



AUG - 6 2012

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

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: S-1121571

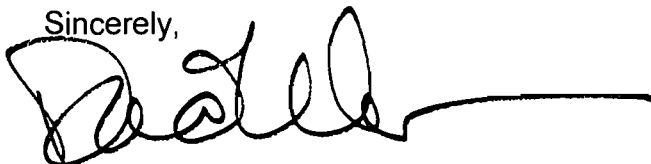
Dear Mr. Gregory:

Enclosed for your review and comment is the District's analysis of Pacific Energy Resources, Inc's application for an Authority to Construct for installation of a new 85 MMBtu/hr gas-fired steam generator to be used as an additional disposal device for tank vapor recovery (TVR) S-3187-20 and Thermally Enhanced Oil Recovery (TEOR) operation S-3187-25, at the Chico-Martinez lease Section 35, Township 28S, Range 20E in the heavy oil production stationary source within 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-D244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585



AUG - 6 2012

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-1121571

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 installation of a new 85 MMBtu/hr gas-fired steam generator to be used as an additional disposal device for tank vapor recovery (TVR) S-3187-20 and Thermally Enhanced Oil Recovery (TEOR) operation S-3187-25, at the Chico-Martinez lease Section 35, Township 28S, Range 20E in the heavy oil production stationary source within 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.

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Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585

**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 installation of a new 85 MMBtu/hr gas-fired steam generator to be used as an additional disposal device for tank vapor recovery (TVR) S-3187-20 and Thermally Enhanced Oil Recovery (TEOR) operation S-3187-25, at the Chico-Martinez lease Section 35, Township 28S, Range 20E in the heavy oil production stationary source within the western Kern County fields.

The analysis of the regulatory basis for this proposed action, Project #S-1121571, 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 93308-9725.**

Rule 4001	New Source Performance Standards (4/14/99)
Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/92)
Rule 4305	Boilers, Steam Generators and Process Heaters – Phase II (8/21/03)
Rule 4306	Boilers, Steam Generators and Process Heaters – Phase III (3/17/05)
Rule 4320	Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)
Rule 4401	Steam Enhanced Crude Oil Production Wells (6/16/11)
Rule 4623	Storage of Organic Liquids (5/10/05)
Rule 4801	Sulfur Compounds (12/17/92)
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 unit will be located within the Chico-Martinez Lease, Section 35, Township 28S, Range 20E in the heavy oil production stationary source in western Kern County. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

An aerial photograph is included in **Attachment II**.

IV. Process Description

The natural/TEOR/TVR-gas-fired steam generator will be used to produce steam for injection into oil production wells in order to lower the viscosity of underground deposits of crude oil and thereby increase oil flow. A facility diagram of the Chico-Martinez Lease is included in **Attachment III**.

V. Equipment Listing

Pre-Project Equipment Description:

~~PTO S-3187-1-0: 2000 BBL FIXED ROOF CRUDE OIL STORAGE TANK (TO BE CANCELLED)~~

~~PTO S-3187-3-0: 1,000 BBL FIXED ROOF CRUDE OIL STORAGE TANK WITH PV VALVE (TO BE CANCELLED)~~

~~PTO S-3187-12-0: 420 BBL CONSTANT LEVEL FIXED ROOF CRUDE OIL WASH TANK (TO BE CANCELLED)~~

ATC S-3187-20-0: 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)

ATC 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)

Proposed Modification:

ATC S-3187-20-1: MODIFICATION OF 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): INCLUDE STEAM GENERATOR S-3187-S-3187-27-0 AS AN ADDITIONAL COMBUSTION DEVICE

ATC S-3187-25-1: MODIFICATION OF 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) : INCLUDE STEAM GENERATOR S-3187-S-3187-27-0 AS AN ADDITIONAL COMBUSTION DEVICE

ATC S-3187-27-0: 85.0 MMBTU/HR NATURAL/TEOR/TVR GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN GLE 4231 ULTRA-LOW NOX BURNER (OR EQUIVALENT) AND FLUE GAS RECIRCULATION (FGR) (CHICO-MARTINEZ LEASE)

Post Project Equipment Description:

ATC S-3187-20-1: 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 GENERATORS S-3187-19 AND '-27, FLARE S-3187-24, OR PERMIT EXEMPT HEATER(S) (CHICO MARTINEZ LEASE)

ATC S-3187-25-1: MODIFICATION OF 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 AND '-27, FLARE S-3187-24, OR
PERMIT EXEMPT HEATER(S)

ATC S-3187-27-0: 85.0 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN GLE 4231 ULTRA-LOW NOX BURNER (OR EQUIVALENT) AND A FLUE GAS RECIRCULATION (FGR) SYSTEM (CHICO-MARTINEZ LEASE)

VI. Emission Control Technology Evaluation

The unit will be equipped with flue gas recirculation (FGR) and an ultra low-NO_x burner capable of achieving NO_x emissions of 7 ppmvd @ 3% O₂, and will be fired on natural/TEOR/TVR Gas. Emissions will include NO_x, CO, VOC, PM₁₀, and SO_x.

NO_x is the major pollutant of concern when burning natural gas. NO_x formation is either due to thermal fixation of atmospheric nitrogen in the combustion air (thermal NO_x) or due to conversion of chemically bound nitrogen in the fuel (fuel NO_x). Due to the low fuel nitrogen content of natural gas, nearly all NO_x emissions are thermal NO_x. Formation of thermal NO_x is affected by four furnace zone factors: (1) nitrogen concentration, (2) oxygen concentration, (3) peak temperature, and (4) time of exposure at peak temperature.

Ultra Low-NO_x burners reduce NO_x formation by producing lower flame temperatures (and longer flames) than conventional burners. Conventional burners thoroughly mix all the fuel and air in a single stage just prior to combustion, whereas low-NO_x burners delay the mixing of fuel and air by introducing the fuel (or sometimes the air) in multiple stages. Generally, in the first combustion stage, the air-fuel mixture is fuel rich. In a fuel rich environment, all the oxygen will be consumed in reactions with the fuel, leaving no excess oxygen available to react with nitrogen to produce thermal NO_x. In the secondary and tertiary stages, the combustion zone is maintained in a fuel-lean environment. The excess air in these stages helps to reduce the flame temperature so that the reaction between the excess oxygen with nitrogen is minimized.

Flue gas recirculation (FGR) reduces NO_x emissions by recirculating a percentage of the exhaust gas back into the windbox. This reduces the oxygen concentration in the air-fuel mixture and regulates the combustion process, lowering the combustion temperature. The lowered availability of oxygen in conjunction with lowered combustion temperature reduces the formation of NO_x.

VII. General Calculations

A. Assumptions

- The maximum operating schedule is 24 hours per day and 8,760 hr/year (365 days)
- Maximum heat input rating = 85.0 MMBtu/hr
- Natural Gas Heating Value: 1,000 Btu/scf
- F-Factor for Natural Gas @ 60°F: 8,578 dscf/MMBtu

- The unit will be fired on natural/TEOR/TVR gas and is identical to the unit authorized by ATC S-3187-19-0 (May 25, 2012 email).

B. Emission Factors

Pollutant	Post-Project Emission Factors (EF2)		Source
NO _x	0.008 lb-NO _x /MMBtu	7 ppmvd NO _x (@ 3%O ₂)	Proposed and 4320
SO _x	0.00285 lb-SO _x /MMBtu	1.0 gr-S/100 scf	Proposed and APR 1720
PM10	0.0076 lb-PM10/MMBtu		Proposed and AP-42 (07/98) Table 1.4-2
CO	0.074 lb-CO/MMBtu	100 ppmvd CO (@ 3%O ₂)	Proposed
VOC	0.0055 lb-VOC/MMBtu		Proposed and AP-42 (07/98) Table 1.4-2

C. Calculations

1. Pre-Project Potential to Emit (PE1)

S-3187-20:

VOC: 0.8 lb/day, 288 lb/yr (project 1110922)

S-3187-25:

VOC: = 2.9 lb/day, 1050 lb/yr (project 1110922)

2. Post Project Potential to Emit (PE2)

S-3187-20

VOC: 0.8 lb/day, 288 lb/yr

S-3187-25:

VOC: = 2.9 lb/day, 1050 lb/yr

S-3187-27

The potential to emit for the unit is calculated as follows, and summarized in the table below:

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO _x	0.0085	85	24	17.3
SO _x	0.00285	85	24	5.8
PM ₁₀	0.0076	85	24	15.5
CO	0.074	85	24	151.0
VOC	0.0055	85	24	11.2

Pollutant	Annual PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
NO _x	0.009	85	8,760	6,329
SO _x	0.00285	85	8,760	2,122
PM ₁₀	0.0076	85	8,760	5,659
CO	0.074	85	8,760	55,100
VOC	0.0055	85	8,760	4,095

Emissions profile is included in **Attachment IV**.

