect non-organics)? 100 %

| Equipment Type | Service | Component Count | Total allowable leaking components | Screening Value EF - TOC | | VOC emissions (lb/day) |
|------------------|------------------|-----------------|------------------------------------|------------------------------|------------------------------------|------------------------|
| | | | | <10,000 ppmv (lb/day/source) | $\geq 10,000$ ppmv (lb/day/source) | |
| Valves | Gas/Light Liquid | 202 | 0 | 1.852E-03 | 7.333E+00 | 0.37 |
| | Light Crude Oil | 0 | 0 | 1.005E-03 | 3.741E+00 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 7.408E-04 | N/A* | 0.00 |
| Pump Seals | Gas/Light Liquid | 0 | 0 | 5.270E-02 | 4.709E+00 | 0.00 |
| | Light Crude Oil | 0 | 0 | 1.402E-02 | 4.709E+00 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | N/A | N/A | N/A |
| Others | Gas/Light Liquid | 283 | 0 | 7.778E-03 | 7.281E+00 | 2.20 |
| | Light Crude Oil | 0 | 0 | 6.931E-03 | 3.757E-01 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 3.016E-03 | N/A* | 0.00 |
| Connectors | Gas/Light Liquid | 347 | 0 | 6.349E-04 | 1.370E+00 | 0.22 |
| | Light Crude Oil | 0 | 0 | 5.291E-04 | 1.238E+00 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 4.233E-04 | 4.233E-04 | 0.00 |
| Flanges | Gas/Light Liquid | 54 | 0 | 1.482E-03 | 3.228E+00 | 0.08 |
| | Light Crude Oil | 0 | 0 | 1.270E-03 | 1.376E+01 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 1.217E-03 | N/A* | 0.00 |
| Open-ended Lines | Gas/Light Liquid | 0 | 0 | 1.270E-03 | 2.905E+00 | 0.00 |
| | Light Crude Oil | 0 | 0 | 9.524E-04 | 1.175E+00 | 0.00 |
| | Heavy Crude Oil | 0 | 0 | 7.937E-04 | 3.762E+00 | 0.00 |

* Emission factor not available. All components from equipment type and service will be assessed as < 10,000 ppmv

Total VOC Emissions = 2.9 lb/day

Attachment V Emissions Profile

| | |
|--|---------------------|
| Permit #: S-3187-20-0 | Last Updated |
| Facility: PACIFIC ENERGY RESOURCES, INC. | 07/16/2011 EDGEHILR |

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 | 288.0 |
| Daily Emis. Limit (lb/Day) | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 |
| Quarterly Net Emissions Change (lb/Qtr) | | | | | |
| Q1: | 0.0 | 0.0 | 0.0 | 0.0 | 72.0 |
| Q2: | 0.0 | 0.0 | 0.0 | 0.0 | 72.0 |
| Q3: | 0.0 | 0.0 | 0.0 | 0.0 | 72.0 |
| Q4: | 0.0 | 0.0 | 0.0 | 0.0 | 72.0 |
| 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-3187-21-0 | Last Updated |
| Facility: PACIFIC ENERGY RESOURCES, INC. | 07/16/2011 EDGEHILR |

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 | 47.0 |
| Daily Emis. Limit (lb/Day) | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| Quarterly Net Emissions Change (lb/Qtr) | | | | | |
| Q1: | 0.0 | 0.0 | 0.0 | 0.0 | 11.0 |
| Q2: | 0.0 | 0.0 | 0.0 | 0.0 | 12.0 |
| Q3: | 0.0 | 0.0 | 0.0 | 0.0 | 12.0 |
| Q4: | 0.0 | 0.0 | 0.0 | 0.0 | 12.0 |
| 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-3187-22-0 | Last Updated |
| Facility: PACIFIC ENERGY RESOURCES, INC. | 07/16/2011 EDGEHILR |

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 | 47.0 |
| Daily Emis. Limit (lb/Day) | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| Quarterly Net Emissions Change (lb/Qtr) | | | | | |
| Q1: | 0.0 | 0.0 | 0.0 | 0.0 | 11.0 |
| Q2: | 0.0 | 0.0 | 0.0 | 0.0 | 12.0 |
| Q3: | 0.0 | 0.0 | 0.0 | 0.0 | 12.0 |
| Q4: | 0.0 | 0.0 | 0.0 | 0.0 | 12.0 |
| 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-3187-23-0 | Last Updated |
| Facility: PACIFIC ENERGY RESOURCES, INC. | 07/16/2011 EDGEHILR |

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 | 620.0 |
| Daily Emis. Limit (lb/Day) | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 |
| Quarterly Net Emissions Change (lb/Qtr) | | | | | |
| Q1: | 0.0 | 0.0 | 0.0 | 0.0 | 155.0 |
| Q2: | 0.0 | 0.0 | 0.0 | 0.0 | 155.0 |
| Q3: | 0.0 | 0.0 | 0.0 | 0.0 | 155.0 |
| Q4: | 0.0 | 0.0 | 0.0 | 0.0 | 155.0 |
| 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-3187-24-0 | Last Updated |
| Facility: PACIFIC ENERGY RESOURCES, INC. | 10/09/2011 EDGEHILR |

Equipment Pre-Baselined: NO

| | <u>NOX</u> | <u>SOX</u> | <u>PM10</u> | <u>CO</u> | <u>VOC</u> |
|--|------------|------------|-------------|-----------|------------|
| Potential to Emit (lb/Yr): | 3060.0 | 128.0 | 2565.0 | 16650.0 | 2835.0 |
| Daily Emis. Limit (lb/Day) | 34.0 | 1.4 | 28.5 | 185.0 | 38.5 |
| Quarterly Net Emissions Change (lb/Qtr) | | | | | |
| Q1: | 765.0 | 32.0 | 641.0 | 4162.0 | 708.0 |
| Q2: | 765.0 | 32.0 | 641.0 | 4162.0 | 709.0 |
| Q3: | 765.0 | 32.0 | 641.0 | 4163.0 | 709.0 |
| Q4: | 765.0 | 32.0 | 642.0 | 4163.0 | 709.0 |
| 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-3187-25-0 | Last Updated |
| Facility: PACIFIC ENERGY RESOURCES, INC. | 07/16/2011 EDGEHILR |

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 | 1050.0 |
| Daily Emis. Limit (lb/Day) | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 |
| Quarterly Net Emissions Change (lb/Qtr) | | | | | |
| Q1: | 0.0 | 0.0 | 0.0 | 0.0 | 262.0 |
| Q2: | 0.0 | 0.0 | 0.0 | 0.0 | 262.0 |
| Q3: | 0.0 | 0.0 | 0.0 | 0.0 | 263.0 |
| Q4: | 0.0 | 0.0 | 0.0 | 0.0 | 263.0 |
| 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 VI BACT Guideline 7.1.1

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 7.1.1*

Last Update: 3/11/1994

Thermally Enhanced Oil Recovery - Steam Drive Oil Wells**

| Pollutant | Achieved in Practice or contained in the SIP | Technologically Feasible | Alternate Basic Equipment |
|-----------|---|--|--|
| PM10 | | 1. Vapor control system with either a) Scrubber with 50% PM10 removal, or b) Non-condensables incinerated at steam generator, incinerator, or equal and having a vapor sulfur content no greater than 0.2gr S/100 dscf | 1. Vapor control system with either a) Transfer of noncondensable vapors to gas pipeline or b) Re-injection to formation |
| SOx | | 1. Vapor control system with either a) Scrubber with 95% sulfur removal, or b) Non-condensables incinerated at steam generator, incinerator, or equal and having a vapor sulfur content no greater than 0.2gr S/100 dscf | 1. Vapor control system with either a) Transfer of noncondensable vapors to gas pipeline or b) Re-injection to formation |
| VOC | 1. Vapor control system and inspection and maintenance program with either a) Non-condensables balanced casing vent system tied into tank vapor control system or b) Noncondensables Incinerated at steam generator, incinerator, or equal | | 1. Vapor control system with either a) Transfer of noncondensable vapors to gas pipeline or b) Re-injection to formation |

