



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT



OCT 20 2016

Mr. Brent Winn
Aera Energy LLC
PO Box 11164
Bakersfield, CA 93389

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # S-1547 and S-1548
Project # 1151973, 1152366**

Dear Mr. Winn:


Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. You requested that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The project authorizes four (4) new steam generators to be operated in Aera's heavy and light oil western stationary sources.

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

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

Thank you for your cooperation in this matter.

Sincerely,



Arnaud Marjollet
Director of Permit Services

Enclosures

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

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San Joaquin Valley Air Pollution Control District

Authority to Construct Application Review

Four New 100 MMBtu/hr Steam Generators

Facility Name: Aera Energy LLC
Mailing Address: PO Box 11164
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Engineer: Richard Edgehill
Lead Engineer: Richard Karrs
Contact Person: Brent Winn and John Haley
Telephone: 661-665-4363 (BW), email: btwinn@aeraenergy.com
Application #(s): S-1547-1341-0 through '-1344 and S-1548-623-0 through '-626-0
Project #: 1151973 (S-1547), 1152366 (S-1548)
Deemed Complete: May 22, 2015

I. Proposal

Aera Energy LLC (Aera) has requested Authorities to Construct (ATCs) for four (4) new 100 MMBtu/hr natural gas -fired steam generators. The four (4) steam generators will be permitted in both Aera Energy's heavy oil (S-1547) and light oil (S-1548) western Kern County stationary sources and therefore eight (8) ATCs will be issued.

Emissions from the new steam generators trigger BACT, offsets and public notice.

Aera facilities S-1547 and S-1548 operate under Title V Permits. This project is a Federal Major Modification; therefore, it is classified as a Title V Significant Modification pursuant to Rule 2520, Section 3.29, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. Aera must apply to administratively amend their Title V permit.

II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (2/18/16)
Rule 2410	Prevention of Significant Deterioration (adopted 6/16/11, effective 11/26/12)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/92)
Rule 4305	Boilers, Steam Generators and Process Heaters – Phase II (8/21/03)
Rule 4306	Boilers, Steam Generators and Process Heaters – Phase III (3/17/05)
Rule 4320	Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)

Rule 4801 Sulfur Compounds (12/17/92)
CH&SC 41700 Health Risk Assessment
CH&SC 42301.6 School Notice
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA
Guidelines

III. Project Location

The steam generators will be located at the following specified locations within sources S-1548 and S-1547, Aera's Light Oil Western Stationary Source (LOWSS) and Heavy Oil Western Stationary Source (HOWSS), respectively:

Section 34, T28S, R21E
NE Section 33, T28S, R21E
NE Section 29, T28S, R21E
Southern ½ Section 28, T28S, R21E

The equipment will not be located within 1,000 feet of the outer boundary of a K-12 school.

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

IV. Process Description

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

V. Equipment Listing

Proposed ATCs:

- S-1547-1341-0: 100 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN/FIVES GLE BURNER (OR EQUIVALENT), ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (ALSO PERMITTED AS S-1548-623-0)
- S-1547-1342-0: 100 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN/FIVES GLE BURNER (OR EQUIVALENT), ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (ALSO PERMITTED AS S-1548-624-0)
- S-1547-1343-0: 100 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN/FIVES GLE BURNER (OR EQUIVALENT), ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (ALSO PERMITTED AS S-1548-625-0)

- S-1547-1344-0: 100 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN/FIVES GLE BURNER (OR EQUIVALENT), ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (ALSO PERMITTED AS S-1548-626-0)
- S-1548-623-0: 100 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN/FIVES GLE BURNER (OR EQUIVALENT), ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (ALSO PERMITTED AS S-1547-1341-0)
- S-1548-624-0: 100 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN/FIVES GLE BURNER (OR EQUIVALENT), ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (ALSO PERMITTED AS S-1547-1342-0)
- S-1548-625-0: 100 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN/FIVES GLE BURNER (OR EQUIVALENT), ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (ALSO PERMITTED AS S-1547-1343-0)
- S-1548-626-0: 100 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN/FIVES GLE BURNER (OR EQUIVALENT), ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (ALSO PERMITTED AS S-1547-1344-0)

VI. Emission Control Technology Evaluation

Criteria pollutants from natural gas-fired steam generators 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.