Greenhouse Gas Emissions (District Policy APR 2015)

CO2 53.06 kg/MMBtu (HHV) natural gas (116.7 lb/MMBtu)

Hourly Emissions

CO2 Emissions = 85 MMBtu/hr x 116.7 lb/MMBtu = 9,920 lb-CO2e/hour

9,920 lb-CO2e/hour x 8760 hr/year ÷ 2,000 lb/ton = 43,450 tons-CO2e/year

43,450 short tons-CO2e/year x 0.9072 metric tons/short ton

= 39,418 metric tons > **230 metric tons**

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 total Pre-Project Stationary Source Potential to Emit (SSPE1_{total}) can be calculated by adding the Pre-Project Potential to Emit (PE1) from all units with valid ATCs or PTOs

(SSPE1_{Permit Unit}) and the sum of the ERCs that have been banked at the source and which have not been used on-site (Total_{ERC}).

$$SSPE1_{Total} = SSPE1_{Permit Unit} + Total_{ERC}$$

Project 1110922

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	0	0	0	0	170
S-3187-19	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
S-3187-26	0	0	0	0	1779
Pre Project SSPE (SSPE1)	9,389	4,687	6,829	71,750	17,287

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.

The total Post Project Stationary Source Potential to Emit (SSPE2_{total}) can be calculated by adding the Post Project Potential to Emit (PE2) from all units with valid ATCs or PTOs (SSPE2_{Permit Unit}) and the sum of the ERCs that have been banked at the source and which have not been used on-site (Total_{ERC}).

$$SSPE2_{Total} = SSPE2_{Permit Unit} + Total_{ERC}$$

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	6329	2122	5659	55,100	4095
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S-3187-24	3060	2565	1170	16,650	2,835
S-3187-25	0	0	0	0	1050
S-3187-26	0	0	0	0	1779
S-3187-27	6329	2122	5659	55,100	4095
Post Project SSPE (SSPE2)	15,718	6809	12,488	126,850	16,121

5. Major Source Determination

Pursuant to Section 3.23 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 3.23.2 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)	9,389	4,687	6,829	71,750	17,287
Post Project SSPE (SSPE2)	15,718	6809	12,488	126,850	16,121
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.

As shown in Section VII.C.5 above, the facility is not a Major Source for any pollutant. Therefore Baseline Emissions (BE) are equal to the Pre-Project Potential to Emit (PE1).

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.*"

As discussed in Section VII.C.5 above, the facility is not a Major Source for NO_x, SO_x, PM₁₀ and VOC emissions; therefore, the project does not constitute a SB 288 Major Modification for NO_x, SO_x, PM₁₀ and VOC emissions.

8. Federal Major Modification

As discussed in Section VII.C.5 above, the facility is not a Major Source for NO_x, SO_x, PM₁₀ and VOC emissions; therefore, the project does not constitute a Federal Major Modification for NO_x, SO_x, PM₁₀ and VOC emissions.

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. Steam generator S-3187-27 is new and therefore QNEC = PE2/4.

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless exempted pursuant to Section 4.2, BACT shall be required for the following actions:*

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB288 Major Modification or a Federal Major Modification, as defined by the rule.

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

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

As discussed in Section I above, the steam generator has a PE greater than 2 lb/day for NO_x, SO_x, PM₁₀, CO and VOC. The SSPE2 for CO is less than 200,000 lb/yr; therefore, BACT is not triggered for CO.

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

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

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

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

d. SB 288/Federal Major Modification

As discussed in Section VII.C.7 above, this project does not constitute a SB 288 and/or Federal Major Modification for NO_x emissions; therefore BACT is not triggered for any pollutant.

2. BACT Guideline

Please note that BACT Guideline 1.2.1 [Steam Generator (\geq 5 MMBtu/hr, Oilfield)] has been rescinded. The NO_x emission limit requirement of District Rule 4320 is lower than the Achieved-in-Practice requirement of BACT Guideline 1.2.1 (14 ppmv @ 3% O₂); therefore a project specific BACT analysis will be performed to determine BACT for this project. More details regarding this are provided in **Attachment V**.

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 V**), BACT has been satisfied with the following:

- NO_x: 7 ppmvd @ 3% O₂
- SO_x: Natural gas, LPG and waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO₂ scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO₂ at stack O₂.
- PM₁₀: Natural gas, LPG and waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO₂ scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO₂ at stack O₂.
- VOC: Gaseous fuel

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)	15,718	6809	12,488	126,850	16,121
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

1. Applicability

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.

b. PE > 100 lb/day

The PE2 for this new unit 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	17.3	100 lb/day	No
SO _x	5.8	100 lb/day	No
PM ₁₀	15.5	100 lb/day	No
CO	151.0	100 lb/day	Yes
VOC	11.2	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	9,389	15,718	20,000 lb/year	No
SO _x	4,687	6,809	54,750 lb/year	No
PM ₁₀	6,829	12,488	29,200 lb/year	No
CO	71,750	126,850	200,000 lb/year	No
VOC	17,287	16,121	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	9,389	15,718	6,389	20,000 lb/year	No
SO _x	4,687	6,809	2122	20,000 lb/year	No
PM ₁₀	6,829	12,488	5659	20,000 lb/year	No
CO	71,750	126,850	55,100	20,000 lb/year	Yes
VOC	17,287	16,121	-1166	20,000 lb/year	No

As demonstrated above, the SSIPEs for CO was greater than 20,000 lb/year; therefore public noticing for SSIPE purposes is required.

2. Public Notice Action

As discussed above, public noticing is required for this project for CO emissions in excess of 100 lb/day and 20,000 lb/year. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

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:

- Natural gas and/or TEOR and TVR gas combusted in this unit shall have a sulfur content no greater than 1 gr S/100 scf. [District Rules 2201 and 4320]

- Emissions rates from unit shall not exceed any of the following limits: 7 ppmv NO_x @ 3% O₂ or 0.0085 lb-NO_x/MMBtu, 0.0076 lb-PM₁₀/MMBtu, 100 ppmv CO @ 3% O₂ or 0.074 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4301, 4305, 4306, and 4320]

E. Compliance Assurance

1. Source Testing

The unit in this project is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters, Phase 2*, District Rule 4306, *Boilers, Steam Generators and Process Heaters, Phase 3*, and District Rule 4320, *Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5 MMBtu/hr*. Source testing for NO_x and CO will be required within 60 days of initial operation and at least once every 12 months thereafter.

2. Monitoring

As required by District Rules 4305, 4306, and 4320, this unit is subject to monitoring requirements. Monitoring requirements in accordance with District Rules 4305, 4306, and 4320 are addressed in the compliance review section of this evaluation for each rule.

3. Recordkeeping

As required by District Rules 4305, 4306, and 4320, this unit is subject to recordkeeping requirements. Recordkeeping requirements in accordance with District Rules 4305, 4306, and 4320 are addressed in the compliance review section of this evaluation for each rule. The following permit condition will be listed on permits as follows:

- All records shall be maintained for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320]

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

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 VI** of this document for the AAQA summary sheet.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results* Values are in µg/m³

NG-Fired Generator	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).

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

Rule 2520 Federally Mandated Operating Permits

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

Rule 4001 New Source Performance Standards (NSPS)

40 CFR Part 60, Subpart Dc Small Industrial-Commercial-Industrial Steam Generators between 10 MMBtu/hr and 100 MMBtu/hr (post-6/9/89 construction, modification or reconstruction).

The subject steam generator has a rating of 85 MMBtu/hr and is fired on gaseous fuel. Subpart Dc has no standards for gas-fired steam generators. Therefore the subject steam generator is not an affected facility and subpart Dc does not apply.

Rule 4101 Visible Emissions

Per Section 5.0, no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity). As long as the equipment is operated properly, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity. Compliance 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 VI**), 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-3187-27-0	0.956 per million	Yes

The project is approvable without TBACT. However, the following special condition is required:

The unit shall always operate at least **900 feet** away from the nearest property boundary line.
[District Rule 4102]

Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.

