



**MAR 31 2015**

Mr. Shamim Reza  
Linn Operating Inc  
5201 Truxtun Ave  
Bakersfield, CA 93301

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)  
District Facility # S-1246  
Project # 1144245**

Dear Mr. Reza:

Enclosed for your review is the District's analysis of an application for Authority to Construct for the facility identified above. You requested that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The project authorizes three new steam generators.

After addressing all comments made during the 30-day public notice and the 45-day EPA comment periods, the District intends to issue the Authority to Construct with a Certificate of Conformity. Please submit your comments within the 30-day public comment period, as specified in the enclosed public notice. Prior to operating with modifications authorized by the Authority to Construct, the facility must submit an application to modify the Title V permit as an administrative amendment, in accordance with District Rule 2520, Section 11.5.

If you have any questions, please contact Mr. Leonard Scandura, Permit Services Manager, at (661) 392-5500.

Thank you for your cooperation in this matter.

Sincerely,



Arnaud Marjollet  
Director of Permit Services

Enclosures

cc: Mike Tollstrup, CARB (w/enclosure) via email  
cc: Gerardo C. Rios, EPA (w/enclosure) via email

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**San Joaquin Valley Air Pollution Control District**  
**Authority to Construct Application Review**  
**Three New 85 MMBtu/hr Steam Generators**

Facility Name: Linn Petroleum Company  
Mailing Address: 5201 Truxtun Ave  
Bakersfield, CA 93309  
Contact Person: Shamim Reza  
Telephone: 661-616-3889, email: sreza@linnenergy.com  
Application #(s): S-1246-407-0, '-408-0, and '-409-0  
Project #: 1144245  
Deemed Complete: December 22, 2014

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**I. Proposal**

Linn Operating Inc (Linn) has requested Authorities to Construct (ATCs) for three new 85 MMBtu/hr natural gas, ethane-rich natural gas and/or TEOR gas-fired steam generators. Emissions from each steam generator triggers BACT, offsets and public notice.

Linn facility S-1246 received their Title V Permit on May 31, 2001. This project is a Federal Major Modification; therefore, it is classified as a Title V Significant Modification pursuant to Rule 2520, Section 3.29, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. Linn must apply to administratively amend their Title V permit.

**II. Applicable Rules**

Rule 2201	New and Modified Stationary Source Review Rule (4/21/11)
Rule 2410	Prevention of Significant Deterioration (adopted 6/16/2011, effective 11/26/12)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99)
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 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 steam generators will be located at Fairfield Lease, within Section 11 ('-407), 12 ('-408), and 13 ('-409), Township 31S, Range 22E in Berry's Heavy Oil Western Stationary Source (HOWSS). The equipment is not located within 1,000 feet of the outer boundary of a K-12 school.

A project location map is included in **Attachment I**.

### **IV. Process Description**

In thermally enhanced oil recovery (TEOR) operations, steam generators produce steam for injection into heavy crude oil bearing strata via injection wells to reduce the viscosity of the crude oil, resulting in enhanced oil production.

### **V. Equipment Listing**

#### Proposed ATCs:

- S-1246-407 : 85.0 MMBTU/HR PCL NATURAL GAS, ETHANE-RICH NATURAL GAS, TEOR AND OR TVR-GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MODEL LE ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (FAIRFIELD LEASE)
- S-1246-408 : 85.0 MMBTU/HR PCL NATURAL GAS, ETHANE-RICH NATURAL GAS, TEOR AND OR TVR-GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MODEL LE ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (FAIRFIELD LEASE)
- S-1246-409 : 85.0 MMBTU/HR PCL NATURAL GAS, ETHANE-RICH NATURAL GAS, TEOR AND OR TVR-GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MODEL LE ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (FAIRFIELD LEASE)

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

Criteria pollutants from natural gas-fired steam generators include NO<sub>x</sub>, CO, VOC, PM<sub>10</sub>, and SO<sub>x</sub>.

NO<sub>x</sub> is the major pollutant of concern when burning natural gas. NO<sub>x</sub> formation is either due to thermal fixation of atmospheric nitrogen in the combustion air (thermal NO<sub>x</sub>) or due to conversion of chemically bound nitrogen in the fuel (fuel NO<sub>x</sub>). Due to the low fuel nitrogen content of natural

gas, nearly all NO<sub>x</sub> emissions are thermal NO<sub>x</sub>. Formation of thermal NO<sub>x</sub> is affected by four furnace zone factors: (1) nitrogen concentration, (2) oxygen concentration, (3) peak temperature, and (4) time of exposure at peak temperature.

Flue gas recirculation (FGR) reduces NO<sub>x</sub> 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<sub>x</sub>.

Linn will comply with BACT by combusting natural or ethane-rich natural gas provided from a nearby gas plant, where ethane, other heavier hydrocarbons and inert compounds are removed to produce a utility quality natural gas for general sale. The gas plant will provide gas to Linn under contract and will blend the ethane with methane and other components to achieve a gross heating value of that is comparable to the gas that Linn is currently using – between 1,000 and 1,100 Btu/scf. The use of the blended ethane gas is not expected to be significantly different from natural gas.

## VII. General Calculations

### A. Assumptions

- The maximum operating schedule is 24 hours per day (per applicant)
- Fuel will consist of a possible mixture of natural gas ethane-rich gas and TEOR gas
- Annual potential to emit is calculated based on 8,760 hours of operation per year
- EPA F-factor for natural gas is 8,578 dscf/MMBtu (40 CFR 60, Appendix B)
- Molar specific volume of a gas @ 60 °F is 379.5 ft<sup>3</sup>/lb-mol
- Maximum Heat Input: 85.0 MMBtu/hr (per applicant).
- PM10 is all PM2.5

### B. Emission Factors

Pollutant	Emission Factors (EF2)		Source
NO <sub>x</sub>	0.008 lb-NO <sub>x</sub> /MMBtu	7 ppmvd NO <sub>x</sub> (@ 3%O <sub>2</sub> )	Proposed, Rule 4320 limit and BACT
SO <sub>x</sub>	0.005 lb SO <sub>x</sub> /MMBtu*	1.75 gr S/100 scf	Proposed
PM <sub>10</sub>	0.0076 lb-PM <sub>10</sub> /MMBtu		Proposed
CO	0.0185 lb-CO/MMBtu	25 ppmv CO @3% O <sub>2</sub>	Proposed and BACT
VOC	0.0055 lb-VOC/MMBtu	13 ppmv VOC @3% O <sub>2</sub>	Proposed and AP-42 (7/98), Table 1.4-2

\*(1.75 gr-S/100 scf)(lb/7000 gr)(scf/1000 btu)(2 lb-SO<sub>2</sub>/lb-S)(10E6) = 0.005 lb-SO<sub>x</sub>/mmbtu

**C. Calculations**

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

Since this is a new emissions unit, PE1 = 0 for all pollutants.

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

The PE2 is calculated as shown below and summarized in the following table:

S-1246-407, '-408, and '-409 (each)

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO <sub>x</sub>	0.0080	85	24	16.3
SO <sub>x</sub>	0.00500	85	24	10.2
PM <sub>10</sub>	0.0076	85	24	15.5
CO	0.019	85	24	37.7
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 <sub>x</sub>	0.008	85	8,760	5,957
SO <sub>x</sub>	0.00500	85	8,760	3,723
PM <sub>10</sub>	0.0076	85	8,760	5,659
CO	0.019	85	8,760	13,775
VOC	0.0055	85	8,760	4,095

Emissions Profiles are included in **Attachment II**.

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

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

Emissions from Berry's HOWSS, including facilities S-1246 and S-1328, are already above the Offset and Major Source Thresholds for all pollutants; therefore, SSPE1 calculations are not necessary\*.

\*SSPE calculator (lb/yr, 12-27-14) NOx: 314,994, SOx 216,764, PM10 206,260, CO 991,973  
VOC 1,083,348

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

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

Since facility emissions are already above the Offset and Major Source Thresholds for all pollutants, SSPE2 calculations are not necessary.

#### 5. Major Source Determination

##### Rule 2201 Major Source Determination:

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status the following shall not be included:

- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

Rule 2201 Major Source Determination (lb/year)						
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO	VOC
SSPE1*	>314,914	>216,764	>206,260	>206,260	>991,973	>1,083,348
SSPE2	>314,914	>216,764	>206,260	>206,260	>991,973	>1,083,348
Major Source Threshold	20,000	140,000	140,000	200,000	200,000	20,000
Major Source?	Yes	Yes	Yes	Yes	Yes	Yes

\*SSPE Calculator - does not include emissions from outstanding ATCs

Note: PM2.5 assumed to be equal to PM10

##### Rule 2410 Major Source Determination:

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(iii). Therefore the PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

<b>PSD Major Source Determination (tons/year)</b>						
	NO2	VOC	SO2	CO	PM	PM10
Estimated Facility PE before Project Increase*	>157	>542	>108	>496	>103	>103
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source ? (Y/N)	N	Y	N	Y	N	N

\*SSPE Calculator - does not include emissions from outstanding ATCs

As shown above, the facility is an existing PSD major source for at least one pollutant.

### 6. Baseline Emissions (BE)

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

Pursuant to District Rule 2201, BE = PE1 for:

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

otherwise,

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

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

### 7. SB 288 Major Modification

Since this facility is a major source for NOx, SOx, PM10, and VOCs, the project's PE2 is compared to the SB 288 Major Modification Thresholds in the following table in order to determine if the SB 288 Major Modification calculation is required.

SB 288 Major Modification Thresholds			
Pollutant	Project PE2 (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
NO <sub>x</sub>	5,957 x 3 = 17,871	50,000	No
SO <sub>x</sub>	3,723 x 3 = 11,169	80,000	No
PM <sub>10</sub>	5,659 x 3 = 16,977	30,000	No
VOC	4,095 x 3 = 12,285	50,000	No

Since none of the SB 288 Major Modification Thresholds are surpassed with this project, this project does not constitute an SB 288 Major Modification.

### 8. Federal Major Modification

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

The determination of Federal Major Modification is based on a two-step test. For the first step, only the emission *increases* are counted. Emission decreases may not cancel out the increases for this determination.

#### Step 1

For new emissions units, the increase in emissions is equal to the PE2 for each new unit included in this project.

The project's combined total emission increases are compared to the Federal Major Modification Thresholds in the following table.

Federal Major Modification Thresholds for Emission Increases			
Pollutant	Total Emissions Increases (lb/yr)	Thresholds (lb/yr)	Federal Major Modification?
NO <sub>x</sub> *	17,871	0	Y
VOC*	11,169	0	Y
PM <sub>10</sub>	16,977	30,000	N
PM <sub>2.5</sub>	16,977	20,000	N
SO <sub>x</sub>	11,169	80,000	N

Since there is an increase in NO<sub>x</sub> and VOC emissions, this project constitutes a Federal Major Modification, and no further analysis is required.

### 9. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to any pollutant regulated under the Clean Air Act, except those for which the District has been classified nonattainment. The pollutants which must be addressed in the PSD applicability determination for sources located in the SJV and which are emitted in this project are: (See 52.21 (b) (23) definition of significant)

- NO2 (as a primary pollutant)
- SO2 (as a primary pollutant)
- CO
- PM
- PM10
- Total reduced sulfur (including H2S)

**I. Project Location Relative to Class 1 Area**

As demonstrated in the "PSD Major Source Determination" Section above, the facility was determined to be a existing PSD Major Source. Because the project is not located within 10 km (6.2 miles) of a Class 1 area – modeling of the emission increase is not required to determine if the project is subject to the requirements of Rule 2410.

**II. Project Emission Increase – Significance Determination**

**a. Evaluation of Calculated Post-project Potential to Emit for New or Modified Emissions Units vs PSD Significant Emission Increase Thresholds**

As a screening tool, the post-project potential to emit from all new and modified units is compared to the PSD significant emission increase thresholds, and if the total potentials to emit from all new and modified units are below the applicable thresholds, no further PSD analysis is needed.

<b>PSD Significant Emission Increase Determination: Potential to Emit (tons/year)</b>					
	<b>NO2</b>	<b>SO2</b>	<b>CO</b>	<b>PM</b>	<b>PM10</b>
<b>Total PE from New and Modified Units</b>	9	5.6	20.7	8.5	8.5
<b>PSD Significant Emission Increase Thresholds</b>	40	40	100	25	15
<b>PSD Significant Emission Increase?</b>	N	N	N	N	N

As shown in the table above, the project potential to emit, by itself, does not exceed any of the PSD major source thresholds. Therefore Rule 2410 is not applicable and no further discussion is required.