** Control Options wording clarified 10/1/02. No change to any options or limits.

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 for VOC emissions:

Step 1 - Identify All Control Technologies

Vapor Control system and inspection and maintenance (I&M) program with either
a) non-condensables balanced casing vent system tied into tank vapor control system or b) non-condensables incinerated at steam generator, incinerator or equal (Achieved in Practice)

Vapor control system with either a) transfer of noncondensable vapors to gas pipeline or b) re-injection to formation (Alternate Basic Equipment)

Step 2 - Eliminate Technologically Infeasible Options

Applicant has stated that a gas pipeline and disposal wells are not present at the site and therefore this option is not technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Vapor Control system and inspection and maintenance (I&M) program with either
a) non-condensables balanced casing vent system tied into tank vapor control system or b) non-condensables incinerated at steam generator, incinerator or equal (Achieved in Practice)

Step 4 - Cost Effectiveness Analysis

Applicant has proposed the one remaining option from Step 1, a vapor control system and inspection and maintenance (I&M) program with non-condensables incinerated at steam generator, permit exempt heater, or flare (Achieved in Practice). Therefore, a cost analysis is not required.

Step 5 - Select BACT

Pacific is proposing Achieved-in-Practice BACT and therefore BACT is satisfied.

Attachment VIII
HRA

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Richard Edgehill – Permit Services
 From: Leland Villalvazo – Technical Services
 Date: September 5, 2011
 Facility Name: Pacific Energy Resources, Inc.
 Location: Sec.35 Twn 28S Rng 20E
 Application #(s): S-3187-20-0 thru 25-0
 Project #: S-1110922

A. RMR SUMMARY

| RMR Summary | | | | | |
|---|---|-----------------------------------|--------------------------------------|-------------------|--------------------|
| Categories | Oil Tanks (Unit 20-0 thru. 23-0) ¹ | Flare (Unit 24-0) ¹ | 50 Wells (Unit 25-0) ¹ | Project Totals | Facility Totals |
| Prioritization Score | NA | NA | NA | >1.0 | >1.0 |
| Acute Hazard Index | 0.0 | 0.174 | 0.0 | 0.174 | 0.185 |
| Chronic Hazard Index | 0.0 | 0.0 | 0.0 | 0.0 | 0.02 |
| Maximum Individual Cancer Risk (10 ⁻⁶) | 0.0 | 3.34 | 0.0 | 3.34 | 5.85 |
| T-BACT Required? | No | Yes | No | | |
| Special Permit Conditions? | No | Yes | No | | |

¹ Prioritization for this unit was not conducted since it has been determined that all diesel-fired IC engines will result in a prioritization score greater than 1.0.

² Acute and Chronic Hazard Indices were not calculated since there is no risk factor or the risk factor is so low that it has been determined to be insignificant for this type of unit.

³ Acute and Chronic Hazard Index and Maximum Individual Cancer Risk were not calculated since the total facility prioritization score was less than 1.0.

⁴ A prioritization was not performed since it was determined that no hazardous air pollutants were present. No further analysis was required.

Proposed Permit Conditions

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

Unit # 20-0 thru 23-0 and 25-0

No special conditions are required.

Unit # 24-0

1. Flare may not operate within 1000ft of a sensitive or worksite receptor.

T-BACT is required for this unit because of emissions of VOC. In accordance with District policy, BACT for this unit will be considered to be T-BACT.

B. RMR REPORT

Technical Services received a request on August 15, 2011 to perform a Risk Management Review for a proposed installation of four crude oil tanks, a 20.8 MMBTU/Hr. flare, and up to 50 crude oil wells. **Please Note:** The RMR was delayed due to the facility being in suspend status.

II. Analysis

Technical Services performed a prioritization using the District's HEARTs database. Since the total facility prioritization score was greater than one, a refined health risk assessment was required. Emissions calculated using District approved Oilfield fugitive EFs for the tanks and wells, and NG flare EF's. The calculated emissions were input into the HEARTs database. The AERMOD model was used, with the parameters outlined below and meteorological data for 2004-2008 from Missouri Triangle to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the Hot Spots Analysis and Reporting Program (HARP) risk assessment module to calculate the chronic and acute hazard indices and the carcinogenic risk for the project. Appendix A has the modeling inputs used.

Please Note: No site parameters were provided by the processing engineer. Therefore, the emissions units were placed in the centroid of the section. An aerial photo was used to place receptors relative to the centroid of section 35.

Criteria Pollutant Modeling Results*

| 25-0 | 1 Hour | 3 Hours | 8 Hours. | 24 Hours | Annual |
|-------------------|--------|---------|----------|----------|--------|
| CO | Pass | X | Pass | X | X |
| NO _x | Pass | X | X | X | Pass |
| SO _x | Pass | Pass | X | Pass | Pass |
| PM ₁₀ | X | X | X | Pass | Pass |
| PM _{2.5} | X | X | X | Pass | Pass |

*Results were taken from the attached PSD spreadsheet.

¹The project was compared to the 1-hour NO₂ National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures.

²The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

III. Conclusion

The acute and chronic indices are below 1.0 and the cancer risk associated with the project is greater than 1.0 in a million, but less than 10 in a million. **In accordance with the District's Risk Management Policy, the project is approved with 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.

The emissions from the proposed equipment will not cause or contribute significantly to a violation of the State and National AAQS.

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

Attachment IX
BACT Guideline 1.4.1

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 1.4.1*

Last Update 11/9/1995

Waste Gas Flare - 15.3 MMBtu/hr, Serving a Tank Vapor Control System

| Pollutant | Achieved In Practice or contained in the SIP | Technologically Feasible | Alternate Basic Equipment |
|-----------|---|--------------------------|---------------------------|
| CO | Steam-assisted or air-assisted when steam unavailable | | |
| NOx | Steam-assisted or air-assisted when steam unavailable | | |
| PM10 | Steam-assisted with smokeless combustion or Air-assisted flare with smokeless combustion when steam unavailable. Pilot Light Fired Solely on LPG or Natural Gas | | |
| SOx | Pilot Light Fired Solely on LPG or Natural Gas | | |
| VOC | Steam-assisted or air-assisted when steam unavailable | | |

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

Attachment X Best Performance Standards

Draft BPS Policy for VOC Control/Gas Disposal Oil and gas Production, Processing, and Refining

The flare S-3187-24 is to be used only if disposal wells, a sales gas line, combustion sources creating useful work i.e. steam generator S-3187-19 or permit exempt heater are not available. The flare must have a destruction efficiency > 98% and be steam assist or air assist if steam is unavailable, or Coanda effect and equipped with non-automatic or electronic or ballistic ignition. The draft policy follows.