F-Factor for NG: 8,578 dscf/MMBtu at 60 °F
 PM₁₀ Emission Factor: 0.0032 lb-PM₁₀/MMBtu
 Percentage of PM as PM₁₀ in Exhaust: 100%
 Exhaust Oxygen (O₂) Concentration: 3%

$$\text{Excess Air Correction to F Factor} = \frac{20.9}{(20.9 - 3)} = 1.17$$

$$GL = \left(\frac{0.0076 \text{ lb-PM}}{\text{MMBtu}} \times \frac{7,000 \text{ grain}}{\text{lb-PM}} \right) / \left(\frac{8,578 \text{ ft}^3}{\text{MMBtu}} \times 1.17 \right)$$

$$GL = 0.0073 \text{ grain/dscf} < 0.1 \text{ grain/dscf}$$

Therefore, compliance with District Rule 4201 requirements is expected.

Rule 4301 Fuel Burning Equipment

This rule specifies maximum emission rates in lb/hr for SO₂, NO₂, and combustion contaminants (defined as total PM in Rule 1020). This rule also limits combustion contaminants to ≤ 0.1 gr/scf. According to AP 42 (Table 1.4-2, footnote c), all PM emissions from natural gas combustion are less than 1 μm in diameter.

The maximum emission rates in lb/hr for the steam generator in this project are as follows:

District Rule 4301 Limits (lb/hr)			
Unit	NO ₂	Total PM	SO ₂
S-3187-27-0	85 x 0.0085 = 0.72	85 x 0.0076 = 0.65	85 x 0.00285 = 0.24
Rule Limit (lb/hr)	140	10	200

The above table indicates compliance with the maximum lb/hr emissions in this rule; therefore, continued compliance is expected.

Rule 4305 Boilers, Steam Generators, and Process Steam Generators – Phase 2

The proposed steam generator is natural gas-fired with a maximum heat input of 85.0 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4305, the unit is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters – Phase 2*.

In addition, the unit is also subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3* and Rule 3420, *Advanced Emission Reduction Options for Boilers, Steam Generators and Process Heaters Greater than 5 MMBtu/hr*.

Since the emissions limits of District Rule 4320 and all other requirements are equivalent or more stringent than District Rule 4305 requirements, compliance with District Rule 4320 requirements will satisfy requirements of District Rule 4305.

Rule 4306 Boilers, Steam Generators, and Process Heaters – Phase 3

The proposed steam generator is natural gas-fired with a maximum heat input of 85.0 MMBtu/hr each. Pursuant to Section 2.0 of District Rule 4306, the unit is subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3*.

In addition, the unit is also subject to District Rule 4320, *Advanced Emission Reduction Options for Boilers, Steam Generators and Process Heaters Greater than 5 MMBtu/hr*

Since emissions limits of District Rule 4320 and all other requirements are equivalent or more stringent than District Rule 4306 requirements, compliance with District Rule 4320 requirements will satisfy requirements of District Rule 4306.

Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5 MMBTU/hr

This rule limits NO_x, CO, SO₂ and PM₁₀ emissions from boilers, steam generators and process heaters rated greater than 5 MMBtu/hr. This rule also provides a compliance option of payment of fees in proportion to the actual amount of NO_x emitted over the previous year.

The units in this project are all rated at greater than 5 MMBtu/hr heat input and are subject to this rule.

Section 5.1 NOx Emission Limits

Section 5.1 states that an operator of a unit(s) subject to this rule shall comply with all applicable requirements of the rule and one of the following, on a unit-by-unit basis:

- 5.1.1 Operate the unit to comply with the emission limits specified in Sections 5.2 and 5.4; or
- 5.1.2 Pay an annual emissions fee to the District as specified in Section 5.3 and comply with the control requirements specified in Section 5.4; or
- 5.1.3 Comply with the applicable Low-use Unit requirements of Section 5.5.

Section 5.2.1 states that on and after the indicated Compliance Deadline, units shall not be operated in a manner which exceeds the applicable NOx limit specified in Table 1 of this rule, shown below. On and after October 1, 2008, units shall not be operated in a manner to which exceeds a carbon dioxide (CO) emissions limit of 400 ppmv.

Rule 4320 NOx Emission Limits			
C. Oilfield Steam Generators	NOx Limit	Authority to Construct	Compliance Deadline
2. Units with a total rated heat input >20 MMBtu/hr	a) Standard Schedule 7 ppmv or 0.008 lb/MMBtu ; or	July 1, 2009	July 1, 2010
	b) Staged Enhanced Schedule Initial Limit 9 ppmv or 0.011 lb/MMBtu; and	July 1, 2011	July 1, 2012
	Final Limit 5 ppmv or 0.0062lb/MMBtu	January 1, 2013	January 1, 2014

For the subject steam generator, Pacific is proposing to comply with Category C.2.a – standard schedule. The proposed CO emission factor is 100 ppmvd @ 3% O₂ or 0.074 lb/MMBtu. Compliance with the rule emission requirements is expected.

Section 5.4 Particulate Matter Control Requirements

Section 5.4.1 states that to limit particulate matter emissions, an operator shall comply with one of the options listed in the rule.

Section 5.4.1.1 provides the option for the operator to comply with the rule by firing the unit exclusively on PUC-quality gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases;

Section 5.4.1.2 provides option for the operator to comply with the rule by limiting the fuel sulfur content to no more than five (5) grains of total sulfur per hundred (100) standard cubic feet.

Section 5.4.1.3 provides option for the operator to comply with the rule by installing and properly operating an emissions control system that reduces SO₂ emissions by at least 95% by weight; or limit exhaust SO₂ to less than or equal to 9 ppmv corrected to 3 % O₂.

The steam generator will be fired on natural gas with a fuel sulfur content limit of 1.0 gr S/100 scf. Therefore, compliance with this section of the rule is expected.

Section 5.5 Low-Use Unit

This section discusses the requirements of low-use units. Pacific is not requesting low-use status; therefore, this section of the rule is not applicable to this project.

Section 5.7 Monitoring Provisions

Section 5.7.1 requires that permit units subject to District Rule 4320, Section 5.2 shall either install or maintain an operational APCO approved Continuous Emission Monitoring System (CEMS) for NO_x, CO and O₂, or implement an APCO-approved alternate monitoring.

Pacific has proposed to implement Alternate Monitoring Scheme A (pursuant to District Policy SSP-1105), which requires periodic monitoring of NO_x, CO, and O₂ concentrations at least once a month using a portable analyzer. The following conditions will be placed in the ATCs to ensure compliance with the requirements of this alternate monitoring plan:

- {2395} The permittee shall monitor and record the stack concentration of NO_x, CO, and O₂ at least once every month (in which a source test is not performed) using a portable analyzer that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306, and 4320]

- If the NO_x or CO concentrations corrected to 3%, as measured by the portable analyzer, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 4102, 4305, 4306 and 4320]
- All NO_x, CO, and O₂ emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The NO_x, CO, and O₂ analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute sample period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive minute period. [District Rules 4102, 4305, 4306 and 4320]
- The permittee shall maintain records of: (1) the date and time of NO_x, CO and O₂ measurements, (2) the O₂ concentration in percent by volume and the measured NO_x and CO concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306 and 4320]

Section 5.7.6 requires monitoring SO_x emissions. The following condition will be placed in the ATCs to be in compliance with this rule requirement:

- PUC quality natural gas is any gaseous fuel where the sulfur content is no more than one-fourth (0.25) grain of hydrogen sulfide per one hundred (100) standard cubic feet, no more than five (5) grains of total sulfur per one hundred (100) standard cubic feet, and at least 80% methane by volume. [District Rule 4320]
- If the steam generator is not fired on PUC-regulated natural gas and compliance is achieved through fuel sulfur content limitations, then the sulfur content of the fuel shall be determined by testing sulfur content at a location after all fuel sources are combined prior to incineration, or by performing mass balance calculations based on monitoring the sulfur content and volume of each fuel source. The sulfur content of the fuel shall be determined using the test methods referenced in this permit. [District Rule 4320]
- If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rule 4320]

Section 5.8 Compliance Determination

Section 5.8.1 requires that the operator of any unit have the option of complying with either the applicable heat input (lb/MMBtu), emission limits or the concentration (ppmv) emission limits specified in Section 5.2. The emission limits selected to demonstrate compliance shall be specified in the source test proposal pursuant to Rule 1081 (Source Sampling). Therefore, the following condition will be retained or listed on the ATCs as follows:

