Mr. Jason Goklaney  
Sentinel Peak Resources  
1200 Discovery Dr, Suite 500  
Bakersfield, CA 93309  

Re: Proposed ATC / Certificate of Conformity (Significant Mod)  
Facility Number: S-1372  
Project Number: S-1193689  

Dear Mr. Goklaney:

Enclosed for your review is the District’s analysis of an application for Authorities  
To Construct for the facility identified above. You requested that Certificates of  
Conformity with the procedural requirements of 40 CFR Part 70 be issued with  
this project. The applicant has requested to install two steam generators.

The notice of preliminary decision for this project has been posted on the  
District’s website (www.valleymair.org). After addressing all comments made  
during the 30-day public notice and the 45-day EPA comment periods, the  
District intends to issue the Authorities to Construct with Certificates 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 Authorities 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,

Amraur Marjollet  
Director of Permit Services

Enclosures

cc: Courtney Graham, CARB (w/enclosure) via email  
cc: Gerardo C. Rios, EPA (w/enclosure) via EPS
San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Two 85 MMBtu/hr Steam Generator

Facility Name: Sentinel Peak Resources
Mailing Address: 1200 Discovery Drive, Suite 100
Contact Person: Jason Goklaney
Telephone: (661) 395-5574
E-Mail: jgoklaney@sentinelpeakresources.com
Application #(s): S-1372-439-0 and '440-0
Project #: S-1193689
Deemed Complete: October 16, 2019

Date: November 25, 2019
Engineer: Steve Davidson
Lead Engineer: Richard Karls

I. Proposal

Sentinel Peak Resources (SPR) has requested an Authority to Construct (ATC) permit for the installation of two 85 MMBtu/hr natural gas fired steam generators at the Star Fee lease (HOWSS). The draft ATCs are included in Appendix G.

The project is a Federal Major Modification requiring BACT, offsets, and public notice.

SPR has a Title V Permit. This modification can be classified as a Title V significant modification pursuant to Rule 2520, 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. SPR Company must apply to administratively amend their Title V permit.

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (8/15/19)
Rule 2410 Prevention of Significant Deterioration (6/16/11)
Rule 2520 Federally Mandated Operating Permits (8/15/19)
Rule 4001 New Source Performance Standards (4/14/99)
Rule 4002 National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101 Visible Emissions (2/17/05)
Rule 4102 Nuisance (12/17/92)
Rule 4201 Particulate Matter Concentration (12/17/92)
Rule 4301 Fuel Burning Equipment (12/17/92)
Rule 4305 Boilers, Steam Generators, and Process Heaters – Phase 2 (8/21/03)
Rule 4306 Boilers, Steam Generators, and Process Heaters – Phase 3 (10/16/08)
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)
III. Project Location

The equipment will be located at the Star fee lease in the Cymric Oil Field, Heavy Oil Western stationary source, within of Section 7, Township 30S, Range 22E. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

SPR operates permitted equipment utilized for the production of crude oil and natural gas. In thermally enhanced oil recovery (TEOR) operations, natural gas is combusted in steam generators to produce steam for injection into heavy crude oil bearing strata via injection wells to reduce the viscosity of the crude oil, thereby facilitating thermally enhanced oil production.

In this project SPR is proposing to install two 85 MMBtu/hr steam generators.

V. Equipment Listing

S-1375-439-0: 85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR (#78) WITH A NORTH AMERICAN GLE BURNER, FLUE GAS RECIRCULATION AND A O2 CONTROLLER

S-1375-440-0: 85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR (#79) WITH A NORTH AMERICAN GLE BURNER, FLUE GAS RECIRCULATION AND A O2 CONTROLLER

VI. Emission Control Technology Evaluation

Emissions from gas-fired steam generators include NOx, CO, VOC, PM10, and SOx.

Low-NOx burners reduce NOx formation by producing lower flame temperatures (and longer flames) than conventional burners. Conventional burners thoroughly mix all the fuel and air in a single stage just prior to combustion, whereas low-NOx burners delay the mixing of fuel and air by introducing the fuel (or sometimes the air) in multiple stages. Generally, in the first combustion stage, the air-fuel mixture is fuel rich. In a fuel rich environment, all the oxygen will be consumed in reactions with the fuel, leaving no excess oxygen available to react with nitrogen to produce thermal NOx. In the secondary and tertiary stages, the combustion zone is maintained in a fuel-lean environment. The excess air in these stages helps to reduce the flame temperature so that the reaction between the excess oxygen with nitrogen is minimized.
The use of flue gas re-circulation (FGR) can reduce nitrogen oxides (NOx) emissions by 60 - 70%. In an FGR system, a portion of the flue gas is re-circulated back to the inlet air. As flue gas is composed mainly of nitrogen and the products of combustion, it is much lower in oxygen than the inlet air and contains virtually no combustible hydrocarbons to burn. Thus, flue gas is practically inert. The addition of an inert mass of gas to the combustion reaction serves to absorb heat without producing heat, thereby lowering the flame temperature. Since thermal NOx is formed by high flame temperatures, the lower flame temperatures produced by FGR serve to reduce thermal NOx.

VII. General Calculations

A. Assumptions

To streamline emission calculations, PM2.5 emissions are assumed to be equal to PM10 emissions. Only if needed to determine if a project is a Federal major modification for PM2.5 will specific PM2.5 emission calculations be performed.

- The maximum operating schedule is 24 hours per day (per applicant)
- EPA F-factor for natural gas is 8,578 dscf/MMBtu (40 CFR 60, Appendix B)
- Natural/Field Gas Heating Value: 1,000 Btu/scf (District Practice)
- Maximum daily emissions are based on one startup and one shutdown (each) per day.
- Annual emissions are based on steady state emissions for 8760 hr/yr.

B. Emission Factors

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Emission Factors</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
<td>6.2 lb-NOx/MMscf</td>
<td>0.0062 lb-NOx/MMBtu</td>
</tr>
<tr>
<td>SOx</td>
<td>2.85 lb-SOx/MMscf</td>
<td>0.00285 lb SO2/MMBtu</td>
</tr>
<tr>
<td>PM10</td>
<td>0.003 lb-PM10/MMscf</td>
<td>0.003 lb-PM10/MMBtu</td>
</tr>
<tr>
<td>CO</td>
<td>18.5 lb-CO/MMscf</td>
<td>0.0185 lb CO/MMBtu</td>
</tr>
<tr>
<td>VOC</td>
<td>3.0 lb-VOC/MMscf</td>
<td>0.003 lb-VOC/MMBtu</td>
</tr>
</tbody>
</table>

Startup and shutdown

NOx: 15 ppmv @ 3% O2, 0.018 lb/MMBtu
CO: 100 ppmv @ 3% O2, 0.074 lb/MMBtu
Duration of startup and shutdown (combined) shall not exceed 4.0 hr day.
C. Calculations

1. Pre-Project Potential to Emit (PE1)

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

2. Post Project Potential to Emit (PE2)

For each Steam Generator:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Daily PE2</th>
<th>Annual PE2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EF2 (lb/ MMBtu)</td>
<td>Heat Input (MMBtu/hr)</td>
</tr>
<tr>
<td>NO\textsubscript{X}</td>
<td>0.0062</td>
<td>85</td>
</tr>
<tr>
<td>SO\textsubscript{X}</td>
<td>0.00285</td>
<td>85</td>
</tr>
<tr>
<td>PM\textsubscript{10}</td>
<td>0.0030</td>
<td>85</td>
</tr>
<tr>
<td>CO</td>
<td>0.019</td>
<td>85</td>
</tr>
<tr>
<td>VOC</td>
<td>0.0030</td>
<td>85</td>
</tr>
</tbody>
</table>

Daily Startup and Shutdown

NO\textsubscript{X}: \((0.018 \text{ lb/ MMBtu} \times 4 \text{ hr/day} + 0.0062 \text{ lb/ MMBtu} \times 20 \text{ hr/day}) \times 85 \text{ MMBtu/hr} = 16.7 \text{ lb/day}

CO: \((0.074 \text{ lb/ MMBtu} \times 4 \text{ hr/day} + 0.0185 \text{ lb/ MMBtu} \times 20 \text{ hr/day}) \times 85 \text{ MMBtu/hr} = 56.6 \text{ lb/day}

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.

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

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 criteria 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

This source is an existing Major Source for all criteria pollutants and will remain a Major Source for all criteria pollutants.

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.

<table>
<thead>
<tr>
<th>PSD Major Source Determination (tons/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO₂</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>Estimated Facility PE before Project Increase</td>
</tr>
<tr>
<td>PSD Major Source Thresholds</td>
</tr>
<tr>
<td>PSD Major Source?</td>
</tr>
</tbody>
</table>
As shown above, the facility is an existing PSD major source for at least one pollutant.

6. **Baseline Emissions (BE)**

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

Pursuant to District Rule 2201, BE = PE1 for:
- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise,

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

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

7. **SB 288 Major Modification**

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

Since this facility is a major source for NOx, SOx, PM10, and VOC 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.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Project PE2 (lb/year)</th>
<th>Threshold (lb/year)</th>
<th>SB 288 Major Modification Calculation Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
<td>9234</td>
<td>50,000</td>
<td>No</td>
</tr>
<tr>
<td>SOx</td>
<td>4244</td>
<td>80,000</td>
<td>No</td>
</tr>
<tr>
<td>PM10</td>
<td>4468</td>
<td>30,000</td>
<td>No</td>
</tr>
<tr>
<td>VOC</td>
<td>4468</td>
<td>50,000</td>
<td>No</td>
</tr>
</tbody>
</table>

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 calculated are equal to the two steam generators potential to emit and compared to the Federal Major Modification Thresholds in the following table.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Total Emissions Increases (lb/yr)</th>
<th>Thresholds (lb/yr)</th>
<th>Federal Major Modification?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx*</td>
<td>9234</td>
<td>0</td>
<td>Yes</td>
</tr>
<tr>
<td>VOC*</td>
<td>4244</td>
<td>0</td>
<td>Yes</td>
</tr>
<tr>
<td>PM_{10}</td>
<td>4468</td>
<td>30,000</td>
<td>No</td>
</tr>
<tr>
<td>PM_{2.5}</td>
<td>4468</td>
<td>20,000</td>
<td>No</td>
</tr>
<tr>
<td>SOx</td>
<td>4468</td>
<td>80,000</td>
<td>No</td>
</tr>
</tbody>
</table>

*If there is any emission increases in NOx or VOC, this project is a Federal Major Modification and no further analysis is required.