Front Line Organic Liquid Storage Tanks

Front-line Fixed Roof Tanks < 5,000 bbl

Minimize GHG emissions by equipping fixed roof tanks with PV-vent set to within 10% of maximum allowable pressure

The following condition is included on ATC S-3187-23-0:

This tank shall be equipped with a pressure-vacuum (PV) relief valve set to within 10% of the maximum allowable working pressure of the tank, permanently labeled with the operating pressure settings, properly maintained in good operating order and in accordance with the manufacturer's instructions. [Public Resources Code 21000-21177: California Environmental Quality Act] N

Front-line Fixed Roof Tanks \geq 5,000 bbl

Minimize GHG emissions of fixed roof tanks by controlling the emissions by 99% by weight

The following condition is included on ATCs S-3187-21-0 and '-22-0:

This tank shall be connected to the tank vapor control system listed on tank permit S-3187-20 with a vapor control efficiency of 99% by weight. [District Rules 2201, 4623, and Public Resources Code 21000-21177: California Environmental Quality Act] N

Thermally Enhanced Oil Recovery Wells S-3187-25

S-3187-25 Components subject to Rule 4401: Minimize fugitive GHG emissions by applying leak standards and I&M requirements to components subject to Rule 4401 requirements

S-3187-25 Components not subject to Rule 4401: Minimize fugitive GHG emissions by applying leak standards and I&M requirements to components not subject to Rule 4401 requirements

The following condition is included on ATC S-3187-25-0:

Components serving the produced fluid line, pressure relief devices, pumps, compressors, components used exclusively in vacuum service, one-half inch nominal or less stainless steel tube fittings, components exclusively handling gas/vapor or liquid with a VOC content of ten percent by weight or less (10 wt.%) as determined by the test methods in Section 6.3.4 of District Rule 4401 are subject to leak standards and I&M requirements of District Rule 4401. [Public Resources Code 21000-21177: California Environmental Quality Act and District Rule 4401, 4.5, 4.6, and 4.7] N

**San Joaquin Valley
Unified Air Pollution Control District
Best Performance Standard (BPS) x.x.xx**

Date: 05/31/2011

| | | |
|--|---|-------------|
| Class | VOC Control/Gas Disposal | |
| Category | Oil and Gas Production, Processing, and Refining | |
| Best Performance Standard (in order of recommendation) | <p>1) -Incineration in existing engine, boiler, etc that creates useful work – provided that equipment is available and practically capable of incinerating vapors (see equipment specific BPS for standards and requirements for new fired equipment) and currently burning fossil fuel; or,</p> <p>-Transfer to Sales Gas Line – provided that access to sales gas line infrastructure is available; or,</p> <p>-Reinjection to Formation – provided that access to a disposal well is available.</p> | |
| | <p>The following options supersede the BPS requirements above if: a) equipment listed above is not available, b) gas cannot safely be transferred to equipment listed above, c) used to control emergency gas releases.</p> <p>2) -Incineration in new Thermal Oxidizer – see equipment specific Thermal Oxidizer BPS for standards and requirements for new equipment; or,</p> <p>-Incineration in New Flare with >98% TOC destruction efficiency, steam assist, air assist when steam is not available, or Coanda effect and equipped with non-continuous automatic electronic or ballistic ignition; or,</p> <p>-Incineration in Existing Thermal Oxidizer or Flare</p> | |
| Percentage Achieved GHG Emission Reduction Relative to Baseline Emissions | Gas-Fired Equipment | 100% |
| | Transfer to Sales Gas Line | 100% |
| | Reinjection to Formation | 100% |
| | New Thermal Oxidizer | 100% |
| | New Flare | 1.5% |
| | Existing Thermal Oxidizer or Flare | 0% |
| District Project Number | S-1103964 | |
| Evaluating Engineer | Kristopher Rickards | |
| Lead Engineer | Leonard Scandura, P.E. | |
| Public Notice: Start Date | May 31, 2011 | |
| Public Notice: End Date | June 30, 2011 | |
| Determination Effective Date | TBD | |

**San Joaquin Valley
Unified Air Pollution Control District**

Best Performance Standard (BPS) x.x.xx

Date: 7-01-2010

| | |
|--|--|
| Class | Thermally Enhanced Oil Recovery (TEOR) Wells |
| Category | <ul style="list-style-type: none"> - Components subject to Rule 4401 - Components not subject to Rule 4401 |
| Best Performance Standard | <ul style="list-style-type: none"> - Components subject to Rule 4401: Minimize fugitive GHG emissions by applying leak standards and I&M requirements to components subject to Rule 4401 requirements - Components not subject to Rule 4401: Minimize fugitive GHG emissions by applying leak standards and I&M requirements to components not subject to Rule 4401 requirements |
| Percentage Achieved GHG Emission Reduction Relative to Baseline Emissions | <ul style="list-style-type: none"> - Components subject to Rule 4401: 28% - Components not subject to Rule 4401: 48% |

| | |
|-------------------------------------|------------------------|
| District Project Number | C-1100392 |
| Evaluating Engineer | Dolores Gough, P.E. |
| Lead Engineer | Leonard Scandura, P.E. |
| Initial Public Notice Date | April 20, 2010 |
| Final Public Notice Date | May 14, 2010 |
| Determination Effective Date | July 01, 2010 |

**San Joaquin Valley
Unified Air Pollution Control District**

Best Performance Standard (BPS) x.x.xx

Date: 2/23/2011

| | |
|--|---|
| Class | Front-line Organic Liquid Storage Tanks |
| Category | <p align="center"><u>Subcategories:</u></p> <p>1) Fixed Roof Tanks < 5,000 bbl 2) Fixed Roof Tanks ≥ 5,000 bbl</p> |
| Best Performance Standard | <p>1) <u>Front-line Fixed Roof Tanks < 5,000 bbl</u> Minimize GHG emissions by equipping fixed roof tanks <5,000 bbl with PV-vent set to within 10% of maximum allowable pressure</p> <p>2) <u>Front-line Fixed Roof Tanks ≥ 5,000 bbl</u> Minimize GHG emissions of fixed roof tanks ≥ 5,000 bbl by controlling the emissions by 99% by weight</p> |
| Percentage Achieved GHG Emission Reduction Relative to Baseline Emissions | <p>1) Front-line Fixed Roof Tanks < 5,000 bbl: 0%</p> <p>2) Front-line Fixed Roof Tanks ≥ 5,000 bbl: 0%</p> |

| | |
|--|------------------------|
| District Project Number | C-1100392 |
| Evaluating Engineer | Dolores Gough, P.E. |
| Lead Engineer | Leonard Scandura, P.E. |
| Public Participation: Public Notice: start date | January 20, 2010 |
| Public Participation: Public Notice: ending date | February 22, 2011 |
| Determination Effective Date | February 23, 2011 |

Attachment XI
Draft ATC

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-3187-20-0

LEGAL OWNER OR OPERATOR: PACIFIC ENERGY RESOURCES, INC.
MAILING ADDRESS: 2630 FOUNTAIN VIEW DR., SUITE 120
HOUSTON, TX 77057

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 35 TOWNSHIP: 28S RANGE: 20E

EQUIPMENT DESCRIPTION:

5,000 BBL FIXED ROOF CRUDE OIL WASH TANK SERVED BY VAPOR CONTROL SYSTEM INCLUDING PERMIT EXEMPT 2-PHASE SEPARATOR SHARED WITH S-3187-21-0 AND S-3187-22-0 AND VENTED TO STEAM GENERATOR S-3187-19, FLARE S-3187-24, OR PERMIT EXEMPT HEATER(S) (CHICO MARTINEZ LEASE)

CONDITIONS

1. To maintain status as small producer, permittee's crude oil production shall average less than 6,000 bbl/day from all operations within Kern county and permittee shall not engage in refining, transporting or marketing of refined petroleum products. [District Rules 4623]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. Permit exempt heater shall be fired only on propane or natural gas/vapor containing no more than five (5) percent by weight hydrocarbons heavier than butane and no more than 1.0 grain of total sulfur per 100 standard cubic feet of gas. [District Rule 2020]
5. Separator shall process crude oil with 0.8762 specific gravity or higher (30°API or lower) as measured by test method API 2547 or ASTM D-1298-80 and have a capacity of 100 bbl or less. [District Rule 2010]

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-3187-20-0; Oct 9 2011 10:48AM - EDGEHILL : Joint Inspection NOT Required

