San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

Mr. Jason Goklaney
Sentinel Peak Resources Ca LLC
1200 Discovery Dr, Ste 100
Bakersfield, CA 93309

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
Facility Number: S-1372
Project Number: S-1200729

Dear Mr. Goklaney:

Enclosed for your review is the District's analysis of an application for an Authority to Construct for the facility identified above. You requested that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The Authority to Construct authorizes the installation of an 85 MMBtu/hr steam generator.

The notice of preliminary decision for this project has been posted on the District's website (www.valleyair.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 Authority to Construct with a Certificate of Conformity. Please submit your comments within the 30-day public comment period, as specified in the enclosed public notice. Prior to operating with modifications authorized by the Authority to Construct, the facility must submit an application to modify the Title V permit as an administrative amendment, in accordance with District Rule 2520, Section 11.5.

If you have any questions, please contact Mr. Errol Villegas, Permit Services Manager, at (559) 230-5900.

Thank you for your cooperation in this matter.

Sincerely,

Arnaud Marjollet
Director of Permit Services

Enclosures

cc: Courtney Graham, CARB (w/enclosure) via email
cc: Gerardo C. Rios, EPA (w/enclosure) via EPS

Samir Sheikh
Executive Director/Air Pollution Control Officer

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

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

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

www.valleyair.org www.healthyairliving.com

San Joaquin Valley Air Pollution Control District

Authority to Construct Application Review

85 MMBtu/hr Steam Generator

Facility Name:	Sentinel Peak Resources California, LLC	Date:	January 11, 2021
Mailing Address:	1200 Discovery Drive, Ste 100 Bakersfield, CA 93309	Engineer:	Jesse A. Garcia
		Lead Engineer:	Jerry Sandhu
Contact Person:	Jason Goklaney		
Telephone:	(661) 395-5574		
E-Mail:	jgoklaney@sentinelpeakresources.com		
Application #:	S-1372-436-1		
Project #:	S-1200729		
Deemed Complete:	March 9, 2020		

I. Proposal

Sentinel Peak Resources California, LLC (SPR) has requested an Authority to Construct (ATC) permit for the installation of an 85 MMBtu/hr natural gas fired steam generator. This steam generator was originally proposed under ATC S-1372-436-0; however, the applicant has proposed to amend the Emission Reduction Credit (ERC) certificates that are used to offset the emissions from the unit and to add an authorized second location of operation. Therefore, the ATC issued in this project will cancel and supersede ATC S-1372-436-0 and the following condition will be included on the ATC issued in this project, S-1372-436-1:

- This Authority to Construct (ATC) cancels and supersedes ATC S-1372-436-0. [District Rule 2201]

SPR has received their 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 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)
CH&SC 41700	Health Risk Assessment
CH&SC 42301.6	School Notice

Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. Project Location

The equipment will be located at the KKSCW fee lease in the Midway Sunset Oil Field, Heavy Oil Western stationary source, within Section 22, Township 32S, Range 23E and Section 6, 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 an 85 MMBtu/hr steam generator to produce steam for injection into wells to aid in oil recovery as described above.

V. Equipment Listing

S-1372-436-1: 85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR (#81) WITH A NORTH AMERICAN G-LE STANDARD BURNER, FLUE GAS RECIRCULATION AND AN O2 CONTROLLER

VI. Emission Control Technology Evaluation

Emissions from natural gas-fired boilers include NO_X, CO, VOC, PM_{10}, and SO_X.

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

The use of flue gas re-circulation (FGR) can reduce nitrogen oxides (NO_X) emissions by 60% to 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 NO_X is formed by high flame temperatures, the lower flame temperatures produced by FGR serve to reduce thermal NO_X.

VII. General Calculations

A. Assumptions

- The maximum operating schedule is 24 hours per day (per applicant)
- Annual emissions are based on steady state emissions for 8,760 hours/year
- 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 (per applicant)
- Startup/Shutdown duration is limited to 2 hours per event (4 hours per day total combined) (per applicant)
- Daily PE2 calculations will be based off one startup event (2 hours), one shutdown event (2 hours) and steady state operation for the remaining portion of the day (20 hours)
- Annual PE2 calculation will be based off of 8,760 hours of steady state operation (for offset purposes, see Section B of the Compliance Determination of Rule 2201
- To streamline emission calculations, $PM_{2.5}$ emissions are assumed to be equal to PM_{10} emissions

B. Emission Factors

Pollutant		Emission Factors		Source
		lb/MMBtu	ppmvd @ 3% O_2	
NO_X	Steady State	0.0061*	5 ppmvd	Proposed by Applicant
	Startup/Shutdown	0.0182*	15 ppmvd	
SO_X		0.00285	N/A	District Policy APR 1720
PM_{10}		0.003	N/A	District Practice
CO	Steady State	0.0185*	25	Proposed by Applicant to Satisfy BACT
	Startup/Shutdown	0.0739*	100	Proposed by Applicant
VOC		0.0030*	7	Proposed by Applicant

* Converted using the calculator attached in Appendix H.

C. Calculations

1. Pre-Project Potential to Emit (PE1)

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

2. Post-Project Potential to Emit (PE2)

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO_X	see below			
SO_X	0.00285	85	24	5.8
PM_{10}	0.003	85	24	6.1
CO	see below			
VOC	0.0030	85	24	6.1

Pollutant	Annual PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
NO_X	0.0061	85	8760	4,542
SO_X	0.00285	85	8760	2,122
PM_{10}	0.003	85	8760	2,234
CO	0.0185	85	8760	13,775
VOC	0.0030	85	8760	2,234

$PE2_{NOx}$ = Startup/Shutdown Emissions + Steady State Emissions
= (0.0182 lb/MMBtu) ∗ (85 MMBtu/hr) ∗ (4 hr/day) +
(0.0061 lb/MMBtu) ∗ (85 MMBtu/hr) ∗ (20 hr/day)
= 16.6 lb-NO_X/day

$PE2_{CO}$ = Startup/Shutdown Emissions + Steady State Emissions
= (0.0739 lb/MMBtu) ∗ (85 MMBtu/hr) ∗ (4 hr/day) +
(0.0185 lb/MMBtu) ∗ (85 MMBtu/hr) ∗ (20 hr/day)
= 56.6 lb-CO/day

PE2		
Pollutant	**Daily Emissions (lb/day)**	**Annual Emissions (lb/year)**
NO_X	16.6	4,542
SO_X	5.8	2,122
PM_{10}	6.1	2,234
CO	56.6	13,775
VOC	6.1	2,234

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.

As established in previous projects S-1190870 and S-1190962, facility emissions are already above the Offset and Major Source Thresholds for NO_X, SO_X, PM_{10}, CO, and VOC emissions. Since those projects, the facility has not removed or modified existing units to reduce facility emissions below those thresholds; 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 NO_X, SO_X, PM_{10}, CO, and VOC emissions, 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 NO_X, SO_X, PM_{10}, CO, and VOC emissions and will remain a Major Source.

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.

Pursuant to projects S-1190870 and S-1190962, the facility PE for VOC, SO2 and CO emissions prior to the current project is greater than the major source threshold; therefore, the facility is a Major PSD 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 this is 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, PM_{10}, 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.

SB 288 Major Modification Thresholds			
Pollutant	**Project PE2 (lb/year)**	**Threshold (lb/year)**	**SB 288 Major Modification Calculation Required?**
NO_x	4,542	50,000	No
SO_x	2,122	80,000	No
PM_{10}	2,234	30,000	No
VOC	2,234	50,000	No

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

8. Federal Major Modification

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

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

Step 1

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

The project's combined total emission increases are equal to the PE2 calculated in Section VII.C.2 and compared to the Federal Major Modification Thresholds in the following table.

Federal Major Modification Thresholds for Emission Increases			
Pollutant	**Total Emissions Increases (lb/yr)**	**Thresholds (lb/yr)**	**Federal Major Modification?**
NO_x*	4,542	0	Yes
VOC*	2,122	0	Yes
PM_{10}	2,234	30,000	No
$PM_{2.5}$	2,234	20,000	No
SO_x	2,234	80,000	No

Since there is an increase in NO_x and VOC emissions, this project constitutes a Federal Major Modification. Consequently, as discussed below in the offset section of this evaluation, pursuant to Section 7.4.2.1 of District Rule 2201, NOx and VOC Emission

Reduction Credits (ERCs) used to satisfy the offset quantity required under District Rule 2201 must surplus at the time of use (ATC issuance).

Separately, Federal Offset Quantity is calculated below.

Federal Offset Quantity Calculation:

The Federal Offset Quantity (FOQ) is only calculated for the pollutants for which a project is a Federal Major Modification or a New Major Source as determined above.

Pursuant to 40 CFR 51.165(a)(3)(ii)(J), 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) for each emission unit times the applicable federal offset ratio.

FOQ = ∑(PE2 – AE) x Federal offset ratio

Actual Emissions

As described in 40 CFR 51.165(a)(1)(xii), actual emissions (AE), as of a particular date, shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a consecutive 24-month period which precedes the particular date and which is representative of normal source operation. The reviewing authority shall allow the use of a different time period upon a determination that it is more representative of normal source operation.

Since this is a new unit, AE = 0

Federal Offset Ratio

According the CAA 182(e), the federal offset ratio for VOC and NOx is 1.5 to 1 (due to the District extreme non-attainment status for ozone). Otherwise, the federal offset ratio for PM2.5, PM10, and SOx is 1.0 to 1.

Federal Offset Quantity (FOQ)

Since this project only include new unit(s)

FOQ = PE2 x Federal offset ratio

NOx **Federal Offset Ratio 1.5**

Permit No.	Actual Emissions (lb/year)	Potential Emissions (lb/year)	Emissions Change (lb/yr)
S-1372-436-1	0	4,542	4,542
		∑(PE2 – AE) (lb/year):	4,542
		Federal Offset Quantity (lb/year): ∑(PE2 – AE) x 1.5	6,813
		Federal Offset Quantity (tons/year): ∑(PE2 – AE) x 1.5 ÷ 2,000	3.41

VOC **Federal Offset Ratio 1.5**

Permit No.	Actual Emissions (lb/year)	Potential Emissions (lb/year)	Emissions Change (lb/yr)
S-1372-436-1	0	2,234	2,234
		∑(PE2 – AE) (lb/year):	2,234
		Federal Offset Quantity (lb/year): ∑(PE2 – AE) x 1.5	3,351
		Federal Offset Quantity (tons/year): ∑(PE2 – AE) x 1.5 ÷ 2,000	1.68

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

As demonstrated in the “PSD Major Source Determination” Section above, the facility was determined to be an 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 futher PSD analysis is needed.

PSD Significant Emission Increase Determination: Potential to Emit (tons/year)					
	NO_2	SO_2	CO	PM	PM_{10}
Total PE from New and Modified Units	2.3	1.1	6.9	1.1	1.1
PSD Significant Emission Increase Thresholds	40	40	100	25	15
PSD Significant Emission Increase?	N	N	N	N	N

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 E.

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 a new steam generator with a PE greater than 2 lb/day for NO_X, SO_X, PM_{10}, CO, and VOC. BACT is triggered for NO_X, SO_X, PM_{10}, and VOC only since the PEs are greater than 2 lb/day. BACT is also 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 Section VII.C.7, this project does not constitute an SB 288 for any pollutant. Therefore BACT for SB288 Major Modification purposes is not triggered for any pollutant.

As discussed in Section VII.C.8 above, this project constitutes a Federal Major Modification for NO_X and VOC emissions. Therefore BACT is triggered for NO_X and VOC for Federal Major Modification purposes.