Since there is an increase in NOx and VOC emissions, this project constitutes a Federal Major Modification. Federal Offset quantities are calculated below.

**Federal Offset Quantities:**

The Federal offset quantity is only calculated only for the pollutants for which the project is a Federal Major Modification. The Federal offset quantity is the sum of the annual emission changes for all new and modified emission units in a project calculated as the potential to emit after the modification (PE2) minus the actual emissions (AE) during the baseline period for each emission unit multiplied by the applicable federal offset ratio. There are no special calculations performed for units covered by an SLC.
### NOx

<table>
<thead>
<tr>
<th>Permit No.</th>
<th>Actual Emissions (lb/year)</th>
<th>Potential Emissions (lb/year)</th>
<th>Emissions Change (lb/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-1372-439-0</td>
<td>0</td>
<td>4617</td>
<td>4617</td>
</tr>
<tr>
<td>S-1372-440-0</td>
<td>0</td>
<td>4617</td>
<td>4617</td>
</tr>
</tbody>
</table>

**Net Emission Change (lb/year):** 9234

**Federal Offset Quantity: (NEC * 1.5)** 13,851

### VOC

<table>
<thead>
<tr>
<th>Permit No.</th>
<th>Actual Emissions (lb/year)</th>
<th>Potential Emissions (lb/year)</th>
<th>Emissions Change (lb/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-1372-439-0</td>
<td>0</td>
<td>2234</td>
<td>2234</td>
</tr>
<tr>
<td>S-1372-440-0</td>
<td>0</td>
<td>2234</td>
<td>2234</td>
</tr>
</tbody>
</table>

**Net Emission Change (lb/year):** 4468

**Federal Offset Quantity: (NEC * 1.5)** 6702

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

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

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.

<table>
<thead>
<tr>
<th>PSD Significant Emission Increase Determination: Potential to Emit (tons/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Total PE from New and Modified Units</td>
</tr>
<tr>
<td>PSD Significant Emission Increase Thresholds</td>
</tr>
<tr>
<td>PSD Significant Emission Increase?</td>
</tr>
</tbody>
</table>

As demonstrated above, because the post-project total potentials to emit from all new and modified emission units are below the PSD significant emission increase thresholds, this project is not subject to the requirements of Rule 2410 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. Detailed QNEC calculations are included in Appendix D.

VIII. Compliance Determination

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

Pursuant to District Rule 2201, Section 4.1, 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 Adjusted Increase in Permitted Emissions (AIPE) exceeding two pounds per day, and/or
d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined by the rule.

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

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

As seen in Section VII.C.2 above, the applicant is proposing to install two new steam generator with a PE greater than 2 lb/day for NOX, SOX, PM10, CO, and VOC. BACT is triggered for NOX, SOX, PM10, and VOC since the PEs are greater than 2 lb/day. BACT is triggered for CO since the SSPE2 for CO is greater than 200,000 lb/year, as demonstrated in Section VII.C.5 above.

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

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

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

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

d. SB 288/Federal Major Modification

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

As discussed in Sections VII.C.8 above, this project does constitute a Federal Major Modification for NOX and VOC emissions. Therefore, BACT is triggered for NOX and VOC.

2. BACT Guideline

BACT Guideline 1.2.1 Oilfield Steam Generator (> 20 MMBtu/hr) is included in Appendix A.

3. Top-Down BACT Analysis

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

Pursuant to the attached Top-Down BACT Analysis (see Appendix B), BACT has been satisfied with the following:
NOx:  5 ppmvd @ 3% O2
SOx:  Natural gas, with a sulfur content not exceeding 1 gr of sulfur compounds (as S) per 100 scf
PM10: Natural gas, with a sulfur content not exceeding 1 gr of sulfur compounds (as S) per 100 scf
CO:  25 ppmvd @ 3% O2
VOC: Gaseous fuel

B. Offsets

1. Offset Applicability

Pursuant to District Rule 2201, Section 4.5, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals 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.

<table>
<thead>
<tr>
<th>Offset Determination (lb/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>SSPE2</td>
</tr>
<tr>
<td>Offset Thresholds</td>
</tr>
<tr>
<td>Offsets triggered?</td>
</tr>
</tbody>
</table>

2. Quantity of Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for NOX, SOx, PM10, CO, VOC. Therefore offset calculations will be required for this project.

The facility is proposing to install two new emissions units; therefore BE = 0 for both units. Also, there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

Offsets Required (lb/year) = (Σ[PE2 – BE] + ICCE) x DOR

For NOx:

PE2 (NOx) = 4617 lb/year (Each Unit)
BE (NOx)  = 0 lb/year
ICCE      = 0 lb/year
The project is a Federal Major Modification and therefore the correct offset ratio for NOx and VOCs is 1.5:1.

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

Offsets Required (lb/year) = ([4617 - 0] + [4617-0] + 0) x 1.5
= 9234 x 1.5
= 13,851 lb NOx/year

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

Quarterly offsets required (lb/qtr) = (6,926 lb NOx/year) / (4 quarters/year)
= 1,731.5 lb/qtr

As shown in the calculation above, the quarterly amount of offsets required for each unit, when evenly distributed to each quarter, results in fractional pounds of offsets being required each quarter. Since offsets are required to be withdrawn as whole pounds, the quarterly amounts of offsets need to be adjusted to ensure the quarterly values sum to the total annual amount of offsets required.

To adjust the quarterly amount of offsets required, the fractional amount of offsets required in each quarter will be summed and redistributed to each quarter based on the number of days in each quarter. The redistribution is based on the Quarter 1 having the fewest days and the Quarters 3 and 4 having the most days. The redistribution method is summarized in the following table:

<table>
<thead>
<tr>
<th>Value of z</th>
<th>Quarter 1</th>
<th>Quarter 2</th>
<th>Quarter 3</th>
<th>Quarter 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>0.25</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y+1</td>
</tr>
<tr>
<td>0.5</td>
<td>Y</td>
<td>Y+1</td>
<td>Y+1</td>
<td>Y+1</td>
</tr>
<tr>
<td>0.75</td>
<td>Y</td>
<td>Y+1</td>
<td>Y+1</td>
<td>Y+1</td>
</tr>
</tbody>
</table>

Therefore the appropriate quarterly emissions to be offset for each unit are as follows:

<table>
<thead>
<tr>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
<th>Total Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,731</td>
<td>1,731</td>
<td>1732</td>
<td>1732</td>
<td>6,926</td>
</tr>
</tbody>
</table>

The appropriate quarterly emissions to be offset for the project are as follows:

<table>
<thead>
<tr>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
<th>Total Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>3462</td>
<td>3462</td>
<td>3464</td>
<td>3464</td>
<td>13,852</td>
</tr>
</tbody>
</table>
The applicant has stated that the facility plans to use ERC certificate S-5133-2 to offset the increases in NOx emissions associated with this project. The above certificate has available quarterly NOx credits as follows:

<table>
<thead>
<tr>
<th>ERC # S-5133-2</th>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>17,989</td>
<td>15,348</td>
<td>14,898</td>
<td>16,402</td>
</tr>
</tbody>
</table>

As seen above, the facility has sufficient credits to fully offset the quarterly NOx emissions increases associated with this project.

_Proposed Rule 2201 (offset) Conditions (Each unit):_

- {GC# 4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 1,731 lb, 2nd quarter - 1,731 lb, 3rd quarter - 1,732 lb, and 4th quarter - 1,73 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16) for the ERC specified below. [District Rule 2201]

- ERC Certificate Number S-5133-2 (or a certificate 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]

For SOx:

\[
\begin{align*}
\text{PE2 (SOx)} &= 2122 \text{ lb/year (Each Unit)} \\
\text{BE (SOx)} &= 0 \text{ lb/year} \\
\text{ICCE} &= 0 \text{ lb/year}
\end{align*}
\]

Assuming an offset ratio of 1.5:1, the amount of SOx ERCs that need to be withdrawn is:

\[
\begin{align*}
\text{Offsets Required (lb/year)} &= ([2122 - 0] + [2122-0] + 0) \times 1.5 \\
&= 4244 \times 1.5 \\
&= 6366 \text{ lb SOx/year}
\end{align*}
\]

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

\[
\begin{align*}
\text{Quarterly offsets required (lb/qtr)} &= (3,183 \text{ lb SOx/year}) \div (4 \text{ quarters/year}) \\
&= 795.75 \text{ lb/qtr}
\end{align*}
\]

As shown in the calculation above, the quarterly amount of offsets required for each unit, when evenly distributed to each quarter, results in fractional pounds of offsets being required each quarter. Since offsets are required to be withdrawn as whole pounds, the
quarterly amounts of offsets need to be adjusted to ensure the quarterly values sum to the total annual amount of offsets required.