**10. 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. As the permit unit is new QNEC is equal to 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 specifically exempted by Rule 2201, BACT shall be required for the following actions\*:

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

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

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

As seen in Section VII.C.2 of this evaluation, Linn is proposing to install new steam generators with PEs greater than 2 lb/day for NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, CO, and VOC.

BACT is triggered for NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, CO and VOC because the PEs are greater than 2 lbs/day and the SSPE for CO is greater than 200,000 lb/year.

##### 2. BACT Guideline

BACT Guideline 1.2.1, applies to the oilfield steam generators greater  $\geq$  20 MMBtu/hr. [Oilfield Steam Generator ( $>$  or  $\geq$ 20 MMBtu/hr)](See Attachment III)

##### 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 IV), BACT has been satisfied with the following:

NO<sub>x</sub>: 7 ppmvd @ 3% O<sub>2</sub>

SO<sub>x</sub>, PM<sub>10</sub>: Fired on PUC quality natural gas or gaseous fuel treated to remove 95% by weight of sulfur compounds, or gaseous fuel treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf

CO: 25 ppmvd or less @ 3% O<sub>2</sub>

VOC: Gaseous fuel

**B. Offsets**

**1. Offset Applicability**

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

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

Offset Determination (lb/year)					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
Post Project SSPE (SSPE2)	>20,000	>54,750	>29,200	>200,000	>20,000
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	Yes	Yes	Yes	Yes

**2. Quantity of Offsets Required**

As seen above, the facility is an existing NSR Major Source for NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, CO, VOC, and the SSPE2 is greater than the offset thresholds for these pollutants; therefore, offset calculations will be required for this project.

However, Section 4.6.1 of Rule 2201 states that emissions offsets are not required for increases in CO in attainment areas provided the applicant demonstrates to the satisfaction of the APCO that the Ambient Air Quality (AAQ) Standards are not violated in the areas to be affected, such emissions will be consistent with Reasonable Further Progress, and will not cause or contribute to a violation of AAQ Standards. The District performed an AAQ Analysis and determined that this project will not result in or contribute to a violation of an AAQ Standard for CO (see **Attachment V**). Therefore, CO offsets are not required for this project.

The quantity of offsets in pounds per year is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

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

Where,

PE2 = Post Project Potential to Emit, (lb/year)  
 BE = Baseline Emissions, (lb/year)  
 ICCE = Increase in Cargo Carrier Emissions, (lb/year)  
 DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = PE1 for:

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

otherwise,  
 BE = HAE

The facility is proposing to install a new emissions unit; therefore BE = 0. Also, there is only one emissions unit associated with this project and there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

NO<sub>x</sub>

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

PE2 (NO<sub>x</sub>) =  $5,957 \times 3 = 17,871$  lb/year  
 BE (NO<sub>x</sub>) = 0 lb/year  
 ICCE = 0 lb/year

The project is a Federal Major Modification and therefore the correct offset ratio for NO<sub>x</sub> and VOCs is 1.5:1.

Offsets Required (lb/year) =  $([17,871 - 0] + 0) \times 1.5$   
 =  $17,871 \times 1.5$   
 = 26,807 lb NO<sub>x</sub>/year

Calculating the appropriate quarterly emissions to be offset is as follows:

<u>1<sup>st</sup> Quarter</u>	<u>2<sup>nd</sup> Quarter</u>	<u>3<sup>rd</sup> Quarter</u>	<u>4<sup>th</sup> Quarter</u>
6,702	6,702	6,702	6,702

The applicant has stated that the facility plans to use ERC certificate listed in the following table which has been reserved in PAS for the quantities listed above.

Certificate	Q1	Q2	Q3	Q4
N-1198-2	106,987	106,252	113,427	113,777

VOCs

PE2 (VOCs) =  $4,095 \times 3 = 12,285$  lb/year  
 BE (VOCs) = 0 lb/year  
 ICCE = 0 lb/year

The amount of VOCs ERCs that need to be withdrawn is:

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([12,285 - 0] + 0) \times 1.5 \\ &= 12,285 \times 1.5 \\ &= 18,428 \text{ lb VOC/year} \end{aligned}$$

Calculating the appropriate quarterly emissions to be offset is as follows:

<u>1<sup>st</sup> Quarter</u>	<u>2<sup>nd</sup> Quarter</u>	<u>3<sup>rd</sup> Quarter</u>	<u>4<sup>th</sup> Quarter</u>
4,607	4,607	4,607	4,607

The applicant has stated that the facility plans to use ERC certificate listed in the following table which has been reserved in PAS for the quantities listed above.

Certificate	Q1	Q2	Q3	Q4
S-4407-1	667,458	659,682	684,128	688,888

PM<sub>10</sub>

$$\begin{aligned} \text{PE2 (PM10)} &= 5,659 \times 3 = 16,977 \text{ lb/year} \\ \text{BE (PM10)} &= 0 \text{ lb/year} \\ \text{ICCE} &= 0 \text{ lb/year} \end{aligned}$$

The site of reductions occurred at another stationary source greater than 15 miles from the proposed steam generators and therefore the correct offset ratio 1.5:1.

The amount of PM<sub>10</sub> ERCs that need to be withdrawn is:

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([16,977 - 0] + 0) \times 1.5 \\ &= 16,977 \times 1.5 \\ &= 25,466 \text{ lb PM}_{10}\text{/year} \end{aligned}$$

Calculating the appropriate quarterly emissions to be offset is as follows:

<u>1<sup>st</sup> Quarter</u>	<u>2<sup>nd</sup> Quarter</u>	<u>3<sup>rd</sup> Quarter</u>	<u>4<sup>th</sup> Quarter</u>
6,366	6,366	6,366	6,366

The applicant has stated that the facility plans to use ERC certificate listed in the following table which have been reserved for the quantities listed above.

Certificate	Q1	Q2	Q3	Q4
N-1198-4	25,555	25,072	25,157	26,428

SO<sub>x</sub>

$$\begin{aligned} \text{PE2 (SOx)} &= 3,723 \times 3 = 11,169 \text{ lb/year} \\ \text{BE (SOx)} &= 0 \text{ lb/year} \\ \text{ICCE} &= 0 \text{ lb/year} \end{aligned}$$

The site of reductions occurred at another stationary source greater than 15 miles from the proposed steam generators and therefore the correct offset ratio 1.5:1.

Assuming an offset ratio of 1.5:1, the amount of PM<sub>10</sub> ERCs that need to be withdrawn is:

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([11,169 - 0] + 0) \times 1.5 \\ &= 11,169 \times 1.5 \\ &= 16,754 \text{ lb SOx/year} \end{aligned}$$

Calculating the appropriate quarterly emissions to be offset is as follows:

<u>1<sup>st</sup> Quarter</u>	<u>2<sup>nd</sup> Quarter</u>	<u>3<sup>rd</sup> Quarter</u>	<u>4<sup>th</sup> Quarter</u>
4188	4188	4188	4188

The applicant has stated that the facility plans to use ERC certificate listed in the following table which has been reserved in PAS for the quantities listed above.

Certificate	Q1	Q2	Q3	Q4
N-1198-5	43,130	42,817	46,936	46,664

As seen above, the facility has sufficient credits to fully offset the quarterly NO<sub>x</sub>, Sox, PM<sub>10</sub>, and VOC emissions increases associated with this project.

**Proposed Rule 2201 (offset) Conditions (for each steam generator):**

- Prior to operating equipment under this Authority to Construct, permittee shall surrender NO<sub>x</sub> emission reduction credits for the following quantity of emissions: 1<sup>st</sup> quarter – 2,234 lb, 2<sup>nd</sup> quarter – 2,234 lb, 3<sup>rd</sup> quarter – 2,234 lb, and fourth quarter – 2,234 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- Prior to operating equipment under this Authority to Construct, permittee shall surrender SO<sub>x</sub> emission reduction credits for the following quantity of emissions: 1<sup>st</sup> quarter – 1,396 lb, 2<sup>nd</sup> quarter – 1,396 lb, 3<sup>rd</sup> quarter – 1,396 lb, and fourth quarter – 1,396 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- Prior to operating equipment under this Authority to Construct, permittee shall surrender PM<sub>10</sub> emission reduction credits for the following quantity of emissions: 1<sup>st</sup> quarter – 2,122 lb, 2<sup>nd</sup> quarter – 2,122 lb, 3<sup>rd</sup> quarter – 2,122 lb, and fourth quarter – 2,122 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1<sup>st</sup> quarter – 1,536 lb, 2<sup>nd</sup> quarter – 1,536 lb, 3<sup>rd</sup> quarter – 1,536 lb, and fourth quarter – 1,536 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]

- ERC Certificate Numbers S-4407-1, N-1198-2, N-1198-4, and N-1198-5 (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

## **C. Public Notification**

### **1. Applicability**

Public noticing is required for:

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

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

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

As demonstrated in Sections VII.C.7 and VII.C.8, this project constitutes a Federal Major Modification; therefore, public noticing for Federal Major Modification purposes is required.

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

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

**c. Offset Threshold**

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

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

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

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

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

<b>SSIPE Public Notice Thresholds</b>					
<b>Pollutant</b>	<b>PE2 (lb/year)</b>	<b>PE1 (lb/year)</b>	<b>SSIPE (lb/year)</b>	<b>SSIPE Public Notice Threshold</b>	<b>Public Notice Required?</b>
NO <sub>x</sub>	>20,000	>20,000	17,871	20,000 lb/year	No
SO <sub>x</sub>	>20,000	>20,000	11,169	20,000 lb/year	No
PM <sub>10</sub>	>20,000	>20,000	16,977	20,000 lb/year	No
CO	>20,000	>20,000	41,325	20,000 lb/year	Yes
VOC	>20,000	>20,000	12,285	20,000 lb/year	No

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

**2. Public Notice Action**

As discussed above, public noticing is required for this project for triggering a Federal Major Modification. 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)**

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

### **Proposed Rule 2201 (DEL) Conditions:**

- This unit shall be fired on PUC quality natural gas, but not solely PUC quality natural gas; or gaseous fuel treated to remove 95% by weight of sulfur compounds, or gaseous fuel treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf. [District Rule 2201] Y
- The unit shall only be fired on natural/TEOR/ethane-rich gas with a maximum sulfur content of 1.75 gr S/100scf. [District Rules 2201, 4301, and 4320] Y
- Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmvd NOx @ 3% O2 or 0.008 lb-NOx/MMBtu, 0.0076 lb-PM10/MMBtu, 25 ppmvd CO @ 3% O2 or 0.0185 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4201, 4301, 4305, 4306, 4320, and 4801] Y

## **E. Compliance Assurance**

### **1. Source Testing**

These units are 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 5.0 MMBtu/hr*. Source testing requirements, in accordance with District Rules 4305, 4306, and 4320 will be discussed in Section VIII, District Rule 4320 of this evaluation.

### **2. Monitoring**

As required by 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 5.0 MMBtu/hr*, this unit is subject to monitoring requirements. Monitoring requirements, in accordance with District Rules 4305, 4306, and 4320 will be discussed in Section VIII, District Rule 4320 of this evaluation.

### **3. Recordkeeping**

As required by *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 5.0 MMBtu/hr*, this unit is subject to recordkeeping requirements. Recordkeeping requirements, in accordance with District Rules 4305, 4306, and 4320 will be discussed in Section VIII, District Rule 4320 of this evaluation.

### **4. Reporting**

No reporting is required to demonstrate compliance with Rule 2201.

### **F. Ambient Air Quality Analysis (AAQA)**

An AAQA shall 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 District's Technical Services Division conducted the required analysis. Refer to **Attachment V** of this document for the AAQA summary sheet.

The proposed location is in an attainment area for NO<sub>x</sub>, CO, and SO<sub>x</sub>. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO<sub>x</sub>, CO, or SO<sub>x</sub>.

The proposed location is in a non-attainment area for the state's PM<sub>10</sub> as well as federal and state PM<sub>2.5</sub> thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM<sub>10</sub> and PM<sub>2.5</sub>.