2. BACT Guideline

BACT Guideline 1.2.1, applies to the steam generator. [Oilfield Steam Generator (> or =20 MMBtu/hr)] (See Appendix B)

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 C), BACT has been satisfied with the following:

NO_X: 5 ppmvd @ 3% O2
SO_X: Natural gas, with a sulfur content not exceeding 1 gr of sulfur compounds (as S) per 100 scf
PM_{10}: 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

The following previously conditions will be included on the proposed ATC as a mechanism to ensure compliance with the BACT requirements:

- The sulfur content of any fuel, or fuels combined, shall not exceed 1 grain of total sulfur (as H2S) per 100 dscf of fuel gas. [District Rules 2201 and 4320]
- Except during startup and shutdown, emissions shall not exceed any of the following limits: 5 ppmvd NOx @ 3% O2 or 0.0061 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]

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.

Offset Determination (lb/year)					
	NO_X	**SO_X**	**PM_{10}**	**CO**	**VOC**
SSPE2	> 20,000	> 54,750	> 29,200	> 200,000	> 20,000
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	Yes	Yes	Yes	Yes

2. Quantity of Offsets Required

2.1 NOx

District Offset Quantities Calculation

As seen above, for NOx, the SSPE2 is greater than the offset threshold for that pollutant. Therefore offset calculations will be required for this project.

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

Offsets Required (lb/year) = (Σ[PE2 – BE] + ICCE) x DOR, for all new or modified emissions units in the project,

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

BE = PE1 for:

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

otherwise,

BE = HAE

The facility is proposing to install a new emissions unit; therefore BE = 0 for all pollutants.

Also, there is only one emissions unit associated with this project and there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

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

PE2 (NO_X) = 4,542 lb/year
BE (NO_X) = 0 lb/year
ICCE = 0 lb/year

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

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

Offsets Required (lb/year) = ([4,542 – 0] + 0) x 1.5
= 4,542 x 1.5
= 6,813 lb NO_X/year

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

Quarterly offsets required (lb/qtr) = (6,813 lb NO_X/year) ÷ (4 quarters/year)
= 1,703.25 lb/qtr

As demonstrated in the calculation above, the quarterly amount of offsets required for this project, 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:

Redistribution of Required Quarterly Offsets
(where X is the annual amount of offsets, and X ÷ 4 = Y.z)

Value of z	Quarter 1	Quarter 2	Quarter 3	Quarter 4
.0	Y	Y	Y	Y
.25	Y	Y	Y	Y+1
.5	Y	Y	Y+1	Y+1
.75	Y	Y+1	Y+1	Y+1

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

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total Annual
1,703	1,703	1,703	1,704	6,813

District and Federal Offset Quantities

As discussed above, District offsets are triggered and required for NOx under NSR. In addition, as demonstrated above, this project does trigger Federal Major Modification requirements for NOx emissions, and federal offset quantities are required for this project for NOx. Pursuant to Section 7.4.2.1 of District Rule 2201, emission reduction credits used to satisfy federal offset quantities for NOx must be creditable and surplus at the time of use (ATC issuance).

Surplus at the Time Of Use Emission Reduction Credits
The applicant has stated that the facility plans to use ERC certificates N-1484-2 and S-5203-2 (or certificates split from these certificates) to satisfy the federal offset quantities for NOx required for this project. Pursuant to the ERC surplus analysis in Appendix I, the District has verified that the credits from the ERC certificates provided by the applicant are sufficient to satisfy the federal offset quantities for NOx required for this project.

Required District /Federal Offset Quantities Summary

The applicant has stated that the facility plans to use ERC certificates N-1484-2 and S-5203-2 (or certificates split from these certificates) to offset the increases in NO_X emissions associated with this project. The above certificates have available quarterly NO_X credits as follows:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
ERC #N-1484-2	899	877	794	502
ERC #S-5203-2	14,422	11,783	11,330	12,832
Total	15,321	12,660	12,124	13,334

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

Proposed Rule 2201 Offset Permit Conditions

The following permit conditions will be added to the Authority to Construct:

- {GC# 4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender NO_X emission reduction credits for the following quantity of emissions: 1st quarter - 1,703 lb, 2nd quarter - 1,703 lb, 3rd quarter – 1,703 lb, and 4th quarter - 1,704 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERC specified below. [District Rule 2201]
- ERC Certificate Numbers N-1484-2 and S-5203-2 (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]

2.2 SOx

District Offset Quantities Calculation

As seen above, for SO_X, the SSPE2 is greater than the offset threshold for that pollutant. Therefore offset calculations will be required for this project.

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

Offsets Required (lb/year) = (Σ[PE2 – BE] + ICCE) x DOR, for all new or modified emissions units in the project,

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

BE = PE1 for:

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

otherwise,

BE = HAE

The facility is proposing to install a new emissions unit; therefore BE = 0 for all pollutants.

Also, there is only one emissions unit associated with this project and there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

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

PE2 (SO_X) = 2,122 lb/year
BE (SO_X) = 0 lb/year
ICCE = 0 lb/year

Based on the original location of the emissions offsets being more than 15 miles from the new unit's Stationary Source the offset ratio is 1.5:1 and the amount of SO_X ERCs that need to be withdrawn is:

Offsets Required (lb/year) = ([2,122 – 0] + 0) x 1.5
= 2,122 x 1.5
= 3,183 lb SO_X/year

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

Quarterly offsets required (lb/qtr) = (3,183 lb SO_X/year) ÷ (4 quarters/year)
= 795.75 lb/qtr

As shown in the calculation above, the quarterly amount of offsets required for this project, 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:

Redistribution of Required Quarterly Offsets (where X is the annual amount of offsets, and X ÷ 4 = Y.z)				
Value of z	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**
.0	Y	Y	Y	Y
.25	Y	Y	Y	Y+1
.5	Y	Y	Y+1	Y+1
.75	Y	Y+1	Y+1	Y+1

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

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total Annual
795	796	796	796	3,183

District Offset Quantities

As discussed above, District offsets are triggered and required for SOx under NSR.

The applicant has stated that the facility plans to use ERC certificates N-1484-5 and S-5205-5 (or certificates split from these certificates) to offset the increases in SO_X emissions associated with this project.

Required District Offset Quantities Summary

The applicant has stated that the facility plans to use ERC certificates N-1484-5 and S-5205-5 (or certificates split from these certificates) to offset the increases in SO_X emissions associated with this project. The above certificates have available quarterly SO_X credits as follows:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
ERC #N-1484-5	171	178	172	93
ERC #S-5205-5	1,322	1,318	1,318	1,318
Total	1,493	1,496	1,490	1,411

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

Proposed Rule 2201 Offset Permit Conditions

The following permit conditions will be added to the Authority to Construct:

- {GC# 4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender SO_X 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 8/15/19) for the ERC specified below. [District Rule 2201]
- ERC Certificate Numbers N-1484-5 and S-5205-5 (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]

2.3 PM_{10}

District Offset Quantities Calculation

As seen above, for PM_{10}, the SSPE2 is greater than the offset threshold for that pollutant. Therefore offset calculations will be required for this project.

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

Offsets Required (lb/year) = (Σ[PE2 – BE] + ICCE) x DOR, for all new or modified emissions units in the project,

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

BE = PE1 for:

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

otherwise,

BE = HAE

The facility is proposing to install a new emissions unit; therefore BE = 0 for all pollutants.

Also, there is only one emissions unit associated with this project and there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

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

PE2 (PM_{10}) = 2,234 lb/year
BE (PM_{10}) = 0 lb/year
ICCE = 0 lb/year

Based on the original location of the emissions offsets being more than 15 miles from the new unit's Stationary Source the offset ratio is 1.5:1 and the amount of PM_{10} ERCs that need to be withdrawn is:

Offsets Required (lb/year) = ([2,234 – 0] + 0) x 1.5
= 2,234 x 1.5
= 3,351 lb PM_{10}/year

Calculating the appropriate quarterly emissions to be offset 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 this project, 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:

Redistribution of Required Quarterly Offsets
(where X is the annual amount of offsets, and X ÷ 4 = Y.z)

Value of z	Quarter 1	Quarter 2	Quarter 3	Quarter 4
.0	Y	Y	Y	Y
.25	Y	Y	Y	Y+1
.5	Y	Y	Y+1	Y+1
.75	Y	Y+1	Y+1	Y+1

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

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total Annual
837	838	838	838	3,351

District Offset Quantities

As discussed above, District offsets are triggered and required for PM_{10} under NSR.

The applicant has stated that the facility plans to use ERC certificates N-1484-4 and S-5207-4 (or certificates split from these certificates) to offset the increases in PM_{10} emissions associated with this project.

Required District Offset Quantities Summary

The applicant has stated that the facility plans to use ERC certificates N-1484-4 and S-5207-4 (or certificates split from these certificates) to offset the increases in PM_{10} emissions associated with this project. The above certificates have available quarterly PM_{10} credits as follows:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
ERC #N-1484-4	3,269	3,660	3,947	2,974
ERC #S-5207-4	3,015	2,048	1,883	2,433
Total	6,284	5,708	5,830	5,407

As seen above, the facility has sufficient credits to fully offset the quarterly PM_{10} emissions increases associated with this project.

Proposed Rule 2201 Offset Permit Conditions

The following permit conditions will be added to the Authority to Construct:

- {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 8/15/19) for the ERC specified below. [District Rule 2201]
- ERC Certificate Numbers N-1484-4 and S-5207-4 (or a certificate split from this certificate) 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]

2.4 VOC

District Offset Quantities Calculation

As seen above, for VOC, the SSPE2 is greater than the offset threshold for that pollutant. Therefore offset calculations will be required for this project.

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

Offsets Required (lb/year) = (Σ[PE2 – BE] + ICCE) x DOR, for all new or modified emissions units in the project,

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

BE = PE1 for:

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

otherwise,

BE = HAE

The facility is proposing to install a new emissions unit; therefore BE = 0 for all pollutants.

Also, there is only one emissions unit associated with this project and there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

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

PE2 (VOC) = 2,234 lb/year
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] + 0) x 1.5

= 2,234 x 1.5
= 3,351 lb VOC/year

Calculating the appropriate quarterly emissions 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 this project, 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:

Redistribution of Required Quarterly Offsets (where X is the annual amount of offsets, and X ÷ 4 = Y.z)				
Value of z	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**
.0	Y	Y	Y	Y
.25	Y	Y	Y	Y+1
.5	Y	Y	Y+1	Y+1
.75	Y	Y+1	Y+1	Y+1

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

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total Annual
837	838	838	838	3,351

District and Federal Offset Quantities

As discussed above, District offsets are triggered and required for VOC under NSR. In addition, as demonstrated above, this project does trigger Federal Major Modification requirements for VOC emissions.

Since District offsets and federal offsets are required, the facility must provide offset amounts equal to the greatest value between the District offset quantity (DOQ) and the federal offset quantity (FOQ).

Comparison of District vs Federal VOC Offset Quantity			
	DOQ	**FOQ**	**FOQ ≥ DOQ**

VOC	3,351	3,351	**Yes**

As demonstrated above, the federal offset quantity required is equal to the District offset quantity. Therefore, pursuant to Section 7.4.1.2 of District Rule 2201, the facility must comply with the required federal offset quantities. In addition, emission reduction credits used to satisfy federal offset quantities for VOC must be creditable and surplus at the time of use (ATC issuance).

Surplus at the Time Of Use Emission Reduction Credits

The applicant has stated that the facility plans to use ERC certificate N-950-1 (or certificates split from this certificate) to satisfy the federal offset quantities for VOC required for this project. Pursuant to the ERC surplus analysis in Appendix I, the District has verified that the credits from the ERC certificate provided by the applicant are sufficient to satisfy the federal offset quantities for VOC required for this project.