To adjust the quarterly amount of offsets required, the fractional amount of offsets required in each quarter will be summed and redistributed to each quarter based on the number of days in each quarter. The redistribution is based on the Quarter 1 having the fewest days and the Quarters 3 and 4 having the most days. The redistribution method is summarized in the following table:

<table>
<thead>
<tr>
<th>Value of ( z )</th>
<th>Quarter 1</th>
<th>Quarter 2</th>
<th>Quarter 3</th>
<th>Quarter 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>( .0 )</td>
<td>( Y )</td>
<td>( Y )</td>
<td>( Y )</td>
<td>( Y )</td>
</tr>
<tr>
<td>( .25 )</td>
<td>( Y )</td>
<td>( Y )</td>
<td>( Y+1 )</td>
<td>( Y+1 )</td>
</tr>
<tr>
<td>( .5 )</td>
<td>( Y )</td>
<td>( Y+1 )</td>
<td>( Y+1 )</td>
<td>( Y+1 )</td>
</tr>
<tr>
<td>( .75 )</td>
<td>( Y )</td>
<td>( Y+1 )</td>
<td>( Y+1 )</td>
<td>( Y+1 )</td>
</tr>
</tbody>
</table>

Therefore, the appropriate quarterly emissions to be offset for each unit are as follows:

<table>
<thead>
<tr>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
<th>Total Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>795</td>
<td>796</td>
<td>796</td>
<td>796</td>
<td>3183</td>
</tr>
</tbody>
</table>

The appropriate quarterly emissions to be offset for the project are as follows:

<table>
<thead>
<tr>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
<th>Total Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1590</td>
<td>1592</td>
<td>1592</td>
<td>1592</td>
<td>6366</td>
</tr>
</tbody>
</table>

The applicant has stated that the facility plans to use ERC certificate S-5010-5 to offset the increases in SOX emissions associated with this project. The above certificate has available quarterly SOX credits as follows:

<table>
<thead>
<tr>
<th>ERC #S-5010-5</th>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
</tr>
</tbody>
</table>

As seen above, the facility has sufficient credits to fully offset the quarterly SOX emissions increases associated with this project.

**Proposed Rule 2201 (offset) Conditions for each unit:**

- {GC# 4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender SOX emission reduction credits for the following quantity of emissions: 1st quarter – 795 lb, 2nd quarter - 796 lb, 3rd quarter – 796 lb, and 4th quarter - 796 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16) for the ERC specified below. [District Rule 2201]
• ERC Certificate Number S-5010-5 (or a certificate 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]

For PM$_{10}$:

PE2 (PM$_{10}$) = 2234 lb/year (Each Unit)
BE (PM$_{10}$) = 0 lb/year
ICCE = 0 lb/year

Assuming an offset ratio of 1.5:1, the amount of PM$_{10}$ ERCS that need to be withdrawn is:

Offsets Required (lb/year) = ([2234 - 0] + [2234-0] + 0) x 1.5
= 4468 x 1.5
= 6702 lb PM$_{10}$/year

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

Quarterly offsets required (lb/qtr) = (3,351 lb PM$_{10}$/year) + (4 quarters/year)
= 837.75 lb/qtr

As shown in the calculation above, the quarterly amount of offsets required for each unit, when evenly distributed to each quarter, results in fractional pounds of offsets being required each quarter. Since offsets are required to be withdrawn as whole pounds, the quarterly amounts of offsets need to be adjusted to ensure the quarterly values sum to the total annual amount of offsets required.

To adjust the quarterly amount of offsets required, the fractional amount of offsets required in each quarter will be summed and redistributed to each quarter based on the number of days in each quarter. The redistribution is based on the Quarter 1 having the fewest days and the Quarters 3 and 4 having the most days. The redistribution method is summarized in the following table:

<table>
<thead>
<tr>
<th>Redistributed of Required Quarterly Offsets</th>
</tr>
</thead>
<tbody>
<tr>
<td>(where X is the annual amount of offsets, and X + 4 = Y)</td>
</tr>
<tr>
<td>Value of z</td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td>.0</td>
</tr>
<tr>
<td>.25</td>
</tr>
<tr>
<td>.5</td>
</tr>
<tr>
<td>.75</td>
</tr>
</tbody>
</table>

Therefore the appropriate quarterly emissions for each unit to be offset are as follows:
The appropriate total quarterly emissions to be offset are as follows:

<table>
<thead>
<tr>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
<th>Total Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1674</td>
<td>1676</td>
<td>1676</td>
<td>1676</td>
<td>6072</td>
</tr>
</tbody>
</table>

The applicant has stated that the facility plans to use ERC certificate S-5093 to offset the increases in PM$_{10}$ emissions associated with this project. The above certificate has available quarterly PM$_{10}$ credits as follows:

<table>
<thead>
<tr>
<th>ERC #S-5093-4</th>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>6363</td>
<td>5400</td>
<td>5235</td>
<td>5785</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6363</td>
<td>5400</td>
<td>5235</td>
<td>5785</td>
</tr>
</tbody>
</table>

As seen above, the facility has sufficient credits to fully offset the quarterly PM emissions increases associated with this project.

**Proposed Rule 2201 (offset) Conditions for each unit:**

- {GC# 4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender PM$_{10}$ emission reduction credits for the following quantity of emissions: 1st quarter - 837 lb, 2nd quarter - 838 lb, 3rd quarter – 838 lb, and 4th quarter - 838 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16) for the ERC specified below. [District Rule 2201]

- ERC Certificate Number S-5093-4 (or a certificate 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]

For CO:

CO: 27,550 lb/yr

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

VOC:

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

PE2 (VOC) = 2,234 lb/year (Each Unit)
BE (VOC) = 0 lb/year
ICCE = 0 lb/year

The project is a Federal Major Modification and therefore the correct offset ratio for VOC is 1.5:1.

With an offset ratio of 1.5:1, the amount of VOC ERCs that need to be withdrawn is:

Offsets Required (lb/year) = ([2,234 - 0] + [2,234 - 0] + 0) x 1.5
= 4468 x 1.5
= 6702 lb VOC/year

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

Quarterly offsets required (lb/qtr) = (3,351 lb VOC/year) ÷ (4 quarters/year)
= 837.75 lb/qtr

As shown in the calculation above, the quarterly amount of offsets required for each unit, when evenly distributed to each quarter, results in fractional pounds of offsets being required each quarter. Since offsets are required to be withdrawn as whole pounds, the quarterly amounts of offsets need to be adjusted to ensure the quarterly values sum to the total annual amount of offsets required.

To adjust the quarterly amount of offsets required, the fractional amount of offsets required in each quarter will be summed and redistributed to each quarter based on the number of days in each quarter. The redistribution is based on the Quarter 1 having the fewest days and the Quarters 3 and 4 having the most days. The redistribution method is summarized in the following table:

<table>
<thead>
<tr>
<th>Redistribution of Required Quarterly Offsets</th>
</tr>
</thead>
<tbody>
<tr>
<td>(where X is the annual amount of offsets, and X + 4 = Y.z)</td>
</tr>
<tr>
<td>Value of z</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>.0</td>
</tr>
<tr>
<td>.25</td>
</tr>
<tr>
<td>.5</td>
</tr>
<tr>
<td>.75</td>
</tr>
</tbody>
</table>

Therefore, the appropriate quarterly emissions to be offset for each unit are as follows:
<table>
<thead>
<tr>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
<th>Total Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>837</td>
<td>838</td>
<td>838</td>
<td>838</td>
<td>3351</td>
</tr>
</tbody>
</table>

The appropriate quarterly emissions to be offset for the project are as follows:

<table>
<thead>
<tr>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
<th>Total Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1674</td>
<td>1676</td>
<td>1676</td>
<td>1676</td>
<td>6072</td>
</tr>
</tbody>
</table>

The applicant has stated that the facility plans to use ERC certificate S-4995-1 to offset the increases in VOC emissions associated with this project. The above certificate has available quarterly VOC credits as follows:

<table>
<thead>
<tr>
<th>ERC # S-4995-1</th>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5000</td>
<td>5000</td>
<td>5000</td>
<td>5000</td>
<td>5000</td>
</tr>
</tbody>
</table>

As seen above, the facility has sufficient credits to fully offset the quarterly VOC emissions increases associated with this project.

**Proposed Rule 2201 (offset) Conditions for each unit:**

- {GC# 4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 837 lb, 2nd quarter - 838 lb, 3rd quarter – 838 lb, and 4th quarter - 838 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16) for the ERC specified below. [District Rule 2201]

- ERC Certificate Number S-4995-1 (or a certificate 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]

3. **ERC Withdrawal Calculations**

The applicant must identified ERC Certificates to be used to offset the increase of emissions for the project. As indicated in previous section, the applicant is proposing to use multiple ERC certificates to mitigate the increases of NOx, SOx, PM10, and VOC emissions associated with this project. See Appendix F for detailed ERC Withdrawal Calculations.
C. Public Notification

1. Applicability

Pursuant to District Rule 2201, Section 5.4, 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,
d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant, and/or
e. Any project which results in a Title V significant permit modification

   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 Section VII.C.7, this project does not constitute an SB 288 Major Modification; therefore, public noticing for SB 288 Major Modification purposes is not required.

As demonstrated in Section VII.C.8, this project is a Federal Major Modification. Therefore, public noticing for a 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

Public notification is required if the pre-project Stationary Source Potential to Emit (SSPE1) is increased to a level exceeding the offset threshold levels. The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.
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.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>SSPE1 (lb/year)</th>
<th>SSPE2 (lb/year)</th>
<th>Offset Threshold</th>
<th>Public Notice Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOₓ</td>
<td>&gt; 20,000</td>
<td>&gt; 20,000</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>SOₓ</td>
<td>&gt; 54,750</td>
<td>&gt; 54,750</td>
<td>54,750 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>&gt; 29,200</td>
<td>&gt; 29,200</td>
<td>29,200 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>CO</td>
<td>&gt; 200,000</td>
<td>&gt; 200,000</td>
<td>200,000 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>VOC</td>
<td>&gt; 20,000</td>
<td>&gt; 20,000</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
</tbody>
</table>

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

e. Title V Significant Permit Modification

As shown in the Discussion of Rule 2520 below, this project constitutes a Title V significant modification. Therefore, public noticing for Title V significant modifications is required for this project.