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

VII. General Calculations

A. Assumptions

- The maximum operating schedule is 24 hours per day (per applicant)
- Fuel will consist of natural gas with a maximum sulfur content of 1 gr S/100 scf

- Annual potential to emit is calculated based on 8,760 hours of operation per year
- EPA F-factor for natural gas is 8,578 dscf/MMBtu (40 CFR 60, Appendix B)
- Molar specific volume of a gas @ 60 °F is 379.5 ft³/lb-mol
- Maximum Heat Input: 100.0 MMBtu/hr (per applicant).
- PM10 is all PM2.5

B. Emission Factors

Pollutant	Emission Factors (EF2)		Source
NO _x	0.007 lb-NO _x /MMBtu	6 ppmvd NO _x (@ 3%O ₂)	Proposed, Rule 4320 limit and BACT
SO _x	0.00285 lb SO _x /MMBtu	1.0 gr S/100 scf	Proposed, District Standard for Natural Gas
PM ₁₀	0.0076 lb-PM ₁₀ /MMBtu		Proposed
CO	0.0185 lb-CO/MMBtu	25 ppmv CO @3% O ₂	Proposed and BACT
VOC	0.003 lb-VOC/MMBtu	7 ppmv VOC @3% O ₂	Proposed

C. Calculations

1. Pre-Project Potential to Emit (PE1)

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

2. Post Project Potential to Emit (PE2)

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

S-1547-1341 thru '-1344 and S-1548-623 thru '-626 (each)

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO _x	0.0070	100	24	16.3
SO _x	0.00285	100	24	6.8
PM ₁₀	0.0050	100	24	12.0
CO	0.019	100	24	37.7
VOC	0.0030	100	24	7.2

Pollutant	Annual PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
NO _x	0.007	100	8,760	6,132
SO _x	0.00285	100	8,760	2,497
PM ₁₀	0.0050	100	8,760	4,380
CO	0.019	100	8,760	16,206
VOC	0.0030	100	8,760	2,628

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

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

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

S-1547

SSPE1 (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE Calculator*	2,453,193	2,718,116	1,777,116	4,977,262	3,677,454

*SSPE Calculator - does not include emissions from outstanding ATCs

S-1548

SSPE1 (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE Calculator*	110,235	80,591	7,323	916,855	643,309

*SSPE Calculator - does not include emissions from 4 outstanding ATCs with emissions increases of VOCs

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.

S-1547

Emissions from Aera’s HOWSS, Facility S-1547, are already above the Offset and Major Source Thresholds for all pollutants; therefore, SSPE1 calculations are not necessary. Calculation of SSPE2 is therefore is not required for offsets determination.

S-1548

SSPE2 (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE Calculator	110,235	80,591	7,323	916,855	643,309
Project increase	28,528	9,988	17,520	64,824	10,512
SSPE2	138,763	90,579	24,843	981,679	653,821

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

S-1547

Rule 2201 Major Source Determination (lb/year)						
	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO	VOC
SSPE1	>20,000	>140,000	>140,000	>200,000	>200,000	>20,000
SSPE2	>20,000	>140,000	>140,000	>200,000	>200,000	>20,000
Major Source Threshold	20,000	140,000	140,000	200,000	200,000	20,000
Major Source?	Yes	Yes	Yes	Yes	Yes	Yes

Note: PM2.5 assumed to be equal to PM10

This source is an existing Major Source for NO_x, SO_x, PM₁₀, CO, and VOC emissions and will remain a Major Source for these air contaminants. No change in other pollutants are proposed or expected as a result of this project.

S-1548

Rule 2201 Major Source Determination (lb/year)						
	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO	VOC
SSPE1*	>20,000	<140,000	<140,000	<200,000	>200,000	>20,000
SSPE2	>20,000	<140,000	<140,000	<200,000	>200,000	>20,000
Major Source Threshold	20,000	140,000	140,000	200,000	200,000	20,000
Major Source?	Yes	No	No	No	Yes	Yes

Note: PM_{2.5} assumed to be equal to PM₁₀

This source is an existing Major Source for NO_x, CO, and VOC emissions and will remain a Major Source for these air contaminants. No change in other pollutants are proposed or expected as a result of this project.

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.