Required District / Federal Offset Quantities Summary

The applicant has stated that the facility plans to use ERC certificate N-950-1 (or certificates split from this certificate) to offset the increases in VOC emissions associated with this project. The above certificate has available quarterly VOC credits as follows:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
ERC # N-950-1	7,335	7,335	7,335	7,335
Total	7,335	7,335	7,335	7,335

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

Proposed Rule 2201 Offset Permit Conditions

The following permit conditions will be added to the Authority to Construct:

- {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 8/15/19) for the ERC specified below. [District Rule 2201]
- ERC Certificate Number N-950-1 (or a certificate split from this certificate) 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]

2.5 CO

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 D). Therefore, CO offsets are not required for this project.

3. ERC Withdrawal Calculations

The applicant must identify the ERC Certificates to be used to offset the increase of NOx, SOx, PM_{10}, and VOC emissions for the project. As indicated in the previous section, the applicant is proposing to use ERC certificates #N-1484-2 and S-5203-2 to mitigate the increases of NOx emissions, ERC certificates #N-1484-5 and S-5205-5 to mitigate the increases of SOx emissions, ERC certificate #N-1484-4 and S-5207-4 to mitigate the increases of PM_{10} and $PM_{2.5}$ emissions, and ERC certificates #N-950-1 to mitigate the increases of VOC emissions associated with this project. See Appendix G 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.8, this project is a Federal Major Modification. Therefore, public noticing for Federal Major Modification purposes is required.

b. PE > 100 lb/day

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

c. Offset Threshold

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.

Offset Thresholds				
Pollutant	**SSPE1 (lb/year)**	**SSPE2 (lb/year)**	**Offset Threshold**	**Public Notice Required?**
NO_X	> 20,000	> 20,000	20,000 lb/year	No
SO_X	> 54,750	> 54,750	54,750 lb/year	No
PM_{10}	> 29,200	> 29,200	29,200 lb/year	No
CO	> 200,000	> 200,000	200,000 lb/year	No
VOC	> 20,000	> 20,000	20,000 lb/year	No

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

d. SSIPE > 20,000 lb/year

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

SSIPE Public Notice Thresholds					
Pollutant	**Project PE2 (lb/year)**	**Project PE1 (lb/year)**	**SSIPE (lb/year)**	**SSIPE Public Notice Threshold**	**Public Notice Required?**
NO_x	4,542	0	4,542	20,000 lb/year	No
SO_x	2,122	0	2,122	20,000 lb/year	No
PM_{10}	2,234	0	2,234	20,000 lb/year	No
CO	13,775	0	13,775	20,000 lb/year	No
VOC	2,234	0	2,234	20,000 lb/year	No

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore public noticing for SSIPE purposes is not required.

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 because it is a Federal Major Modification. 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)

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

Proposed Rule 2201 (DEL) Conditions:

- 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]
- Except during startup and shutdown, emissions shall not exceed any of the following limits: 5 ppmvd NOx @ 3% O2 or 0.0061 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]
- Emissions rates during startup and shutdown shall not exceed either of the following limits 0.0182 lb-NOx/MMBtu or 0.0739 lb-CO/MMBtu. [District Rule 2201]
- Emissions shall not exceed any of the following limits, where annual limits are based on a rolling 12 month period: 16.6 lb-NOx/day, 4,542 lb-NOx/yr, 5.8 lb-SOx/day, 2,122 lb-SOx/yr, 6.1 lb-PM10/day, 2,234 lb-PM10/yr, 56.6 lb-CO/day, 13,775 lb-CO/yr, 6.1 lb-VOC/day or 2,234 lb-VOC/yr. [District Rule 2201]
- Duration of startup and shutdown (combined) shall not exceed 4.0 hr day. [District Rules 2201 and 4320]
- Flue gas recirculation system shall be operated whenever steam generator is operated. [District Rule 2201]

- Monthly NOx and CO emissions shall be calculated as follows: monthly emissions in lbs/month = total hours of startup and shutdown x 1.547[1] and monthly CO emissions in lbs/month = total hours of startup and shutdown x 6.2815[2]. [District Rule 2201]
- On a monthly basis, the permittee shall calculate and record the NOx and CO emissions in pounds for the prior 12 calendar month period. [District Rule 2201]

E. Compliance Assurance

1. Source Testing

This unit is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters, Phase 2*, District Rule 4306, *Boilers, Steam Generators and Process Heaters, Phase 3, and District Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr***.** Source testing requirements, in accordance with District Rules 4305, 4306, and 4320 will be discussed in Section VIII*,* District Rule 4320 of this evaluation.

2. Monitoring

As required by *District Rule 4305, Boilers, Steam Generators and Process Heaters, Phase 2, District Rule 4306, Boilers, Steam Generators and Process Heaters, Phase 3, and District Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr*, this unit is subject to monitoring requirements. Monitoring requirements, in accordance with District Rules 4305, 4306, and 4320 will be discussed in Section VIII, District Rule 4320 of this evaluation.

3. Recordkeeping

As required by *District Rule 4305, Boilers, Steam Generators and Process Heaters, Phase 2, District Rule 4306, Boilers, Steam Generators and Process Heaters, Phase 3, and District Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr*, this unit is subject to recordkeeping requirements. Recordkeeping requirements, in accordance with District Rules 4305, 4306, and 4320 will be discussed in Section VIII, District Rule 4320 of this evaluation.

The following permit condition will be listed on permit as follows:

- {2983} All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320]

[1] Emission Factor = 85 MMBtu/hr x 0.0182 lb/MMBtu = 1.547
[2] Emission Factor = 85 MMBtu/hr x 0.0739 lb/MMBtu = 6.2815

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

An AAQA shall be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District's Technical Services Division conducted the required analysis. Refer to Appendix D of this document for the AAQA summary sheet.

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

The proposed location is in a non-attainment area for the state's PM_{10} as well as federal and state $PM_{2.5}$ thresholds. The modeling results indicate that the calculated increase in the ambient PM_{10} and $PM_{2.5}$ concentrations from the project would exceed the District significance levels. Therefore, the PM_{10} and $PM_{2.5}$ emissions from the project must be mitigated.

District Rule 2201 allows the District to consider offsets as mitigation when determining if there is a violation of the Ambient Air Quality Standard.

Section 4.14.1 of District Rule 2201 states:

> *Emissions from a new or modified Stationary Source shall not cause or make worse the violation of an Ambient Air Quality Standard. In making this determination, the APCO shall take into account the increases in minor and secondary source emissions as well as the mitigation of emissions through offsets obtained pursuant to this rule…*

Additionally, Section 4.8 of District Rule 2201 requires a distance offset ratio to be applied for offset calculations.

To mitigate potential adverse effects to Ambient Air Quality, the applicant has proposed to provide a sufficient amount of PM_{10} and $PM_{2.5}$ ERCs to fully offset the PM_{10} and $PM_{2.5}$ emission increases from the project as presented in Section VII.C.2 of this evaluation.

Total Offsets Required (lb/year) = ∑(PE2 for each permit unit x Distance Offset Ratio)

Assuming an offset ratio of 1.5:1 and that the PM_{10} = $PM_{2.5}$, the amount of $PM_{2.5}$ ERCs that need to be surrendered is calculated below.

Offsets Required = 2,234 lb-$PM_{2.5}$/year x 1.5 = 3,351 lb-$PM_{2.5}$/year

The appropriate quarterly emissions to be offset is calculated below.

Quarterly Offsets Required = (3,351 lb-$PM_{2.5}$/year) ÷ (4 quarters/year)
= 837.75 lb-$PM_{2.5}$/qtr

As shown in the calculation above, the quarterly amount of offsets required for this project, when evenly distributed to each quarter, results in fractional pounds of offsets being required each quarter. Since offsets are required to be surrendered 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. Therefore the appropriate quarterly PM_{10} and $PM_{2.5}$ emissions to be offset are as follows:

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total Annual
837	838	838	838	3,351

The applicant has stated that the facility plans to use ERC certificates N-1484-4 and S-5207-4 (or certificates split from these certificates) to offset the increases in PM_{10} and $PM_{2.5}$ emissions associated with this project. The above certificates have available quarterly $PM_{2.5}$ credits as follows:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
ERC # N-1484-4	915	1,025	1,026	714
ERC # S-5207-4	3,015	2,048	1,883	2,433
Total	3,930	3,073	2,909	3,147

As seen above, the facility has sufficient credits to fully offset the quarterly $PM_{2.5}$ emissions increases associated with this project and as demonstrated in section B.2 under the Rule 2201 analysis above, certificates N-1484-4 and S-5207-4 have sufficient credits to fully offset the quarterly PM_{10} emissions increases associated with this project.

Proposed Rule 2201 (offset) Conditions:

- 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]
- Prior to operating equipment under this Authority to Construct, permittee shall surrender PM2.5 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 Numbers N-1484-4 and S-5207-4 (or a certificate split from this 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]

Since sufficient offsets will be provided to fully mitigate the PM_{10} and $PM_{2.5}$ emissions from this project, it is not expected to cause or make worse a violation of an air quality standard.

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. SPR's compliance certification is included in Appendix F.

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/minor modification, 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.

Rule 4001 New Source Performance Standards (NSPS)

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60.

40 CFR Part 60 Subpart Db Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

NSPS Subpart Db applies to steam generating units that are constructed, reconstructed, or modified after June 19, 1984 and have a maximum design heat input greater than 100 MMBtu/hr.

The proposed steam generator are rated less than 100 MMBtu/hr; therefore, Subpart Db does not apply to the boilers.

40 CFR Part 60 Subpart Dc Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60. 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). Subpart Dc has standards for SO_X and PM_{10}. The 85 MMBtu/hr steam generator are subject to Subpart Dc requirements.

60.42c – Standards for Sulfur Dioxide

Since the boiler is not fired on coal, mixtures of coal with other fuels, or oil, the requirements of this section are not applicable.

60.43c – Standards for Particulate Matter

The boilers are not fired on coal, combust mixtures of coal with other fuels, combust wood, combust mixtured of wood with other fuels, or oil; therefore they will not be subject to the requirements of this section.

60.44c – Compliance and Performance Tests Methods and Procedures for Sulfur Dioxide.

Since the boilers in this project are not subject to the sulfur dioxide requirements of this subpart, no testing to show compliance is required. Therefore, the requirements of this section are not applicable to the boilers in this project.

60.45c – Compliance and Performance Test Methods and Procedures for Particulate Matter

Since the boilers in this project are not subject to the particulate matter requirements of this subpart, no testing to show compliance is required. Therefore, the requirements of this section are not applicable to the boilers in this project.

60.46c – Emission Monitoring for Sulfur Dioxide

Since the boilers in this project are not subject to the sulfur dioxide requirements of this subpart, no monitoring is required. Therefore, the requirements of this section are not applicable to the boilers in this project.

60.47c – Emission Monitoring for Particulate Matter

Since the boilers in this project are not subject to the particulate matter requirements of this subpart, no monitoring is required. Therefore, the requirements of this section are not applicable to the boilers in this project.

60.48c – Reporting and Recordingkeeping Requirements

Section 60.48c (a) states that the owner or operator of each affected facility shall submit notification of the date of construction or reconstruction, anticipated startup, and actual startup, as provided by §60.7 of this part. This notification shall include:

(1) The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

The design heat input capacity and type of fuel combusted at the facility will be listed on the units' equipment descriptions. No conditions are required to show compliance with this requirement.

(2) If applicable, a copy of any Federally enforceable requirement that limits the annual capacity factor for any fuel mixture of fuels under §60.42c or §40.43c.

This requirement is not applicable since the units are not subject to §60.42c or §40.43c.

(3) The annual capacity factor at which the owner or operator anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.

The facility has not proposed an annual capacity factor; therefore, one will not be required.