6. This tank shall be equipped with a vapor recovery system consisting of a closed vent system that collects all VOCs from the storage tank, and a VOC control device. The vapor recovery system shall be APCO-approved and maintained in leak-free condition. The VOC control device shall be either of the following: a vapor return or condensation system that connects to a gas pipeline distribution system, or an approved VOC destruction device that reduces the inlet VOC emissions by at least 99% by weight as determined by the test method specified in Section 6.4.7. [District Rules 2201 and 4623]
7. The Permittee shall maintain with the permit accurate fugitive component counts, and the resulting emissions from the tank, using "California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities", Table IV-2c, "Oil and Gas Production Screening Value Ranges (< 10,000 ppmv) Emission Factors". [District Rule 2201]
8. VOC emission rate from vapor service components associated with this tank up to the vapor control system trunk line shall not exceed 0.5 lb/day. [District Rule 2201]
9. VOC emission rate from vapor control system shall not exceed 0.3 lb/day. [District Rule 2201]
10. This tank shall be fully enclosed and maintained in a leak-free condition. [District Rules 2201 and 4623]
11. All piping, valves, and fittings shall be constructed and maintained in a leak-free condition. [District Rules 2201 and 4623]
12. 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. [District Rules 2201 and 4623]
13. Any tank gauging or sampling device on a tank vented to the vapor recovery system shall be equipped with a leak-free cover which shall be closed at all times except during gauging or sampling. [District Rules 2201 and 4623]
14. All piping, fittings, and valves on this tank shall be inspected annually by the facility operator in accordance with EPA Method 21, with the instrument calibrated with methane, to ensure compliance with the leaking provisions of this permit. [District Rules 2201 and 4623]
15. Operator shall maintain an inspection log containing the following 1) Type of component leaking; 2) Date and time of leak detection, and method of detection; 3) Date and time of leak repair, and emission level of recheck after leak is repaired; 4) Method used to minimize the leak to lowest possible level within 8 hours after detection. [District Rules 2201 and 4623]
16. Operator shall visually inspect tank shell, hatches, seals, seams, cable seals, valves, flanges, connectors, and any other piping components directly affixed to the tank and within five feet of the tank at least once per year for liquid leaks, and with a portable hydrocarbon detection instrument conducted in accordance with EPA Method 21 for gas leaks. Operator shall also visually or ultrasonically inspect as appropriate, the external shells and roofs of uninsulated tanks for structural integrity annually. [District Rules 2201 and 4623]
17. Upon detection of a liquid leak, defined as a leak rate of greater than or equal to 30 drops per minute, operator shall repair the leak within 8 hours. For leaks with a liquid leak rate of between 3 and 30 drops per minute, the leaking component shall be repaired within 24 hours after detection. [District Rules 2201 and 4623]
18. Upon detection of a gas leak, the operator shall take on of the following actions: 1) eliminate the leak within 8 hours after detection; or 2) if the leak cannot be eliminated, then minimize the leak to the lowest possible level within 8 hours after detection by using best maintenance practices, and eliminate the leak within 48 hours after minimization. In no event shall the total time to minimize and eliminate a leak exceed 56 hours after detection. [District Rules 2201 and 4623]
19. Components found to be leaking either liquids or gases shall be immediately affixed with a tag showing the component to be leaking. Operator shall maintain records of the liquid or gas leak detection readings, date/time the leak was discovered, and date/time the component was repaired to a leak-free condition. [District Rules 2201 and 4623]

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CONDITIONS CONTINUE ON NEXT PAGE

20. Leaking components that have been discovered by the operator that have been immediately tagged and repaired within the timeframes specified in District Rule 4623, Table 3 shall not constitute a violation of this rule. Leaking components as defined by District Rule 4623 discovered by District staff that were not previously identified and/or tagged by the operator, and/or any leaks that were not repaired within the timeframes specified in District Rule 4623, Table 3 shall constitute a violation of this rule. [District Rules 2201 and 4623]
21. If a component type for a given tank is found to leak during an annual inspection, operator shall conduct quarterly inspections of that component type on the tank or tank system for four consecutive quarters. If no components are found to leak after four consecutive quarters, the operator may revert to annual inspections. [District Rules 2201 and 4623]
22. Any component found to be leaking on two consecutive annual inspections is in violation of this rule, even if covered under the voluntary inspection and maintenance program. [District Rules 2201 and 4623]
23. Permittee shall comply with all applicable Tank Interior Cleaning Program requirements specified in Table 3 of Rule 4623. [District Rule 4623]
24. Permittee shall maintain records of annual tank inspections, maintenance, and cleaning to document the participation in the Rule 4623 Fixed Roof Tank Preventative Inspection, Maintenance and Tank Interior Cleaning Program. [District Rule 4623]
25. Hydrocarbon composition of gas combusted in heater shall be determined at startup and annually thereafter using gas chromatographic analyses ASTM D-1945-96, ASTM D-3588-98, GPA 2145-94 and GPA 2261-00. [District Rules 1070 and 2010]
26. Permittee shall determine sulfur content of gas combusted in heater for eight consecutive weeks upon startup. After demonstrating compliance for eight consecutive weeks testing may be conducted on a quarterly basis. Weekly gas analysis shall be performed using Draeger tubes and quarterly analysis using ASTM method D3246 or double GC for H₂S and mercaptans. Sulfur content of waste gas shall be measured within one day of restarting unit if the unit has not been in use for more than 7 days. [District Rules 1081 and 2201]
27. Permittee shall maintain records of the hydrocarbon composition and sulfur contents of natural/vapor control gas to qualify for permit exemption of heater. [District Rule 1070 and 2020]
28. Operator shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 1070 and 4623]
29. ATC shall be implemented concurrently with ATCs S-3187-21-0 and '-22-0. [District Rule 2201]
30. ATCs S-3187-15-0 through '-18-0 are hereby canceled. [District Rule 2201]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-3187-21-0

LEGAL OWNER OR OPERATOR: PACIFIC ENERGY RESOURCES, INC.
MAILING ADDRESS: 2630 FOUNTAIN VIEW DR., SUITE 120
HOUSTON, TX 77057

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 35 TOWNSHIP: 28S RANGE: 20E

EQUIPMENT DESCRIPTION:
5,000 BBL FIXED ROOF CRUDE OIL STOCK TANK SERVED BY VAPOR CONTROL SYSTEM LISTED ON S-3187-20
(CHICO MARTINEZ LEASE)

CONDITIONS

1. To maintain status as small producer, permittee's crude oil production shall average less than 6,000 bbl/day from all operations within Kern county and permittee shall not engage in refining, transporting or marketing of refined petroleum products. [District Rule 4623]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. This tank shall be connected to the tank vapor control system listed on tank permit S-3187-20 with a vapor control efficiency of 99% by weight. [District Rules 2201, 4623, and Public Resources Code 21000-21177: California Environmental Quality Act Environmental Quality Act]
5. The Permittee shall maintain with the permit accurate fugitive component counts, and the resulting emissions from the tank, using "California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities", Table IV-2c, "Oil and Gas Production Screening Value Ranges (< 10,000 ppmv) Emission Factors". [District Rule 2201]
6. VOC emission rate from vapor service components associated with this tank up to the vapor control system trunk line shall not exceed 0.1 lb/day. [District Rule 2201]

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-3187-21-0 : Oct 9 2011 10:48AM - EDGEHLR : Joint Inspection NOT Required