- {2976} The source plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306 and 4320]

Section 5.8.2 requires that all emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. Unless otherwise specified in the Permit to Operate, no determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0. Therefore, the following permit condition will be listed on the ATCs as follows:

- {2972} All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. Unless otherwise specified in the Permit to Operate, no determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4320. For the purposes of permittee-performed alternate monitoring, emissions measurements may be performed at any time after the unit reaches conditions representative of normal operation. [District Rules 4305, 4306 and 4320]

Section 5.8.4 requires that for emissions monitoring pursuant to Sections 5.7.1 and 6.3.1 using a portable NO_x analyzer as part of an APCO approved Alternate Emissions Monitoring System, emission readings shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15-consecutive-minute sample reading or by taking at least five (5) readings evenly spaced out over the 15-consecutive-minute period. Therefore, the following previously listed permit condition will be on the ATCs as follows:

- {2937} NO_x, CO, and O₂ emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305, 4306 and 4320]

Section 5.8.5 requires that for emissions source testing performed pursuant to Section 6.3.1 for the purpose of determining compliance with an applicable standard or numerical limitation of this rule, the arithmetic average of three (3) 30-consecutive-minute test runs shall apply. If two (2) of three (3) runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. Therefore, the following permit condition will be listed on the permit as follows:

- {2980} For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306 and 4320]

Section 6.1 Recordkeeping

Section 6.1 requires that the records required by Sections 6.1.1 through 6.1.5 shall be maintained for five calendar years and shall be made available to the APCO and EPA upon request. Failure to maintain records or information contained in the records that demonstrate noncompliance with the applicable requirements of this rule shall constitute a violation of this rule.

Section 6.2, Test Methods

Section 6.2 identifies test methods to be used when determining compliance with the rule. The following existing permit conditions will be retained on the ATCs:

- {109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]
- The following test methods shall be used: NO_x (ppmv) - EPA Method 7E or ARB Method 100, NO_x (lb/MMBtu) - EPA Method 19; CO (ppmv) - EPA Method 10 or ARB Method 100; Stack gas oxygen (O₂) - EPA Method 3 or 3A or ARB Method 100; stack gas velocities - EPA Method 2; Stack gas moisture content - EPA Method 4; SO_x - EPA Method 6C or 8 or ARB Method 100; fuel gas sulfur as H₂S content - EPA Method 11 or 15; and fuel hhv (MMBtu) -ASTM D 1826 or D 1945 in conjunction with ASTM D 3588. [District Rules 4305, 4306 and 4320]

Section 6.3, Compliance Testing

Section 6.3.1 requires that each unit subject to the requirements in Section 5.2 shall be source tested at least once every 12 months, except if two consecutive annual source tests demonstrate compliance, source testing may be performed every 36 months. If such a source test demonstrates non-compliance, source testing shall revert to every 12 months. The following conditions will be included in the appropriate ATCs:

- A source test to demonstrate compliance with NO_x and CO emission limits shall be performed within 60 days of startup of this unit. [District Rules 2201 and 4320]
- Source testing to measure natural gas-combustion NO_x and CO emissions from this unit shall be conducted at least once every twelve (12) months (no more than 30 days before or after the required annual source test date). After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months (no more than 30 days before or after the required 36-month source test date). If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306 and 4320]
- {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

Rule 4623 Storage of Organic Liquids

This rule applies to any tank with a capacity of 1,100 gallons or greater in which any organic liquid is placed, held, or stored. Tank S-3187-20 is currently operating in compliance with the rule. Authorization of new steam generator S-3187-27 as an additional disposal device is not expected to affect the rule compliance status.

Continued compliance with Rule 4623 requirements is expected.

Rule 4401 Steam Enhanced Crude Oil Production Wells

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. Authorization of new steam

generator S-3187-27 as an additional disposal device is not expected to affect the rule compliance status.

Continued compliance with Rule 4401 requirements is expected.

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

$$\frac{0.00285 \text{ lb} - \text{SO}_x}{\text{MMBtu}} \times \frac{\text{MMBtu}}{8,578 \text{ dscf}} \times \frac{1 \text{ lb} \cdot \text{mol}}{64 \text{ lb}} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ\text{R}} \times \frac{520^\circ\text{R}}{14.7 \text{ psi}} \times \frac{1,000,000 \cdot \text{parts}}{\text{million}} = 1.97 \frac{\text{parts}}{\text{million}}$$

$$\text{Sulfur Concentration} = 1.97 \frac{\text{parts}}{\text{million}} < 2,000 \text{ ppmv (or 0.2\%)}$$

Therefore, compliance with District Rule 4801 requirements is expected.

California Health & Safety Code 42301.6 (School Notice)

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

California Environmental Quality Act (CEQA)

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

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

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue Authorities to Construct S-3187-20-1, '-25-1, and 27-0 subject to the permit conditions on the attached draft Authority to Construct in **Attachment VIII**.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-3187-20-1	3020-05S-E	210,000 gallons	\$99.00
S-3187-25-1	3020-09S-A	50 wells	\$233.50
S-3187-27-0	3020-02-H	85.0 MMBtu/hr	\$1,030.00

- I: ATCs S-3187-20-0 and '-25-0
- II: Aerial Photograph
- III: Facility Diagram
- IV: Emissions Profiles
- V: BACT Analysis
- VI: Health Risk Assessment and Ambient Air Quality Analysis
- VII: BPS Analysis
- VIII: Draft ATC

Attachment I
ATCs S-3187-20-0 and '-25-0

AUTHORITY TO CONSTRUCT

PERMIT NO: S-3187-20-0

ISSUANCE DATE: 11/29/2011

LEGAL OWNER OR OPERATOR: PACIFIC ENERGY RESOURCES, INC.
MAILING ADDRESS: 4900 CALIFORNIA AVE, TOWER B-210
BAKERSFIELD, CA 93309

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. 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. 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; Jul 25 2012 8:15AM - EDGEHILL : Joint Inspection NOT Required

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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]

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]

AUTHORITY TO CONSTRUCT

PERMIT NO: S-3187-25-0

ISSUANCE DATE: 11/29/2011

LEGAL OWNER OR OPERATOR: PACIFIC ENERGY RESOURCES, INC.
MAILING ADDRESS: 4900 CALIFORNIA AVE, TOWER B-210
BAKERSFIELD, CA 93309

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

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Seyed Sadredin, Executive Director / APCO

DAVID WARNER, Director of Permit Services
S-3187-25-0: Jul 25 2012 8:18AM -- EDGEHLR : Joint Inspection NOT Required

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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]
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]
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]
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]
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]
11. There shall be no components with a gas leak of greater than 50,000 ppmv. [District Rule 4401, 5.2.2.3]
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]
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]
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]
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]
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]
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]
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]

CONDITIONS CONTINUE ON NEXT PAGE

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]
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]
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]
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]
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]
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]
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]
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]
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]
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]
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]
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]
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]