(4) Notification if an emerging technology will be used for controlling SO_2 emissions. The Administrator will examine the description of the control device and will determine whether the technology qualifies as an emerging technology. In making this determination, the Administrator may require the owner or operator of the affected facility to submit additional information concerning the control device. The affected facility is subject to the provisions of §60.42c(a) or (b)(1), unless and until this determination is made by the Administrator

This requirement is not applicable since the units will not be equipped with an emerging technology used to control SO_2 emissions.

Section 60.48 c (g) states that the owner or operator of each affected facility shall record and maintain records of the amounts of each fuel combusted during each month. The following conditions will be added to the permits as a mechanism to ensure compliance with this section.

- A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of each gas combusted in the unit shall be installed, utilized and maintained. [40 CFR 60.48c(g)(2)]
- Permittee shall maintain monthly records of the amount of each gas combusted by this unit. [40 CFR 60.48c(g)(2)]

Section 60.48 c (i) states that all records required under this section shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record. The following condition will ensure compliance with this section:

- All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rules 1070, 2201, 4305, 4306 and 4320, and 40 CFR 60.48c(i)]

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 the 85 MMBtu/hr steam generator.

Rule 4101 Visible Emissions

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

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

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

Rule 4102 Nuisance

Section 4.0 prohibits discharge of air contaminants, which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of

these operations, provided the equipment is well maintained. Therefore, compliance with this rule is expected.

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

- {98} No air contaminant shall be released into the atmosphere, which causes a public nuisance. [District Rule 4102]

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 D), the total facility prioritization score including this project was greater than one. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project.

The cancer risk for this project is shown below:

HRA Summary		
Unit	**Cancer Risk**	**T-BACT Required**
S-1372-436-1	0.0243 per million	No

Discussion of T-BACT

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

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 D 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.

PM_{10} Emission Factor: 0.003 lb-PM_{10}/MMBtu
Percentage of PM as PM10 in Exhaust: 100%
Exhaust Oxygen (O_2) Concentration: 3%

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

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

$$GL = 0.002\ grain/dscf < 0.1\, grain/dscf$$

Therefore, compliance with District Rule 4201 requirements is expected and a permit condition will be listed on the permit as follows:

- {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]

District Rule 4301 Fuel Burning Equipment

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

Section 5.0 gives the requirements of the rule.

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

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

- 200 pound per hour of sulfur compounds, calculated as sulfur dioxide (SO_2)
- 140 pounds per hour of nitrogen oxides, calculated as nitrogen dioxide (NO_2)
- Ten pounds per hour of combustion contaminants as defined in Rule 1020 and derived from the fuel.

District Rule 4301 Limits (lb/hr)			
Unit	**NO_2**	**Total PM**	**SO_2**
ATC S-1372-436-1	0.0061 x 85 = 0.52	0.003 x 85 = 0.26	0.00285 x 85 = 0.24
Rule Limit (lb/hr)	140	10	200

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, SO_2 and PM_{10} 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 unit in this project is rated at greater than 5 MMBtu/hr heat input and is subject to this rule.

Section 5.1 NOx Emission Limits

Section 5.1 states that an operator of a unit 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 which are summarized in the following table:

With a maximum heat input of 85 MMBtu/hr, the applicable emission limit category is listed in Section 5.2, Table 1, Category C.2, from District Rule 4320.

Rule 4320 Emissions Limits				
Category	**Operated on gaseous fuel**		**Operated on liquid fuel**	
	NO_X Limit	**CO Limit**	**NO_X Limit**	**CO Limit**
2. Oilfield Steam Generators with a total rated heat input >20.0 MMBtu/hr	a) Standard Schedule 7 ppmv or 0.008 lb/MMBtu; or	400 ppmv	40 ppmv or 0.052 lb/MMBtu	400 ppmv
	b) Staged Enhanced Schedule Initial Limit 9 ppmv or 0.011 lb/MMBtu; and			
	Final Limit 5 ppmv or 0.0062 lb/MMBtu			

The proposed NOx and CO limits are 5 and 25 ppmv @ 3% O_2, 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 5.3, Annual Fee Calculation

Annual Fees are required if the unit will not be meeting the emission limits in Section 5.2 of this rule. Since the proposed unit will meet the emissions limits of Section 5.2, the annual fee requirements are not applicable.

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 generator 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 and the following condition will be included on the permit:

- 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]

Section 5.5 Low Use

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

Section 5.6, Startup and Shutdown Provisions

Section 5.6 states that on and after the full compliance deadline in Section 5.0, the applicable emission limits of Sections 5.2 Table 1 and 5.5.2 shall not apply during start-up or shutdown provided an operator complies with the requirements specified in Sections 5.6.1 through 5.6.5. Sections 5.6.1 through 5.6.5 require the following:

1. The duration of each startup or shutdown must not exceed two hours per event, unless the APCO approves a larger allowable startup or shutdown duration.
2. The emission control system must be in operation and emission be minimized insofar as technologically feasible during startup and shutdown.

The following conditions will be included on the permit as a mechanism to ensure compliance with the startup and shutdown requirements:

- Duration of startup and shutdown (combined) shall not exceed 4.0 hr day. [District Rules 2201 and 4320]

Section 5.7, Monitoring Provisions

Section 5.7.1 requires that permit units subject to District Rule 4320, Section 5.2 emissions limits shall either install and maintain Continuous Emission Monitoring (CEM) equipment for NO_X, CO and O_2, or install and maintain APCO-approved alternate monitoring.

The applicant has proposed to use the pre-approved alternate monitoring scheme A (pursuant to District Policy SSP-1105, Alternate Monitoring), which requires that monitoring of NO_X, CO, and O_2 exhaust concentrations shall be conducted at least once per month (in which a source test is not performed) using a portable analyzer. The following conditions will be listed on the permits in order to ensure compliance with the requirements of the proposed alternate monitoring plan:

- {4315} 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]
- {4316} 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]
- {4317} 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]
- {4318} 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]

Since these units are not subject to the requirements listed in Section 5.5.1 or 5.5.2, they are not subject to Section 5.7.2 and 5.7.3 requirements.

Section 5.7.4 allows units operated at seasonal sources and subject to 40 CFR 60 Subpart Db to install a parametric monitoring system in lieu of a CEMS. The proposed units are not operated at a seasonal source. Therefore, these units are not subject to 5.7.4 requirements.

Section 5.7.6 outlines requirements for monitoring SOx emissions. Section 5.7.6.1 states 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.

Section 5.7.6.2 states that operators complying with Section 5.4.1.3 by installing and operating a control device with 95% SOx reduction shall propose the key system operating parameters and frequency of the monitoring and recording. The monitoring option proposed shall be submitted for approval by the APCO.

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

The facility has proposed to show compliance using the requirement in sections 5.4.1.1, firing exclusively on PUC-quality natural gas, and 5.4.1.2, limiting the fuel sulfur content to no more than 5 grains of total sulfur per one hundred (100) standard cubic feet. The following conditions will be added to the permit as a mechanism to ensure compliance with this section.

- 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]
- 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]
- 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]

Section 5.8, Compliance Determination

Section 5.8.1 requires that the operator of any unit shall have the option of complying with either the applicable heat input (lb/MMBtu) emission limits or the concentration (ppmv) emission limits specified in Section 5.1. 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 listed on the permit as follows:

- {2976} The source plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 2201, 4305, 4306 and 4320]

Section 5.8.2 requires that all emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. 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 condition will be listed on the permits as follows:

- {4351} 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 4320. [District Rules 4305, 4306, and 4320]

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

- {4317} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305, 4306 and 4320]

Section 5.8.5 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 condition will be listed on the permit as follows:

- {4352} For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306, and 4320]

Section 6.1, Recordkeeping

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

A 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 and 40 CFR 60.48c(i)]

Section 6.1.2 requires that the operator of a unit subject to Section 5.5 shall record the amount of fuel use at least on a monthly basis. Since the unit is not subject to the requirements listed in Section 5.5, it is not subject to Section 6.1.2 requirements.

Section 6.1.3 requires that the operator of a unit subject to Section 5.5.1 or 6.3.1 shall maintain records to verify that the required tune-up and the required monitoring of the operational characteristics have been performed. The unit is not subject to Section 6.1.3. Therefore, the requirements of this section do not apply to this unit.

Section 6.1.4 requires that the operator of a unit with startup or shutdown provisions keep records of the duration of the startup or shutdowns.

A condition will be listed on the permit as follows:

- Permittee shall keep daily and cumulative rolling 12 month records of the startup and shutdown durations and number of startup and shutdown occurrences. [District Rules 2201, 4305, 4306, and 4320]

Section 6.1.5 requires that the operator of a unit fired on liquid fuel during PUC-quality natural gas curtailment periods record the sulfur content of the fuel, amount of fuel used, and duration of the natural gas curtailment period. The facility has not proposed the use of curtailment fuels; therefore, the requirements of this section do not apply to this unit.

Section 6.2, Test Methods

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

Pollutant	Units	Test Method Required
NO_X	ppmv	EPA Method 7E or ARB Method 100
NO_X	lb/MMBtu	EPA Method 19
CO	ppmv	EPA Method 10 or ARB Method 100
Stack Gas O_2	%	EPA Method 3 or 3A, or ARB Method 100
Stack Gas Velocities	ft/min	EPA Method 2
Stack Gas Moisture Content	%	EPA Method 4

The following conditions will be listed on the permit as follows:

- {109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]
- The following test methods shall be used: 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 15, ASTM Method D1072, D3031, D4084, D3246, D5504 or with the use of the Testo 350 XL portable analyzer; and fuel hhv (MMBtu) –ASTM D1826 or D1945 in conjunction with ASTM D3588. [District Rules 2201, 4305, 4306 and 4320]

Section 6.3, Compliance Testing

Section 6.3.1 requires that these units be tested to determine compliance with the applicable requirements of section 5.2 not less than once every 12 months. Upon demonstrating compliance on two consecutive compliance source tests, the following source test may be deferred for up to thirty-six months.

The following conditions will be listed on the permit as follows:

- {4344} 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]
- {4345} Source testing to measure NOx and CO emissions from this unit while fired on natural gas shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the

source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305, 4306, and 4320]

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

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

Conclusion

Conditions will be incorporated into the permits as a mechanism to ensure compliance with each section of this rule. Therefore, compliance with District Rule 4320 requirements is expected.

Rule 4801 Sulfur Compounds

Rule 4801 prohibits discharge into the atmosphere of sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: two-tenths (0.2) percent by volume calculated as sulfur dioxide (SO_2), on a dry basis averaged over 15 consecutive minutes. As will be demonstrated below, compliance is expected with this rule.

Rule 4801 requires that sulfur compound emissions (as SO_2) shall not exceed 0.2% by volume. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

$$\text{Volume } SO_2 = \frac{n\,RT}{P}$$

With:

N = moles SO_2
T (Standard Temperature) = 60°F = 520°R
P (Standard Pressure) = 14.7 psi
R (Universal Gas Constant) = $\frac{10.73 \text{psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot {}^\circ\text{R}}$
EPA F-Factor: 8,578 dscf/MMBtu at 60 °F

$$\frac{0.003\ lb - SO_x}{MMBtu} x\ \frac{MMBtu}{8{,}578\ dscf} x\ \frac{1\ lb - mol}{64\ lb} x\ \frac{10.73\ psi \cdot ft^3}{lb \cdot mol \cdot °R} x\ \frac{520°R}{14.7\ psi} x\ \frac{1{,}000{,}000\ parts}{million} = \frac{2.1\ parts}{million}$$

$Sulfur\ Concentration = \frac{2.1\ parts}{million}$ < 2,000 ppmv (or 0.2%)

Therefore, compliance with District Rule 4801 requirements is expected.