S-1547

PSD Major Source Determination (tons/year)						
	NO ₂	VOC	SO ₂	CO	PM	PM ₁₀
Estimated Facility PE before Project Increase*	≥1227	≥1839	≥1,359	≥2,489	≥889	≥889
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source ? (Y/N)	Y	Y	Y	Y	Y	Y

S-1548

PSD Major Source Determination (tons/year)						
	NO2	VOC	SO2	CO	PM	PM10
Estimated Facility PE before Project Increase*	57	≥542	108	496	103	103
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source ? (Y/N)	N	Y	N	Y	N	N

As shown above, both facilities S-1547 and S-1548 are existing PSD major sources for at least one pollutant.

6. Baseline Emissions (BE)

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

Pursuant to District Rule 2201, BE = PE1 for:

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

otherwise,

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

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

7. SB 288 Major Modification

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

SB 288 Major Modification Thresholds			
Pollutant	Project PE2 (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
NO _x	6,132 x 4 = 24,528	50,000	No
SO _x	2,497 x 4 = 9,988	80,000	No
PM ₁₀	4,380 x 4 = 17,520	30,000	No
VOC	2,628 x 4 = 10,512	50,000	No

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

8. Federal Major Modification

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

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

Step 1

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

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

Federal Major Modification Thresholds for Emission Increases			
Pollutant	Total Emissions Increases (lb/yr)	Thresholds (lb/yr)	Federal Major Modification?
NO _x *	24,528	0	Y
VOC*	10,512	0	Y
PM ₁₀	17,520	30,000	N
PM _{2.5}	17,520	20,000	N
SO _x	9,988	80,000	N

Since there is an increase in NO_x and VOC emissions, this project constitutes a Federal Major Modification.

Federal Offset quantities are calculated below:

Federal Offset Quantities:

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

Only list pollutants for which the project is a Federal Major Modification and delete other pollutants. The calculated Federal offset quantity is entered into the Major Modification tracking spreadsheet under the heading "Federal Offset Quantity"

NOx		Federal Offset Ratio		1.5
Permit No.	Actual Emissions (lb/year)	Potential Emissions (lb/year)	Emissions Change (lb/yr)	
S-1547-1341 S-1548-623	0	6132	6132	
S-1547-1342 S-1548-624	0	6132	6132	
S-1547-1343 S-1548-625	0	6132	6132	
S-1547-1344 S-1548-626	0	6132	6132	
Net Emission Change (lb/year):			24,528	
Federal Offset Quantity: (NEC * 1.5)			36,792	

VOC		Federal Offset Ratio		1.5
Permit No.	Actual Emissions (lb/year)	Potential Emissions (lb/year)	Emissions Change (lb/yr)	
S-1547-1341 S-1548-623	0	2628	2628	
S-1547-1342 S-1548-624	0	2628	2628	
S-1547-1343 S-1548-625	0	2628	2628	
S-1547-1344 S-1548-626	0	2628	2628	
Net Emission Change (lb/year):			10,512	
Federal Offset Quantity: (NEC * 1.5)			15,768	

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

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

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

I. Project Location Relative to Class 1 Area

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

II. Project Emission Increase – Significance Determination

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

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

PSD Significant Emission Increase Determination: Potential to Emit (tons/year)					
	NO2	SO2	CO	PM	PM10
Total PE from New and Modified Units	12.3	5.0	32.4	8.8	8.8
PSD Significant Emission Increase Thresholds	40	40	100	25	15
PSD Significant Emission Increase?	N	N	N	N	N

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

10. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. As the permit unit is new QNEC is equal to PE2/4.

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

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

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

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

As seen in Section VII.C.2 of this evaluation, Aera is proposing to install new steam generators with PEs greater than 2 lb/day for NO_x, SO_x, PM₁₀, CO, and VOC.

BACT is triggered for NO_x, SO_x, PM₁₀, CO and VOC because the PEs are greater than 2 lbs/day and the SSPE for CO at both S-1547 and S-1548 is greater than 200,000 lb/year.

2. BACT Guideline

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

3. Top-Down BACT Analysis

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

Pursuant to the attached Top-Down BACT Analysis (see **Attachment IV**), BACT has been satisfied with the following:

- NO_x: 6 ppmvd @ 3% O₂
- SO_x, PM₁₀: Fired on PUC quality natural gas or gaseous fuel treated to remove 95% by weight of sulfur compounds, or gaseous fuel treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf
- CO: 25 ppmvd or less @ 3% O₂
- VOC: Gaseous fuel

B. Offsets

1. Offset Applicability

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

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

Offset Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Post Project SSPE (SSPE2) – S-1547	>20,000	>54,750	>29,200	>200,000	>20,000
Post Project SSPE (SSPE2) – S-1548	138,763	90,579	24,843*	981,679	653,821
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	Yes	Yes*	Yes	Yes

*Offsets threshold exceeded for S-1547 only

2. Quantity of Offsets Required

As seen above, the SSPE2 for S-1547 is greater than the offset thresholds for NO_x, SO_x, PM₁₀, CO, and VOCs; therefore, offset calculations will be required for this project.