7. This tank shall be fully enclosed and maintained in a leak-free condition. [District Rules 2201 and 4623]
8. All piping, valves, and fittings shall be constructed and maintained in a leak-free condition. [District Rules 2201 and 4623]
9. 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. [District Rules 2201 and 4623]
10. Any tank gauging or sampling device on a tank vented to the vapor recovery system shall be equipped with a leak-free cover which shall be closed at all times except during gauging or sampling. [District Rules 2201 and 4623]
11. All piping, fittings, and valves on this tank shall be inspected annually by the facility operator in accordance with EPA Method 21, with the instrument calibrated with methane, to ensure compliance with the leaking provisions of this permit. [District Rules 2201 and 4623]
12. Operator shall maintain an inspection log containing the following 1) Type of component leaking; 2) Date and time of leak detection, and method of detection; 3) Date and time of leak repair, and emission level of recheck after leak is repaired; 4) Method used to minimize the leak to lowest possible level within 8 hours after detection. [District Rules 2201 and 4623]
13. Operator shall visually inspect tank shell, hatches, seals, seams, cable seals, valves, flanges, connectors, and any other piping components directly affixed to the tank and within five feet of the tank at least once per year for liquid leaks, and with a portable hydrocarbon detection instrument conducted in accordance with EPA Method 21 for gas leaks. Operator shall also visually or ultrasonically inspect as appropriate, the external shells and roofs of uninsulated tanks for structural integrity annually. [District Rules 2201 and 4623]
14. Upon detection of a liquid leak, defined as a leak rate of greater than or equal to 30 drops per minute, operator shall repair the leak within 8 hours. For leaks with a liquid leak rate of between 3 and 30 drops per minute, the leaking component shall be repaired within 24 hours after detection. [District Rules 2201 and 4623]
15. Upon detection of a gas leak, the operator shall take on of the following actions: 1) eliminate the leak within 8 hours after detection; or 2) if the leak cannot be eliminated, then minimize the leak to the lowest possible level within 8 hours after detection by using best maintenance practices, and eliminate the leak within 48 hours after minimization. In no event shall the total time to minimize and eliminate a leak exceed 56 hours after detection. [District Rules 2201 and 4623]
16. Components found to be leaking either liquids or gases shall be immediately affixed with a tag showing the component to be leaking. Operator shall maintain records of the liquid or gas leak detection readings, date/time the leak was discovered, and date/time the component was repaired to a leak-free condition. [District Rules 2201 and 4623]
17. Leaking components that have been discovered by the operator that have been immediately tagged and repaired within the timeframes specified in District Rule 4623, Table 3 shall not constitute a violation of this rule. Leaking components as defined by District Rule 4623 discovered by District staff that were not previously identified and/or tagged by the operator, and/or any leaks that were not repaired within the timeframes specified in District Rule 4623, Table 3 shall constitute a violation of this rule. [District Rules 2201 and 4623]
18. If a component type for a given tank is found to leak during an annual inspection, operator shall conduct quarterly inspections of that component type on the tank or tank system for four consecutive quarters. If no components are found to leak after four consecutive quarters, the operator may revert to annual inspections. [District Rules 2201 and 4623]
19. Any component found to be leaking on two consecutive annual inspections is in violation of this rule, even if covered under the voluntary inspection and maintenance program. [District Rules 2201 and 4623]
20. Permittee shall comply with all applicable Tank Interior Cleaning Program requirements specified in Table 3 of Rule 4623. [District Rule 4623]
21. Permittee shall maintain records of annual tank inspections, maintenance, and cleaning to document the participation in the Rule 4623 Fixed Roof Tank Preventative Inspection, Maintenance and Tank Interior Cleaning Program. [District Rule 4623]

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CONDITIONS CONTINUE ON NEXT PAGE

22. Operator shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 1070 and 4623]
23. ATC shall be implemented concurrently with or subsequent to ATCs S-3187-20-0. [District Rule 2201]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-3187-22-0

LEGAL OWNER OR OPERATOR: PACIFIC ENERGY RESOURCES, INC.
MAILING ADDRESS: 2630 FOUNTAIN VIEW DR., SUITE 120
HOUSTON, TX 77057

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 35 TOWNSHIP: 28S RANGE: 20E

EQUIPMENT DESCRIPTION:

5,000 BBL FIXED ROOF CRUDE OIL STOCK TANK SERVED BY VAPOR CONTROL SYSTEM LISTED ON S-3187-20
(CHICO MARTINEZ LEASE)

CONDITIONS

1. To maintain status as small producer, permittee's crude oil production shall average less than 6,000 bbl/day from all operations within Kern county and permittee shall not engage in refining, transporting or marketing of refined petroleum products. [District Rule 4623]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. This tank shall be connected to the tank vapor control system listed on tank permit S-3187-20 with a vapor control efficiency of 99% by weight. [District Rules 2201, 4623, and Public Resources Code 21000-21177: California Environmental Quality Act Environmental Quality Act]
5. The Permittee shall maintain with the permit accurate fugitive component counts, and the resulting emissions from the tank, using "California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities", Table IV-2c, "Oil and Gas Production Screening Value Ranges (< 10,000 ppmv) Emission Factors". [District Rule 2201]
6. VOC emission rate from vapor service components associated with this tank up to the vapor control system trunk line shall not exceed 0.1 lb/day. [District Rule 2201]

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-3187-22-0 : Oct 9 2011 10:48AM - EDGEPRLR : Joint Inspection NOT Required

7. This tank shall be fully enclosed and maintained in a leak-free condition. [District Rules 2201 and 4623]
8. All piping, valves, and fittings shall be constructed and maintained in a leak-free condition. [District Rules 2201 and 4623]
9. 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. [District Rules 2201 and 4623]
10. Any tank gauging or sampling device on a tank vented to the vapor recovery system shall be equipped with a leak-free cover which shall be closed at all times except during gauging or sampling. [District Rules 2201 and 4623]
11. All piping, fittings, and valves on this tank shall be inspected annually by the facility operator in accordance with EPA Method 21, with the instrument calibrated with methane, to ensure compliance with the leaking provisions of this permit. [District Rules 2201 and 4623]
12. Operator shall maintain an inspection log containing the following 1) Type of component leaking; 2) Date and time of leak detection, and method of detection; 3) Date and time of leak repair, and emission level of recheck after leak is repaired; 4) Method used to minimize the leak to lowest possible level within 8 hours after detection. [District Rules 2201 and 4623]
13. Operator shall visually inspect tank shell, hatches, seals, seams, cable seals, valves, flanges, connectors, and any other piping components directly affixed to the tank and within five feet of the tank at least once per year for liquid leaks, and with a portable hydrocarbon detection instrument conducted in accordance with EPA Method 21 for gas leaks. Operator shall also visually or ultrasonically inspect as appropriate, the external shells and roofs of uninsulated tanks for structural integrity annually. [District Rules 2201 and 4623]
14. Upon detection of a liquid leak, defined as a leak rate of greater than or equal to 30 drops per minute, operator shall repair the leak within 8 hours. For leaks with a liquid leak rate of between 3 and 30 drops per minute, the leaking component shall be repaired within 24 hours after detection. [District Rules 2201 and 4623]
15. Upon detection of a gas leak, the operator shall take on of the following actions: 1) eliminate the leak within 8 hours after detection; or 2) if the leak cannot be eliminated, then minimize the leak to the lowest possible level within 8 hours after detection by using best maintenance practices, and eliminate the leak within 48 hours after minimization. In no event shall the total time to minimize and eliminate a leak exceed 56 hours after detection. [District Rules 2201 and 4623]
16. Components found to be leaking either liquids or gases shall be immediately affixed with a tag showing the component to be leaking. Operator shall maintain records of the liquid or gas leak detection readings, date/time the leak was discovered, and date/time the component was repaired to a leak-free condition. [District Rules 2201 and 4623]
17. Leaking components that have been discovered by the operator that have been immediately tagged and repaired within the timeframes specified in District Rule 4623, Table 3 shall not constitute a violation of this rule. Leaking components as defined by District Rule 4623 discovered by District staff that were not previously identified and/or tagged by the operator, and/or any leaks that were not repaired within the timeframes specified in District Rule 4623, Table 3 shall constitute a violation of this rule. [District Rules 2201 and 4623]
18. If a component type for a given tank is found to leak during an annual inspection, operator shall conduct quarterly inspections of that component type on the tank or tank system for four consecutive quarters. If no components are found to leak after four consecutive quarters, the operator may revert to annual inspections. [District Rules 2201 and 4623]
19. Any component found to be leaking on two consecutive annual inspections is in violation of this rule, even if covered under the voluntary inspection and maintenance program. [District Rules 2201 and 4623]
20. Permittee shall comply with all applicable Tank Interior Cleaning Program requirements specified in Table 3 of Rule 4623. [District Rule 4623]
21. Permittee shall maintain records of annual tank inspections, maintenance, and cleaning to document the participation in the Rule 4623 Fixed Roof Tank Preventative Inspection, Maintenance and Tank Interior Cleaning Program. [District Rule 4623]