California Health & Safety Code 42301.6 (School Notice)

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

California Environmental Quality Act (CEQA)

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 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-1372-436-1 subject to the permit conditions on the attached draft ATC in Appendix A.

X. Billing Information

Annual Permit Fees			
Permit Number	**Fee Schedule**	**Fee Description**	**Annual Fee**
S-1372-436-1	3020-02-H	85 MMBtu/hr steam generator	$1,238

Appendices

A: Draft ATC
B: BACT Guideline
C: BACT Analysis
D: HRA and AAQA Summary
E: Quarterly Net Emissions Change
F: Compliance Certification
G: ERC Withdrawal Calculations
H: Emission Factor Conversion
I: ERC Surplus Value Determination

APPENDIX A
Draft ATC

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: S-1372-436-1 **ISSUANCE DATE:** DRAFT

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: 22 **TOWNSHIP:** T32S **RANGE:** 23E

EQUIPMENT DESCRIPTION:
85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR (#81) WITH A NORTH AMERICAN G-LE STANDARD 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. This Authority to Construct (ATC) cancels and supersedes ATC S-1372-436-0. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 1,703 lb, 2nd quarter - 1,703 lb, 3rd quarter - 1,703 lb, and 4th quarter - 1,704 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 8/15/19) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Samir Sheikh, Executive Director / APCO

Arnaud Marjollet, Director of Permit Services
S-1372-436-1 : Dec 16 2020 11:25AM -- GARCIAJ : Joint Inspection NOT Required

5. ERC Certificate Numbers N-1484-2 and S-5203-2 (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

6. 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 8/15/19) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

7. ERC Certificate Numbers N-1484-5 and S-5205-5 (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

8. 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 8/15/19) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

9. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM2.5 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 8/15/19) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

10. ERC Certificate Numbers N-1484-4 and S-5207-4 (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

11. 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 8/15/19) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

12. ERC Certificate Number N-950-1 (or a certificate split from this certificate) 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

13. The equipment authorized by this permit shall only operate within either of the following locations: Section 6, Township 30S, Range 22E or Section 22, Township 32S Range 23E. [District Rule 2201] Federally Enforceable Through Title V Permit

14. 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

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

16. 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

CONDITIONS CONTINUE ON NEXT PAGE

17. 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

18. 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

19. 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 1945in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 1070, 2201, 2520, and 4320] Federally Enforceable Through Title V Permit

20. Except during startup and shutdown, emissions shall not exceed any of the following limits: 5 ppmvd NOx @ 3% O2 or 0.0061 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

21. Emissions rates during startup and shutdown shall not exceed 0.0182 lb-NOx/MMBtu or 0.0739 lb-CO/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

22. Emissions shall not exceed any of the following limits, where annual limits are based on a rolling 12 month period: 16.6 lb-NOx/day, 4,542 lb-NOx/yr, 5.8 lb-SOx/day, 2,122 lb-SOx/yr, 6.1 lb-PM10/day, 2,234 lb-PM10/yr, 56.6 lb-CO/day, 13,775 lb-CO/yr, 6.1 lb-VOC/day or 2,234 lb-VOC/yr. [District Rule 2201] Federally Enforceable Through Title V Permit

23. 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

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

25. 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

26. 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

27. 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 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

28. 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

29. 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

30. 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

31. 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] Federally Enforceable Through Title V Permit

32. 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

33. 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

34. 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

35. 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

36. 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

37. 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

38. 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

39. 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

40. 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

CONDITIONS CONTINUE ON NEXT PAGE

41. Permittee shall keep daily and cumulative rolling 12 month records of the startup and shutdown durations and number of startup and shutdown occurrences. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

42. Monthly VOC and CO emissions shall be calculated as follows: monthly VOC emissions in lbs/month = total hours of startup and shutdown x 1.5470 and monthly CO emissions in lbs/month = total hours of startup and shutdown x 6.2815. [District Rule 2201] Federally Enforceable Through Title V Permit

43. On a monthly basis, the permittee shall calculate and record the VOC and CO emissions in pounds for the prior 12 calendar month period. [District Rule 2201] Federally Enforceable Through Title V Permit

44. 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

APPENDIX B
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)

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Gaseous fuel		
SOx	Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO2 scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 9 ppmvd SO2 @ 3% O2		
PM10	Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO2 scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 9 ppmvd SO2 @ 3% O2		
NOx	•Units rated 85 MMBtu/hr and fired solely on PUC quality natural gas: 6 ppmvd @ 3% O2; or •Units firing on > or = 50% PUC quality natural gas; commercial propane; and/or LPG: 7 ppmvd @ 3% O2, except units rated 85 MMBtu/hr and fired solely on PUC quality natural gas; or •Units firing on <50% PUC quality natural gas; commercial propane; and/or LPG: 9 ppmvd @ 3% O2	5 ppmvd @ 3% O2	
CO	25 ppmvd @ 3% O2		

CO2e	FEDERAL BACT	FEDERAL BACT	FEDERAL BACT
	==========	==========	==========
		Federal BACT (40CFR52.21 (b)(23)) for Sources Subject to District Rule 2410 (Prevention of Significant Deterioration) Variable frequency drive high efficiency electrical motors driving the blower; and •When firing on ≥50% PUC quality natural gas, commercial propane, and/or LPG: a convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr (HHV) of maximum rated heat input (verified by manufacturer or independent engineering/construction firm) or an overall thermal efficiency rating of 88% (verified by manufacturer or independent engineering/construction firm); or, •When firing on <50% PUC quality natural gas, commercial propane, and/or LPG: split flow dual pass water feed configuration, a convection section having at least 128 square feet of heat transfer surface area per MMBtu/hr (HHV) of maximum rated heat input (verified by the manufacturer or independent engineering/construction firm) and at least six inches of castable refractory or an overall thermal efficiency rating of at least 85% (verified by manufacturer or independent engineering/construction firm); Variable frequency drive high efficiency electrical motors driving the blower; and, •When firing on ≥50% PUC quality natural gas, commercial propane, and/or LPG: a convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr (HHV) of maximum rated heat input (verified by manufacturer or independent engineering/construction firm) or an overall thermal efficiency rating of 88% (verified by manufacturer or independent engineering/construction firm); or, •When firing on <50% PUC quality natural gas, commercial propane, and/or LPG: split flow dual pass water feed configuration, a convection section having at least 128 square feet of heat transfer surface area per MMBtu/hr (HHV) of maximum rated heat input (verified by the manufacturer or independent engineering/construction firm) and at least six inches of castable refractory or an overall thermal efficiency rating of at least 85% (verified by manufacturer or independent engineering/construction firm); Or other emission reduction technique determined on a case by case basis that meets the requirements of 40 CFR52.21(b)(23)	

APPENDIX C
BACT Analysis

Top-Down BACT Analysis for NO_X Emissions

a. Step 1 - Identify All Possible Control Technologies

The SJVUAPCD BACT Clearinghouse, Guideline 1.2.1, Oilfield Steam Generator (≥ 20 MMBtu/hr) identifies BACT for NOx emissions as follows:

Pollutant	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
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 NO_X emissions of the steam generator in this project to the most stringent limit of 5 ppmv @ 3% O_2; therefore, a cost effective analysis is not required.

Step 5 - Select BACT

BACT for NOx emissions from the oilfield steam generator is 5 ppmvd @ 3% O2. 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 SO_X and PM_{10} Emissions

Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse, Guideline 1.2.1, Oilfield Steam Generator (≥ 20 MMBtu/hr), identifies BACT for SOx and PM_{10} emissions as follows:

Pollutant	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
SOx and PM_{10}	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		

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 fuel gas with a sulfur content no more than 1 grains/100 scf for the steam generator, which meets the most stringent emission requirements of BACT. Therefore, a cost effective analysis is not required.

Step 5 - Select BACT

BACT for SOx and PM_{10} emissions from the oilfield steam generator is the use of fuel gas with a sulfur content not to exceed 1 gr-S/100 scf. The applicant has proposed the use of fuel gas with a sulfur content not to exceed 1 gr-S/100 scf, 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

The SJVUAPCD BACT Clearinghouse, Guideline 1.2.1, Oilfield Steam Generator (≥ 20 MMBtu/hr), identifies BACT for CO emissions as follows:

Pollutant	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
CO	25 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) 25 ppmvd @ 3% O2 (Achieved-In-Practice)

Step 4 - Cost Effectiveness Analysis

The applicant has proposed to limit the CO emissions of the steam generator in this project to 25 ppmv @ 3% O2 which meets the most stringent emission requirements of BACT. Therefore, a cost effective analysis is not required.

Step 5 - Select BACT

BACT for CO emissions from the oilfield steam generator is 25 ppmvd @ 3% O2. The applicant has proposed to install a steam generator with a CO limit of 25 ppmvd @ 3% O2; therefore, BACT for CO emissions is satisfied.

Top Down BACT Analysis for VOC Emissions

Step 1 - Identify All Possible VOC Control Technologies

The SJVUAPCD BACT Clearinghouse, Guideline 1.2.1, Oilfield Steam Generator (≥ 20 MMBtu/hr), identifies BACT for VOC emissions as follows:

Pollutant	Achieved in Practice or contained in SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Gaseous fuel		

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 gaseous fuel for the steam generator 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

BACT for VOC emissions from the oilfield steam generator is gaseous fuel. The applicant has proposed gaseous fuel; therefore BACT for VOC emissions is satisfied.

APPENDIX D
HRA and AAQA Summary

San Joaquin Valley Air Pollution Control District
Risk Management Review and Ambient Air Quality Analysis

To:	Jesse Garcia – Permit Services
From:	Will Worthley – Technical Services
Date:	April 04, 2020
Facility Name:	SENTINEL PEAK RESOURCES CA LLC
Location:	HEAVY OIL WESTERN STATIONARY SOURCE,
Application #(s):	S-1372-436-1
Project #:	S-1200729

1. Summary

1.1 RMR

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
436-1	0.08	0.02	0.00	2.43E-08	No	No
Project Totals	0.08	0.02	0.00	2.43E-08		
Facility Totals	>1	0.19	0.06	3.50E-06		

1.2 AAQA

Pollutant	Air Quality Standard (State/Federal)				
	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass		Pass		
NO_x	Pass				Pass
SO_x	Pass	Pass		Pass	Pass
PM10				Pass[3]	Pass[3]
PM2.5				Pass[4]	Pass[4]

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. PM10 emissions will be offset using ERCs N-1484-4 and S-5140-4.
4. PM2.5 emissions will be offset using ERCs N-1484-4 and S-5140-4.