CONDITIONS CONTINUE ON NEXT PAGE

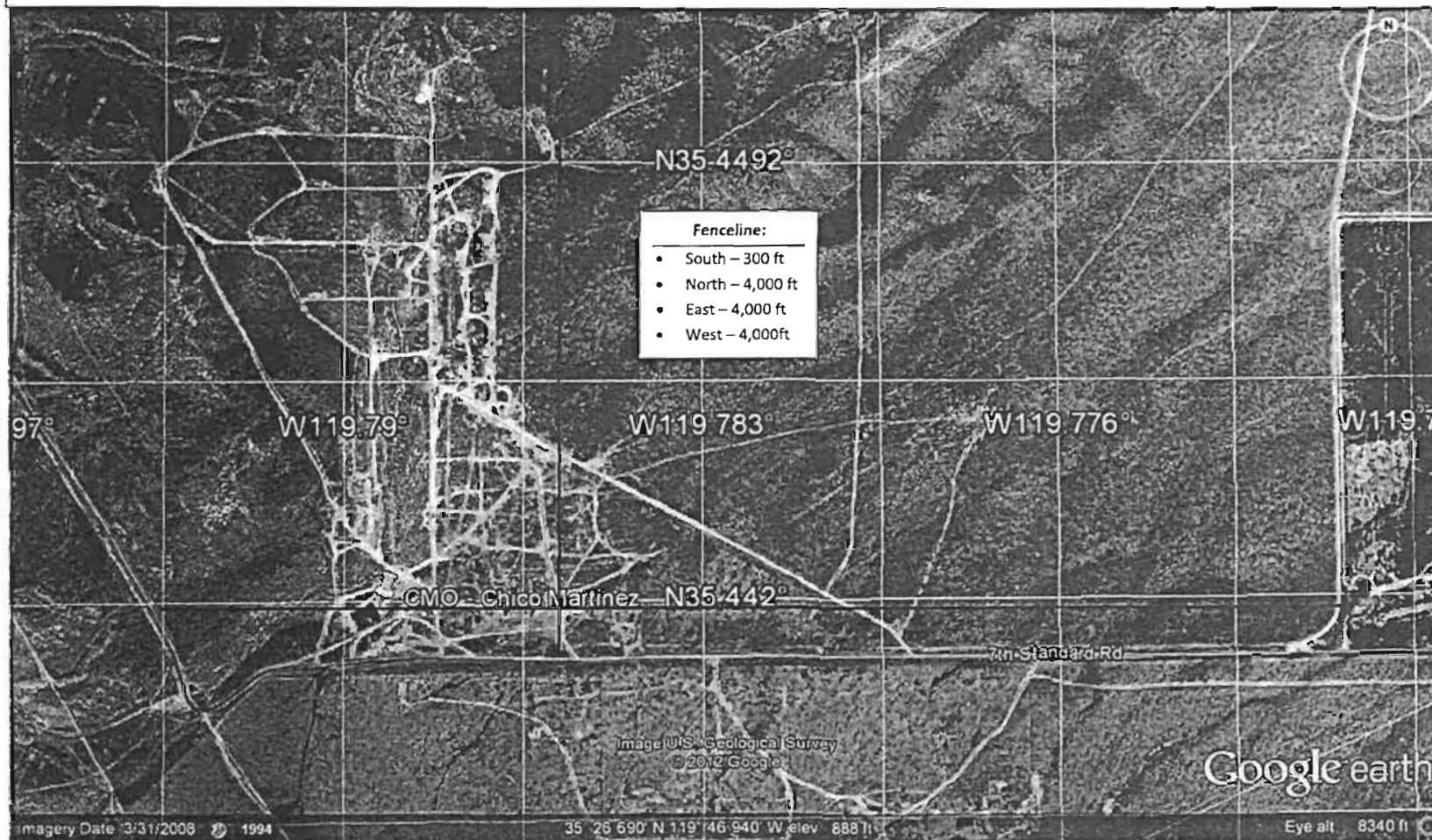
32. An operator of any steam-enhanced crude oil production well shall keep source test records which demonstrate compliance with the control efficiency requirements of the VOC collection and control system as defined in Section 3.0 of Rule 4401. [District Rule 4401, 6.1.3]
33. The operator of any steam-enhanced crude oil production well shall maintain an inspection log pursuant to Section 6.4 of Rule 4401. [District Rule 4401, 6.1.4]
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]
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]
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]
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]
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]
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]
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]
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]
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]

CONDITIONS CONTINUE ON NEXT PAGE

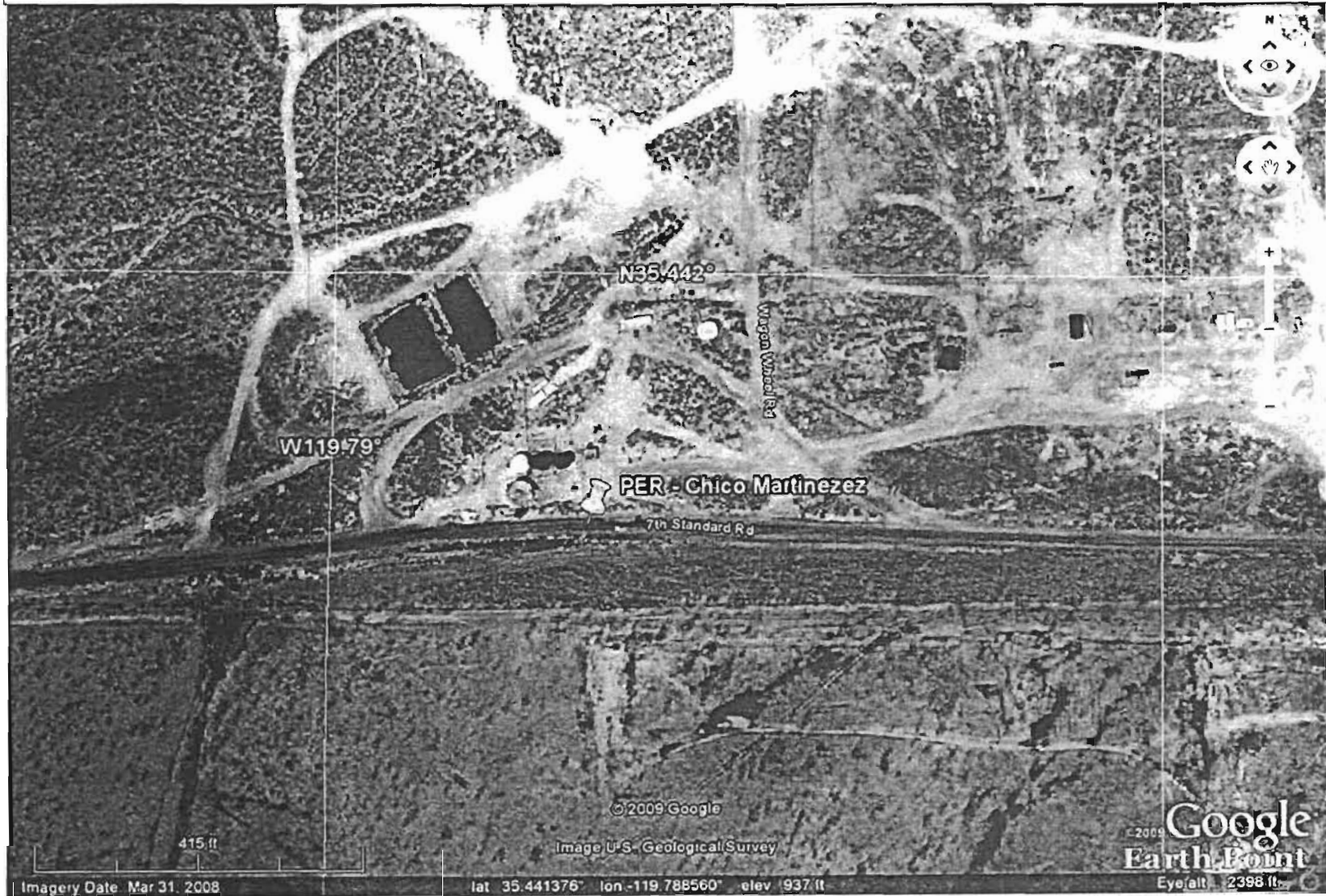
43. The operator shall maintain an inspection log in which the operator records at least all of the following for each inspection performed: 1) The total number of components inspected, and the total number and percentage of leaking components found by component type, 2) The location, type and name or 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 or 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]
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]
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]
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]
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]
48. ATC shall be implemented concurrently with or subsequent to ATCs S-3187-20-0. [District Rule 2201]

**Attachment II
Aerial Photograph**

Pacific Energy Resources, Inc.
Chico Martinez Tank Battery (SW section 35, T28S/R20E)