### **G. Compliance Certification**

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Title I Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Section VIII above, this facility is a new major source and this project does constitute a Title I modification, therefore this requirement is applicable. Berry's compliance certification is included in **Attachment VI**.

### **H. Alternate Siting Analysis**

The current project occurs at an existing facility. The applicant proposes to install a steam generators.

Since the project will provide steam to be used at the same location, the existing site will result in the least possible impact from the project. Alternative sites would involve the relocation and/or construction of various support structures on a much greater scale, and would therefore result in a much greater impact.

### **Rule 2410 Prevention of Significant Deterioration**

As demonstrated in Section VII C 9 above, the project is not subject to the requirements of Rule 2410. No further discussion will be needed.

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

This facility is subject to this Rule, and has received their Title V Operating Permit. A significant permit modification is defined as a "permit amendment that does not qualify as a minor permit modification or administrative amendment."

As discussed above, the facility has applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected. The facility may construct/operate under the ATC upon submittal of the Title V administrative amendment application.

The Title V Compliance Certification form is included in **Attachment VI**.

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

40 CFR Part 60, Subpart Dc applies to 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 generators have a rating of 85 MMBtu/hr and are fired on natural/TEOR gas. Subpart Dc has no standards for gas-fired steam generators. Therefore the subject steam generators are 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 the steam generators are fired solely on natural gas and the TEOR system will result in fugitive emissions only, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity. The following condition will remain listed on the facility-wide permit to ensure compliance:

- *No air contaminants shall be discharged into the atmosphere for a period or periods aggregating more than 3 minutes in any one hour which is as dark or darker than Ringelmann #1 or equivalent to 20% opacity and greater, unless specifically exempted by District Rule 4101 (11/15/01). If the equipment or operation is subject to a more stringent visible emission standard as prescribed in a permit condition, the more stringent visible emission limit shall supersede this condition. [District Rule 4101]*

## Rule 4102 Nuisance

Rule 4102 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. 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 V**), the total facility prioritization score including this project was greater than one. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project.

The cancer risk for this project is shown below:

HRA Summary		
Unit	Cancer Risk	T-BACT Required
S-1246-407-0, '-408-0, and '-409-0	0.194 per million	No

### Discussion of T-BACT

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

The following special condition is required:

*{1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102] N*

## 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

PM<sub>10</sub> Emission Factor: 0.005 lb-PM<sub>10</sub>/MMBtu  
 Percentage of PM as PM<sub>10</sub> in Exhaust: 100%  
 Exhaust Oxygen (O<sub>2</sub>) Concentration: 3%

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

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

$$GL = 0.005 \text{ grain/dscf} < 0.1 \text{ grain/dscf}$$

Therefore, compliance with the requirements of this rule is expected.

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

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

**Rule 4301 Fuel Burning Equipment**

Rule 4301 limits air contaminant emissions from fuel burning equipment as defined in the rule. Section 3.1 defines fuel burning equipment as "any furnace, boiler, apparatus, stack, and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer".

Section 5.0 gives the requirements of the rule.

A person shall not discharge into the atmosphere combustion contaminants exceeding in concentration at the point of discharge, 0.1 grain per cubic foot of gas calculated to 12% of carbon dioxide at dry standard conditions.

A person shall not build, erect, install or expand any non-mobile fuel burning equipment unit unless the discharge into the atmosphere of contaminants will not and does not exceed any one or more of the following rates:

- 200 pound per hour of sulfur compounds, calculated as sulfur dioxide (SO<sub>2</sub>)
- 140 pounds per hour of nitrogen oxides, calculated as nitrogen dioxide (NO<sub>2</sub>)
- Ten pounds per hour of combustion contaminants as defined in Rule 1020 and derived from the fuel.

<b>District Rule 4301 Limits</b>			
<b>Unit</b>	<b>NO<sub>2</sub></b>	<b>Total PM</b>	<b>SO<sub>2</sub></b>
	0.008 x 85 = 0.68	0.0076x 85 = 0.65	0.005 x 85 = 0.43
Rule Limit (lb/hr)	140	10	200

The particulate emissions from the steam generators will not exceed 0.1 gr/dscf at 12% CO<sub>2</sub> or 10 lb/hr. Further, the emissions of SO<sub>x</sub> and NO<sub>x</sub> will not exceed 200 lb/hr or 140 lb/hr, respectively.

Therefore, compliance with the requirements of this rule is expected.

### **District Rule 4305 Boilers, Steam Generators and Process Heaters – Phase 2**

The unit is natural gas-fired with a maximum heat input of 20.0 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*.

Since 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.

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

The unit is natural gas-fired with a maximum heat input of 20.0 MMBtu/hr. 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*.

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 5.0 MMBtu/hr**

#### **Section 5.0 Requirements**

Section 5.1 of the rule requires compliance with the NO<sub>x</sub> and CO emissions limits listed in Table 1 of Section 5.2 or payment of an annual emissions fee to the District as specified in Section 5.3 and compliance with the control requirements specified in Section 5.4; or as stated in Section 5.1.3, comply with the applicable Low-use Unit requirements of Section 5.5.

**Section 5.2 NOx and CO Emission Limits**

Oilfield Steam Generators

<b>Rule 4320 Emissions Limits</b>				
<b>Category</b>	<b>Operated on gaseous fuel</b>		<b>Operated on liquid fuel</b>	
	<b>NO<sub>x</sub> Limit</b>	<b>CO Limit</b>	<b>NO<sub>x</sub> Limit</b>	<b>CO Limit</b>
1. Units with a total rated heat input >20.0 MMBtu/hr	Standard Schedule 7 ppmv or 0.008 lb/MMBtu; or	400 ppmv @ 3% O <sub>2</sub>	40 ppmv or 0.052 lb/MMBtu	400 ppmv @ 3% O <sub>2</sub>
	Staged Enhanced Schedule Initial limit: 9 ppmv @ 3% O <sub>2</sub> , 0.011 lb/MMBtu			
	Final limit: 5 ppmv @ 3% O <sub>2</sub> , 0.0062 lb/MMBtu			

The proposed NOx and CO emission factors are 7 ppmv @ 3% O<sub>2</sub> and 25 ppmv @ 3% O<sub>2</sub>.

Therefore, compliance with Section 5.1 of District Rule 4320 is expected.

A permit condition listing the emissions limits will be listed on permits as shown in the DEL section above.

**Section 5.3 Annual Fee Calculation**

Applicant has proposed to meet the emissions limits requirements of Section 5.1 and therefore this section is not applicable.

**Section 5.4 Particulate Matter Control Requirements**

Section 5.4 of the rule requires one of four options for control of particulate matter: 1) combustion of PUC-quality natural gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases, 2) limit fuel sulfur content to no more than five (5) grains of total sulfur per one hundred (100) standard cubic, 3) install and properly operate an emission control system that reduces SO<sub>2</sub> emissions by at least 95% by weight; or limit exhaust SO<sub>2</sub> to less than or equal to 9 ppmv corrected to 3.0% O<sub>2</sub> or 4) refinery units, which require modification of refinery equipment to reduce sulfur emissions, shall be in compliance with the applicable requirement in Section 5.4.1 no later than July 1, 2013.

The unit has a sulfur emission limit of 0.005 lb SO<sub>2</sub>/MMBtu (1.75 gr S/100scf) and are authorized to combust natural/TEOR gas. Therefore, compliance with this Section of the rule is expected.

### **Section 5.5 Low Use**

Section 5.5 requires that units limited to less than or equal to 1.8 billion Btu per calendar year heat input pursuant to a District Permit to Operate Tune the unit at least twice per calendar year, or if the unit does not operate throughout a continuous six-month period within a calendar year, only one tune-up is required for that calendar year. No tune-up is required for any unit that is not operated during that calendar year; this unit may be test fired to verify availability of the unit for its intended use, but once the test firing is completed the unit shall be shutdown; or operate the unit in a manner that maintains exhaust oxygen concentrations at less than or equal to 3.00 percent by volume on a dry basis.

The subject steam generator is not a low use unit and therefore the requirements of Section 5.5 do not apply.

### **Section 5.6, Startup and Shutdown Provisions**

Applicable emissions limits are not required during startup and shutdown provided the duration of each start-up or each shutdown shall not exceed two hours, the emission control system shall be in operation and emissions shall be minimized insofar as technologically feasible during start-up or shutdown or operator has submitted an application for a Permit to Operate condition to allow more than two hours for each start-up or each shutdown provided the operator meets all of the conditions specified in Sections 5.6.3.1 through 5.6.3.3. The following condition is included on the ATCs to address the startup and shutdown emissions:

Duration of start-up and shutdown shall not exceed 2 hours each per occurrence. [District Rules 2201, 4305, 4306, and 4320]

### **Section 5.7, Monitoring Provisions**

Section 5.7 requires either use of a APCO approved Continuous Emissions Monitoring System (CEMS) for NO<sub>x</sub>, CO, and oxygen, or implementation of an APCO-approved Alternate Monitoring System consisting of:

- 5.7.1.1 Periodic NO<sub>x</sub> and CO exhaust emission concentrations,
- 5.7.1.2 Periodic exhaust oxygen concentration,
- 5.7.1.3 Flow rate of reducing agent added to exhaust,
- 5.7.1.4 Catalyst inlet and exhaust temperature,
- 5.7.1.5 Catalyst inlet and exhaust oxygen concentration,
- 5.7.1.6 Periodic flue gas recirculation rate, or
- 5.7.1.7 Other operational characteristics.

In order to satisfy the requirements of District Rule 4320, the applicant has proposed to use pre-approved alternate monitoring scheme A (pursuant to District Policy SSP-1105), which requires that monitoring of NO<sub>x</sub>, CO, and O<sub>2</sub> exhaust concentrations shall be conducted at least once per month (in which a source test is not performed) using a portable analyzer. The following conditions will be incorporated into the permits in order to ensure compliance with the requirements of the proposed alternate monitoring plan:

*{4063} The permittee shall monitor and record the stack concentration of NO<sub>x</sub>, CO, and O<sub>2</sub> 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]*

*{4064} If either the NO<sub>x</sub> or CO concentrations corrected to 3% O<sub>2</sub>, 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]*

*{4065} All alternate monitoring parameter 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]*

*{4066} The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent by volume and the measured NO<sub>x</sub> and CO concentrations corrected to 3% O<sub>2</sub>, (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]*

### **5.7.6 Monitoring SO<sub>x</sub> Emissions**

Section 5.7.6.1 Operators complying with Sections 5.4.1.1 or 5.4.1.2 shall provide an annual fuel analysis to the District unless a more frequent sampling and reporting period is included in the Permit To Operate. Sulfur analysis shall be performed in accordance with the test methods in Section 6.2.

Section 5.7.6.2 Operators complying with Section 5.4.1.3 by installing and operating a control device with 95% SO<sub>x</sub> reduction shall propose the key system operating parameters and frequency of the monitoring and recording. The monitoring option proposed shall be submitted for approval by the APCO.

Section 5.7.6.3 Operators complying with Section 5.4.1.3 shall perform an annual source test unless a more frequent sampling and reporting period is included in the Permit to Operate. Source tests shall be performed in accordance with the test methods in Section 6.2.

### Sulfur Monitoring

The following conditions will be included on the ATCs.

*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] Y*

*When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, permittee shall demonstrate compliance at least annually. [District Rule 4320] Y*

*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] Y*

### **Section 5.8, Compliance Determination**

Section 5.8.1 requires that the operator of any unit shall 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) as stated in the following ATC condition:

*{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 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.

*{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. 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]*

Section 5.8.3 Continuous Emissions Monitoring System (CEMS) emissions measurements shall be averaged over a period of 15 consecutive minutes to demonstrate compliance with the applicable emission limits. Any 15-consecutive-minute block average CEMS measurement exceeding the applicable emission limits shall constitute a violation. The steam generator is not equipped with CEMs and therefore this section is not applicable.

Section 5.8.4 For emissions monitoring pursuant to Sections 5.7.1, and 6.3.1 using a portable NOx 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 readings evenly spaced out over the 15-consecutive-minute period.

*{2937} All alternate monitoring parameter 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 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 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.

*{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.

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

*{2983} 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]*

Section 6.1.1 requires that a unit operated under the exemption of Section 4.2 shall monitor and record, for each unit, the cumulative annual hours of operation. The units are not Section 4.2 exempt and therefore these records are not required.