To ensure that human health risks will not exceed District allowable levels; the following shall be included as requirements for:

Unit # 436-1

1. No special requirements.

2. Project Description

Technical Services received a request on April 01, 2020 to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for the following:

- Unit -436-1: 85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR (#81) WITH A NORTH AMERICAN G-LE STANDARD BURNER, FLUE GAS RECIRCULATION AND A O2 CONTROLLER

3. RMR Report

3.1 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 than1.0. 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 unit's 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 Fellows (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:

Source Process Rates					
Unit ID	**Process ID**	**Process Material**	**Process Units**	**Hourly Process Rate**	**Annual Process Rate**
436	1	NG/WG	MMscf	0.0085	744.6

Point Source Parameters						
Unit ID	**Unit Description**	**Release Height (m)**	**Temp. (°K)**	**Exit Velocity (m/sec)**	**Stack Diameter (m)**	**Vertical/ Horizontal/ Capped**
436	NG Steam Gen	6.60	399	7.23	1.07	Capped

4. 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 NO_2 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				
Pollutant	**Station Name**	**County**	**City**	**Measurement Year**
CO	Bakersfield-Muni	Kern	Bakersfield	2016
NOx	Bakersfield-California Avenue	Kern	Bakersfield	2016
PM10	Bakersfield-California Avenue	Kern	Bakersfield	2016
PM2.5	BAKERSFIELD - SOUTHEAST (PLANZ)	Kern	Bakersfield	2016
SOx	Fresno - Garland	Fresno	Fresno	2016

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

Emission Rates (lbs/hour)						
Unit ID	**Process**	**NOx**	**SOx**	**CO**	**PM10**	**PM2.5**
436	1	0.53	0.24	1.87	0.65	0.65

Emission Rates (lbs/year)						
Unit ID	**Process**	**NOx**	**SOx**	**CO**	**PM10**	**PM2.5**
436	1	4,617	2,122	16,381	5,659	5,659

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 2004-2008 from Fellows (rural dispersion coefficient selected) were used for the analysis:

The following parameters were used for the review:

Point Source Parameters						
Unit ID	**Unit Description**	**Release Height (m)**	**Temp. (°K)**	**Exit Velocity (m/sec)**	**Stack Diameter (m)**	**Vertical/ Horizontal/ Capped**
436	NG Steam Gen	6.60	399	7.23	1.07	Capped

5. Conclusion

5.1 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).**

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

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

5.2 AAQA

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

6. 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 E
Quarterly Net Emissions Change

Quarterly Net Emissions Change (QNEC)

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

QNEC = PE2 - PE1, where:

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

Using the values in Sections VII.C.2 and VII.C.1 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

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

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

Quarterly NEC [QNEC]			
Pollutant	**PE2 (lb/qtr)**	**PE1 (lb/qtr)**	**QNEC (lb/qtr)**
NO_X	1,135.5	0	1,135.5
SO_X	530.5	0	530.5
PM_{10}	558.5	0	558.5
CO	3,443.75	0	3,443.75
VOC	558.5	0	558.5

APPENDIX F
Compliance Certification

San Joaquin Valley Air Pollution Control District

HEALTHY AIR LIVING

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

I. TYPE OF PERMIT ACTION (Check appropriate box)

☐ ADMINISTRATIVE AMENDMENT ☑ MINOR MODIFICATION ☐ SIGNIFICANT MODIFICATION

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

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

(DT) 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).

(DT) 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.

(DT) Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.

(DT) 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.

(DT) 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 forgoing is correct and true:

Signature of Responsible Official

2/14/20
Date

Daniel Taimuty
Name of Responsible Official (please print)

EH&S Compliance Manager
Title of Responsible Official (please print)

APPENDIX G
ERC Withdrawal Calculations

PM_{10} and $PM_{2.5}$		1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
ERC N-1484-4 – PM_{10}		3,269	3,660	3,947	2,974
Portion of ERC N-1484-4 that is $PM_{2.5}$		28%	28%	26%	24%
		915	1,025	1,026	714
PM_{10} Offsets Required (Includes distance offset ratio)		837	838	838	838
$PM_{2.5}$ Offsets Required (Includes distance offset ratio)		837	838	838	838
- PM_{10} ERC N-1484-4		-2,989*	-2,993*	-3,223*	-2,974
- Portion of ERC N-1484-4 that is $PM_{2.5}$		28%	28%	26%	24%
		-837	-838	-838	-714
Amount Remaining from ERC N-1484-4	PM_{10}	280	667	724	0
	$PM_{2.5}$	78	187	188	0
Offsets Required (After ERC N-1484-4)	PM_{10}	0	0	0	0
	$PM_{2.5}$	0	0	0	124
- PM_{10} ERC N-1484-4		-280	0	0	0
- Portion of ERC N-1484-4 that is $PM_{2.5}$		-78**	0	0	0
Amount Remaining from ERC N-1484-4	PM_{10}	0	667	724	0
	$PM_{2.5}$	0	187	188	0
ERC S-5207-4 – PM_{10}		3,015	2,048	1,883	2,433
Portion of ERC S-5207-4 that is $PM_{2.5}$		100%	100%	100%	100%
		3,015	2,048	1,883	2,433
Offsets Required (After ERC N-1484-4)	PM_{10}	0	0	0	0
	$PM_{2.5}$	0	0	0	46
- PM_{10} ERC S-5207-4		0	0	0	-46
- Portion of ERC S-5207-4 that is $PM_{2.5}$		n/a	n/a	n/a	100%
		0	0	0	-46
Amount Remaining from ERC N-1484-4	PM_{10}	0	667	724	0
	$PM_{2.5}$	0	187	188	0
Credits reissued under ERC N-YYYY-4	PM_{10}	0	667	724	0
	$PM_{2.5}$	0	187	188	0
Amount Remaining from ERC S-5207-4	PM_{10}	3,015	2,048	1,883	2,387
	$PM_{2.5}$				
Credits reissued under ERC S-ZZZZ-4	PM_{10}	3,015	2,048	1,883	2,387
	$PM_{2.5}$				

* In order to fully offset the $PM_{2.5}$ emissions from this certificate, excess PM_{10} credits must be surrendered above what are the PM_{10} emissions emitted. This value is calculated as $PM_{2.5}$ Value ÷ $PM_{2.5}$ Percentage; for example, in the 1st quarter, 837 lbs ÷ 28% = 2,989 lbs.

** District Rule 2201, Section 4.13.7 allows PM offsets from the 1st quarter to be transferred to the 4th quarter; therefore, the excess credits in the 1st quarter, 78 lbs (915 lbs – 837 lbs), will be transferred to the 4th quarter such that the remaining amount to be offset in the 4th quarter is only 46 lbs-$PM_{2.5}$ (838 lbs – (714 lbs + 78 lbs)).

VOC	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)
ERC N-950-1	7,335	7,335	7,335	7,335
Offsets Required (Includes distance offset ratio)	837	838	838	838
Amount Remaining from ERC N-950-1	6,498	6,497	6,497	6,497
Credits reissued under ERC S-YYYY-1	6,498	6,497	6,497	6,497

APPENDIX H
Emission Factor Conversion

	SELECTION #
COAL (ANTHRACITE)	0
COAL (BITUMINOUS)	1
COAL (LIGNITE)	2
OIL (CRUDE, RESIDUAL, OR DISTILLAT	3
GAS (NATURAL)	4
GAS (PROPANE)	5
GAS (BUTANE)	6
WOOD	7
WOOD BARK	8
MUNICIPAL SOLID WASTE	9

STANDARD O2 CORRECTION FOR EXTERNAL COMBUSTION IS 3%		
Type of fuel (use table above)	4	GAS
O2 correction (i.e., 3%)	3	%
Enter concentrations		
NOx	5	ppmv
CO	25	ppmv
VOC (as methane)	7	ppmv

CALCULATED EQUIVALENT LB/MMBTU VALUES		
NOx	0.0061	LB/MMBTU
CO	0.0185	LB/MMBTU
VOC (as methane)	0.0030	LB/MMBTU

pV = R*T		
pressure (p)	1	atm
universal gas constant (R*)	0.7302	atm-scf/lbmole-oR
temperature (oF)	60	oF
calculated		
molar specific volume (V)	379.5	scf/lbmole
Molecular weights		
NOx	46	lb/lb-mole
CO	28	lb/lb-mole
VOC (as methane)	16	lb/lb-mole

F FACTORS FROM EPA METHOD 19			
COAL (ANTHRACITE)	10100	DSCF/MMBTU	COAL
COAL (BITUMINOUS)	9780	DSCF/MMBTU	COAL
COAL (LIGNITE)	9860	DSCF/MMBTU	COAL
OIL (CRUDE, RESIDUAL, OR DISTILLAT	9190	DSCF/MMBTU	OIL
GAS (NATURAL)	8710	DSCF/MMBTU	GAS
GAS (PROPANE)	8710	DSCF/MMBTU	GAS
GAS (BUTANE)	8710	DSCF/MMBTU	GAS
WOOD	9240	DSCF/MMBTU	WOOD
WOOD BARK	9600	DSCF/MMBTU	WOOD BARK
MUNICIPAL SOLID WASTE	9570	DSCF/MMBTU	SOLID WASTE
F FACTOR USED IN CALCULATIONS	8710	DSCF/MMBTU	GAS

	SELECTION #
COAL (ANTHRACITE)	0
COAL (BITUMINOUS)	1
COAL (LIGNITE)	2
OIL (CRUDE, RESIDUAL, OR DISTILLAT	3
GAS (NATURAL)	4
GAS (PROPANE)	5
GAS (BUTANE)	6
WOOD	7
WOOD BARK	8
MUNICIPAL SOLID WASTE	9

STANDARD O2 CORRECTION FOR EXTERNAL COMBUSTION IS 3%		
Type of fuel (use table above)	4	GAS
O2 correction (i.e., 3%)	3	%
Enter concentrations		
NOx	15	ppmv
CO	100	ppmv
VOC (as methane)	7	ppmv

CALCULATED EQUIVALENT LB/MMBTU VALUES		
NOx	0.0182	LB/MMBTU
CO	0.0739	LB/MMBTU
VOC (as methane)	0.0030	LB/MMBTU

pV = R*T		
pressure (p)	1	atm
universal gas constant (R*)	0.7302	atm-scf/lbmole-oR
temperature (oF)	60	oF
calculated		
molar specific volume (V)	379.5	scf/lbmole
Molecular weights		
NOx	46	lb/lb-mole
CO	28	lb/lb-mole
VOC (as methane)	16	lb/lb-mole

F FACTORS FROM EPA METHOD 19			
COAL (ANTHRACITE)	10100	DSCF/MMBTU	COAL
COAL (BITUMINOUS)	9780	DSCF/MMBTU	COAL
COAL (LIGNITE)	9860	DSCF/MMBTU	COAL
OIL (CRUDE, RESIDUAL, OR DISTILLAT	9190	DSCF/MMBTU	OIL
GAS (NATURAL)	8710	DSCF/MMBTU	GAS
GAS (PROPANE)	8710	DSCF/MMBTU	GAS
GAS (BUTANE)	8710	DSCF/MMBTU	GAS
WOOD	9240	DSCF/MMBTU	WOOD
WOOD BARK	9600	DSCF/MMBTU	WOOD BARK
MUNICIPAL SOLID WASTE	9570	DSCF/MMBTU	SOLID WASTE
F FACTOR USED IN CALCULATIONS	8710	DSCF/MMBTU	GAS

APPENDIX I
ERC Surplus Value Determination

ERC Surplus Analysis

Facility Name:	Sentinel Peak Resources California, LLC	**Date:**	December 16, 2020
Mailing Address:	1200 Discovery Drive, Ste 100 Bakersfield, CA 93309	**Engineer:**	Jesse A. Garcia
		Lead Engineer:	Jerry Sandhu
Contact Person:	Jason Goklaney		
Telephone:	(661) 395-5574		
ERC Certificate #s:	N-1484-2, S-5203-2, N-950-1		
ATC Project #:	S-1200729		

Proposal

Sentinel Peak Resources California, LLC is proposing the use of the following Emission Reduction Credit (ERC) certificates to meet the federal offset requirements of District project S-1200729.