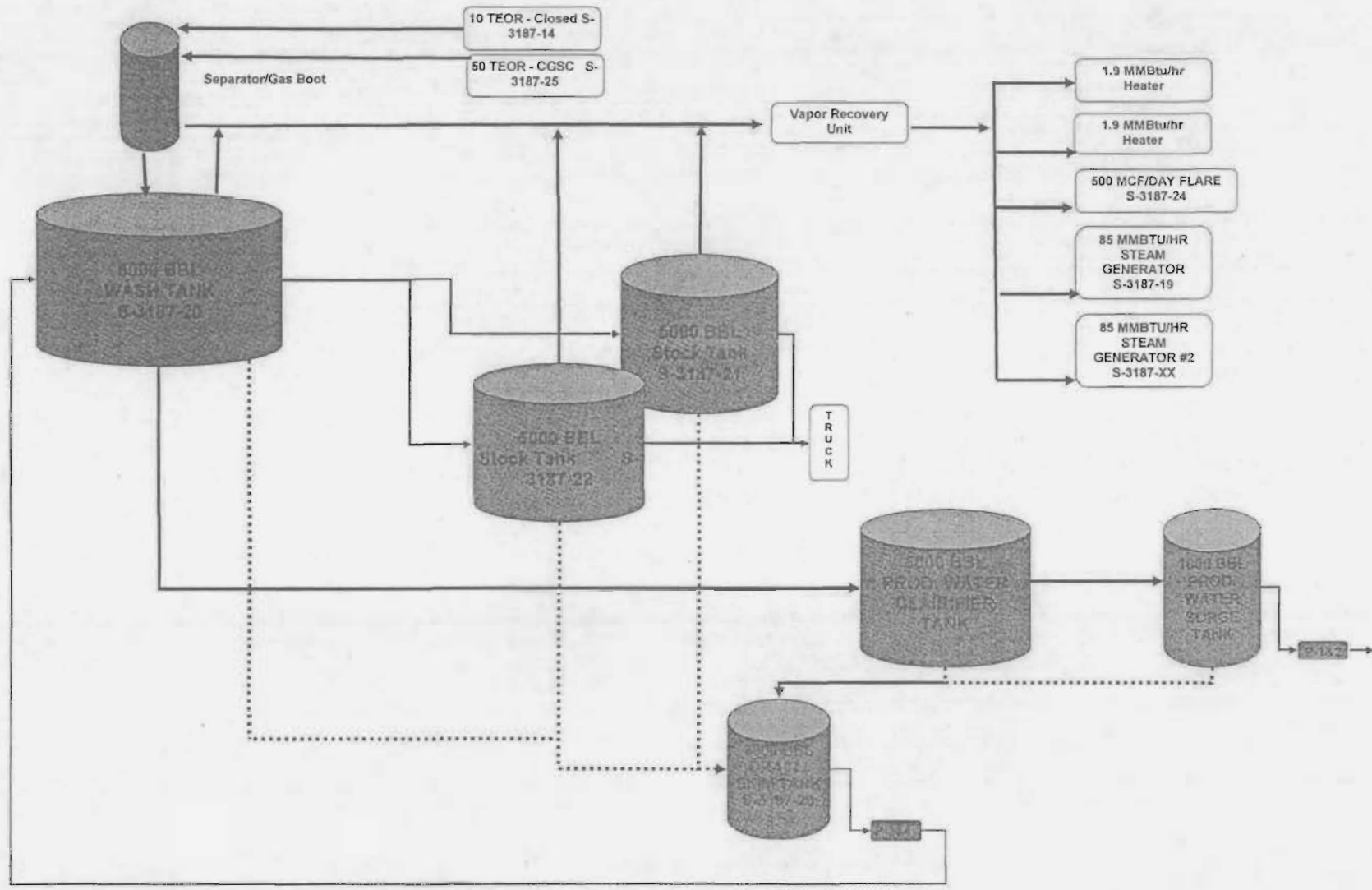


Pacific Energy Resources, Inc.
Chico Martinez Tank Battery (SW section 35, T28S/R20E)



**Attachment III
Facility Diagram**

Chico Martinez Phase #1 Tank Farm



**Attachment IV
Emissions Profiles**

Application Emissions

Permit #: S-3187-20-1	Last Updated
Facility: PACIFIC ENERGY RESOURCES, INC.	07/25/2012 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	0.0
Q2:	0.0	0.0	0.0	0.0	0.0
Q3:	0.0	0.0	0.0	0.0	0.0
Q4:	0.0	0.0	0.0	0.0	0.0
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-3187-25-1	Last Updated
Facility: PACIFIC ENERGY RESOURCES, INC.	07/25/2012 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	0.0
Q2:	0.0	0.0	0.0	0.0	0.0
Q3:	0.0	0.0	0.0	0.0	0.0
Q4:	0.0	0.0	0.0	0.0	0.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Application Emissions

Permit #: S-3187-27-0	Last Updated
Facility: PACIFIC ENERGY RESOURCES, INC.	07/24/2012 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):	6329.0	2122.0	5659.0	55100.0	4095.0
Daily Emis. Limit (lb/Day)	17.3	5.8	15.5	151.0	11.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1582.0	530.0	1414.0	13775.0	1023.0
Q2:	1582.0	530.0	1415.0	13775.0	1024.0
Q3:	1582.0	531.0	1415.0	13775.0	1024.0
Q4:	1583.0	531.0	1415.0	13775.0	1024.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Attachment V BACT Analysis

Top Down BACT Analysis for Steam Generator S-3187-27-0

Oxides of nitrogen (NO_x) are generated from the high temperature combustion of the natural gas fuel. A majority of the NO_x emissions are formed from the high temperature reaction of nitrogen and oxygen in the inlet air. The rest of the NO_x emissions are formed from the reaction of fuel-bound nitrogen with oxygen in the inlet air.

1. BACT Analysis for NO_x Emissions:

a. Step 1 - Identify all control technologies

The District adopted District Rule 4320 on October 16, 2008. The NO_x emission limit requirements in District Rule 4320 are lower than the current BACT limits; therefore a project specific BACT analysis will be performed to determine BACT for this project. District Rule 4320 includes a compliance option that limits oilfield steam generators with heat input ratings greater than 20 MMBtu/hr to 7 ppm @ 3% O₂. This emission limit is Achieved in Practice control technology for the BACT analysis. District Rule 4320 also contains an enhanced schedule option that allows applicants additional time to meet the requirements of the rule. The enhanced schedule NO_x emission limit requirement is 5 ppmv @ 3% O₂. Since this is an enhanced option in the rule, it will be considered the Technologically Feasible control technology for the BACT analysis.

The SJVUAPCD BACT Clearinghouse guideline 1.2.1 has been rescinded. Therefore a new BACT analysis is required. The following are possible control technologies:

- 1) 5 ppmvd @ 3% O₂ with SCR
- 2) 7 ppmvd @ 3% O₂

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

- 1) 5 ppmvd @ 3% O₂ with SCR
- 2) 7 ppmvd @ 3% O₂

d. Step 4 - Cost Effectiveness Analysis

A cost effective analysis is required for technologically feasible control options that are not proposed. The applicant is proposing a NO_x limit of 7 ppmvd @ 3% O₂; therefore, a cost effective analysis is required for the 5 ppmvd option (SCR).

SCR Cost Effectiveness Analysis

Assumptions:

Industry standard (IS) assumed to be a NO_x emission rate of 15 ppmv @ 3% O₂ in accordance with District Rule 4306.

Unit's maximum emissions are defined by the burner size multiplied by the emissions factor and a maximum annual operating schedule of 8,760 hr/year.

Calculations:

Industrial Standard NO_x Emissions = 85 MMBtu/hr x 0.018 lb/MMBtu x 8760 hrs/year
= 13,403 lb/year

Tech. Feasible NO_x Emissions = 85 MMBtu/hr x 0.006 lb/MMBtu x 8760 hrs/year
= 4,468 lb/year

Selective Catalytic Reduction system (Detailed costs follow the BACT Analysis Section):

Capital Cost (PCL, 2011): **\$756,000** (includes all purchased equipment, taxes, freight, and installation of SCR for an 85 MMBtu/hr unit) – detailed costs follow.

Total Estimated Capital Cost: **\$756,000**

Equivalent Annual Capital Cost (Capital Recovery)

$$A = P \frac{i(1+i)^n}{(1+i)^n - 1} \quad \text{where;}$$

A = Equivalent Annual Control Equipment Capital Cost

P = Present value of the control equipment, including installation cost

i = interest rate (use 10%, or demonstrate why alternate is more representative of the specific operation).

n = equipment life (assume 10 years or demonstrate why alternate is more representative of the specific operation)

Where

P = \$756,000

i = 10%,

n = 10 years

A = \$123,001

The annual operating cost is estimated to be \$125,000/yr

Total annualized cost = \$123,001/yr + \$125,000/yr
= \$248,001

NOx Reduction due to Selective Catalytic Reduction system:

Total reduction = Emissions_{15 ppm} – Emissions_{5 ppm}
Total reduction = 13,403 lb/year – 4,468 lb/year
Total reduction = 8,935 lb/year = 4.5 ton NO_x per year

Cost effectiveness:

Cost effectiveness = \$248,001/ 4.5 tpy
Cost effectiveness = \$55,111/ ton

The cost effectiveness is greater than the \$24,500/ton cost effectiveness threshold of the District BACT policy. Therefore the use of SCR with ammonia injection is not cost effective and is not required as BACT.

e. Step 5 - Select BACT

BACT for NO_x emissions from this oil field steam generator is a NO_x limit of 7 ppmvd @ 3% O₂. The applicant has proposed to install an oil field steam generator with a NO_x limit of 7 ppmvd @ 3% O₂; therefore BACT for NO_x emissions is satisfied.