Section 6.1.2 requires the operator of any unit that is subject to the requirements of Section 5.5 shall record the amount of fuel use at least on a monthly basis for each unit. On and after the applicable compliance schedule specified in Section 7.0, in the event that such unit exceeds the applicable annual heat input limit specified in Section 5.5, the unit shall be brought into full compliance with this rule as specified in Section 5.2 Table 1. The units are not low use and therefore these records are not necessary.

Section 6.1.3 The operator of any unit subject to Section 5.5.1 or Section 6.3.1 shall maintain records to verify that the required tune-up and the required monitoring of the operational characteristics of the unit have been performed.

Section 6.1.4 The operator performing start-up or shutdown of a unit shall keep records of the duration of start-up or shutdown.

Section 6.1.5 The operator of any unit firing on liquid fuel during a PUC-quality natural gas curtailment period pursuant to Section 5.4.2 shall record the sulfur content of the fuel, amount of fuel used, and duration of the natural gas curtailment period. The unit is not authorized to combust liquid fuel. Therefore this section is not applicable.

**Section 6.2, Test Methods**

Section 6.2 identifies the following test methods as District-approved source testing methods for the pollutants listed:

<b>Pollutant</b>	<b>Units</b>	<b>Test Method Required</b>
NO <sub>x</sub>	ppmv	EPA Method 7E or ARB Method 100
NO <sub>x</sub>	lb/MMBtu	EPA Method 19
CO	ppmv	EPA Method 10 or ARB Method 100
Stack Gas O <sub>2</sub>	%	EPA Method 3 or 3A, or ARB Method 100
Stack Gas Velocities	ft/min	EPA Method 2
Stack Gas Moisture Content	%	EPA Method 4
Oxides of sulfur		EPA Method 6C, EPA Method 8, or ARB Method 100
Total Sulfur as Hydrogen Sulfide (H <sub>2</sub> S) Content		EPA Method 11 or EPA Method 15, as appropriate.
Sulfur Content of Liquid Fuel		ASTM D 6920-03 or ASTM D 5453-99

The following test method conditions are included on the ATCs:

*{2977} NO<sub>x</sub> emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320]*

*{2978} CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320]*

*{2979} Stack gas oxygen (O<sub>2</sub>) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320]*

Section 6.2.8.2. The SO<sub>x</sub> emission control system efficiency shall be determined using the following:

$$\% \text{ Control Efficiency} = [(C_{\text{SO}_2, \text{inlet}} - C_{\text{SO}_2, \text{outlet}}) / C_{\text{SO}_2, \text{inlet}}] \times 100$$

where:

$C_{\text{SO}_2, \text{inlet}}$  = concentration of SO<sub>x</sub> (expressed as SO<sub>2</sub>) at the inlet side of the SO<sub>x</sub> emission control system, in lb/dscf

$C_{\text{SO}_2, \text{outlet}}$  = concentration of SO<sub>x</sub> (expressed as SO<sub>2</sub>) at the outlet side of the SO<sub>x</sub> emission control system, in lb/dscf

The units are not equipped with a SO<sub>2</sub> scrubber. Therefore this section is not applicable.

### **Section 6.3 Compliance Testing**

Section 6.3.1 requires that this unit be tested to determine compliance with the applicable requirements of section 5.2 not less than once every 12 months (no more than 30 days before or after the required annual source test date). Upon demonstrating compliance on two consecutive compliance source tests, the following source test may be deferred for up to thirty-six months.

Section 6.3.1.1 Units that demonstrate compliance on two consecutive 12-month source tests may defer the following 12-month source test for up to 36 months (no more than 30 days before or after the required 36-month source test date). During the 36-month source testing interval, the operator shall tune the unit in accordance with the provisions of Section 5.5.1, and shall monitor, on a monthly basis, the unit's operational characteristics recommended by the manufacturer to ensure compliance with the applicable emission limits specified in Section 5.2.

Section 6.3.1.2 Tune-ups required by Sections 5.5.1 and 6.3.1 do not need to be performed for units that operate and maintain an APCO approved CEMS or an APCO approved Alternate Monitoring System where the applicable emission limits are periodically monitored. Applicant has proposed to monitor the emissions of NO<sub>x</sub> and CO Alternate Monitoring Scheme "A" and therefore tuning is not required.

Section 6.3.1.3 If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits specified in Section 5.2, the source testing frequency shall revert to at least once every 12 months.

The following conditions are included on the ATC:

*{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]*

*{3467} Source testing to measure NO<sub>x</sub> and CO emissions from this unit while fired on natural gas shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]*

*{3466} Source testing to measure NO<sub>x</sub> and CO emissions from this unit while fired on natural gas 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]*

*{110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]*

Sections 6.3.2.1 through 6.3.2.7 address the requirements of group testing which is not applicable for this project.

#### **Section 6.4, Emission Control Plan (ECP)**

Section 6.4.1 requires that the operator of any unit shall submit to the APCO for approval an Emissions Control Plan according to the compliance schedule in Section 7.0 of District Rule 4320.

The proposed unit will be in compliance with the emissions limits listed in Table 1, Section 5.1 of this rule and with periodic monitoring and source testing requirements. Therefore, this current application for the new proposed unit satisfies the requirements of the Emission Control Plan, as listed in Section 6.4 of District Rule 4320. No further discussion is required.

#### **Section 7.0, Compliance Schedule**

Section 7.0 indicates that an operator with multiple units at a stationary source shall comply with this rule in accordance with the schedule specified in Table 1, Section 5.2 of District Rule 4320.

The units will be in compliance with the emissions limits listed in Table 1, Section 5.2 of this rule, and periodic monitoring and source testing as required by District Rule 4320. Therefore, requirements of the compliance schedule, as listed in Section 7.1 of District Rule 4306, are satisfied. No further discussion is required.

### Conclusion

Conditions are included on the ATCs in order to ensure compliance with each section of this rule, see attached draft permit(s). Therefore, compliance with District Rule 4320 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 SO<sub>2</sub>, on a dry basis averaged over 15 consecutive minutes.

Using the ideal gas equation the sulfur compound emissions are calculated as follows:

$$\text{Volume SO}_2 = \frac{nRT}{P}$$

With:

N = moles SO<sub>2</sub>

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

P (Standard Pressure) = 14.7 psi

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

$$\frac{0.005 \text{ lb} - \text{SO}_x}{\text{MMBtu}} \times \frac{\text{MMBtu}}{8,578 \text{ dscf}} \times \frac{1 \text{ lb} \cdot \text{mol}}{64 \text{ lb}} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ\text{R}} \times \frac{520^\circ\text{R}}{14.7 \text{ psi}} \times \frac{1,000,000 \cdot \text{parts}}{\text{million}} = 3.5 \frac{\text{parts}}{\text{million}}$$

$$\text{Sulfur Concentration} = 3.5 \frac{\text{parts}}{\text{million}} < 2,000 \text{ ppmv (or 0.2\%)}$$

Therefore, compliance with the requirements of this rule is expected.

### California Environmental Quality ACT (CEQA)

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

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
- Identify the ways that environmental damage can be avoided or significantly reduced.

- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- 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.

The California Division of Oil, Gas and Geothermal Resources (DOGGR) is the public agency having principal responsibility for approving the project. As such, DOGGR served as the Lead Agency (CCR §15367). In approving the project, the Lead Agency prepared and adopted a Mitigated Negative Declaration. The Lead agency filed a Notice of Determination, stating that the environmental document was adopted pursuant to the provisions of CEQA and concluding that the project would not have a significant effect on the environment.

The District is a Responsible Agency for the project because of its discretionary approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CCR §15381). As a Responsible Agency the District complies with CEQA by considering the environmental document prepared by the Lead Agency, and by reaching its own conclusion on whether and how to approve the project (CCR §15096).

The District has considered the Lead Agency's environmental document. Furthermore, the District has conducted an engineering evaluation of the project, this document, which demonstrates that Stationary Source emissions from the project would be below the District's thresholds of significance for criteria pollutants. Thus, the District finds that through a combination of project design elements, compliance with applicable District rules and regulations, and compliance with District air permit conditions, project specific stationary source emissions will have a less than significant impact on air quality. The District does not have authority over any of the other project impacts and has, therefore, determined that no additional findings are required (CEQA Guidelines §15096(h)).

### IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue ATC S-1246-407, '-408, and '-409 subject to the permit conditions on the attached draft ATCs in Attachment VII.

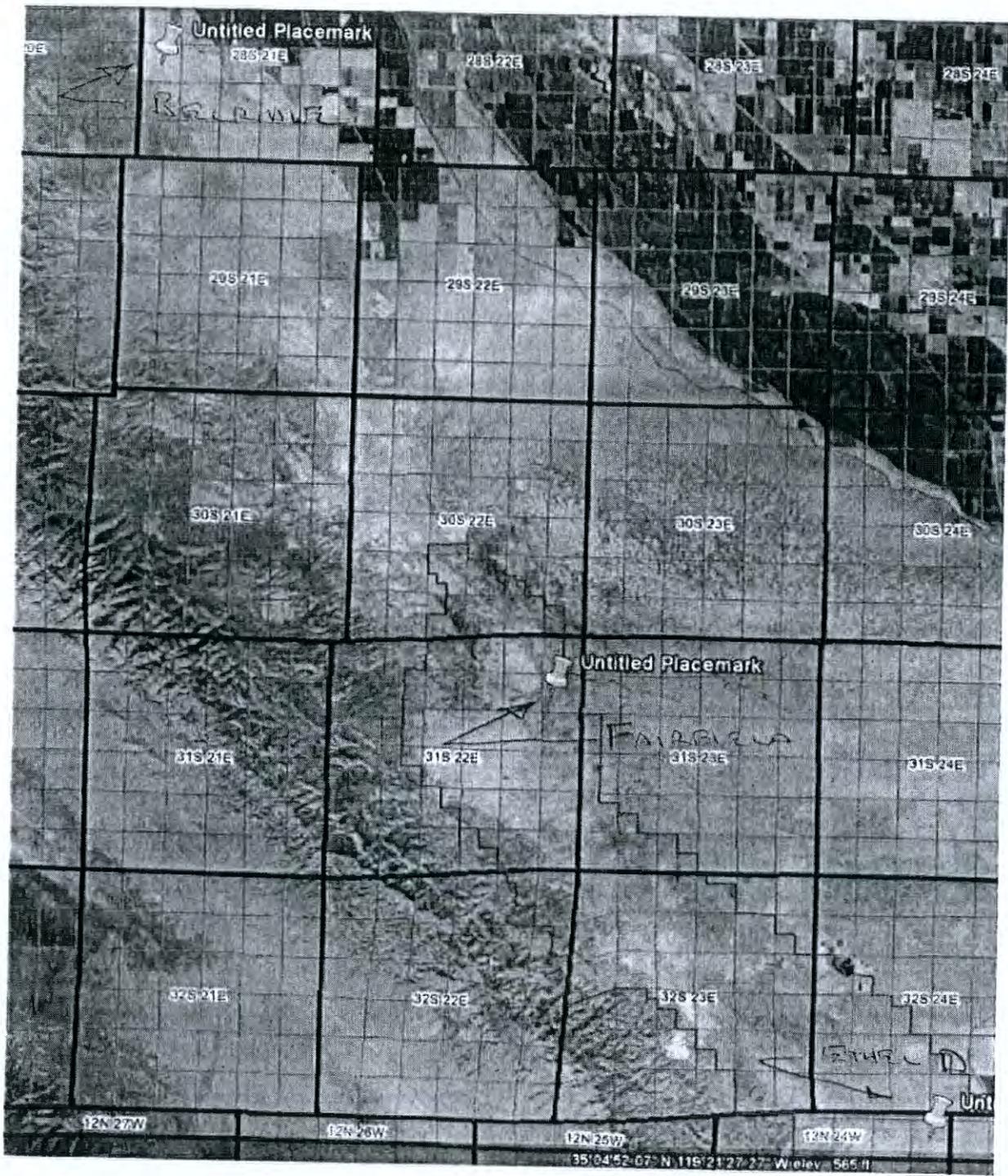
### X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-1246-407, '-408, and '-409	3020-02 H	85 MMBtu/hr	\$1030