22. Operator shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 1070 and 4623]
23. ATC shall be implemented concurrently with or subsequent to ATCs S-3187-20-0. [District Rule 2201]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-3187-23-0

LEGAL OWNER OR OPERATOR: PACIFIC ENERGY RESOURCES, INC.
MAILING ADDRESS: 2630 FOUNTAIN VIEW DR., SUITE 120
HOUSTON, TX 77057

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 35 TOWNSHIP: 28S RANGE: 20E

EQUIPMENT DESCRIPTION:
1,000 BBL FIXED ROOF CRUDE OIL DRAIN TANK WITH PV VALVE (CHICO MARTINEZ LEASE)

CONDITIONS

1. Permittee's crude oil production shall average less than 6,000 bbl/day from all operations within Kern County and permittee shall not engage in refining, transporting, or marketing of refined petroleum products. [District Rule 4623]
2. This tank shall be equipped with a pressure-vacuum (PV) relief valve set to within 10% of the maximum allowable working pressure of the tank, permanently labeled with the operating pressure settings, properly maintained in good operating order and in accordance with the manufacturer's instructions. [Public Resources Code 21000-21177: California Environmental Quality Act]
3. Crude oil throughput shall not exceed 5 barrels per day based on a monthly average. [District Rules 2201 and 4623]
4. 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 2201]
5. 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 2201]
6. 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 2201]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director, APCO

DRAFT

DAVID WARNER, Director of Permit Services

S-3187-23-0 : Oct 9 2011 10:48AM - EDGEHILL : Joint Inspection NOT Required

7. 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 2201]
8. 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 2201]
9. 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 2201]
10. The permittee shall keep accurate records of each organic liquid stored in the tank, including its throughput, storage temperature, TVP, and API gravity. [District Rule 2201]
11. {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]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-3187-24-0

LEGAL OWNER OR OPERATOR: PACIFIC ENERGY RESOURCES, INC.
MAILING ADDRESS: 2630 FOUNTAIN VIEW DR., SUITE 120
HOUSTON, TX 77057

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 35 TOWNSHIP: 28S RANGE: 20E

EQUIPMENT DESCRIPTION:
20.8 MMBTU/HR AIR ASSISTED OR COANDA EFFECT FLARE SERVING THE VAPOR CONTROL SYSTEM LISTED
ON PERMIT S-3187-20

CONDITIONS

1. The flare is to be used only if disposal wells, a sales gas line, combustion sources creating useful work i.e. steam generator S-3187-19 or permit exempt heater are not available. The flare shall have a destruction efficiency > 98% and be steam assist or air assist if steam is unavailable, or Coanda effect and equipped with non automatic or electronic or ballistic ignition. [Public Resources Code 21000-21177: California Environmental Quality Act, District Rule 4102, and CH&SC 41700]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. Flare gas heat input shall not exceed 500 MMBtu/day nor 45,000 MMBtu/yr. [District Rule 2201]
6. Emissions shall not exceed any of the following limits: 0.068 lb NOx/MMBtu, 0.026 lb PM10/MMBtu, 0.37 lb CO/MMBtu or 0.063 lb VOC/MMBtu. [District Rule 2201]
7. The sulfur content of the gas being incinerated shall not exceed 20 grain total Sulfur per 100 scf of gas. [District Rule 2201]
8. The flame shall be present at all times when combustible gases are vented through the flare. [District Rule 2201]

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-3187-24-0 : Oct 9 2011 10:48AM - EDGEMLR : Joint Inspection NOT Required

9. The outlet shall be equipped with an automatic ignition system. [District Rule 2201]
10. Flares that use flow-sensing automatic ignition systems and which do not use a continuous flame pilot shall use purge gas for purging. [District Rule 2201]
11. Permittee shall determine sulfur content of flared gas weekly for eight consecutive weeks upon startup. After demonstrating compliance for eight consecutive weeks testing may be conducted on a quarterly basis. Weekly gas analysis shall be performed using Draeger tubes and quarterly analysis using ASTM method D3246 or double GC for H₂S and mercaptans. Sulfur content of waste gas shall be measured within one day of restarting unit if the unit has not been in use for more than 7 days. [District Rules 1081 and 2201]
12. The higher heating value of the flared gas shall be monitored at least quarterly or upon change of source of flared gas. [District Rules 1070 and 2201]
13. Permittee shall keep accurate records of daily and annual flared gas flow rate and heat input in MMBtu/day and MMBtu/yr. [District Rule 2201]
14. Records of the gas sulfur content and required gas flow measurements shall be maintained, retained for a period of at least five years, and made available for District inspection upon request. [District Rule 1070]
15. Permittee shall keep accurate records of annual throughput, material usage, or other information necessary to demonstrate that facility emissions are less than 10 tons NO/yr and 10 tons VOC/yr for exemption from Rule 4311. [District Rule 4311]
16. ATC shall be implemented concurrently with or subsequent to ATCs S-3187-20-0. [District Rule 2201]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
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PERMIT NO: S-3187-25-0

LEGAL OWNER OR OPERATOR: PACIFIC ENERGY RESOURCES, INC.
MAILING ADDRESS: 2630 FOUNTAIN VIEW DR., SUITE 120
HOUSTON, TX 77057

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 35 TOWNSHIP: 28S RANGE: 20E

EQUIPMENT DESCRIPTION:

THERMALLY ENHANCED OIL RECOVERY (TEOR) OPERATION SERVING UP TO 50 STEAM ENHANCED WELLS SERVED BY A CASING GAS COLLECTION SYSTEM CONNECTED TO TANK VAPOR CONTROL SYSTEM LISTED ON S-3187-20, AND VENTED TO STEAM GENERATOR S-3187-19, FLARE S-3187-24, OR PERMIT EXEMPT HEATER(S)

CONDITIONS

1. Emissions rate of VOC associated with the fugitive emissions from TEOR system and ancillary equipment shall not exceed 2.9 lb/day. [District Rule 2201]
2. Permittee shall maintain records of the date and well identification where steam injection or well stimulation occurs, current list of all thermally enhanced production wells associated with this operation; leak inspection results, and accurate fugitive component counts of components in gas service and resulting emissions calculated using the emission factors in the "California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities", Table IV-2c, "Oil and Gas Production Screening Value Ranges (< 10,000 ppmv) Emission Factors". [District Rules 2201 and 4401]
3. Gas leaks exceeding 10,000 ppmv are a violation of this permit. [District Rule 2201]
4. Gas and liquid leaks are as defined in Section 3.20 of Rule 4401. [District Rule 4401 3.20]

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

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DAVID WARNER, Director of Permit Services