Proposed ERC Certificates	
Certificate #	**Criteria Pollutant**
N-1484-2	NO_X
S-5203-2	NO_X
N-950-1	VOC

This analysis establishes the surplus value of ERC certificates as of the date of this analysis. The surplus value of each certificate evaluated in this analysis is summarized in the following tables:

Criteria Pollutant: NO_X

Certificate N-1484-2				
ERC	1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
Original Value	899	877	794	502
Surplus Value	899	877	794	502

Certificate S-5203-2				
ERC	1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
Original Value	14,422	11,783	11,330	12,832
Surplus Value	14,422	11,783	11,330	12,832

Criteria Pollutant: VOC

Certificate N-950-1				
ERC	1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
Original Value	7,335	7,335	7,335	7,335
Surplus Value	7,335	7,335	7,335	7,335

ERC Certificate N-1484-2

I. ERC Background

Criteria Pollutant: NO_X

ERC Certificate N-1484-2 was transferred from another ERC certificate that originated from ERC N-1397-2 issued on December 5, 2016. The ERCs were generated from the shutdown of a breakfast cereal manufacturing plant at facility N-355 which included two boilers (permits N-355-20-10 and -95-3), a cogeneration system with a gas turbine (N-355-21-8), a pellet toaster (N-355-38-4), and an emergency IC engine (N-355-99-0). The following table obtained from the original ERC Banking Application Review (Project N-1160825) summarizes the credits from the subject certificate:

Certificate N-1484-2				
ERC	1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
Actual Emission Reductions	999	975	882	558
Air Quality Improvement Deduction (AQID)	100	98	88	56
Original Certificate (N-1397-2) Quantities	899	877	794	502
Current ERC Certificate (N-1484-2) Quantities	899	877	794	502

II. Applicable District Rules at Time of Original Banking of Certificate N-1484-2

Rule 2301 Emission Reduction Credit Banking (1/19/12)

The application review for the original ERC banking project demonstrates that the ERC credit complied with District Rule 2301 requirements at the time it was issued.

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 (10/16/08)
Rule 4351 Boilers, Steam Generators, and Process Heaters – Phase 1 (8/21/03)
Rule 4701 Internal Combustion Engines – Phase 1 (8/21/03)
Rule 4702 Internal Combustion Engines (11/14/13)
Rule 4703 Stationary Gas Turbines (9/20/07)

The application review for the original ERC banking project demonstrated that the two boilers, a cogeneration system with a gas turbine, a pellet toaster, and an emergency IC

engine had NO_X limits that were below the limits in the Rules listed above.

Therefore, the emission reductions were surplus of the requirements of Rules 4301, 4305, 4306, 4320, 4351, 4701, 4702 and 4703 at the time the ERC was originally banked.

III. Applicable Federal Rules at the Time of Original Banking of Certificate N-1484-2

40 CFR Part 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
40 CFR Part 60 Subpart GG – Standards of Performance for Stationary Gas Turbines
40 CFR Part 63 Subpart DDDDD National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters
40 CFR Part 63 Subpart JJJJJJ National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources
40 CFR Part 63 Subpart YYYY National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines

The application review for the original ERC banking project demonstrated that the two boilers, a cogeneration system with a gas turbine, a pellet toaster, and an emergency IC engine had NO_X limits that were below the limits in the Subparts listed above.

Therefore, the emission reductions were surplus of the requirements of 40 CFR Part 60 Subparts Dc and GG, 40 CFR Part 63 Subparts DDDDD, JJJJJJ, and YYYY at the time the ERC was originally banked.

IV. Current New/Modified District Rules for Certificate N-1484-2

Rule 4306 Boilers, Steam Generators, and Process Heaters – Phase 3
Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters
Rule 4702 Internal Combustion Engines

These rules are under development to be amended to reduce emissions as part of a control measure and have been noticed for workshop. Nevertheless, to be federally surplus, discounting is required for RACT (Reasonably Available Control Technology), New Source Performance Standards, and those District Rules that have been approved into the State Implementation Plan (SIP). Discounting at time of use is not performed for non-federal requirements such as District rules that are not in the SIP.

Since the rules are still under development and are not in the SIP, the emission reductions continue to be federally surplus.

No new applicable rules were identified, and all other District Rules identified in Section II

have not been modified since the time of original banking.

Therefore, the emission reductions continue to be surplus of District Rule requirements.

V. Current New/Modified Federal Rules Applicable to Certificate N-1484-2

40 CFR Part 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

This subpart does not have any requirements for NOx emissions.

Therefore, the emission reductions continue to be surplus of this subpart.

40 CFR Part 60 Subpart GG – Standards of Performance for Stationary Gas Turbines

The application review for the original ERC banking project demonstrated that the cogeneration system with a gas turbine had NO_X limits that were below the limits in 40 CFR Part 60 Subpart GG. The subpart has not been updated since the original banking project in 2016.

Therefore, the emission reductions continue to be surplus of this subpart.

40 CFR Part 63 Subpart DDDDD National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

This subpart applies to boilers and process heaters located at a major source of Hazardous Air Pollutant (HAP) emissions. The facility was not a major source of HAP emissions as determined in project N-1160825 and verified and presented in Attachment 1; therefore, the requirements of this subpart are not applicable to the boilers at the facility.

Therefore, the emission reductions continue to be surplus of this subpart.

40 CFR Part 63 Subpart JJJJJJ National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

The boilers at the facility meet the definition of “gas-fired boiler” in the subpart as they were required to use natural gas or LPG as fuel. Therefore, the requirements of this subpart are not applicable.

Therefore, the emission reductions continue to be surplus of this subpart.

40 CFR Part 63 Subpart YYYY National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines

This subpart applies to stationary combustion turbines located at a major source of HAP emissions. The facility was not a major source of HAP emissions as determined in project N-1160825 and verified and presented in Attachment 1; therefore, the requirements of this subpart are not applicable to the turbine at the facility.

Therefore, the emission reductions continue to be surplus of this subpart.

VI. Surplus at Time of Use Adjustments to ERC Quantities for Certificate N-1484-2

The emissions continue to be surplus of all District and Federal Rules and Regulations.

Therefore, no adjustments to the ERC values are necessary for surplus at time of use considerations.

VII. Surplus Value of ERC Certificate N-1484-2

The emissions continue to be Surplus of all District and Federal Rules and Regulations; therefore, no adjustments to the ERC values are necessary.

Certificate N-1484-2 - Criteria Pollutant: NOx				
Surplus Value Adjustment	1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
Original ERC Quantity (1)	899	877	794	502
Adjustments (2)	0	0	0	0
Percent Surplus (3) = [[(1) – (2)] ÷ (1)] x 100	100%	100%	100%	100%
Current ERC Quantity (4)	899	877	794	502
Surplus Value (5) = (3) x (4)	**899**	**877**	**794**	**502**

ERC Certificate S-5203-2

I. ERC Background

Criteria Pollutant: NO_X

ERC Certificate S-5203-2 was split from other ERC certificates that originated from ERC S-4585-2 issued on 8/26/2015. The credits were generated from the shutdown of a cogeneration system with a biomass-fired boiler at facility S-834-3-6. The following table obtained from the original ERC Banking Application Review (Project S-1141060) summarizes the credits from the subject certificate:

Certificate S-5203-2				
ERC	1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
Actual Emission Reductions	25,343	22,409	21,908	23,579
Air Quality Improvement Deduction	2,534	2,241	2,191	2,358
Original ERC Certificate (S-4585-2) Quantities	22,809	20,168	19,717	21,221
Current ERC Certificate (S-5203-2) Quantities	14,422	11,783	11,330	12,832

II. Applicable District Rules at Time of Original Banking of Certificate S-5203-2

Rule 2301 Emission Reduction Credit Banking (1/19/12)

The application review for the original ERC banking project demonstrates that the ERC credit complied with District Rule 2301 requirements at the time it was issued.

Rule 4352 Solid Fuel Fired Boilers, Seam Generators and Process Heaters (12/15/11)

The application review for the original ERC banking project demonstrated that the biomass-fired boiler had NO_X limits that were below the limits in Rule 4352.

Therefore, the emission reductions were surplus of the requirements of Rule 4352 at the time the ERC was originally banked.

III. Applicable Federal Rules at the Time of Original Banking of Certificate S-5203-2

40 CFR Part 60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units
40 CFR Part 63 Subpart DDDDD National Emission Standards for Hazardous Air Pollutants

for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

The facility maintained a valid permit for the biomass-fired boiler that demonstrated compliance with the NOx limit of 0.30 lb/MMBtu pursuant to 40 CFR 60.44b(d) based off of the limit stated on the permit. Additionally, the pollutants regulated by 40 CFR Part 63 Subpart DDDDD do not include NOx.

Therefore, the emission reductions were surplus of the federally applicable requirements at the time the ERC was originally banked.

IV. Current New/Modified District Rules Applicable to Certificate S-5203-2

No new applicable rules were identified, and the District Rules identified in Section II have not been modified since the time of original banking.

Therefore, the emission reductions continue to be surplus of District Rule requirements.

V. Current New/Modified Federal Rules Applicable to Certificate S-5203-2

The current NOx limit of 40 CFR 60.44b(d) is still 0.30 lb/MMBtu, and as stated above, the biomass-fired boiler had emissions limited below that limit.

Therefore, the emission reductions continue to be surplus of federally applicable requirements.

VI. Surplus at Time of Use Adjustments to ERC Quantities for Certificate S-5203-2

The emissions continue to be surplus of all District and Federal Rules and Regulations.

Therefore, no adjustments to the ERC values are necessary for surplus at time of use considerations.

VII. Surplus Value of ERC Certificate S-5203-2

The emissions continue to be Surplus of all District and Federal Rules and Regulations; therefore, no adjustments to the ERC values are necessary.

Certificate S-5203-2 - Criteria Pollutant: NOx				
Surplus Value Adjustment	1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
Original ERC Quantity (1)	22,809	20,168	19,717	21,221
Adjustments (2)	0	0	0	0
Percent Surplus (3) = [[(1) – (2)] ÷ (1)] x 100	100%	100%	100%	100%
Current ERC Quantity (4)	14,422	11,783	11,330	12,832
Surplus Value (5) = (3) x (4)	**14,422**	**11,783**	**11,330**	**12,832**

ERC Certificate N-950-1

I. ERC Background

Criteria Pollutant: VOC

ERC Certificate N-950-1 was issued on 5/26/2011. The credits were generated from the shutdown of a steel storage systems manufacturing facility with coating operations at facility N-2368. The following table obtained from the original ERC Banking Application Review (Project N-1062909) summarizes the credits from the subject certificate:

Certificate N-950-1				
ERC	1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
Actual Emission Reductions	8,150	8,150	8,150	8,150
Air Quality Improvement Deduction	815	815	815	815
Current ERC Certificate Quantities	7,335	7,335	7,335	7,335

II. Applicable District Rules at Time of Original Banking of Certificate N-950-1

Rule 2301 Emission Reduction Credit Banking (12/17/92)

The application review for the original ERC banking project demonstrates that the ERC credit complied with District Rule 2301 requirements at the time it was issued.

Rule 4603 Surface Coating of Metal Parts and Products (9/17/09)

The application review for the original ERC banking project demonstrated that the coating operation had VOC limits that were below the limits in Rule 4603. Therefore, the emission reductions were surplus of the requirements of Rule 4603 at the time the ERC was originally banked.

III. Applicable Federal Rules at the Time of Original Banking of Certificate N-950-1

40 CFR Part 63 Subpart MMMM National Emission Standards for Hazardous Air Pollutants for Major Sources: Surface Coating of Miscellaneous Metal Parts and Products

This subpart requires that all major sources (PE of any single HAP ≥ 10 tons/yr or PE of combination of HAPs ≥ 25 tons/yr) for existing general use coating affected sources to limit organic HAP emissions to no more than 2.6 lb/gal coating solids used. In the original ERC banking project, the VOCs were limited to 2.3 lb/gal.

Therefore, the emission reductions were surplus of the requirements of the federal applicable limits at the time the ERC was originally banked.

IV. Current New/Modified District Rules Applicable to Certificate N-950-1

No new applicable rules were identified, and the District Rules identified in Section II have not been modified since the time of original banking.

Therefore, the emission reductions continue to be surplus of District Rule requirements.

V. Current New/Modified Federal Rules Applicable to Certificate N-950-1

The current limit of 40 CFR Part 63 Subpart MMMM is still 2.6 lb/gal, and as stated above, the coating operation had emissions limited below that limit.