**Attachments**

- I. Project Location Map
- II. Emissions Profiles
- III. BACT Guideline
- IV: BACT Analysis
- V: HRA and AAQA Modeling
- VI: Statewide Compliance Statement and Title V Compliance Certification Form
- VII: Draft ATC

# ATTACHMENT I Project Location Map



## ATTACHMENT II Emissions Profiles

Permit #: S-1248-407-0	Last Updated
Facility: BERRY	12/29/2014
PETROLEUM COMPANY, LLC	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):	5957.0	3723.0	5859.0	13775.0	4095.0
Daily Emis. Limit (lb/Day)	16.3	10.2	15.5	37.7	11.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1489.0	930.0	1414.0	3443.0	1023.0
Q2:	1489.0	931.0	1415.0	3444.0	1024.0
Q3:	1489.0	931.0	1415.0	3444.0	1024.0
Q4:	1489.0	931.0	1415.0	3444.0	1024.0
Check if offsets are triggered but exemption applies	N	N	N	Y	N
Offset Ratio	1.5	1.5	1.5		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	2234.0	1396.0	2122.0		1536.0
Q2:	2234.0	1396.0	2122.0		1536.0
Q3:	2234.0	1396.0	2122.0		1536.0
Q4:	2234.0	1396.0	2122.0		1536.0

Permit #: S-1246-408-0	Last Updated
Facility: BERRY PETROLEUM COMPANY, LLC	12/29/2014 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):	5957.0	3723.0	5659.0	13775.0	4095.0
Daily Emis. Limit (lb/Day)	16.3	10.2	15.5	37.7	11.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1489.0	930.0	1414.0	3443.0	1023.0
Q2:	1489.0	931.0	1415.0	3444.0	1024.0
Q3:	1489.0	931.0	1415.0	3444.0	1024.0
Q4:	1490.0	931.0	1415.0	3444.0	1024.0
Check if offsets are triggered but exemption applies	N	N	N	Y	N
Offset Ratio	1.5	1.5	1.5		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	2234.0	1396.0	2122.0		1536.0
Q2:	2234.0	1396.0	2122.0		1536.0
Q3:	2234.0	1396.0	2122.0		1536.0
Q4:	2234.0	1396.0	2122.0		1536.0

Permit #: S-1246-409-0	Last Updated
Facility: BERRY PETROLEUM COMPANY, LLC	12/29/2014 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):	5957.0	3723.0	5659.0	13775.0	4095.0
Daily Emis. Limit (lb/Day)	18.3	10.2	15.5	37.7	11.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1489.0	930.0	1414.0	3443.0	1023.0
Q2:	1489.0	931.0	1415.0	3444.0	1024.0
Q3:	1489.0	931.0	1415.0	3444.0	1024.0
Q4:	1490.0	931.0	1415.0	3444.0	1024.0
Check if offsets are triggered but exemption applies	N	N	N	Y	N
Offset Ratio	1.5	1.5	1.5		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	2234.0	1396.0	2122.0		1536.0
Q2:	2234.0	1396.0	2122.0		1536.0
Q3:	2234.0	1396.0	2122.0		1536.0
Q4:	2234.0	1396.0	2122.0		1536.0

# ATTACHMENT III BACT Guideline

San Joaquin Valley  
Unified Air Pollution Control District

**Best Available Control Technology (BACT) Guideline 1.2.1\***

Last Update: 3/24/2014

**Oilfield Steam Generator (> or =20 MMBtu/hr)**

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Gaseous fuel		
SOx	Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO2 scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 9 ppmvd SO2 @ 3% O2		
PM10	Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO2 scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 9 ppmvd SO2 @ 3% O2		
NOx	<ul style="list-style-type: none"> <li>•Units rated 85 MMBtu/hr and fired solely on PUC quality natural gas: 6 ppmvd @ 3% O2; or</li> <li>•Units firing on ≥50% PUC quality natural gas; commercial propane; and/or LPG: 7 ppmvd @ 3% O2, except units rated 85 MMBtu/hr and fired solely on PUC quality natural gas; or</li> <li>•Units firing on &lt;50% PUC quality natural gas; commercial propane; and/or LPG: 9 ppmvd @ 3% O2</li> </ul>	5 ppmvd @ 3% O2	
CO	25 ppmvd @ 3% O2		

## ATTACHMENT IV BACT Analysis

### Top Down BACT Analysis for the Steam Generator

Oxides of nitrogen (NO<sub>x</sub>) are generated from the high temperature combustion of the natural gas fuel. A majority of the NO<sub>x</sub> emissions are formed from the high temperature reaction of nitrogen and oxygen in the inlet air. The rest of the NO<sub>x</sub> emissions are formed from the reaction of fuel-bound nitrogen with oxygen in the inlet air.

#### 1. BACT Analysis for NO<sub>x</sub> Emissions:

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

The SJVUAPCD BACT Clearinghouse Guideline 1.2.1, updated 3/24/14, identifies for achieved in practice BACT for NO<sub>x</sub> emissions from oil field steam generators ≥5 MMBtu/hr as follows (non-applicable Achieved-in-Practice requirements are in strikeout text):

##### Achieved-in-Practice

- Units rated 85 MMBtu/hr and fired solely on PUC-quality natural gas: 6 ppmvd @ 3% O<sub>2</sub> – not applicable
- Units firing on ≥50% PUC quality natural gas; commercial propane; and/or LPG: 7 ppmvd @ 3% O<sub>2</sub>, except units rated 85 MMBtu/hr and fired solely on PUC quality natural gas – applicable
- Units firing on <50% PUC quality natural gas; commercial propane; and/or LPG: 9 ppmvd @ 3% O<sub>2</sub> – applicable

##### Technologically Feasible

5 ppmvd @ 3% O<sub>2</sub>

##### 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) 7 ppmvd @ 3% O<sub>2</sub> – Achieved-in-Practice
- 2) 5 ppmvd @ 3% O<sub>2</sub> – Technologically Feasible

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

The capital/installation cost for Selective Catalytic Reduction (SCR) to achieve 5 ppmv NOx @ 3% O<sub>2</sub> is \$832,000 (please project S1114, 1143178).

Equivalent Annual Control Equipment Cost calculation per APCD Policy APR 1305-9 Section X(A)(1). Assume i = 10% and n = 10 years.

$$A = P * ((i*(1 + i)^n) / ((1 + i)^n - 1))$$
$$A = \$832,000 * ((.10*(1 + .10)^{10}) / ((1 + .10)^{10} - 1))$$
$$A = \$135,364$$

The reduction in NOx is from the Industrial Standard 7 ppmv NOx @ 3% O<sub>2</sub>, 0.008 lb NOx/MMBtu) to 5 ppmv NOx @ 3% O<sub>2</sub>, 0.0062 lb NOx/MMBtu.

(0.008 lb/MMBtu – 0.0061 lb/MMBtu) (85 MMBtu/hr)(8760 hr/yr)

= 1,415 lb NOx/yr (0.71 ton/yr)

Control Cost per Section X(A)(4)

$$\text{Control Cost} = (\$135,364/\text{yr}) / (0.71 \text{ ton VOC/yr})$$
$$= \$191.362/\text{ton NOx}$$

This exceeds the cost effectiveness threshold for NOx of \$ 24,500/ton. Therefore, SCR is not cost effective.

**e. Step 5 - Select BACT**

Applicant has proposed 7 ppmv NOx @ 3% O<sub>2</sub>. BACT is satisfied.

**2. BACT Analysis for SO<sub>x</sub> Emissions:**

Oxides of sulfur (SO<sub>x</sub>) 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, updated 3/24/14, identifies for achieved in practice BACT for SO<sub>x</sub> emissions from oil field steam generators ≥5 MMBtu/hr as follows:

Achieved-in-Practice

Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO<sub>2</sub>

scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 9 ppmvd SO<sub>2</sub> @ 3% O<sub>2</sub>

**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**

Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO<sub>2</sub> scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 9 ppmvd SO<sub>2</sub> @ 3% O<sub>2</sub>

**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<sub>x</sub> emissions from this oil field steam generator is natural gas fuel with removal of 95% by weight of sulfur compounds (SO<sub>x</sub> scrubber) or with a sulfur content ≤1 gr-S/100 scf. BACT is satisfied.

**3. BACT Analysis for PM<sub>10</sub> Emissions:**

Particulate matter (PM<sub>10</sub>) 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, updated 3/24/14, identifies for achieved in practice BACT for CO<sub>10</sub> emissions from oil field steam generators ≥5 MMBtu/hr as follows:

Achieved-in-Practice

Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO<sub>2</sub> scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 9 ppmvd SO<sub>2</sub> @ 3% O<sub>2</sub>

**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**

Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO<sub>2</sub> scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 9 ppmvd SO<sub>2</sub> @ 3% O<sub>2</sub>

**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 PM<sub>10</sub> emissions from this oil field steam generator from this oil field steam generator is natural gas fuel with removal of 95% by weight of sulfur compounds (SO<sub>x</sub> scrubber) or with a sulfur content ≤1 gr-S/100 scf. BACT is satisfied.

#### **4. BACT Analysis for CO Emissions:**

Carbon monoxide (CO) emissions are generated from the incomplete combustion of air and fuel.

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

The SJVUAPCD BACT Clearinghouse Guideline 1.2.1, updated 3/24/14, identifies for achieved in practice BACT for CO emissions from oil field steam generators  $\geq 5$  MMBtu/hr as follows:

- 1) 25 ppmvd @ 3% O<sub>2</sub>

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) 25 ppmvd @ 3% O<sub>2</sub>

##### **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 CO emissions from this oil field steam generator is a CO limit of 25 ppmvd @ 3% O<sub>2</sub>. The applicant has proposed to install an oil field steam generator with a CO limit of 25 ppmvd @ 3% O<sub>2</sub>; therefore BACT for CO emissions is satisfied.

## **5. 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, 1<sup>st</sup> quarter 2005, identifies for achieved in practice BACT for VOC emissions from oil field steam generators  $\geq 5$  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 PM<sub>10</sub> emissions is satisfied.

## ATTACHMENT V HRA and AAQA Modeling

# San Joaquin Valley Air Pollution Control District Risk Management Review

To: Richard Edgehill-- Permit Services  
 From: Kou Thao – Technical Services  
 Date: February 18, 2015  
 Facility Name: Linn Energy  
 Location: HOW Belridge  
 Application #(s): S-1246-407-0, 408-0, 409-0  
 Project #: S-1144245

## A. RMR SUMMARY

RMR Summary					
Categories	Unit 407-0	Unit 408-0	Unit 409-0	Project Totals	Stationary Source Facility Totals
Prioritization Score	>1	>1	>1	>1	>1.0
Acute Hazard Index	2.25E-03	2.26E-03	2.28E-03	6.79E-03	4.42E-02
Chronic Hazard Index	2.83E-03	2.80E-03	2.78E-03	8.41E-03	8.03E-01
Maximum Individual Cancer Risk (10 <sup>-6</sup> )	6.53E-08	6.46E-08	6.40E-08	1.94E-07	5.19E-06
T-BACT Required?	No	No	No		
Special Permit Conditions?	Yes	Yes	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 # 407-0, 408-0, 409-0

1. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

**B. RMR REPORT**

**I. Project Description**

Technical Services received a request on January 12, 2015 to perform a Risk Management Review for a proposed installation of a three 85 mmbtu/hr natural gas/ethane rich TEOR gas fired steam generator.

**II. Analysis**

Technical Services performed a health risk assessment using the Toxic Emissions from petroleum steam generators. The cumulative prioritization scores were greater than 1.0, thus modeling was conducted using the AERMOD model, with the parameters outlined below and meteorological data for 2004-2008 from Fellows to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid.

Analysis Parameters Per Unit Units: 407-0, 408-0, 409-0			
Source Type	Point	Location Type	Urban
Stack Height (m)	6.09	Closest Receptor (m)	800
Stack Diameter. (m)	1.06	Type of Receptor	Residence
Stack Exit Velocity (m/s)	7.39	Max Hours per Year	8760
Stack Exit Temp. (°K)	363.33	Fuel Type	NG/TEOR Gas
Burner Rating (MMBtu/hr)	85		

**AAQA.** In addition to the RMR, Technical Services performed modeling for criteria pollutants CO, NO<sub>x</sub>, SO<sub>x</sub> and PM<sub>10</sub>. The emission rates used for criteria pollutant modeling for each proposed unit were 1.57 lb/hr CO, 0.67 lb/hr NO<sub>x</sub>, 0.42lb/hr SO<sub>x</sub>, and 0.64 lb/hr PM<sub>10</sub>. The engineer supplied the maximum fuel rate for each steam generator used during the analysis.