2. Public Notice Action

As discussed above, public noticing is required for this project for Federal Major Modification purposes, the SSIPE exceeding 20,000 lb-CO/yr, and Significant Permit Modification purposes. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be electronically published on the District’s website prior to the issuance of the ATC for this equipment.
D. Daily Emission Limits (DELs)

*Proposed Rule 2201 (DEL) Conditions:*

- The sulfur content of any fuel, or fuels combined, shall not exceed 1 grains of total sulfur (as H2S) per 100 dscf of fuel gas. [District Rules 2201 and 4320] Y

- Except during startup and shutdown, emissions shall not exceed any of the following limits: 5 ppmvd NOx @ 3% O2 or 0.0062 lb-NOx/MMBtu, 0.00285 lb-SOx/MMBtu, 0.003 lb-PM10/MMBtu, 25 ppmvd CO @ 3% O2 or 0.0185 lb-CO/MMBtu, or 0.003 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306 and 4320] Y

- Emissions shall not exceed 16.7 lb/day NOx nor 4617 lb/yr NOx, 5.8 lb/day SOx nor 2122 lb/yr SOx, 6.1 lb/day PM10 nor 2234 lb/yr PM10, 55.6 lb/day CO nor 13,775 lb/yr CO, and 6.1 lb/day VOCs nor 2234 lb/yr VOCs. [District Rule 2201] Y

- Duration of startup and shutdown (combined) shall not exceed 4.0 hr day. [District Rule 2201] Y

- Emissions rates during startup and shutdown shall not exceed 0.018 lb/MMBtu NOx and 0.074 lb/MMBtu CO [District Rule 2201] Y

E. Compliance Assurance

1. Source Testing

This unit is subject to 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 Rule 4320, will be discussed in Section VIII, *District Rule 4320*, of this evaluation.

2. Monitoring

As required by 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 Rule 4320, will be discussed in Section VIII, *District Rule 4320*, of this evaluation.

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. The following condition is listed on the permit to operate:
• {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] Y

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

Section 4.14 of District Rule 2201 requires that an AAQA be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District’s Technical Services Division conducted the required analysis. Refer to Appendix C of this document for the AAQA summary sheet.

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

The proposed location is in a non-attainment area for the state’s PM_{10} as well as federal and state PM_{2.5} thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM_{10} and PM_{2.5}.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Federal Major 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 Federal Major Modification, therefore this requirement is applicable. Sentinel’s compliance certification is included in Appendix E.

H. Alternate Siting Analysis

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

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 shown in Section VII.C.9 above, this project does not result in a new PSD major source or PSD major modification. No further discussion is required.
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."

A minor permit modification is a permit modification that does not meet the definition of modification as given in Section 111 or Section 112 of the Federal Clean Air Act. Since this project involves the installation of a new emission unit that results in an increase in emissions, the proposed project is considered to be a modification under the Federal Clean Air Act. As a result, the proposed project constitutes a Significant Modification to the Title V Permit.

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 shall not implement the changes requested until the final permit is issued.

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

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

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63. However, no subparts of 40 CFR Part 61 or 40 CFR Part 63 apply to steam generators.

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). A condition will be placed on the ATC to ensure compliance with the opacity limit.

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

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 (Appendix C), 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:

<table>
<thead>
<tr>
<th>Unit</th>
<th>Cancer Risk</th>
<th>T-BACT Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>439</td>
<td>1.20E-09</td>
<td>No</td>
</tr>
<tr>
<td>440</td>
<td>1.20E-09</td>
<td>No</td>
</tr>
</tbody>
</table>

Discussion of T-BACT

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

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification not have acute or chronic indices, or a cancer risk greater than the District's significance levels (i.e. acute and/or chronic indices greater than 1 and a cancer risk greater than 20 in a million). As outlined by the HRA Summary in Appendix C of this report, the emissions increases for this project was determined to be less than significant.

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/MBtu at 60 °F
PM10 Emission Factor: 0.005 lb-PM10/MMBtu
Percentage of PM as PM10 in Exhaust: 100%
Exhaust Oxygen (O2) Concentration: 3%

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

\[
GL = \left( \frac{0.003 \text{ lb-PM}}{\text{MMBtu}} \times \frac{7,000 \text{ grain}}{\text{lb-PM}} \right) \div \left( \frac{8,578 \text{ ft}^3}{\text{MMBtu}} \times 1.17 \right)
\]

\[GL = 0.002 \text{ grain/dscf} < 0.1 \text{ grain/dscf}\]

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 (SO2)
- 140 pounds per hour of nitrogen oxides, calculated as nitrogen dioxide (NO2)
- Ten pounds per hour of combustion contaminants as defined in Rule 1020 and derived from the fuel.

<table>
<thead>
<tr>
<th>District Rule 4301 Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>S-1372-417, '-418 (lb/hr)</td>
</tr>
<tr>
<td>Rule Limit (lb/hr)</td>
</tr>
</tbody>
</table>

The particulate emissions from the steam generators will not exceed 0.1 gr/dscf at 12% CO2 or 10 lb/hr. Further, the emissions of SOx and NOx 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 units have a maximum heat input of 85 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 units have a maximum heat input of 85 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

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

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

Section 5.1  NOx Emission Limits

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

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

The unit will comply with the NOx and CO emissions limits specified in Section 5.2 of the rule.

The proposed NOx and CO limits are 5 and 25 ppmv @ 3% O2, respectively.
Therefore, compliance with the emissions limits of Section 5.2 of District Rule 4320 is expected.

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

**Section 5.4 Particulate Matter Control Requirements**

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

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

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

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

The steam generators will be fired on natural gas containing no more than 1 gr S/100 scf. Therefore, compliance with this section of the rule is expected.

**Section 5.5 Low Use**

The subject steam generators are not low use units 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. Applicant has proposed to limit startup and shutdown to 2 hours minutes per day for each event.

**Section 5.7 Monitoring Provisions**

Section 5.7.1 requires that permit units subject to District Rule 4320, Section 5.2 shall either install or maintain an operational APCO approved Continuous Emission Monitoring System (CEMS) for NOx, CO and O2, or implement an APCO-approved alternate monitoring.
FMM has proposed to implement Alternate Monitoring Scheme A (pursuant to District Policy SSP-1105), which requires periodic monitoring of NOx, CO, and O2 concentrations at least once a month using a portable analyzer. The following conditions will be placed in the permits to ensure compliance with the requirements of this alternate monitoring plan:

- {2395} 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 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] Y

- If either the NOx or CO concentrations corrected to 3%, 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 performing the notification and testing required by this condition. [District Rules 4102, 4305, 4306 and 4320] Y

- All NOx, CO, and O2 emission readings shall be taken with the unit operating, either at conditions representative of normal operations or conditions specified in the Permit to Operate. The NOx, CO, and O2 analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute sample period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive minute period. [District Rules 4102, 4305, 4306 and 4320] Y

- The permittee shall maintain records of: (1) the date and time of NOx, CO and O2 measurements, (2) the O2 concentration in percent by volume and the measured NOx and CO concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306 and 4320] Y

Section 5.7.6.1 requires that 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. The following conditions will be placed in the ATCs for compliance with this rule requirement:

28
• If the unit is fired on noncertified gaseous fuel and compliance with SOx emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 3246, D 4084, D 4468, D 6667 or grab sample analysis by GC-FPD/TCD or double GC performed in the laboratory. [District Rule 1070, 2201, 2520, and 4320] Y

• When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested monthly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 6 consecutive months for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, monthly testing shall resume. [District Rules 1070, 2201, 2520, and 4320] Y

• If fuel analysis is used to demonstrate compliance with conditions of this permit, the fuel higher heating value for each fuel shall be certified by a third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 1070, 2201, 2520, and 4320] Y

Section 5.8 Compliance Determination

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

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

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

• {2972} All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. Unless otherwise specified in the Permit to Operate, no determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4320. For the purposes of permittee-performed alternate monitoring, emissions measurements may be performed at any time after the unit reaches conditions representative of normal operation. [District Rules 4305, 4306 and 4320] Y
Section 5.8.4 requires that 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 (5) readings evenly spaced out over the 15-consecutive-minute period. Therefore, the following previously listed permit condition will be on the permits as follows:

- {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] Y

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

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

**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. Therefore, the following permit condition will be listed on the permit as follows:

- 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] Y

**Section 6.2, Test Methods**

Section 6.2 identifies test methods to be used when determining compliance with the rule. The following conditions will be listed on the permits:
• (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] Y

• The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, NOx (lb/MMBtu) - EPA Method 19; CO (ppmv) - EPA Method 10 or ARB Method 100; Stack gas oxygen (O2) - EPA Method 3 or 3A or ARB Method 100; stack gas velocities – EPA Method 2; Stack gas moisture content – EPA Method 4; SOx – EPA Method 6C or 8 or ARB Method 100; fuel gas sulfur as H2S content – EPA Method 11 or 15; and fuel hhv (MMBtu) –ASTM D 1826 or D 1945 in conjunction with ASTM D 3588. [District Rules 4305, 4306 and 4320] Y

Section 6.3, Compliance Testing

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

• Source testing to measure NOx 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] N

• Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted 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] Y

• (110) The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Y

Sections 6.3.2.1 through 6.3.2.7 address the requirements of group testing which is not proposed in this project. Therefore these sections are not applicable.

Conclusion

Conditions will be incorporated into the permit in order to ensure compliance with each section of this rule, see attached draft permits. 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 SO₂, on a dry basis averaged over 15 consecutive minutes. The unit will combust gas containing no more than 1 gr S/100 scf and therefore compliance is expected.