2. BACT Analysis for SO_x Emissions:

Oxides of sulfur (SO_x) emissions occur from the combustion of the sulfur, which is present in the fuel.

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.2.1, 1st quarter 2005, identifies for achieved in practice BACT for SO_x emissions from oil field steam generators ≥ 5 MMBtu/hr as follows:

- 1) Natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO₂ scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO₂ at stack O₂

No technologically feasible alternatives or control alternatives identified as alternate basic equipment for this class and category of source are listed.

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

- 1) Natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO₂ scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO₂ at stack O₂

d. Step 4 - Cost Effectiveness Analysis

The only control technology in the ranking list from Step 3 has been achieved in practice. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.D.2, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for SO_x emissions from this oil field steam generator is natural gas fuel with a sulfur content ≤ 1 gr-S/100 scf. The applicant has proposed to install an oil field steam generator fired on TEOR/natural/TVR gas scrubbed to a sulfur content ≤ 1 gr-S/100 scf; therefore BACT for SO_x emissions is satisfied.

3. BACT Analysis for PM₁₀ Emissions:

Particulate matter (PM₁₀) emissions result from the incomplete combustion of various elements in the fuel.

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.2.1, 1st quarter 2005, identifies for achieved in practice BACT for CO₁₀ emissions from oil field steam generators ≥ 5 MMBtu/hr as follows:

- 1) Natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO₂ scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO₂ at stack O₂

No technologically feasible alternatives or control alternatives identified as alternate basic equipment for this class and category of source are listed.

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

- 1) Natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO₂ scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO₂ at stack O₂

d. Step 4 - Cost Effectiveness Analysis

The only control technology in the ranking list from Step 3 has been achieved in practice. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.D.2, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for PM₁₀ emissions from this oil field steam generator is natural gas fuel with a sulfur content ≤ 1 gr-S/100 scf. The applicant has proposed to install an oil field steam generator fired on TEOR/natural/TVR gas scrubbed to a sulfur content ≤ 1 gr-S/100 scf; therefore BACT for PM₁₀ emissions is satisfied.

4. BACT Analysis for VOC Emissions:

Volatile organic compounds (VOC) emissions are generated from the incomplete combustion of the fuel.

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.2.1, 1st quarter 2005, identifies for achieved in practice BACT for VOC emissions from oil field steam generators ≥ 5 MMBtu/hr as follows:

- 1) Gaseous fuel

No technologically feasible alternatives or control alternatives identified as alternate basic equipment for this class and category of source are listed.

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

- 1) Gaseous fuel

d. Step 4 - Cost effectiveness analysis

The only control technology in the ranking list from Step 3 has been achieved in practice. Therefore, per the District's BACT Policy (dated 11/9/99) Section IX.D.2, the cost effectiveness analysis is not required.

e. Step 5 - Select BACT

BACT for VOC emissions from this oil field steam generator is gaseous fuel. The applicant has proposed to install an oil field steam generator fired on gaseous fuel; therefore BACT for PM₁₀ emissions is satisfied.



CONSTRUCTION LEADERS

March 30, 2011

Mr. Jerry Frost
Vintage Production California, LLC
9600 Ming Ave
Bakersfield, CA 93311

Re: Steam Generator SCR Retrofits

Dear Mr. Frost,

In response to your requests, PCL Industrial Services, Inc. offers for your review a budget price to install SCR technology on an 85MM Btu fired once through steam generator. The scope of work as detailed below includes all engineering, materials, labor, and equipment to procure and install a system that will reduce the NOx levels from 9 ppm to sub 5 ppm.

Project Details

The SCR system proposed will utilize catalyst which has an optimized operating temperature range of 850 – 925 deg F. Placement of the catalyst housing will require the separation of the economizer to operate in this temperature range. As additional room will be required, the radiant section must also be relocated to accommodate the SCR housing. The SCR unit will add 1 – 2" W.C. additional pressure drop across the steam generator. The added pressure drop will adversely affect the steam generator Lo Nox burner. To offset this additional pressure, an ID fan will be required downstream of the convection section for stable operation.

Scope of Work

Remove the convection box from the steam generator

Cut the box frame at row 7. Add flanges to the cut splices. Repair refractory.

Fabricate SCR flanged FGR housing including refractory and painting

Provide and install approx 200 cubic feet catalyst with associated injection system

Excavate, form, and pour 15 foot extension to the generator foundation for SCR and ID Fan

Disconnect electrical and utilities from radiant and cab section.

Relocate the radiant to accommodate new steam generator length (avoid pipe rack relocation)

PCL INDUSTRIAL SERVICES, INC.

1500 S. Union Ave, Bakersfield, CA 93307
Telephone: (661) 832-3995 Fax: (661) 832-3412

Reinstall electrical and utilities.

Supply and modify convection box ASME piping to accommodate SCR housing

Modify electrical conduit and wiring for SCR housing

Provide and install a 75 HP ID fan in 316Lss construction

Provide and install interconnecting ductwork for the ID fan

Provide chemical injection and storage system for SCR

Provide instrumentation and controls for SCR and ID fan

Provide insulation repair and new as required for personnel protection

Provide start up and tuning of ID fan and SCR equipment

Budget Price

\$ 756,000.

Budget price includes taxes and materials and freight to Kern County, CA

Operating costs are estimated to be \$ 125,000 per annum.

The above budget pricing is good for sixty (60) days from date of letter.

We trust the above will be of assistance at this time. Please feel free to contact our office should you have any questions or further requests.

Sincerely,

Mark Pittser

Mark Pittser
Business Development Manager
PCL Industrial Services, Inc.
(661) 343-2789 cell
(661) 835-4440 office

Attachment VI
Health Risk Assessment and Ambient Air Quality Analysis

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Richard Edgehill – Permit Services
 From: Kyle Melching – Technical Services
 Date: July 30, 2012
 Facility Name: Pacific Energy Resources Inc.
 Location: Section 35, T28S, R20E
 Application #(s): S-3187-20-1, 25-1, & 27-0
 Project #: S-1121571

A. RMR SUMMARY

RMR Summary			
Categories	NG/Steam Generator (Unit 27-0)	Project Totals	Facility Totals
Prioritization Score	0.04	0.04	>1
Acute Hazard Index	0.00	0.00	0.01
Chronic Hazard Index	0.00	0.00	0.00
Maximum Individual Cancer Risk	9.56E-07	9.56E-07	7.26E-06
T-BACT Required?	No		
Special Permit Conditions?	Yes		

Proposed Permit Conditions

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

Unit 27-0

1. The unit shall always operate at least **900 feet** away from the nearest property boundary line.

B. RMR REPORT

I. Project Description

Technical Services received a request on July 24, 2012, to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for a natural gas-fired 85 mmBtu/hr steam generator to be used as an additional disposal device for tank (S-3187-20-1) and TEOR operation (S-3187-25-1). No additional analysis was necessary for units 20-1 or 25-1.

II. Analysis

For the Risk Management Review, toxic emissions from the project were calculated using District approved emission for natural gas external combustion. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905-1, March 2, 2001), risks from the proposed project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEART's database. The project's prioritization score was less than 1.0, (see RMR Summary Table); but due to previously analyzed projects a refined Health Risk Assessment was ran and performed for the project. AERMOD was used with point source parameters outlined below and concatenated 5-year meteorological data from Bakersfield to determine maximum dispersion factors at the nearest residential and business receptors. The dispersion factors were input into the HARP model to calculate the Chronic and Acute Hazard Indices and the Carcinogenic Risk.

The following parameters were used for the review:

Analysis Parameters			
Source Type	Point	Nearest Receptor (m)	304.8
Stack Height (m)	6.10	Closest Receptor Type	Residence
Stack Diameter (m)	1.07	Project Location	Rural
Stack Exit Velocity (m/s)*	6.42	Natural Gas Annual Usage (hrs)	8736
Stack Exit Temperature (K)	405.22		

*The stack was assumed exhaust horizontally and was designed as such in AERMOD Source Pathway Module during the refined modeling process as per district policy.