The results from the Criteria Pollutant Modeling are as follows:

**Criteria Pollutant Modeling Results\***

Diesel ICE	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO <sub>x</sub>	Pass <sup>1</sup>	X	X	X	Pass
SO <sub>x</sub>	Pass	Pass	X	Pass	Pass
PM <sub>10</sub>	X	X	X	Pass <sup>2</sup>	Pass <sup>2</sup>
PM <sub>2.5</sub>	X	X	X	Pass <sup>2</sup>	Pass <sup>2</sup>

<sup>1</sup>The project was compared to the 1-hour NO<sub>2</sub> National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures.

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

### **III. Conclusion**

**For permit units 407-0, 408-0, and 409-0, the acute and chronic indices are below 1.0 and the cancer risk factor associated with the project is less than 1.0 in a million. In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

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

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

**IV. Attachments**

- A. RMR request from the project engineer
- B. Additional Information from the applicant/project engineer



5201 Truxtun Ave.  
Bakersfield, California 93309

Phone: (661) 616-3900

1144245, S-1246

RECEIVED

NOV 12 2014

SJVAPCD  
Southern Region

November 12, 2014

Mr. Leonard Scandura  
San Joaquin Valley Unified APCD  
34946 Flyover Court  
Bakersfield, CA 93308

**RE: ATC Application – Install three new steam generators at Fairfield lease**

Dear Mr. Scandura:

Berry Petroleum Company, LLC (BPC) is requesting three Authorities to Construct (ATCs) to install three new 85 MMBtu/hr natural/ethane rich/TEOR gas fired steam generator to be located at the Fairfield lease in our South Midway Sunset Oilfield.

BPC requests and agrees to reimburse the District for reimbursable overtime (ROT) processing of this project. The new steam generators could produce enough steam to recover approximately 500 bbl/day of crude oil at current crude oil price of approximately \$100 per barrel.

Facility S-1246 is part of the BPC's Western Kern County Heavy Oil source. BPC request Certificates of Conformity for the ATC issued under this project, which meets the definition of a Significant Permit Modification in accordance with Rule 2520, Section 3.20.

If you should have any questions or require additional information please contact me at phone number (661) 616-3889 or email at [sreza@linnenergy.com](mailto:sreza@linnenergy.com).

Sincerely,

Shamim Reza  
EH&S Rep. Sr.

Enclosures

# San Joaquin Valley Air Pollution Control District

www.valleyair.org



NOV 12 2014

## Permit Application For:

- AUTHORITY TO CONSTRUCT (ATC) - New Emission Unit
- AUTHORITY TO CONSTRUCT (ATC) - Modification Of Emission Unit With Valid PTO/ATC
- AUTHORITY TO CONSTRUCT (ATC) - Renewal of Valid Authority to Construct
- PERMIT TO OPERATE (PTO) - Existing Emission Unit Now Requiring a Permit to Operate

SJVAPCD  
Southern Region

1. PERMIT TO BE ISSUED TO: <b>Berry Petroleum Company, LLC</b>	
2. MAILING ADDRESS: <b>5201 Truxtun Avenue</b> STREET/P.O. BOX: _____ CITY: <b>Bakersfield</b> STATE: <b>CA</b> ZIP CODE: <b>93309</b>	
3. LOCATION WHERE THE EQUIPMENT WILL BE OPERATED: STREET: <b>Various Location in HOW</b> CITY: <b>Taft</b> SECTION _____ TOWNSHIP _____ RANGE _____	WITHIN 1,000 FT OF A SCHOOL? [ ] YES [X] NO
4. GENERAL NATURE OF BUSINESS: <b>Oil and Gas Production</b>	S.I.C. CODE(S) OF FACILITY (If known): <b>1311</b>
5. TITLE V PERMIT HOLDERS ONLY: Do you request a COC (EPA Review) prior to receiving your ATC [X] YES If yes, please complete and attach a Compliance Certification form (TVFORM-009)? [ ] NO	
6. DESCRIPTION OF EQUIPMENT OR MODIFICATION FOR WHICH APPLICATION IS MADE (Please include Permit #'s if known, and use additional sheets if necessary) <b>Install three new natural/ethane rich/TEOR gas fired steam generators</b> EQUIPMENT INSTALLATION or MODIFICATION DATE: <b>01, 2015</b>	
7. PERMIT REVIEW PERIOD: Do you request a three- or ten-day period to review the draft Authority to Construct permit? [ ] 3-day review Please note that requesting a review period will delay issuance of your final permit by a corresponding number of working days. See instructions for more information on this review process. [X] 10-day review [ ] No review requested	
8. HAVE YOU EVER APPLIED FOR AN ATC OR PTO IN THE PAST? [X] YES If yes, ATC/PTO #: <b>S-1246</b> [ ] NO	<b>Optional Section</b> 11. DO YOU WANT TO RECEIVE INFORMATION ABOUT EITHER OF THE FOLLOWING VOLUNTARY PROGRAMS? [ ] "HEALTHY AIR LIVING (HAL) BUSINESS PARTNER" [ ] "INSPECT" 
9. IS THIS APPLICATION FOR THE CONSTRUCTION OF A NEW FACILITY? [ ] YES If "Yes", please complete the CEQA Information form. [X] NO If "No", is the proposed equipment or project allowed: - by the current Conditional Use Permit or other Land Use Permit? [X] YES [ ] NO - or by Right? [ ] YES [ ] NO	
10. IS THIS APPLICATION SUBMITTED AS THE RESULT OF EITHER A NOTICE OF VIOLATION OR A NOTICE TO COMPLY? [ ] YES If yes, NOV/NTC #: _____ [X] NO	
12. TYPE OR PRINT NAME OF APPLICANT: <b>Shamim Reza</b>	TITLE OF APPLICANT: <b>EH&amp;S Rep. Sr.</b>
13. SIGNATURE OF APPLICANT:	PHONE #: (661) 616-3889 FAX #: E-MAIL: <b>sreza@linenergy.com</b>

FOR APCD USE ONLY:

DATE STAMP:	FILING FEE RECEIVED: <b>\$ 213-</b>	REF # <b>13067980</b>
	DATE PAID: <b>PM 11/12/14</b>	CHECK #:
	PROJECT #: <b>S-1144245</b>	FACILITY ID: <b>S-1246</b>

Northern Regional Office \* 4800 Enterprise Way \* Modesto, California 95356-8718 \* (209) 557-6400 \* FAX (209) 557-6475  
 Central Regional Office \* 1990 East Gettysburg Avenue \* Fresno, California 93726-0244 \* (559) 230-5900 \* FAX (559) 230-6061  
 Southern Regional Office \* 34946 Flyover Court \* Bakersfield, California 93308 \* (661) 392-5500 \* FAX (661) 392-5385

Rev. January 2013

**San Joaquin Valley Air Pollution Control District  
Supplemental Application Form**

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NOV 12 2014

**Boilers, Steam Generators, Dryers, and Process Heaters**

SJVAPCD  
Southern Region

Please complete one form for each different piece of equipment.

*This form must be accompanied by a completed Application for Authority to Construct and Permit to Operate form*

PERMIT TO BE ISSUED TO: Berry Petroleum Company, L.L.C.
LOCATION WHERE THE EQUIPMENT WILL BE OPERATED: See attached HRA information

**EQUIPMENT DESCRIPTION**

<b>Equipment Details</b>	<input type="checkbox"/> Boiler <input checked="" type="checkbox"/> Steam Generator <input type="checkbox"/> Dryer <input type="checkbox"/> Process Heater <input type="checkbox"/> Refinery Unit <input type="checkbox"/> Other: _____	
	Manufacturer: PCL	
	Model:	Serial Number:
	Steam: _____ pph, at _____ 2,500 psig _____ bhp	
	Is this a "Load-Following" unit? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <small>(Note: A load following unit is a unit with normal operational load fluctuations and requirements which exceed the operational response range of an Ultra-Low NO<sub>x</sub> burner system operating at 9 ppmv NO<sub>x</sub>.)</small>	
	<input type="checkbox"/> Indirect-Fired <input type="checkbox"/> Direct-Fired	
<b>Rules 4305/4306 Type of Use and Emissions Monitoring Provisions</b>	Flue Gas Recirculation: <input type="checkbox"/> Forced FGR <input checked="" type="checkbox"/> Induced FGR <input type="checkbox"/> None	
	Is an O <sub>2</sub> Controller present? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, Manufacturer:	
	<input type="checkbox"/> Low Use - limited to less than 9 billion Btu/year, must have fuel use meter <input type="checkbox"/> Tune the unit at least twice per calendar year in accordance with District Rule 4304 <input type="checkbox"/> Operate the unit in a manner that maintains exhaust O <sub>2</sub> concentration ≥ 3.00% by volume on a dry basis	
	<input type="checkbox"/> Limited Use - limited from 9 billion Btu/year to 30 billion Btu/year, must have fuel use meter <input checked="" type="checkbox"/> Full Time - limited from greater than 30 billion Btu/year to full time operation (8,760 hrs/year)	
	Note: Low Use units must identify operational characteristics recommended by the manufacturer, which can be monitored on a monthly basis (please provide details in additional documentation).	
	Note: Limited Use or Full Time units must have either a Continuous Emission Monitoring System (CEMS) or one of the following alternate emissions monitoring plans	
	<input type="checkbox"/> CEMS, please specify all pollutants monitored: <input type="checkbox"/> NO <sub>x</sub> <input type="checkbox"/> CO <input type="checkbox"/> O <sub>2</sub> <input type="checkbox"/> Other: _____ <input checked="" type="checkbox"/> Monitoring of NO <sub>x</sub> , CO, and O <sub>2</sub> concentrations <input type="checkbox"/> Periodic determination of flue gas recirculation rate by temperature measurement <input type="checkbox"/> Periodic determination of flue gas recirculation rate by O <sub>2</sub> measurement <input type="checkbox"/> Monitoring of burner mechanical adjustments and O <sub>2</sub> concentration <input type="checkbox"/> Monitoring of the flue gas recirculation valve(s) setting <input type="checkbox"/> Other Alternate Monitoring Plan (approved on a case by case basis), attach details	
	<input type="checkbox"/> Dryer - No Alternate Monitoring Required	
	Note: See District policy (SSP-1105) for additional details of pre-approved alternate emissions monitoring plans, at: <a href="http://www.valleyair.org/policies_per/Policies/SSP_1105.pdf">http://www.valleyair.org/policies_per/Policies/SSP_1105.pdf</a>	
	<b>Fuel Use Meter</b>	<input checked="" type="checkbox"/> Gaseous Fuel Meter <input type="checkbox"/> Liquid Fuel Meter <input type="checkbox"/> None
<b>Primary Burner</b>	Manufacturer: North American	Type: <input type="checkbox"/> Standard <input type="checkbox"/> Low NO <sub>x</sub> <input checked="" type="checkbox"/> Ultra Low NO <sub>x</sub>
	Model: LE	Serial Number:
	Maximum Heat Input Rating: _____ 85 MMBtu/hr	Annual Heat Input: _____ billion Btu/year
<b>Secondary Burner (If more than one burner is present)</b>	Manufacturer:	Type: <input type="checkbox"/> Standard <input type="checkbox"/> Low NO <sub>x</sub> <input type="checkbox"/> Ultra Low NO <sub>x</sub>
	Model:	Serial Number:
	Maximum Heat Input Rating: _____ MMBtu/hr	Annual Heat Input: _____ billion Btu/year

### EMISSIONS DATA

Note: See District BACT and District Rules 4305 and 4306 requirements for applicability to proposed unit at <http://www.valleclair.org/business/bact/ehapter1.pdf>, <http://www.valleclair.org/rules/currentrules/r4305.pdf>, and <http://www.valleclair.org/rules/currentrules/r4306.pdf>.