California Health & Safety Code 42301.6 (School Notice)

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

California Environmental Quality Act (CEQA)

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

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities;
- Identify the ways that environmental damage can be avoided or significantly reduced;
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Greenhouse Gas (GHG) Significance Determination

Oil and gas operations in Kern County must comply with the Kern County Zoning Ordinance – 2015 (C) Focused on Oil and Gas Local Permitting. In 2015, Kern County revised the Kern County Zoning Ordinance Focused on Oil and Gas Activities (Kern Oil and Gas Zoning Ordinance) in regards to future oil and gas exploration, and drilling and production of hydrocarbon resource projects occurring within Kern County.

Kern County served as lead agency for the revision to their ordinance under the California Environmental Quality Act (CEQA), and prepared an Environmental Impact Report (EIR) that was certified on November 9, 2015. The EIR evaluated and disclosed to the public the environmental impacts associated with the growth of oil and gas exploration in Kern County, and determined that such growth will result in significant GHG impacts in the San Joaquin Valley. As such, the EIR included mitigation measures for GHG.
The District is a Responsible Agency for the project because of its discretionary approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CEQA Guidelines §15381). As a Responsible Agency, the District is limited to mitigating or avoiding impacts for which it has statutory authority. The District does not have statutory authority for regulating GHGs. The District has determined that the applicant is responsible for implementing GHG mitigation measures imposed in the EIR by the Kern County for the Kern County Zoning Ordinance.

District CEQA Findings

The proposed project is located in Kern County and is thus subject to the Kern County Zoning Ordinance – 2015 (C) Focused on Oil and Gas Local Permitting. The Kern County Zoning Ordinance was developed by the Kern County Planning Agency as a comprehensive set of goals, objectives, policies, and standards to guide development, expansion, and operation of oil and gas exploration within Kern County.

In 2015, Kern County revised their Kern County Zoning Ordinance in regards to exploration, drilling and production of hydrocarbon resources projects. Kern County, as the lead agency, is the agency that will enforce the mitigation measures identified in the EIR, including the mitigation requirements of the Oil and Gas ERA. As a responsible agency the District complies with CEQA by considering the EIR prepared by the Lead Agency, and by reaching its own conclusion on whether and how to approve the project involved (CCR §15096). The District has reviewed the EIR prepared by Kern County, the Lead Agency for the project, and finds it to be adequate. The District also prepared a full findings document. The full findings document, California Environmental Quality Act (CEQA) Statement of Findings for the Kern County Zoning Ordinance EIR contains the details of the District’s findings regarding the Project. The District’s implementation of the Kern Zoning Ordinance and its EIR applies to ATC applications received for any new/modified equipment used in oil/gas production in Kern County, including new wells. The full findings applies to the Project and the Project’s related activity equipment(s) is covered under the Kern Zoning Ordinance. To reduce project related impacts on air quality, the District evaluates emission controls for the project such as Best Available Control Technology (BACT) under District Rule 2201 (New and Modified Stationary Source Review). In addition, the District is requiring the applicant to surrender emission reduction credits (ERC) for stationary source emissions above the offset threshold.

Thus, the District concludes that through a combination of project design elements, permit conditions, and the Oil and Gas ERA, the project will be fully mitigated to result in no net increase in emissions. Pursuant to CCR §15096, prior to project approval and issuance of ATCs the District prepared findings.

Indemnification Agreement/Letter of Credit Determination

According to District Policy APR 2010 (CEQA Implementation Policy), when the District is the Lead or Responsible Agency for CEQA purposes, an indemnification agreement and/or a letter of credit may be required. The decision to require an indemnity agreement
and/or a letter of credit is based on a case-by-case analysis of a particular project's potential for litigation risk, which in turn may be based on a project's potential to generate public concern, its potential for significant impacts, and the project proponent's ability to pay for the costs of litigation without a letter of credit, among other factors.

The revision to the *Kern County Zoning Ordinance* went through an extensive public process that included a Notice of Preparation, a preparation of an EIR, scoping meetings, and public hearings. The process led to the certification of the final EIR and approval of the revised *Kern County Zoning Ordinance* in November 2015 by the Kern County Board of Supervisors. As mentioned above, the proposed project will be fully mitigated and will result in no net increase in emissions. In addition, the proposed project is not located at a facility of concern; therefore, an Indemnification Agreement and/or a Letter of Credit will not be required for this project in the absence of expressed public concern.

**IX. Recommendation**

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue ATC S-1372-439-0 and ‘-440-0 subject to the permit conditions on the attached draft ATC in Appendix G.

**X. Billing Information**

<table>
<thead>
<tr>
<th>Permit Number</th>
<th>Fee Schedule</th>
<th>Fee Description</th>
<th>Annual Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-1372-439-0</td>
<td>3020-02-H</td>
<td>85 MMBtu/hr steam generator</td>
<td>$1238</td>
</tr>
<tr>
<td>S-1372-440-0</td>
<td>3020-02-H</td>
<td>85 MMBtu/hr steam generator</td>
<td>$1238</td>
</tr>
</tbody>
</table>

**Appendixes**

A: BACT Guideline  
B: BACT Analysis  
C: HRA Summary  
D: Quarterly Net Emissions Change  
E: Compliance Certification  
F: ERC Withdrawal Calculations  
G: Draft ATC
APPENDIX A
BACT Guideline
San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 1.2.1*
Last Update: 03/24/2014

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

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Achieved in Practice or contained in the SIP</th>
<th>Technologically Feasible</th>
<th>Alternate Basic Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>Gaseous fuel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOx</td>
<td>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 dsct, or use of a continuously operating SO2 scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 0 ppmvd SO2 @ 3% O2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM10</td>
<td>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 dsct, or use of a continuously operating SO2 scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 0 ppmvd SO2 @ 3% O2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOx</td>
<td>- Units rated 85 MMBtu/hr and fired solely on PUC quality natural gas: 8 ppmvd @ 3% O2; or - Units firing on &gt; or = 50% PUC quality natural gas; commercial propane; and/or LP0: 7 ppmvd @ 3% O2, except units rated 85 MMBtu/hr and fired solely on PUC quality natural gas; or - Units firing on &lt;50% PUC quality natural gas; commercial propane; and/or LP0: 9 ppmvd @ 3% O2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>25 ppmvd @ 3% O2</td>
<td></td>
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</tr>
</tbody>
</table>

1.2.1
APPENDIX B
BACT Analysis
Top Down BACT Analysis for Steam Generators

For the steam generator, BACT is required for NOx, SOx, PM_{10}, CO, and VOC.

Top-Down BACT Analysis for NOx Emissions

a. Step 1 - Identify All Possible Control Technologies

From the SJVUAPCD BACT Clearinghouse, Guideline 1.2.1, Oilfield Steam Generator (≥ 20 MMBtu/hr), 4th quarter 2014, identifies BACT for NOx emissions as follows:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Achieved in Practice or contained in SIP</th>
<th>Technologically Feasible</th>
<th>Alternate Basic Equipment</th>
</tr>
</thead>
</table>
| NOx       | • Units rated 85 MMBtu/hr and fired solely on PUC quality natural gas: 6 ppmvd @ 3% O2, or
|           | • 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 qualify natural gas; or
|           | • Units firing on < 50% PUC quality natural gas, commercial propane, and/or LPG: 9 ppmvd @ 3% O2 | 5 ppmvd @ 3% O2 | |

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. 5 ppmvd @ 3% O2 (Technologically Feasible)
2. Units rated 85 MMBtu/hr and fired solely on PUC quality natural gas: 6 ppmvd @ 3% O2 (Achieved in Practice)
3. 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 qualify natural gas (Achieved in Practice)
4. Units firing on < 50% PUC quality natural gas, commercial propane, and/or LPG: 9 ppmvd @ 3% O2 (Achieved in Practice)
Step 4 - Cost Effectiveness Analysis

The applicant has proposed to limit the steam generators' NOx emissions to 5 ppmv @ 3% O2; therefore a cost effective analysis is not required.

Step 5 - Select BACT

The applicant has proposed to install a steam generator with a NOx limit of 5 ppmvd @ 3% O2; therefore, BACT for NOx emissions is satisfied.
Top Down BACT Analysis for SOx and PM10 Emissions

Step 1 - Identify all control technologies

From the SJVUAPCD BACT Clearinghouse, Guideline 1.2.1, Oilfield Steam Generator (≥ 20 MMBtu/hr), 4th quarter 2014, identifies BACT for SOx and PM10 emissions as follows:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Achieved in Practice or contained in SIP</th>
<th>Technologically Feasible</th>
<th>Alternate Basic Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOx and PM10</td>
<td>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 emissions rate of 9 ppmvd SO2 @ 3% O2.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1) 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 emissions rate of 9 ppmvd SO2 @ 3% O2 (Achieved in Practice)

Step 4 - Cost Effectiveness Analysis

The applicant has proposed to use natural/waste/TEOR/produced gas fuel with a sulfur content no more than 1 grains/100 scf for the steam generators, which meets the most stringent emission requirements of BACT. Therefore, BACT is satisfied and a cost effective analysis does not need to be performed.
Step 5 - Select BACT

Natural/waste/TEOR/produced gas with a sulfur content not to exceed 1 gr-S/100 scf. This proposal is selected as BACT for SO\(_x\) and PM\(_{10}\) emissions; therefore, BACT for SO\(_x\) and PM\(_{10}\) emissions is satisfied.

Top Down BACT Analysis for CO Emissions

Step 1 - Identify All Possible CO Control Technologies

From the SJVUAPCD BACT Clearinghouse, Guideline 1.2.1, Oilfield Steam Generator (≥ 20 MMBtu/hr), 4\(^{th}\) quarter 2014, identifies BACT for CO emissions as follows:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Achieved in Practice or contained in SIP</th>
<th>Technologically Feasible</th>
<th>Alternate Basic Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>25 ppmvd @ 3% O(_2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1) 25 ppmvd @ 3% O\(_2\) (Achieved-In-Practice)

Step 4 - Cost Effectiveness Analysis

The applicant has proposed to limit the CO emissions of the steam generators in this project to 25 ppmv @ 3% O\(_2\). Since the applicant has chosen the most effective control technology in step 3, a cost effectiveness analysis is not required.