Technical Services also performed modeling for criteria pollutants CO, NO_x, SO_x, PM₁₀, and PM_{2.5}, as well as the RMR. Emission rates used for criteria pollutant modeling were 6.29 lb/hr CO, .721 lb/hr NO_x, .242 lb/hr SO_x, .646 lb/hr PM₁₀, and .646 lb/hr PM_{2.5}.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Values are in $\mu\text{g}/\text{m}^3$

NG-Fired Generator	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).

III. Conclusion

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

The acute and chronic indices are below 1.0; and the maximum individual cancer risk associated with the project is **9.56E-07**, which is less than the 1 in a million threshold. In accordance with the District's Risk Management Policy, the project is approved **without** Toxic Best Available Control Technology (T-BACT).

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

**Attachment VII
BPS Analysis**

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

Best Performance Standard (BPS) x.x.xx

Date: 8/24/10

Class	Steam Generators
Category	Oilfield
Best Performance Standard	<p>Very High Efficiency Steam Generator Design With:</p> <ol style="list-style-type: none"> 1. A convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by manufacturer) or a manufacturer's overall thermal efficiency rating of 88%. <p>And</p> <ol style="list-style-type: none"> 2. Variable frequency drive high efficiency electrical motors driving the blower and water pump.
Percentage Achieved GHG Emission Reduction Relative to Baseline Emissions	13.0%

District Project Number	C-1100391
Evaluating Engineer	Steve Roeder
Lead Engineer	Arnaud Marjollet
Initial Public Notice Date	April 28, 2010
Final Public Notice Date	May 28, 2010
Determination Effective Date	June 24, 2010

**Attachment VIII
Draft ATC**

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-3187-20-1

LEGAL OWNER OR OPERATOR: PACIFIC ENERGY RESOURCES, INC.
MAILING ADDRESS: 4900 CALIFORNIA AVE, TOWER B-210
BAKERSFIELD, CA 93309

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 35 TOWNSHIP: 28S RANGE: 20E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 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); INCLUDE STEAM GENERATOR S-3187-27-0 AS AN ADDITIONAL COMBUSTION DEVICE

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

DRAFT

DAVID WARNER, Director of Permit Services

S-3187-20-1 : Jul 25 2012 8:12AM - EDGEHILL : John 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 one 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 or subsequent to ATCs S-3187-20-0 and '27-0. [District Rule 2201]

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-3187-25-1

LEGAL OWNER OR OPERATOR: PACIFIC ENERGY RESOURCES, INC.
MAILING ADDRESS: 4900 CALIFORNIA AVE, TOWER B-210
BAKERSFIELD, CA 93309

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 35 TOWNSHIP: 28S RANGE: 20E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 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); INCLUDE STEAM GENERATOR S-3187-27 AS ADDITIONAL COMBUSTION DEVICE

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-3187-25-1 : Jul 25 2012 8:12AM - EDGEHLR Jnl 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]
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]
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]
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]
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]
10. There shall be no components with a major liquid leak as defined in Section 3.20.2 of Rule 4401. [District Rule 4401]
11. There shall be no components with a gas leak of greater than 50,000 ppmv. [District Rule 4401]
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]
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]
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 of material and VOC emissions into the atmosphere. [District Rule 4401]
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]
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]
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]
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]

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CONDITIONS CONTINUE ON NEXT PAGE

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

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CONDITIONS CONTINUE ON NEXT PAGE

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]
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]
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]
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]
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]
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]
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]
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]
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]
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]
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]

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CONDITIONS CONTINUE ON NEXT PAGE

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 or 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]
44. The operator shall establish and implement an employee training program for inspecting and repairing components and recordkeeping procedures as necessary. [District Rule 4401]
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]
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 and 4401]
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]
48. ATC shall be implemented concurrently with or subsequent to ATCs S-3187-25-0 and '-27-0. [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-3187-27-0

LEGAL OWNER OR OPERATOR: PACIFIC ENERGY RESOURCES, INC.
MAILING ADDRESS: 4900 CALIFORNIA AVE, TOWER B-210
BAKERSFIELD, CA 93309

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 35 TOWNSHIP: 28S RANGE: 20E

EQUIPMENT DESCRIPTION:

85.0 MMBTU/HR NATURAL/TEOR/TVR GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN GLE 4231 ULTRA-LOW NOX BURNER (OR EQUIVALENT) AND A FLUE GAS RECIRCULATION (FGR) SYSTEM (CHICO-MARTINEZ LEASE)

CONDITIONS

1. This unit shall be equipped with horizontal convection section with at least 235 square feet of bare tube surface area (or thermodynamically equivalent number of square feet of finned tube) per MMBtu/hr of heat input and variable frequency drive high efficiency electrical motors driving the blower and water pump. Documentation showing this unit is so equipped shall be retained on site. [Public Resources Code 21000-21177: California Environmental Quality Act]
2. The unit shall always operate at least 900 feet away from the nearest property boundary line. [District Rule 4102]
3. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
4. 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]
5. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
6. Natural gas and/or TEOR and TVR gas combusted in this unit shall have a sulfur content no greater than 1 gr S/100 scf. [District Rules 2201 and 4320]

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-3187-27-0 : Aug 1 2012 @ 09AM - EDGEHILR : Joint Inspection NOT Required

7. Permittee shall test within 60 days of equipment startup, and annually thereafter, the sulfur content of noncertified (non-PUC/FERC regulated) fuel gas combusted in steam generator using ASTM method D1072, D3031, D4084, or D3246 and make test results readily available for District inspection. [District Rules 2520, 9.3.2 and 4320]
8. Emissions rates from unit shall not exceed any of the following limits: 7 ppmv NO_x @ 3% O₂ or 0.0085 lb-NO_x/MMBtu, 0.0076 lb-PM₁₀/MMBtu, 100 ppmv CO @ 3% O₂ or 0.074 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4301, 4305, 4306, 4320, and 40 CFR 60.43c(e)(1)]
9. A source test to demonstrate compliance with NO_x and CO emission limits shall be performed within 60 days of initial startup of this unit. [District Rules 2201 and 4320]
10. Source testing to measure NO_x and CO emissions from this unit shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305, 4306 and 4320]
11. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. Unless otherwise specified in the Permit to Operate, no determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4320. [District Rules 4305, 4306 and 4320]
12. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
13. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306 and 4320]
14. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]
15. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 5.5.5, 4306, 5.5.5, and 4320]
16. The following test methods shall be used: NO_x (ppmv) - EPA Method 7E or ARB Method 100, NO_x (lb/MMBtu) - EPA Method 19; CO (ppmv) - EPA Method 10 or ARB Method 100; Stack gas oxygen (O₂) - EPA Method 3 or 3A or ARB Method 100; stack gas velocities - EPA Method 2; Stack gas moisture content - EPA Method 4; SO_x - EPA Method 6C or 8 or ARB Method 100; fuel gas sulfur as H₂S content - EPA Method 11 or 15; and fuel hhv (MMBtu) - ASTM D 1826 or D 1945 in conjunction with ASTM D 3588. [District Rule 1081, 4305, 4306, 4320, and 4351]
17. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305, 4306 and 4320]
18. The permittee shall monitor and record the stack concentration of NO_x, CO, and O₂ at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306 and 4320]

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CONDITIONS CONTINUE ON NEXT PAGE

19. If either the NO_x or CO concentrations corrected to 3% O₂, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305, 4306 and 4320]
20. All NO_x, CO, and O₂ emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305, 4306 and 4320]
21. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x and CO concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306 and 4320]
22. PUC quality natural gas is any gaseous fuel where the sulfur content is no more than one-fourth (0.25) grain of hydrogen sulfide per one hundred (100) standard cubic feet, no more than five (5) grains of total sulfur per one hundred (100) standard cubic feet, and at least 80% methane by volume. [District Rule 4320]
23. If the steam generator is not fired on PUC-regulated natural gas and compliance is achieved through fuel sulfur content limitations, then the sulfur content of the fuel shall be determined by testing sulfur content at a location after all fuel sources are combined prior to incineration, or by performing mass balance calculations based on monitoring the sulfur content and volume of each fuel source. The sulfur content of the fuel shall be determined using the test methods referenced in this permit. [District Rule 4320]
24. Permittee shall maintain records of noncertified (non-PUC/FERC regulated) fuel gas sulfur compound measurements. [District Rules 2201 and 4320]
25. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rule 4320]
26. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306 and 4320]

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