<b>Primary Fuel</b>	Fuel Type: <input checked="" type="checkbox"/> Natural Gas <input type="checkbox"/> LPG/Propane <input type="checkbox"/> Diesel <input type="checkbox"/> Other: _____			
	Higher Heating Value: _____ Btu/gal or _____ 1000 Btu/scf		Sulfur Content: _____ % by weight or _____ gr/scf	
<b>Primary Fuel Emissions Data</b>	Operational Mode	Steady State (ppmv) (lb/MMBtu)		Start-up (ppmv) (lb/hr)
	Nitrogen Oxides	7		
	Carbon Monoxide	25		
	Volatile Organic Compounds	0.0055		
	Duration (please provide justification)	_____ hr/day		_____ hr/yr
	% O <sub>2</sub> , dry basis, if corrected to other than 3%: _____ %			
<b>Secondary Fuel</b>	Fuel Type: <input type="checkbox"/> Natural Gas <input type="checkbox"/> LPG/Propane <input type="checkbox"/> Diesel <input type="checkbox"/> Other: _____			
	Higher Heating Value: _____ Btu/gal or _____ Btu/scf		Sulfur Content: _____ % by weight or _____ gr/scf	
	How will the secondary fuel be used? <input type="checkbox"/> Secondary full-time fuel <input type="checkbox"/> Backup for primary fuel <input type="checkbox"/> Other: _____			
<b>Secondary Fuel Emissions Data</b>	Operational Mode	Steady State (ppmv) (lb/MMBtu)		Start-up (ppmv) (lb/hr)
	Nitrogen Oxides			
	Carbon Monoxide			
	Volatile Organic Compounds			
	Duration (please provide justification)	_____ hr/day		_____ hr/yr
	% O <sub>2</sub> , dry basis, if corrected to other than 3%: _____ %			
<b>Source of Data</b>	<input checked="" type="checkbox"/> Manufacturer's Specifications <input type="checkbox"/> Emission Source Test <input type="checkbox"/> Other _____ (please provide copies)			
<b>Additional Emissions Control Equipment</b>	<input type="checkbox"/> Selective Catalytic Reduction - Manufacturer: _____ Model: _____ <input type="checkbox"/> Ammonia (NH <sub>3</sub> ) <input type="checkbox"/> Urea <input type="checkbox"/> Other: _____			
	<input type="checkbox"/> Non-Selective Catalytic Reduction - Manufacturer: _____ Model: _____			
	Control Efficiencies: NO <sub>x</sub> _____ % SO <sub>x</sub> _____ % PM <sub>10</sub> _____ % CO _____ % VOC _____ %			
	<input type="checkbox"/> Other (please specify): _____			

### HEALTH RISK ASSESSMENT DATA

<b>Operating Hours</b>	Maximum Operating Schedule: _____ 24 hours per day, and _____ 8760 hours per year		
<b>Receptor Data</b>	Distance to nearest Residence	_____ feet	Distance is measured from the proposed stack location to the nearest boundary of the nearest apartment, house, dormitory, etc.
	Direction to nearest Residence	_____	Direction from the stack to the receptor, i.e. Northeast or South.
	Distance to nearest Business	_____ feet	Distance is measured from the proposed stack location to the nearest boundary of the nearest office building, factory, store, etc.
	Direction to nearest Business	_____	Direction from the stack to the receptor, i.e. North or Southwest.
<b>Stack Parameters</b>	Release Height	_____ 20 feet above grade	
	Stack Diameter	_____ 42 inches at point of release	
	Rain Cap	<input type="checkbox"/> Flapper-type <input type="checkbox"/> Fixed-type <input checked="" type="checkbox"/> None <input type="checkbox"/> Other: _____	
	Direction of Flow	<input checked="" type="checkbox"/> Vertically Upward <input type="checkbox"/> Horizontal <input type="checkbox"/> Other: _____ ° from vert. or _____ ° from horiz.	
<b>Exhaust Data</b>	Flowrate: _____ 14,000 acfm	Temperature: _____ 200 °F	
<b>Facility Location</b>	<input type="checkbox"/> Urban (area of dense population) <input checked="" type="checkbox"/> Rural (area of sparse population)		

### FOR DISTRICT USE ONLY

Date:	FID:	Project:	Public Notice: [ ] Yes [ ] No
Comments:			

**Project HRA information**

<b>Source</b>	<b>Location</b>	<b>Field</b>	<b>Section</b>	<b>Township</b>	<b>Range</b>	<b>UTME</b>	<b>UTMN</b>	<b>Zone</b>
MNJ-XXX	Fairfield	NMWSS	11	31S	22E	265069.00	3903880.00	11.00
MNJ-YYY	Fairfield	NMWSS	12	31S	22E	265073.00	3903874.00	11.00
MNJ-ZZZ	Fairfield	NMWSS	13	31S	22E	265076.00	3903866.00	11.00

<b>Receptor Type</b>	<b>UTME</b>	<b>UTMN</b>	<b>Direction</b>	<b>Zone</b>
Residential	264129.00	3904105.00	To the Southwest	11.00
Business	264853.00	3902614.00	To the South	11.00

## HRA/RMR REQUEST Form

Please send this request to: [HRAModeler@valleyair.org](mailto:HRAModeler@valleyair.org)

Facility Name: Linn Energy	Processing Engineer: David Torii
Mailing Address: 5201 Turxtun Ave	
Bakersfield, CA 93309	Tec Svces Processing Staff:
Location: HOW Belridge	Tec Svces Reviewer:
Contact Name: Shamim Reza	
Telephone: 661-616-3889	
Application #: S-1246-407-0, '408-0 and '409-0	Completed Date:
Project #: 1144245	

### Information Required

**Please check which information is provided to Tec. Services:**

Information ALWAYS Required

- Receptor Distances
- Process Rates (hour & annual)
- Emission Rates (hour & annual)
- Hours of Operation
- Life of Project: 70 yrs

Additional Info Required Based on the Source Category

- Oil Facilities / Glass Plant/ Power Plant  
Plasma Cutting / Soil Remediation / Concrete Batch*
- Stack Velocity
  - Stack Height
  - Stack temperature
  - MSDS
  - Other (for area sources)

### Source of Information

**Please check which form is attached to this HRA request (it can be a combination of any of the following):**

- Supplemental Application Form
- HRA Request - Project Information Form
- Information supplied by the applicant (attached)

### Notification Requirement

- |  |                     |  |                              |
|--|---------------------|--|------------------------------|
| Is it obvious that notification is required? | NSR (Public Notice) | Yes: <input checked="" type="checkbox"/> | No: <input type="checkbox"/> |
|  | COC (EPA Notice)    | Yes: <input checked="" type="checkbox"/> | No: <input type="checkbox"/> |
|  | School Notice       | Yes: <input type="checkbox"/>            | No: <input type="checkbox"/> |

*Please note that in case notification is required, please provide distance to fence line in all four directions*

### Prevention of Significant Deterioration (PSD)

**AQE:**

1. Based on the prelim review, is the Project subject to PSD for other pollutant than GHG? Yes:  No:
2. Is the facility a PSD Major Source located within 10 km of a Class I area? Yes:  No:

*If either "Yes" box is checked, please provide all modeling and impact analyses submitted by the applicant to Technical Services. In this case, the project cannot be deemed complete until Technical Services indicates it is complete.*

**Tec Svces:**

- PSD Major Source located within 10 km of a Class I area AND project impact  $\geq 1 \mu\text{g}/\text{m}^3$ ? Yes:  No:
- Supervisor Review: Application Complete for PSD Modeling  Date Returned to AQE: \_\_\_\_\_

### Reimbursable Overtime

- Has the applicant requested reimbursable overtime processing? Yes:  No:
- If YES, please send HRA request to Tech Services before deeming complete*

Supervisor's signature: \_\_\_\_\_

Comments and References:

# HRA/RMR REQUEST PROJECT INFORMATION Form

**I. Project Description:** three 85 MMBtu/hr natural/ethane rich/TEOR gas fired steam generators

**II Receptor Location(s)**

Receptor Description	Distance From Source
Residence	See attached
Business	See attached

**III. Process Rate to be Modeled**

Process Description	Process Rates	
	Hourly Rate	Annual Rate
combust natural/ethane rich/TEOR gas	85 MMBtu/hr (per steam generator)	

**IV. Emission Rate Or Substances to be Modeled**

Pollutant	Daily PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE1 (lb/day)
NO <sub>x</sub>	0.008	85	24	16.3
SO <sub>x</sub>	0.00500	85	24	10.2
PM <sub>10</sub>	0.0076	85	24	15.5
CO	0.019	85	24	37.7
VOC	0.0055	85	24	11.2

Pollutant	Annual PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE1 (lb/year)
NO <sub>x</sub>	0.008	85	8,760	5,957
SO <sub>x</sub>	0.00500	85	8,760	3,723
PM <sub>10</sub>	0.0076	85	8,760	5,659
CO	0.019	85	8,760	13,775
VOC	0.0055	85	8,760	4,095

**V. Project Location (Select One)**

- Urban – Area of dense population  
 Rural – Area of sparse population

**VI. Point Sources**

Stack Parameters:

Stack Height (Units)	Rain Cap or Pressure Plate	Inside Diameter (Units)	Gas Exit Velocity (Units)	Exhaust Discharge Direction	Gas Exit Temperature (Units)
20'	n	42"	14,000 acfm	vert	200 F

**VII. Area Sources<sup>1</sup> Parameters**

Release Height <sup>2</sup> (Units)	Length Of Side (Units)

1. An area source is defined as in an area with four equal sides.
2. Release height is defined as the physical height of the source. For example, if a sump has a three meter brim surrounding it. The physical height of the sump is three meters. Height is measured from the ground to the top of the source.

**ATTACHMENT VI**  
**Statewide Compliance Statement and Title V Compliance**  
**Certification Form**

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NOV 26 2014

SJVAPCD  
Southern Region



5201 Truxtun Ave.  
Bakersfield, California 93309

Phone: (661) 616-3900

NASDAQ:LINE  
NASDAQ:LNCO

November 24, 2014

Mr. Leonard Scandura  
San Joaquin Valley Unified APCD  
34946 Flyover Court  
Bakersfield, CA 93308

**RE: ATC Applications S-1246 Statewide Compliance Certification per District  
Rule 2201 Section 4.15.2**

Dear Mr. Scandura:

Pursuant to the requirement of San Joaquin Valley APCD Rule 2201 section 4.15.2, Berry Petroleum Company, LLC. (BPC) submits this Compliance Certification regarding other owned, operated, or controlled major stationary sources in California. As of the date of this letter, BPC asserts that all major stationary sources owned or operated by BPC (or by any entity controlling, controlled by, or under common control with BPC) in California, which are subject to emission limitations, are in compliance or on a schedule for compliance with all applicable emission limitations and standards.

If you have any questions or require additional information please contact Mr. Shamim Reza at (661) 616-3889.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim Crawford". The signature is written in a cursive style.

Tim Crawford  
Vice President California Region

San Joaquin Valley  
Unified Air Pollution Control District

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Southern Region

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

I. TYPE OF PERMIT ACTION (Check appropriate box)

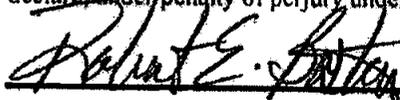
- SIGNIFICANT PERMIT MODIFICATION                       ADMINISTRATIVE  
 MINOR PERMIT MODIFICATION                                       AMENDMENT

COMPANY NAME: <b>Berry Petroleum Company, LLC.</b>	FACILITY ID: <b>- 1246</b>
1. Type of Organization: <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Sole Ownership <input type="checkbox"/> Government <input type="checkbox"/> Partnership <input type="checkbox"/> Utility	
2. Owner's Name: <b>Berry Petroleum Company, LLC.</b>	
3. Agent to the Owner: <b>Tim Crawford</b>	

II. COMPLIANCE CERTIFICATION (Read each statement carefully and initial all circles for confirmation):

- Based on information and belief formed after reasonable inquiry, the equipment identified in this application will continue to comply with the applicable federal requirement(s).
- Based on information and belief formed after reasonable inquiry, the equipment identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.
- Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.
- Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true accurate and complete.