Step 5 - Select BACT

The applicant has proposed to install steam generators with a CO limit of 25 ppmvd @ 3% O\(_2\); therefore, BACT for CO emissions is satisfied.
Top Down BACT Analysis for VOC Emissions

Step 1 - Identify All Possible VOC Control Technologies

From the SJVUAPCD BACT Clearinghouse, Guideline 1.2.1, Oilfield Steam Generator (≥ 20 MMBtu/hr), 4th quarter 2014, identifies BACT for VOC emissions as follows:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Achieved in Practice or contained in SIP</th>
<th>Technologically Feasible</th>
<th>Alternate Basic Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>Gaseous fuel</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

2) Gaseous fuel (Achieved-In-Practice)

Step 4 - Cost Effectiveness Analysis

The applicant has proposed the use of natural/waste/TEOR/produced gas fuel for the steam generators in this project. Since the applicant has chosen the most effective control technology in step 3, a cost effectiveness analysis is not required.

Step 5 - Select BACT

The applicant has proposed natural/waste gas fuel; therefore BACT for VOC emissions is satisfied.
APPENDIX C
HRA Summary
San Joaquin Valley Air Pollution Control District
Risk Management Review and Ambient Air Quality Analysis

To: Richard U Edgehill – Permit Services
From: Diana Walker – Technical Services
Date: October 31, 2019
Facility Name: SENTINEL PEAK RESOURCES CA LLC
Location: HEAVY OIL WESTERN STATIONARY SOURCE,
Application #(#): S-1372-439-0, -440-0
Project #: S-1193689

Summary

RMR

<table>
<thead>
<tr>
<th>Units</th>
<th>Prioritization Score</th>
<th>Acute Hazard Index</th>
<th>Chronic Hazard Index</th>
<th>Maximum Individual Cancer Risk</th>
<th>T-BACT Required</th>
<th>Special Permit Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>439</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>1.20E-09</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>440</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>1.20E-09</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Project Totals</td>
<td>0.01</td>
<td>0.01</td>
<td>0.00</td>
<td>2.41E-09</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Facility Totals</td>
<td>&gt;1</td>
<td>0.17</td>
<td>0.06</td>
<td>3.49E-06</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

AAQA

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>1 Hour</th>
<th>3 Hours</th>
<th>8 Hours</th>
<th>24 Hours</th>
<th>Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>Pass</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOx</td>
<td>Pass</td>
<td></td>
<td></td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>SOx</td>
<td>Pass</td>
<td>Pass</td>
<td></td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>PM10</td>
<td>Pass³</td>
<td>Pass⁴</td>
<td></td>
<td>Pass⁴</td>
<td></td>
</tr>
<tr>
<td>PM2.5</td>
<td>Pass⁴</td>
<td></td>
<td></td>
<td>Pass⁴</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. Results were taken from the attached AAQA Report.
2. The criteria pollutants are below EPA’s level of significance as found in 40 CFR Part 51.165 (b)(2) unless otherwise noted below.
3. Modeled PM10 concentrations were below the District SIL for non-fugitive sources of 5 μg/m³ for the 24-hour average concentration and 1 μg/m³ for the annual concentration.
4. Modeled PM2.5 concentrations were below the District SIL for non-fugitive sources of 1.2 μg/m³ for the 24-hour average concentration and 0.2 μg/m³ for the annual concentration. Facility will be offsetting the entire amount of PM2.5 from this project with ERC S-5067-4.
To ensure that human health risks will not exceed District allowable levels; the following shall be included as requirements for:

Units # 439-0, 440-0

1. No special requirements.

Project Description

Technical Services received a request on October 25, 2019 to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for the following:

- Unit -439-0: 85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR (#78) WITH A NORTH AMERICAN GLE BURNER, FLUE GAS RECIRCULATION AND AN O2 CONTROLLER
- Unit -440-0: 85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR (#79) WITH A NORTH AMERICAN GLE BURNER, FLUE GAS RECIRCULATION AND AN O2 CONTROLLER

RMR Report

Analysis

The District performed an analysis pursuant to the District’s Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015) to determine the possible cancer and non-cancer health impact to the nearest resident or worksite. This policy requires that an assessment be performed on a unit by unit basis, project basis, and on a facility-wide basis. If a preliminary prioritization analysis demonstrates that:

- A unit’s prioritization score is less than the District’s significance threshold and;
- The project’s prioritization score is less than the District’s significance threshold and;
- The facility’s total prioritization score is less than the District’s significance threshold

Then, generally no further analysis is required.

The District’s significant prioritization score threshold is defined as being equal to or greater than 1.0. If a preliminary analysis demonstrates that either the unit(s) or the project’s or the facility’s total prioritization score is greater than the District threshold, a screening or a refined assessment is required.

If a refined assessment is greater than one in a million but less than 20 in one million for carcinogenic impacts (Cancer Risk) and less than 1.0 for the Acute and Chronic hazard indices (Non-Carcinogenic) on a unit by unit basis, project basis and on a facility-wide basis the proposed application is considered less than significant. For units that exceed a cancer risk of 1 in one million, Toxic Best Available Control Technology (TBACT) must be implemented.

Toxic emissions for this project were calculated using the following methods:

- Toxic emission factors for this unit were derived from data in the 1992 Radian Corporation report to WSPA.

These emissions were input into the San Joaquin Valley APCD’s Hazard Assessment and Reporting Program (SHARP). In accordance with the District’s Risk Management Policy, risks from the proposed unit’s toxic emissions were prioritized using the procedure in the 2016 CAPCOA Facility Prioritization Guidelines. The prioritization score for this proposed facility was greater than 1.0 (see RMR Summary Table). Therefore, a refined health risk assessment was required.
The AERMOD model was used, with the parameters outlined below and meteorological data for 2004-2008 from Triangle Missouri (rural dispersion coefficient selected) to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the SHARP Program, which then used the Air Dispersion Modeling and Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

<p>| Source Process Rates |
|----------------------|-----------------|----------------|----------------|-----------------|</p>
<table>
<thead>
<tr>
<th>Unit ID</th>
<th>Process ID</th>
<th>Process Material</th>
<th>Process Units</th>
<th>Hourly Process Rate</th>
<th>Annual Process Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>439</td>
<td>1</td>
<td>NG MMscf</td>
<td>lbs</td>
<td>0.085</td>
<td>744.60</td>
</tr>
<tr>
<td>440</td>
<td>1</td>
<td>NG MMscf</td>
<td>lbs</td>
<td>0.085</td>
<td>744.60</td>
</tr>
</tbody>
</table>

<p>| Point Source Parameters |
|-------------------------|-------------------|-----------------|---------------------|-------------------|</p>
<table>
<thead>
<tr>
<th>Unit ID</th>
<th>Unit Description</th>
<th>Release Height (m)</th>
<th>Temp. (°K)</th>
<th>Exit Velocity (m/sec)</th>
<th>Stack Diameter (m)</th>
<th>Vertical/Horizontal/ Capped</th>
</tr>
</thead>
<tbody>
<tr>
<td>439</td>
<td>85 MMBTU/hr Steam Generators</td>
<td>6.58</td>
<td>383</td>
<td>8.98</td>
<td>1.07</td>
<td>Capped</td>
</tr>
<tr>
<td>440</td>
<td>85 MMBTU/hr Steam Generators</td>
<td>6.58</td>
<td>383</td>
<td>8.98</td>
<td>1.07</td>
<td>Capped</td>
</tr>
</tbody>
</table>

AAQA Report

The District modeled the impact of the proposed project on the National Ambient Air Quality Standard (NAAQS) and/or California Ambient Air Quality Standard (CAAQS) in accordance with District Policy APR-1925 (Policy for District Rule 2201 AAQA Modeling) and EPA’s Guideline for Air Quality Modeling (Appendix W of 40 CFR Part 51). The District uses a progressive three level approach to perform AAQAs. The first level (Level 1) uses a very conservative approach. If this analysis indicates a likely exceedance of an AAQS or Significant Impact Level (SIL), the analysis proceeds to the second level (Level 2) which implements a more refined approach. For the 1-hour NO₂ standard, there is also a third level that can be implemented if the Level 2 analysis indicates a likely exceedance of an AAQS or SIL.

The modeling analyses predicts the maximum air quality impacts using the appropriate emissions for each standard’s averaging period. Required model inputs for a refined AAQA include background ambient air quality data, land characteristics, meteorological inputs, a receptor grid, and source parameters including emissions. These inputs are described in the sections that follow.