S-3187-25-0 : Oct 9 2011 10:48AM - EDG/EHLR : Joint Inspection NOT Required

5. Components serving the produced fluid line, pressure relief devices, pumps, compressors, components used exclusively in vacuum service, one-half inch nominal or less stainless steel tube fittings, components exclusively handling gas/vapor or liquid with a VOC content of ten percent by weight or less (10 wt.%) as determined by the test methods in Section 6.3.4 of District Rule 4401 are subject to leak standards and I&M requirements of District Rule 4401. [Public Resources Code 21000-21177: California Environmental Quality Act and District Rule 4401, 4.5, 4.6, and 4.7]
6. During the time any steam-enhanced crude oil production well is undergoing service or repair while the well is not producing, it shall be exempt from the requirements of District Rule 4401. [District Rule 4401, 4.1] Federally Enforceable Through Title V Permit
7. The uncontrolled VOC emissions from any well vent shall be reduced by at least 99 percent by weight or, if several steam-enhanced crude oil production well vents are connected to a vapor collection and control system, total uncontrolled VOC emissions shall be reduced by at least 99 percent. [District Rule 4401, 5.1 and 5.2] Federally Enforceable Through Title V Permit
8. An operator shall not operate a steam-enhanced crude oil production well unless either of the following two conditions are met: 1) The steam-enhanced crude oil production well vent is closed and the front line production equipment downstream of the wells that carry produced fluids is connected to a VOC collection and control system as defined in Section 3.0 of this Rule or 2) the steam-enhanced crude oil production well vent is open and the well vent is connected to a VOC collection and control system as defined in Section 3.0. [District Rule 4401, 5.5.1 and 5.5.2] Federally Enforceable Through Title V Permit
9. There shall be no open-ended line or a valve located at the end of the line that is not sealed with a blind flange, plug, cap, or a second closed valve that is not closed at all times, except during attended operations requiring process fluid flow through the open-ended lines. Attended operations include draining or degassing operations, connection of temporary process equipment, sampling of process streams, emergency venting, and other normal operational needs, provided such operations are done as expeditiously as possible and with minimal spillage of material and VOC emissions to the atmosphere. [District Rule 4401, 5.2.2.1] Federally Enforceable Through Title V Permit
10. There shall be no components with a major liquid leak as defined in Section 3.20.2 of Rule 4401. [District Rule 4401, 5.2.2.2] Federally Enforceable Through Title V Permit
11. There shall be no components with a gas leak of greater than 50,000 ppmv. [District Rule 4401, 5.2.2.3] Federally Enforceable Through Title V Permit
12. An operator shall be in violation of this rule if any District inspection demonstrates or if any operator inspection conducted pursuant to Section 5.4 of Rule 4401 demonstrates the existence of any combination of components with minor liquid leaks, minor gas leaks, or gas leaks greater than 10,000 ppmv up to 50,000 ppmv that totals more than number of leaks allowed by Table 2 of Rule 4401. [District Rule 4401, 5.2] Federally Enforceable Through Title V Permit
13. No leaking components (as defined in Section 5.2.2 of Rule 4401) may be used unless they have been identified with a tag for repair, are repaired, or awaiting re-inspection after being repaired within the applicable time frame specified in Section 5.5. [District Rule 4401, 5.7.1] Federally Enforceable Through Title V Permit
14. Each hatch shall be closed at all times except during attended repair, replacement, or maintenance operations, providing such activities are done as expeditiously as possible with minimal spillage or material and VOC emissions into the atmosphere. [District Rule 4401, 5.3.2] Federally Enforceable Through Title V Permit
15. The operator shall comply with the requirements of Section 6.7 if there is any change in the description of major components or critical components. [District Rule 4401, 5.3.3] Federally Enforceable Through Title V Permit
16. Unless otherwise specified in Section 5.4, an operator shall perform all component inspections and gas leak measurements pursuant to the requirements of Section 6.3.3. [District Rule 4401, 5.4] Federally Enforceable Through Title V Permit
17. Except for pipes and unsafe-to-monitor components, an operator shall inspect all other components pursuant to the requirements of Section 6.3.3 at least once every year. [District Rule 4401, 5.4.1] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

18. An operator shall visually inspect all pipes at least once every year. Any visual inspection of pipes that indicates a leak that cannot be immediately repaired to meet the leak standards of this rule shall be inspected within 24 hours after detecting the leak. If a leak is found, the leak shall be repaired as soon as practicable but not later than the time frame specified in Table 4 of this Rule. [District Rule 4401, 5.4.2] Federally Enforceable Through Title V Permit
19. An operator shall inspect for leaks all accessible operating pumps, compressors, and PRDs in service as follows: 1) An operator shall audio-visually (by hearing and by sight) inspect for leaks all accessible operating pumps, compressors, and PRDs in service at least once each calendar week. 2) Any audio-visual inspection of an accessible operating pump, compressor, and PRD performed by an operator that indicates a leak that cannot be immediately repaired to meet the leak standards of this rule shall be inspected not later than 24 hours after conducting the audio-visual inspection. If a leak is found, the leak shall be repaired as soon as practicable but not later than the time frame specified in Table 4 of this Rule. [District Rule 4401, 5.4.3] Federally Enforceable Through Title V Permit
20. The operator shall also perform the following inspections: 1) An operator shall initially inspect a PRD that releases to the atmosphere as soon as practicable but not later than 24 hours after the discovery of the release. An operator shall re-inspect the PRD not earlier than 24 hours after the initial inspection but not later than 15 calendar days after the initial inspection. 2) An operator shall inspect all new, replaced, or repaired fittings, flanges, and threaded connections within 72 hours of placing the component in service, and 3) Except for PRDs subject to the requirements of Section 5.8.4.1 of this Rule, an operator shall inspect a component that has been repaired or replaced not later than 15 calendar days after the component was repaired or replaced. [District Rule 4401, 5.4.4] Federally Enforceable Through Title V Permit
21. Components located in unsafe areas shall be inspected and repaired at the next process unit turnaround and inaccessible components shall be inspected at least annually. [District Rule 4401, 5.4.7] Federally Enforceable Through Title V Permit
22. A District inspection in no way fulfills any of the mandatory inspection requirements that are placed upon operators and cannot be used or counted as an inspection required of an operator. [District Rule 4401, 5.4.8] Federally Enforceable Through Title V Permit
23. Upon detection of a leak, an operator shall affix a readily visible weatherproof tag to that leaking component that includes the following information: 1) The date and time of leak detection; 2) The date and time of the leak measurement; 3) For a gaseous leak, the leak concentration in ppmv; 4) For a liquid leak, whether it is a major or minor liquid leak; and 5) Whether the component is an essential component, and unsafe-to-monitor component, or a critical component. [District Rule 4401, 5.5.1] Federally Enforceable Through Title V Permit
24. The tag shall remain affixed to the leaky component until all the following requirements are met: 1) The component is repaired or replaced, 2) The component is re-inspected as set forth in Section 6.3, and 3) The component is found to be in compliance with this Rule. [District Rule 4401, 5.5.2] Federally Enforceable Through Title V Permit
25. An operator shall minimize a component leak in order to stop or reduce leakage to the atmosphere immediately to the extent possible, but not later than one (1) hour after detection of the leak. [District Rule 4401, 5.5.3] Federally Enforceable Through Title V Permit
26. Except for leaking critical components or leaking essential components subject to the requirements of Section 5.9.7, if an operator has minimized a leak but the leak still exceeds the applicable leak limits as defined in Section 3.0, an operator shall comply with at least one of the following three requirements as soon as practicable but not later than the time period specified in Table 4: 1) Repair or replace the leaking component, 2) Vent the leaking component to a VOC collection and control system as defined in Section 3.0, or 3) Remove the leaking component from operation. [District Rule 4401, 5.5.4] Federally Enforceable Through Title V Permit
27. The repair period in calendar days shall not exceed 14 days for minor gas leaks, 5 days for major gas leaks less than or equal to 50,000 ppmv, 2 days for gas leak greater than 50,000 ppmv, 3 days for minor liquid leaks, 2 days for major liquid leaks. [District Rule 4401, 5.5.4] Federally Enforceable Through Title V Permit
28. The leak rate measured after leak minimization has been performed shall be the leak rate used to determine the applicable repair period specified in Table 4. [District Rule 4401, 5.5.5] Federally Enforceable Through Title V Permit
29. The time of the initial leak detection shall be the start of the repair period specified in Table 4. [District Rule 4401, 5.5.6] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