I declare, under penalty of perjury under the laws of the state of California, that the forgoing is correct and true:

  
\_\_\_\_\_

Signature of Responsible Official

  
\_\_\_\_\_

Date

**Robert Boston**

\_\_\_\_\_  
Name of Responsible Official (please print)

**Manager of EH&S**

\_\_\_\_\_  
Title of Responsible Official (please print)

**ATTACHMENT VII**  
**Draft ATCs**

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

**DRAFT**  
ISSUANCE DATE: DRAFT

PERMIT NO: S-1246-407-0

LEGAL OWNER OR OPERATOR: LINN OPERATING, INC.  
MAILING ADDRESS: 5201 TRUXTUN AVENUE, SUITE 100  
BAKERSFIELD, CA 93309

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE  
KERN COUNTY, CA

SECTION: 11 TOWNSHIP: 31S RANGE: 22E

**EQUIPMENT DESCRIPTION:**

85 MMBTU/HR NATURAL/ETHANE-RICH NATURAL GAS-FIRED STEAM GENERATOR WITH A NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) AND AN O2 CONTROLLER

**CONDITIONS**

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOX emission reduction credits for the following quantity of emissions: 1st quarter - 2234 lb, 2nd quarter - 2234 lb, 3rd quarter - 2234 lb, and fourth quarter - 2234 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Prior to operating equipment under this Authority to Construct, permittee shall surrender SOX emission reduction credits for the following quantity of emissions: 1st quarter - 1396 lb, 2nd quarter - 1396 lb, 3rd quarter - 1396 lb, and fourth quarter - 1396 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

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**

Arnaud Marjolle, Director of Permit Services  
S-1246-407-0 Mar 29 2016 7:57AM EDG:HLR Joint Inspection NOT Required

5. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 2122 lb, 2nd quarter - 2122 lb, 3rd quarter - 2122 lb, and fourth quarter - 2122 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1536 lb, 2nd quarter - 1536 lb, 3rd quarter - 1536 lb, and fourth quarter - 1536 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
7. ERC Certificate Numbers S-4407-1, N-1198-2, N-1198-4, and N-1198-5 (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
8. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
9. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
10. 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] Federally Enforceable Through Title V Permit
11. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
12. This unit shall be fired on PUC quality natural gas, but not solely PUC quality natural gas; or gaseous fuel treated to remove 95% by weight of sulfur compounds, or gaseous fuel treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 scf. [District Rule 2201] Federally Enforceable Through Title V Permit
13. The unit shall only be fired on natural/TEOR/ethane-rich gas with a maximum sulfur content of 1.75 gr S/100scf. [District Rules 2201, 4301, and 4320] Federally Enforceable Through Title V Permit
14. At least quarterly, the permittee shall monitor using the methods specified in this permit the higher heating value of each non-certified fuel supplied to this unit, or, alternatively, have the higher heating value certified by the fuel supplier. The records of higher heating value and quantity of fuel combusted shall be used to demonstrate that the rated heat input capacity of this unit, as averaged over a calendar quarter, is not exceeded. [District Rules 2201] Federally Enforceable Through Title V Permit
15. The higher heating value of each non-certified fuel shall be certified by a third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D 3588. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
16. Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmvd NO<sub>x</sub> @ 3% O<sub>2</sub> or 0.008 lb-NO<sub>x</sub>/MMBtu, 0.0076 lb-PM10/MMBtu, 25 ppmvd CO @ 3% O<sub>2</sub> or 0.0185 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4201, 4301, 4305, 4306, 4320, and 4801] Federally Enforceable Through Title V Permit
17. Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
18. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

19. Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial startup and at least once every twelve (12) months thereafter. 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 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
20. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
21. 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] Federally Enforceable Through Title V Permit
22. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
23. NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
24. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
25. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
26. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 4320] Federally Enforceable Through Title V Permit
27. 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] Federally Enforceable Through Title V Permit
28. 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] Federally Enforceable Through Title V Permit
29. The permittee shall monitor and record the stack concentration of NOx, 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] Federally Enforceable Through Title V Permit
30. If either the NOx 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] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

31. All alternate monitoring parameter 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] Federally Enforceable Through Title V Permit
32. 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] Federally Enforceable Through Title V Permit
33. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, permittee shall demonstrate compliance at least annually. [District Rule 4320] Federally Enforceable Through Title V Permit
34. 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] Federally Enforceable Through Title V Permit
35. The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent and the measured NO<sub>x</sub> and CO concentrations corrected to 3% O<sub>2</sub>, (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] Federally Enforceable Through Title V Permit
36. 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] Federally Enforceable Through Title V Permit

**DRAFT**

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT

PERMIT NO: S-1246-408-0

LEGAL OWNER OR OPERATOR: LINN OPERATING, INC.  
MAILING ADDRESS: 5201 TRUXTUN AVENUE, SUITE 100  
BAKERSFIELD, CA 93309

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE  
KERN COUNTY, CA

SECTION: 12 TOWNSHIP: 31S RANGE: 22E3

**EQUIPMENT DESCRIPTION:**

85 MMBTU/HR NATURAL/TEOR/ETHANE-RICH NATURAL GAS-FIRED STEAM GENERATOR WITH A NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) AND AN O2 CONTROLLER

**CONDITIONS**

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOX emission reduction credits for the following quantity of emissions: 1st quarter - 2234 lb, 2nd quarter - 2234 lb, 3rd quarter - 2234 lb, and fourth quarter - 2234 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Prior to operating equipment under this Authority to Construct, permittee shall surrender SOX emission reduction credits for the following quantity of emissions: 1st quarter - 1396 lb, 2nd quarter - 1396 lb, 3rd quarter - 1396 lb, and fourth quarter - 1396 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Sayed Sadredin, Executive Director, APCO

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Arnaud Marolle, Director of Permit Services

S-1246-408-0 Mar 29 2016 7:37AM -- EDGENLR - Joint Inspection NOT Required

5. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 2122 lb, 2nd quarter - 2122 lb, 3rd quarter - 2122 lb, and fourth quarter - 2122 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1536 lb, 2nd quarter - 1536 lb, 3rd quarter - 1536 lb, and fourth quarter - 1536 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
7. ERC Certificate Numbers S-4407-1, N-1198-2, N-1198-4, and N-1198-5 (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
8. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
9. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
10. 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] Federally Enforceable Through Title V Permit
11. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
12. This unit shall be fired on PUC quality natural gas, but not solely PUC quality natural gas; or gaseous fuel treated to remove 95% by weight of sulfur compounds, or gaseous fuel treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf. [District Rule 2201] Federally Enforceable Through Title V Permit
13. The unit shall only be fired on natural/TEOR/ethane-rich gas with a maximum sulfur content of 1.75 gr S/100scf. [District Rules 2201, 4301, and 4320] Federally Enforceable Through Title V Permit
14. At least quarterly, the permittee shall monitor using the methods specified in this permit the higher heating value of each non-certified fuel supplied to this unit, or, alternatively, have the higher heating value certified by the fuel supplier. The records of higher heating value and quantity of fuel combusted shall be used to demonstrate that the rated heat input capacity of this unit, as averaged over a calendar quarter, is not exceeded. [District Rules 2201] Federally Enforceable Through Title V Permit
15. The higher heating value of each non-certified fuel shall be certified by a third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D 3588. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
16. Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmvd NOx @ 3% O2 or 0.008 lb-NOx/MMBtu, 0.0076 lb-PM10/MMBtu, 25 ppmvd CO @ 3% O2 or 0.0185 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4201, 4301, 4305, 4306, 4320, and 4801] Federally Enforceable Through Title V Permit
17. Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
18. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

19. Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial startup and at least once every twelve (12) months thereafter. 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 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
20. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
21. 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] Federally Enforceable Through Title V Permit
22. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
23. NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
24. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
25. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
26. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 4320] Federally Enforceable Through Title V Permit
27. 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] Federally Enforceable Through Title V Permit
28. 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] Federally Enforceable Through Title V Permit
29. The permittee shall monitor and record the stack concentration of NOx, 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] Federally Enforceable Through Title V Permit
30. If either the NOx 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] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

31. All alternate monitoring parameter 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] Federally Enforceable Through Title V Permit
32. 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] Federally Enforceable Through Title V Permit
33. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, permittee shall demonstrate compliance at least annually. [District Rule 4320] Federally Enforceable Through Title V Permit
34. 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] Federally Enforceable Through Title V Permit
35. The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent and the measured NO<sub>x</sub> and CO concentrations corrected to 3% O<sub>2</sub>, (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] Federally Enforceable Through Title V Permit
36. 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] Federally Enforceable Through Title V Permit

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San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: S-1246-409-0

LEGAL OWNER OR OPERATOR: LINN OPERATING, INC.  
MAILING ADDRESS: 5201 TRUXTUN AVENUE, SUITE 100  
BAKERSFIELD, CA 93309

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE  
KERN COUNTY, CA

SECTION: 13 TOWNSHIP: 31S RANGE: 22E

**EQUIPMENT DESCRIPTION:**

85 MMBTU/HR NATURAL/TEOR/ETHANE-RICH NATURAL GAS-FIRED STEAM GENERATOR WITH A NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) AND AN O2 CONTROLLER

**CONDITIONS**

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOX emission reduction credits for the following quantity of emissions: 1st quarter - 2234 lb, 2nd quarter - 2234 lb, 3rd quarter - 2234 lb, and fourth quarter - 2234 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Prior to operating equipment under this Authority to Construct, permittee shall surrender SOX emission reduction credits for the following quantity of emissions: 1st quarter - 1396 lb, 2nd quarter - 1396 lb, 3rd quarter - 1396 lb, and fourth quarter - 1396 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

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

Sayed Sadredin, Executive Director, APCO

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Arnaud Marjolle, Director of Permit Services  
S-1246-409-0, Mar 26 2015 7:57AM - EDGEHILL : Joint Inspection NOT Required

5. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 2122 lb, 2nd quarter - 2122 lb, 3rd quarter - 2122 lb, and fourth quarter - 2122 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1536 lb, 2nd quarter - 1536 lb, 3rd quarter - 1536 lb, and fourth quarter - 1536 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
7. ERC Certificate Numbers S-4407-1, N-1198-2, N-1198-4, and N-1198-5 (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
8. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
9. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
10. 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] Federally Enforceable Through Title V Permit
11. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
12. This unit shall be fired on PUC quality natural gas, but not solely PUC quality natural gas; or gaseous fuel treated to remove 95% by weight of sulfur compounds, or gaseous fuel treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf. [District Rule 2201] Federally Enforceable Through Title V Permit
13. The unit shall only be fired on natural/TEOR/ethane-rich gas with a maximum sulfur content of 1.75 gr S/100scf. [District Rules 2201, 4301, and 4320] Federally Enforceable Through Title V Permit
14. At least quarterly, the permittee shall monitor using the methods specified in this permit the higher heating value of each non-certified fuel supplied to this unit, or, alternatively, have the higher heating value certified by the fuel supplier. The records of higher heating value and quantity of fuel combusted shall be used to demonstrate that the rated heat input capacity of this unit, as averaged over a calendar quarter, is not exceeded. [District Rules 2201] Federally Enforceable Through Title V Permit
15. The higher heating value of each non-certified fuel shall be certified by a third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D 3588. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
16. Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmvd NOx @ 3% O2 or 0.008 lb-NOx/MMBtu, 0.0076 lb-PM10/MMBtu, 25 ppmvd CO @ 3% O2 or 0.0185 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4201, 4301, 4305, 4306, 4320, and 4801] Federally Enforceable Through Title V Permit
17. Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
18. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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19. Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial startup and at least once every twelve (12) months thereafter. 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 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
20. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
21. 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] Federally Enforceable Through Title V Permit
22. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
23. NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
24. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
25. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
26. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 4320] Federally Enforceable Through Title V Permit
27. 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] Federally Enforceable Through Title V Permit
28. 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] Federally Enforceable Through Title V Permit
29. The permittee shall monitor and record the stack concentration of NOx, 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] Federally Enforceable Through Title V Permit
30. If either the NOx 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] Federally Enforceable Through Title V Permit

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31. All alternate monitoring parameter 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] Federally Enforceable Through Title V Permit
32. 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] Federally Enforceable Through Title V Permit
33. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, permittee shall demonstrate compliance at least annually. [District Rule 4320] Federally Enforceable Through Title V Permit
34. 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] Federally Enforceable Through Title V Permit
35. The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent and the measured NO<sub>x</sub> and CO concentrations corrected to 3% O<sub>2</sub>, (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] Federally Enforceable Through Title V Permit
36. 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] Federally Enforceable Through Title V Permit

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