Ambient air concentrations of criteria pollutants are recorded at monitoring stations throughout the San Joaquin Valley. Monitoring stations may not measure all necessary pollutants, so background data may need to be collected from multiple sources. The following stations were used for this evaluation:
### Monitoring Stations

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Station Name</th>
<th>County</th>
<th>City</th>
<th>Measurement Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>Bakersfield-Muni</td>
<td>Kern</td>
<td>Bakersfield</td>
<td>2016</td>
</tr>
<tr>
<td>NOx</td>
<td>Bakersfield-California Avenue</td>
<td>Kern</td>
<td>Bakersfield</td>
<td>2016</td>
</tr>
<tr>
<td>PM10</td>
<td>Bakersfield-California Avenue</td>
<td>Kern</td>
<td>Bakersfield</td>
<td>2016</td>
</tr>
<tr>
<td>PM2.5</td>
<td>Bakersfield-California Avenue</td>
<td>Kern</td>
<td>Bakersfield</td>
<td>2016</td>
</tr>
<tr>
<td>SOx</td>
<td>Fresno - Garland</td>
<td>Fresno</td>
<td>Fresno</td>
<td>2016</td>
</tr>
</tbody>
</table>

Technical Services performed modeling for directly emitted criteria pollutants with the emission rates below:

### Emission Rates (lbs/hour)

<table>
<thead>
<tr>
<th>Unit ID</th>
<th>Process</th>
<th>NOx</th>
<th>SOx</th>
<th>CO</th>
<th>PM10</th>
<th>PM2.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>439</td>
<td>1</td>
<td>0.53</td>
<td>0.24</td>
<td>1.57</td>
<td>0.26</td>
<td>0.26</td>
</tr>
<tr>
<td>440</td>
<td>1</td>
<td>0.53</td>
<td>0.24</td>
<td>1.57</td>
<td>0.26</td>
<td>0.26</td>
</tr>
</tbody>
</table>

### Emission Rates (lbs/year)

<table>
<thead>
<tr>
<th>Unit ID</th>
<th>Process</th>
<th>NOx</th>
<th>SOx</th>
<th>CO</th>
<th>PM10</th>
<th>PM2.5</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>439</td>
<td>1</td>
<td>4.617</td>
<td>2.122</td>
<td>13,753</td>
<td>2,234</td>
<td>2,234</td>
<td></td>
</tr>
<tr>
<td>440</td>
<td>1</td>
<td>4.617</td>
<td>2.122</td>
<td>13,753</td>
<td>2,234</td>
<td>2,234</td>
<td></td>
</tr>
</tbody>
</table>

The AERMOD model was used to determine if emissions from the project would cause or contribute to an exceedance of any state of federal air quality standard. The parameters outlined below and meteorological data for Triangle-2004-2008 from Missouri (rural dispersion coefficient selected) were used for the analysis:

The following parameters were used for the review:

### Point Source Parameters

<table>
<thead>
<tr>
<th>Unit ID</th>
<th>Unit Description</th>
<th>Release Height (m)</th>
<th>Temp. (°K)</th>
<th>Exit Velocity (m/sec)</th>
<th>Stack Diameter (m)</th>
<th>Vertical/Horizontal/Capped</th>
</tr>
</thead>
<tbody>
<tr>
<td>439</td>
<td>NG Steam Generator</td>
<td>6.58</td>
<td>383</td>
<td>8.98</td>
<td>1.07</td>
<td>Capped</td>
</tr>
<tr>
<td>440</td>
<td>NG Steam Generator</td>
<td>6.58</td>
<td>383</td>
<td>8.98</td>
<td>1.07</td>
<td>Capped</td>
</tr>
</tbody>
</table>

### Conclusion

**RMR**

The cumulative acute and chronic indices for this facility, including this project, are below 1.0; and the cumulative cancer risk for this facility, including this project, is less than 20 in a million. In addition, the cancer risk for each unit in this 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).**
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.

**AAQA**

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

**Attachments**

A. Modeling request from the project engineer
B. Additional information from the applicant/project engineer
C. Prioritization score w/ toxic emissions summary
D. Facility Summary
E. AAQA results
APPENDIX D
Quarterly Net Emissions Change (QNEC)

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

\[ \text{QNEC} = \text{PE2} - \text{PE1}, \]

where:

- \( \text{QNEC} \) = Quarterly Net Emissions Change for each emissions unit, lb/qtr.
- \( \text{PE2} \) = Post-Project Potential to Emit for each emissions unit, lb/qtr.
- \( \text{PE1} \) = Pre-Project Potential to Emit for each emissions unit, lb/qtr.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>PE2 (lb/qtr)</th>
<th>PE1 (lb/qtr)</th>
<th>QNEC (lb/qtr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO(_x)</td>
<td>1154</td>
<td>0</td>
<td>1154</td>
</tr>
<tr>
<td>SO(_x)</td>
<td>531</td>
<td>0</td>
<td>531</td>
</tr>
<tr>
<td>PM(_{10})</td>
<td>559</td>
<td>0</td>
<td>559</td>
</tr>
<tr>
<td>CO</td>
<td>6888</td>
<td>0</td>
<td>6888</td>
</tr>
<tr>
<td>VOC</td>
<td>559</td>
<td>0</td>
<td>559</td>
</tr>
</tbody>
</table>
APPENDIX E

Compliance Certification
October 1, 2019

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

Subject: Steam Generator - Compliance Certification

Dear Mr. Scandura:

I hereby certify that all major Stationary Sources owned or operated by such person (or by any entity controlling, controlled by, or under common control with such person) in California, which are subject to emission limitations, are in compliance or on a schedule for compliance with all applicable emission limitations and standards.

Alternative siting analysis is required for any project, which constitutes a New Major Source or a Federal Major Modification.

The current project occurs at existing facilities. The applicant proposes to operate a steam generator to thermally enhance existing wells at the site.

Since the project will provide thermal enhancement 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.

[Signature]

Signature

[Title]
I. TYPE OF PERMIT ACTION (Check appropriate box)

☐ ADMINISTRATIVE AMENDMENT  ☑ MINOR MODIFICATION  ☐ SIGNIFICANT MODIFICATION

<table>
<thead>
<tr>
<th>COMPANY NAME: Sentinel Peak Resources California, LLC</th>
<th>FACILITY ID: S-1372</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Type of Organization: ☑ Corporation ☐ Sole Ownership ☐ Government ☐ Partnership ☐ Utility</td>
<td></td>
</tr>
<tr>
<td>2. Owner's Name: Sentinel Peak Resources California, LLC</td>
<td></td>
</tr>
<tr>
<td>3. Agent to the Owner: Jeff Campbell</td>
<td></td>
</tr>
</tbody>
</table>

II. COMPLIANCE CERTIFICATION (Read each statement carefully and initial applicable 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.

☐ For minor modifications, this application meets the criteria for use of minor permit modification procedures pursuant to District Rule 2520.

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

Signature of Responsible Official

Jason Golkaney
Name of Responsible Official (please print)

Sr. Environmental Specialist
Title of Responsible Official (please print)

Date

10/1/19
APPENDIX F
ERC Withdrawal Calculations
<table>
<thead>
<tr>
<th></th>
<th>NOx</th>
<th>1st Quarter (lb)</th>
<th>2nd Quarter (lb)</th>
<th>3rd Quarter (lb)</th>
<th>4th Quarter (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC S-5125-2</td>
<td>17,989</td>
<td>15,348</td>
<td>14,898</td>
<td>16,402</td>
<td></td>
</tr>
<tr>
<td>Offsets Required (Includes distance offset ratio)</td>
<td>3462</td>
<td>3462</td>
<td>3464</td>
<td>3464</td>
<td></td>
</tr>
<tr>
<td>Amount Remaining</td>
<td>14,527</td>
<td>11,886</td>
<td>11,434</td>
<td>12,938</td>
<td></td>
</tr>
<tr>
<td>Credits reissued under ERC S-YYYY-2</td>
<td>14,527</td>
<td>11,886</td>
<td>11,434</td>
<td>12,938</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>SOx</th>
<th>1st Quarter (lb)</th>
<th>2nd Quarter (lb)</th>
<th>3rd Quarter (lb)</th>
<th>4th Quarter (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC S-5010-5</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td></td>
</tr>
<tr>
<td>Offsets Required (Includes distance offset ratio)</td>
<td>1590</td>
<td>1592</td>
<td>1592</td>
<td>1592</td>
<td></td>
</tr>
<tr>
<td>Amount Remaining</td>
<td>1408</td>
<td>1408</td>
<td>1408</td>
<td>1408</td>
<td></td>
</tr>
<tr>
<td>Credits reissued under ERC C-YYYY-1</td>
<td>1408</td>
<td>1408</td>
<td>1408</td>
<td>1408</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>PM10</th>
<th>1st Quarter (lb)</th>
<th>2nd Quarter (lb)</th>
<th>3rd Quarter (lb)</th>
<th>4th Quarter (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC S-5093-4</td>
<td>6363</td>
<td>5400</td>
<td>5235</td>
<td>5785</td>
<td></td>
</tr>
<tr>
<td>Offsets Required (Includes distance offset ratio)</td>
<td>1674</td>
<td>1676</td>
<td>1676</td>
<td>1676</td>
<td></td>
</tr>
<tr>
<td>Amount Remaining</td>
<td>4,689</td>
<td>3724</td>
<td>3559</td>
<td>4109</td>
<td></td>
</tr>
<tr>
<td>Credits reissued under ERC N-YYYY-4</td>
<td>4,689</td>
<td>3724</td>
<td>3559</td>
<td>4109</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>VOC</th>
<th>1st Quarter (lb)</th>
<th>2nd Quarter (lb)</th>
<th>3rd Quarter (lb)</th>
<th>4th Quarter (lb)</th>
</tr>
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<td>ERC S-5093-4</td>
<td>5000</td>
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<td>5000</td>
<td>5000</td>
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<tr>
<td>Offsets Required (Includes distance offset ratio)</td>
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<td>1676</td>
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<td>Amount Remaining</td>
<td>3326</td>
<td>3324</td>
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<tr>
<td>Credits reissued under ERC N-YYYY-4</td>
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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO:  S-1372-439-0
LEGAL OWNER OR OPERATOR:  SENTINEL PEAK RESOURCES CA LLC
MAILING ADDRESS:  1200 DISCOVERY DR, STE 500
                      BAKERSFIELD, CA 93309
LOCATION:  HEAVY OIL WESTERN STATIONARY SOURCE
                      CA
SECTION: 7  TOWNSHIP:  30S  RANGE:  22E
EQUIPMENT DESCRIPTION:
85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR (#78) WITH A NORTH AMERICAN GLE BURNER, FLUE GAS RECIRCULATION 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 - 1,731 lb, 2nd quarter - 1,731 lb, 3rd quarter - 1,732 lb, and 4th quarter - 1,732 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

4. ERC Certificate Number S-5133-2 (or a certificate 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

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.