30. If the leaking component is an essential component or a critical component that cannot be immediately shut down for repairs, and if the leak has been minimized but the leak still exceeds the applicable leak standard of this rule, the operator shall repair or replace the essential component or critical component to eliminate the leak during the next process unit turnaround, but in no case later than one year from the date of the original leak detection, whichever comes earlier. [District Rule 4401, 5.5.7] Federally Enforceable Through Title V Permit
31. The operator of any steam-enhanced crude oil production well shall maintain records of the date and well identification where steam injection or well stimulation occurs. [District Rule 4401, 6.1.1] Federally Enforceable Through Title V Permit
32. An operator of any steam-enhanced crude oil production well shall keep source test records which demonstrate compliance with the control efficiency requirements of the VOC collection and control system as defined in Section 3.0 of Rule 4401. [District Rule 4401, 6.1.3] Federally Enforceable Through Title V Permit
33. The operator of any steam-enhanced crude oil production well shall maintain an inspection log pursuant to Section 6.4 of Rule 4401. [District Rule 4401, 6.1.4] Federally Enforceable Through Title V Permit
34. Records shall be maintained of each calibration of the portable hydrocarbon detection instrument utilized for inspecting components, including a copy of current calibration gas certification from the vendor of said calibration gas cylinder, the date of calibration, concentration of calibration gas, instrument reading of calibration gas before adjustment, instrument reading of calibration gas after adjustment, calibration gas expiration date, and calibration gas cylinder pressure at the time of calibration [District Rule 4401, 6.1.5] Federally Enforceable Through Title V Permit
35. An operator shall maintain copies at the facility of the training records of the training program operated pursuant to Section 6.5 of Rule 4401. [District Rule 4401, 6.1.6] Federally Enforceable Through Title V Permit
36. An operator shall source test annually all vapor collection and control systems used to control emissions from steam-enhanced crude oil production well vents to determine the control efficiency of the device(s) used for destruction or removal of VOC. Compliance testing shall be performed annually by source testers certified by ARB. Testing shall be performed during June, July, August, or September of each year if the system's control efficiency is dependent upon ambient air temperature. [District Rule 4401, 6.2.1] Federally Enforceable Through Title V Permit
37. If approved by EPA, ARB, and the APCO, an operator need not comply with the annual testing requirement of Section 6.2.1 if all uncondensed VOC emissions collected by a vapor collection and control system are incinerated in fuel burning equipment, an internal combustion engine or in a smokeless flare. [District Rule 4401, 6.2.2] Federally Enforceable Through Title V Permit
38. An operator shall comply with the following requirements for each gauge tank, as defined in Section 3.17 of Rule 4401: Conduct an initial TVP testing of the produced fluid in each gauge tank not later than June 14, 2007. Thereafter, an operator shall conduct periodic TVP testing of each gauge tank at least once every 24 months during summer (July - September), and whenever there is a change in the source or type of produced fluid in the gauge tank. The TVP testing shall be conducted at the actual storage temperature of the produced fluid in the gauge tank using the applicable TVP test method specified in Section 6.4 of Rule 4623 (Storage of Organic Liquids). The operator shall submit the TVP testing results to the APCO as specified in Section 6.1.9 of Rule 4401. [District Rule 4401, 6.2.3] Federally Enforceable Through Title V Permit
39. The control efficiency of any VOC control device, measured and calculated as carbon, shall be determined by EPA Method 25, except when the outlet concentration must be below 50 ppm in order to meet the standard, in which case EPA Method 25a may be used. EPA Method 18 may be used in lieu of EPA Method 25 or EPA Method 25a provided the identity and approximate concentrations of the analytes/compounds in the sample gas stream are known before analysis with the gas chromatograph and the gas chromatograph is calibrated for each of those known analyte/compound to ensure that the VOC concentrations are neither under- or over-reported. [District Rule 4401, 6.3.1] Federally Enforceable Through Title V Permit
40. VOC content shall be analyzed by using the latest revision of ASTM Method E168, E169, or E260 as applicable. Analysis of halogenated exempt compounds shall be performed by using ARB Method 432. [District Rule 4401, 6.3.2] Federally Enforceable Through Title V Permit

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41. Leak inspection, other than audio-visual, and measurements of gaseous leak concentrations shall be conducted according to EPA Method 21 using an appropriate portable hydrocarbon detection instrument calibrated with methane. The instrument shall be calibrated in accordance with the procedures specified in EPA Method 21 or the manufacturer's instruction, as appropriate, not more than 30 days prior to its use. The operator shall record the calibration date of the instrument. Where safety is a concern, such as measuring leaks from compressor seals or pump seals when the shaft is rotating, a person shall measure leaks by placing the instrument probe inlet at a distance of one (1) centimeter or less from the surface of the component interface. [District Rule 4401, 6.3.3] Federally Enforceable Through Title V Permit
42. The VOC content by weight percent (wt.%) shall be determined using American Society of Testing and Materials (ASTM) D1945 for gases and South Coast Air Quality Management District (SCAQMD) Method 304-91 or the latest revision of ASTM Method E168, E169 or E260 for liquids. [District Rule 4401, 6.3.4] Federally Enforceable Through Title V Permit
43. The operator shall maintain an inspection log in which the operator records at least all of the following for each inspection performed: 1) The total number of components inspected, and the total number and percentage of leaking components found by component type, 2) The location, type and name or description of each leaking component and description of any unit where the leaking component is found, 3) The date of leak detection and the method of leak detection, 4) For gaseous leaks, the leak concentration in ppmv and, for liquids leaks, whether the leak is major or minor, 5) The date of repair, replacement or removal from operation of leaking components, 6) The identity and location of essential components and critical components as defined in this Rule, found leaking, that cannot be repaired until the next process unit turnaround or not later than one year after leak detection, whichever comes earlier, 7) The methods used to minimize the leak from essential components and critical components found leaking that cannot be repaired until the next process unit turnaround or not later than 1 year after detection, whichever comes earlier, 8) The date of re-inspection and the leak concentration in ppmv after the component is repaired or replaced, 9) The inspectors name, business mailing address, and business telephone number, and 10) The date and signature of the facility operator responsible for the inspection and repair program certifying the accuracy of the information recorded in the log. [District Rule 4401, 6.4] Federally Enforceable Through Title V Permit
44. The operator shall establish and implement an employee training program for inspecting and repairing components and recordkeeping procedures as necessary. [District Rule 4401, 6.5] Federally Enforceable Through Title V Permit
45. By January 30 of each year, an operator shall submit to the APCO for approval, in writing, an annual report indicating any changes to an existing Operator Management Plan. [District Rule 4401, 6.7] Federally Enforceable Through Title V Permit
46. All records of required monitoring data and support information shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rules 2520, 9.4.2 and 4401, 6.1] Federally Enforceable Through Title V Permit
47. The crude oil production wells associated with this unit do not have production enhanced by in-situ combustion. Therefore, the requirements of SJVUAPCD Rule 4407 (Adopted May 19, 1994) do not apply to this permit unit. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
48. ATC shall be implemented concurrently with or subsequent to ATCs S-3187-20-0. [District Rule 2201].

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