Therefore, the emission reductions continue to be surplus of federally applicable requirements.

VI. Surplus at Time of Use Adjustments to ERC Quantities for Certificate N-950-1

The emissions continue to be surplus of all District and Federal Rules and Regulations.

Therefore, no adjustments to the ERC values are necessary for surplus at time of use considerations.

VII. Surplus Value of ERC Certificate N-950-1

The emissions continue to be Surplus of all District and Federal Rules and Regulations; therefore, no adjustments to the ERC values are necessary.

Certificate N-950-1 - Criteria Pollutant: VOC				
Surplus Value Adjustment	1st Qtr. (lb/qtr)	2nd Qtr. (lb/qtr)	3rd Qtr. (lb/qtr)	4th Qtr. (lb/qtr)
Original ERC Quantity (1)	7,335	7,335	7,335	7,335
Adjustments (2)	0	0	0	0
Percent Surplus (3) = [[(1) – (2)] ÷ (1)] x 100	100%	100%	100%	100%
Current ERC Quantity (4)	7,335	7,335	7,335	7,335
Surplus Value (5) = (3) x (4)	**7,335**	**7,335**	**7,335**	**7,335**

ATTACHMENT 1
HAP Emission Calculations for Facility N-355

Summary of HAP Emissions

[1]Permit #	Description	HAPs (lb/yr)
N-355-20	48.3 MMBtu/hr boiler	26
N-355-21	3.48 MW Turbine and 16 MMBtu/hr duct burner	532
N-355-38	Graham system pellet toaster	3
N-355-40	Graham system recovery toaster	1
N-355-83	355 bhp diesel fueled IC engine	0
N-355-95	48.3 MMBtu/hr boiler	26
N-355-99	144 bhp diesel fueled IC engine	1
	Total HAPs Potential to Emit (lb/yr):	589
	Total HAPs Potential to Emit (tons/yr):	**0.29**
	Major HAP Threshold (aggregate of all HAPs emitted) (tons/yr)	10
	Major HAP Source?	**No**
Note:		
1. HAPs are not expected from the other processes at this plant.		

HAP Emissions for N-355-20

HAP	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions (lb/hr) [2]	Maximum Annual Emissions (lb/yr) [3]
Acetaldehyde	3.10E-06	1.50E-04	1
Acrolein	2.70E-06	1.30E-04	1
Benzene	5.80E-06	2.80E-04	2
1,3-Butadiene	n/a	--	--
Ethyl benzene	6.90E-06	3.33E-04	3
Formaldehyde	1.23E-05	5.94E-04	5
Hexane	4.60E-06	2.22E-04	2
Naphthalene	3.00E-07	1.45E-05	0
PAHs	1.00E-07	4.83E-06	0
Propylene Oxide	n/a	--	--
Toluene	2.65E-05	1.28E-03	11
Xylene	6.40E-08	3.09E-06	0
Total			**26**
Notes:			
1. These emission factors are obtained from Ventura County APCD, "AB2588 Combustion Emission Factors" natural gas fired external combustion equipment 10-100 MMBtu/hr, available at http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf			
2. Hourly emissions = EF (lb/MMBtu) x 48.3 (MMBtu/hr)			
3. Annual emissions = EF (lb/MMBtu) x 48.3(MMBtu/hr) x 8,760 (hr/yr)			

HAP Emissions for N-355-21 (Turbine)

HAP	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions (lb/hr) [2]	Maximum Annual Emissions (lb/yr) [3]
Acrolein	6.40E-06	3.02E-04	3
Benzene	1.20E-05	5.67E-04	5
1,3-Butadiene	4.30E-07	2.03E-05	0
Ethyl benzene	3.20E-05	1.51E-03	13
Formaldehyde	7.10E-04	3.35E-02	294
Hexane	2.58E-04	1.22E-02	107
Naphthalene	1.30E-06	6.14E-05	1
PAHs (excluding Naphthalene)	3.14E-07	1.48E-05	0
Propylene Oxide	4.76E-05	2.25E-03	20
Toluene	1.30E-04	6.14E-03	54
Xylene	6.40E-05	3.02E-03	26
Total			523
Notes:			
1. EF taken from the application review under project N-1183490.			
2. Hourlyl emissions = EF (lb/MMBtu) x 47.22 (MMBtu/hr)			
3. Annual emissions = EF (lb/MMBtu) x 231 (MMBtu/hr) x 8,760 (hr/yr)			

HAP Emissions for N-355-21 (Duct Burner)

HAP	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions (lb/hr) [2]	Maximum Annual Emissions (lb/yr) [3]
Acetaldehyde	3.10E-06	4.96E-05	0
Acrolein	2.70E-06	4.32E-05	0
Benzene	5.80E-06	9.28E-05	1
1,3-Butadiene	n/a	--	--
Ethyl benzene	6.90E-06	1.10E-04	1
Formaldehyde	1.23E-05	1.97E-04	2
Hexane	4.60E-06	7.36E-05	1
Naphthalene	3.00E-07	4.80E-06	0
PAHs	1.00E-07	1.60E-06	0
Propylene Oxide	n/a	--	--
Toluene	2.65E-05	4.24E-04	4
Xylene	6.40E-08	1.02E-06	0
Total			**9**
Notes:			

1. These emission factors are obtained from Ventura County APCD, "AB2588 Combustion Emission Factors" natural gas fired external combustion equipment 10-100 MMBtu/hr, available at http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf

2. Hourly emissions = EF (lb/MMBtu) x 16 (MMBtu/hr)

3. Annual emissions = EF (lb/MMBtu) x 16 (MMBtu/hr) x 8,760 (hr/yr)

HAP Emissions for N-355-38

HAP	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions (lb/hr) [2]	Maximum Annual Emissions (lb/yr) [3]
Acetaldehyde	3.10E-06	1.55E-05	0
Acrolein	2.70E-06	1.35E-05	0
Benzene	5.80E-06	2.90E-05	0
1,3-Butadiene	n/a	--	--
Ethyl benzene	6.90E-06	3.45E-05	0
Formaldehyde	1.23E-05	6.15E-05	1
Hexane	4.60E-06	2.30E-05	0
Naphthalene	3.00E-07	1.50E-06	0
PAHs	1.00E-07	5.00E-07	0
Propylene Oxide	n/a	--	--
Toluene	2.65E-05	1.33E-04	1
Xylene	6.40E-08	3.20E-07	0
Total			**3**
Notes:			
1. These emission factors are obtained from Ventura County APCD, "AB2588 Combustion Emission Factors" natural gas fired external combustion equipment 10-100 MMBtu/hr, available at http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf			
2. Hourly emissions = EF (lb/MMBtu) x 2 units x 2.5 MMBtu/hr-unit			
3. Annual emissions = EF (lb/MMBtu) x 2 units x 2.5 MMBtu/hr-unit x 8,760 (hr/yr)			

HAP Emissions for N-355-40

HAP	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions (lb/hr) [2]	Maximum Annual Emissions (lb/yr) [3]
Acetaldehyde	3.10E-06	4.65E-06	0
Acrolein	2.70E-06	4.05E-06	0
Benzene	5.80E-06	8.70E-06	0
1,3-Butadiene	n/a	--	--
Ethyl benzene	6.90E-06	1.04E-05	0
Formaldehyde	1.23E-05	1.85E-05	0
Hexane	4.60E-06	6.90E-06	0
Naphthalene	3.00E-07	4.50E-07	0
PAHs	1.00E-07	1.50E-07	0
Propylene Oxide	n/a	--	--
Toluene	2.65E-05	3.98E-05	0
Xylene	6.40E-08	9.60E-08	0
Total			**1**
Notes:			

1. These emission factors are obtained from Ventura County APCD, “AB2588 Combustion Emission Factors” natural gas fired external combustion equipment 10-100 MMBtu/hr, available at http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf

2. Hourly emissions = EF (lb/MMBtu) x 1.5 MMBtu/hr

3. Annual emissions = EF (lb/MMBtu) x 1.5 MMBtu/hr x 8,760 (hr/yr)

HAP Emissions for N-355-83

Pollutant	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions (lb/hr) [2]	Maximum Annual Emissions (lb/yr) [3]
Acetaldehyde	7.67E-04	1.98E-03	0.0
Acrolein	9.25E-05	2.39E-04	0.0
Benzene	9.33E-04	2.41E-03	0.0
1,3-Butadiene	3.91E-05	1.01E-04	0.0
Ethyl benzene	--	--	--
Formaldehyde	1.18E-03	3.04E-03	0.1
Hexane	n/a	--	--
Naphthalene	8.48E-05	2.19E-04	0.0
PAHs	8.32E-05	2.15E-04	0.0
Propylene Oxide	n/a	--	--
Toluene	4.09E-04	1.06E-03	0.0
Xylene	2.85E-04	7.35E-04	0.0
Total			**0.1**
Notes:			
1. The emission are taken from AP-42 Table 3.3-2 (10/96)			
2. Hourly emissions = EF (lb/MMBtu) x 2.58 MMBtu/hr; 18.8 gal/hr x 0.137 MMBtu/gal = 2.58 MMBtu/hr			
3. Annual emissions = EF (lb/MMBtu) x 2.58 (MMBtu/hr) x 20 (hr/yr)			

HAP Emissions for N-355-95

HAP	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions (lb/hr)[2]	Maximum Annual Emissions (lb/yr)[3]
Acetaldehyde	3.10E-06	1.50E-04	1
Acrolein	2.70E-06	1.30E-04	1
Benzene	5.80E-06	2.80E-04	2
1,3-Butadiene	n/a	--	--
Ethyl benzene	6.90E-06	3.33E-04	3
Formaldehyde	1.23E-05	5.94E-04	5
Hexane	4.60E-06	2.22E-04	2
Naphthalene	3.00E-07	1.45E-05	0
PAHs	1.00E-07	4.83E-06	0
Propylene Oxide	n/a	--	--
Toluene	2.65E-05	1.28E-03	11
Xylene	6.40E-08	3.09E-06	0
Total			**26**
Notes:			
1. These emission factors are obtained from Ventura County APCD, "AB2588 Combustion Emission Factors" natural gas fired external combustion equipment 10-100 MMBtu/hr, available at http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf			
2. Hourly emissions = EF (lb/MMBtu) x 48.3 (MMBtu/hr)			
3. Annual emissions = EF (lb/MMBtu) x 48.3(MMBtu/hr) x 8,760 (hr/yr)			

HAP Emissions for N-355-99

Pollutant	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions (lb/hr) [2]	Maximum Annual Emissions (lb/yr) [3]
Acetaldehyde	7.67E-04	1.05E-03	0.1
Acrolein	9.25E-05	1.27E-04	0.0
Benzene	9.33E-04	1.28E-03	0.1
1,3-Butadiene	3.91E-05	5.36E-05	0.0
Ethyl benzene	--	--	--
Formaldehyde	1.18E-03	1.62E-03	0.2
Hexane	n/a	--	--
Naphthalene	8.48E-05	1.16E-04	0.0
PAHs	8.32E-05	1.14E-04	0.0
Propylene Oxide	n/a	--	--
Toluene	4.09E-04	5.60E-04	0.1
Xylene	2.85E-04	3.90E-04	0.0
Total			**0.5**
Notes:			
1. The emission are taken from AP-42 Table 3.3-2 (10/96)			
2. Hourly emissions = EF (lb/MMBtu) x 1.37 MMBtu/hr; 10 gal/hr x 0.137 MMBtu/gal = 1.37 MMBtu/hr			
3. Annual emissions = EF (lb/MMBtu) x 1.37 (MMBtu/hr) x 100 (hr/yr)			