Samir Sheikh, Executive Director
APCO

Arnaud Marjolli, Director of Permit Services
S-1372-439-0  Dec 17 2018  9:25AM  DRAFT

Southern Regional Office • 34946 Flyover Court • Bakersfield, CA 93308 • (661) 392-5500 • Fax (661) 392-5585
5. Prior to operating equipment under this Authority to Construct, permittee shall surrender SOX emission reduction credits for the following quantity of emissions: 1st quarter - 795 lb, 2nd quarter - 796 lb, 3rd quarter - 796 lb, and 4th quarter - 796 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

6. ERC Certificate Number S-5010-5 (or a certificate 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

7. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 837 lb, 2nd quarter - 838 lb, 3rd quarter - 838 lb, and 4th quarter - 838 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

8. ERC Certificate Number S-5093-4 (or a certificate 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

9. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 837 lb, 2nd quarter - 838 lb, 3rd quarter - 838 lb, and 4th quarter - 838 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

10. ERC Certificate Number S-4995-1 (or a certificate 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

11. 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

12. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit

13. The sulfur content of any fuel, or fuels combined, shall not exceed 1 grains of total sulfur (as H2S) per 100 dscf of fuel gas. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

14. If the unit is fired on noncertified gaseous fuel and compliance with SOx emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 3246, D 4084, D 4468, D 6667 or grab sample analysis by GC-FPD/TCD or double GC performed in the laboratory. [District Rule 1070, 2201, 2520, and 4320] Federally Enforceable Through Title V Permit

15. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested monthly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 6 consecutive months for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, monthly testing shall resume. [District Rules 1070, 2201, 2520, and 4320] Federally Enforceable Through Title V Permit

16. If fuel analysis is used to demonstrate compliance with conditions of this permit, the fuel higher heating value for each fuel shall be certified by a third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 1070, 2201, 2520, and 4320] Federally Enforceable Through Title V Permit
17. Emissions shall not exceed 16.7 lb/day NOx nor 4617 lb/yr NOx, 5.8 lb/day SOx nor 2122 lb/yr SOx, 6.1 lb/day PM10 nor 2234 lb/yr PM10, 55.6 lb/day CO nor 13,775 lb/yr CO, and 6.1 lb/day VOCs nor 2234 lb/yr VOCs. [District Rule 2201] Federally Enforceable Through Title V Permit

18. Except during startup and shutdown, emissions shall not exceed any of the following limits: 5 ppmvd NOx @ 3% O2 or 0.0062 lb-NOx/MMBtu, 0.00285 lb-SOx/MMBtu, 0.003 lb-PM10/MMBtu, 25 ppmvd CO @ 3% O2 or 0.0185 lb-CO/MMBtu, or 0.003 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

19. Emissions rates during startup and shutdown shall not exceed 0.018 lb-NOx/MMBtu or 0.074 lb-CO/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

20. Duration of startup and shutdown (combined) shall not exceed 4.0 hr day. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

21. Flue gas recirculation system shall be operated whenever steam generator is operated. [District Rule 2201] Federally Enforceable Through Title V Permit

22. 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

23. 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

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

25. 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

26. 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

27. 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

28. Source testing to measure NOx 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]
29. Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted 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] Federally Enforceable Through Title V Permit

30. When the unit changes fuel source, the unit shall undergo source testing to measure NOx and CO emissions within 60 days of the change unless the unit has already undergone source testing in the last twelve (12) months or thirty-six (36) months after demonstrating compliance on the previous two (2) source tests when fired on that fuel source. [District Rule 2201] Federally Enforceable Through Title V Permit

31. Compliance demonstration (source testing) shall be by District witnessed, or authorized, sample collection by ARB certified testing laboratory. [District Rule 1081] Federally Enforceable Through Title V Permit

32. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

33. 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

34. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, NOx (lb/MMBtu) - EPA Method 19; CO (ppmv) - EPA Method 10 or ARB Method 100; Stack gas oxygen (O2) - EPA Method 3 or 3A or ARB Method 100; stack gas velocities - EPA Method 2; Stack gas moisture content - EPA Method 4; SOx - EPA Method 6C or 8 or ARB Method 100; fuel gas sulfur as H2S content - EPA Method 11 or 15; and fuel hhv (MMBtu) - ASTM D 1826 or D 1945 in conjunction with ASTM D 3588. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

35. 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

36. Permittee shall maintain records of duration of each start-up and shutdown for a period of five years and make such records readily available for District inspection upon request. [District Rule 4320] Federally Enforceable Through Title V Permit

37. The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

38. Records of sulfur content (gr S/100 scf) of combusted gas shall be maintained. [District Rules 1070, 2201, and 4320] Federally Enforceable Through Title V Permit

39. 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
AUTHORITY TO CONSTRUCT

PERMIT NO: S-1372-440-0

LEGAL OWNER OR OPERATOR: SENTINEL PEAK RESOURCES CA LLC
MAILING ADDRESS: 1200 DISCOVERY DR, STE 500
BAKERSFIELD, CA 93309

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
CA

SECTION: 7 TOWNSHIP: 30S RANGE: 22E

EQUIPMENT DESCRIPTION:
85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR (#79) WITH A NORTH AMERICAN GLE BURNER, FLUE GAS RECIRCULATION 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 - 1,731 lb, 2nd quarter - 1,731 lb, 3rd quarter - 1,732 lb, and 4th quarter - 1,732 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

4. ERC Certificate Number S-5133-2 (or a certificate 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

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.

Samir Sheikh, Executive Director / APCO
5. Prior to operating equipment under this Authority to Construct, permittee shall surrender SOx emission reduction credits for the following quantity of emissions: 1st quarter - 795 lb, 2nd quarter - 796 lb, 3rd quarter - 796 lb, and 4th quarter - 796 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

6. ERC Certificate Number S-5010-5 (or a certificate 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

7. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 837 lb, 2nd quarter - 838 lb, 3rd quarter - 838 lb, and 4th quarter - 838 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

8. ERC Certificate Number S-5093-4 (or a certificate 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

9. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 837 lb, 2nd quarter - 838 lb, 3rd quarter - 838 lb, and 4th quarter - 838 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

10. ERC Certificate Number S-4995-1 (or a certificate 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

11. 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

12. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit

13. The sulfur content of any fuel, or fuels combined, shall not exceed 1 grains of total sulfur (as H2S) per 100 dscf of fuel gas. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

14. If the unit is fired on noncertified gaseous fuel and compliance with SOx emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 3246, D 4084, D 4468, D 6667 or grab sample analysis by GC-FPD/TCD or double GC performed in the laboratory. [District Rule 1070, 2201, 2520, and 4320] Federally Enforceable Through Title V Permit

15. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested monthly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 6 consecutive months for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, monthly testing shall resume. [District Rules 1070, 2201, 2520, and 4320] Federally Enforceable Through Title V Permit

16. If fuel analysis is used to demonstrate compliance with conditions of this permit, the fuel higher heating value for each fuel shall be certified by a third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 1070, 2201, 2520, and 4320] Federally Enforceable Through Title V Permit
17. "Emissions shall not exceed 16.7 lb/day NOx nor 4617 lb/yr NOx, 5.8 lb/day SOx nor 2122 lb/yr SOx, 6.1 lb/day PM10 nor 2234 lb/yr PM10, 55.6 lb/day CO nor 13,775 lb/yr CO, and 6.1 lb/day VOCs nor 2234 lb/yr VOCs. [District Rule 2201] Federally Enforceable Through Title V Permit

18. Except during startup and shutdown, emissions shall not exceed any of the following limits: 5 ppmv NOx @ 3% O2 or 0.0062 lb-NOx/MMBtu, 0.00285 lb-SOx/MMBtu, 0.003 lb-PM10/MMBtu, 25 ppmv CO @ 3% O2 or 0.0185 lb-CO/MMBtu, or 0.003 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

19. Emissions rates during startup and shutdown shall not exceed 0.018 lb-NOx/MMBtu or 0.074 lb-CO/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

20. Duration of startup and shutdown (combined) shall not exceed 4.0 hr day. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

21. Flue gas recirculation system shall be operated whenever steam generator is operated. [District Rule 2201] Federally Enforceable Through Title V Permit

22. 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

23. 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 performing the notification and testing required by this condition. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

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

25. 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

26. 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

27. 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

28. Source testing to measure NOx, and CO emissions from this unit while fired on natural gas shall be conducted within 60 days of initial start-up. [District Rules 4305, 4306 and 4320]
29. Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted 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] Federally Enforceable Through Title V Permit

30. When the unit changes fuel source, the unit shall undergo source testing to measure NOx and CO emissions within 60 days of the change unless the unit has already undergone source testing in the last twelve (12) months or thirty-six (36) months after demonstrating compliance on the previous two (2) source tests when fired on that fuel source. [District Rule 2201] Federally Enforceable Through Title V Permit

31. Compliance demonstration (source testing) shall be by District witnessed, or authorized, sample collection by ARB certified testing laboratory. [District Rule 1081] Federally Enforceable Through Title V Permit

32. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

33. 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

34. The following test methods shall be used: NOX (ppmv) - EPA Method 7E or ARB Method 100, NOX (lb/MMBtu) - EPA Method 19; CO (ppmv) - EPA Method 10 or ARB Method 100; Stack gas oxygen (O2) - EPA Method 3 or 3A or ARB Method 100; stack gas velocities - EPA Method 2; Stack gas moisture content - EPA Method 4; SOx - EPA Method 6C or 8 or ARB Method 100; fuel gas sulfur as H2S content - EPA Method 11 or 15; and fuel hhv (MMBtu) - ASTM D 1826 or D 1945 in conjunction with ASTM D 3588. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

35. 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

36. Permittee shall maintain records of duration of each start-up and shutdown for a period of five years and make such records readily available for District inspection upon request. [District Rule 4320] Federally Enforceable Through Title V Permit

37. The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

38. Records of sulfur content (gr S/100 scf) of combusted gas shall be maintained. [District Rules 1070, 2201, and 4320] Federally Enforceable Through Title V Permit

39. 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