However, Section 4.6.1 of Rule 2201 states that emissions offsets are not required for increases in CO in attainment areas provided the applicant demonstrates to the satisfaction of the APCO that the Ambient Air Quality (AAQ) Standards are not violated in the areas to be affected, such emissions will be consistent with Reasonable Further

Progress, and will not cause or contribute to a violation of AAQ Standards. The District performed an AAQ Analysis and determined that this project will not result in or contribute to a violation of an AAQ Standard for CO (see **Attachment V**). Therefore, CO offsets are not required for this project.

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

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

Where,

PE2 = Post Project Potential to Emit, (lb/year)

BE = Baseline Emissions, (lb/year)

ICCE = Increase in Cargo Carrier Emissions, (lb/year)

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = PE1 for:

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

otherwise,

BE = HAE

The facility is proposing to install new emissions units; therefore BE = 0. Also, there is only one emissions unit associated with this project and there are no increases in cargo carrier emissions.

Note that, in the calculation of quarterly offset quantities resulting in fractional pounds per quarter, the values were adjusted to whole numbers and redistributed as follows (District policy APR 1010):

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

NO_x

$$\text{Offsets Required (lb/year)} = ([\text{PE2} - \text{BE}]) \times \text{DOR}$$

$$\text{PE2 (NO}_x\text{)} = 6,132 \times 4 = 24,528 \text{ lb/year}$$

$$BE (NO_x) = 0 \text{ lb/year}$$

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

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([24,528 - 0] + 0) \times 1.5 \\ &= 24,528 \times 1.5 \\ &= 36,792 \text{ lb NO}_x/\text{year} \end{aligned}$$

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

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
9,198	9,198	9,198	9,198

For each steam generator*

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
2,299	2,299	2,300	2,300

*redistribution of 9,198/4

Applicant proposes to use ERCs S-1821-2 and S-4422-2 which have been reserved for the project as described below.

Certificate	Q1	Q2	Q3	Q4
S-1821-2	2,828	7,148	6,301	2,882
S-4422-2	6,370	2,050	2,897	6,316
total	9,198	9,198	9,198	9,198

VOCs

$$\begin{aligned} PE2 (VOCs) &= 2,628 \times 4 = 10,512 \text{ lb/year} \\ BE (VOCs) &= 0 \text{ lb/year} \end{aligned}$$

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

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([10,512 - 0] + 0) \times 1.5 \\ &= 10,512 \times 1.5 \\ &= 15,768 \text{ lb VOC/year} \end{aligned}$$

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

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
3,942	3,942	3,942	3,942

For each steam generator*

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
985	985	986	986

*redistribution of 3,942/4

Applicant proposes to use ERC S-4489-1 which has been reserved for the project as described below.

Certificate	Q1	Q2	Q3	Q4
S-4489-1	3,942	3,942	3,942	3,942

PM₁₀

PE2 (PM10) = 4,380 x 4 = 17,520 lb/year

BE (PM10) = 0 lb/year

Assuming an offset ratio of 1.5:1, the amount of PM₁₀ ERCs that need to be withdrawn is:

The amount of PM₁₀ ERCs that need to be withdrawn is:

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([17,520 - 0] + 0) \times 1.5 \\ &= 17,520 \times 1.5 \\ &= 26,280 \text{ lb PM}_{10}/\text{year} \end{aligned}$$

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

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
6,570	6,570	6,570	6,570

For each steam generator

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
1,642	1,642	1,643	1,643

*redistribution of 6,570/4

Applicant proposes to use ERC S-4424-5 which has been reserved for the project as described below.

Certificate	Q1	Q2	Q3	Q4
S-4424-5	6,570	6,570	0	13,140*

*District Rule 2201 Section 4.13.7 AER for PM that occurred from October through March (4th and 1st qtrs), inclusive, may be used to offset increases in PM during any period of the year, by District policy APR 14XX (draft) "Interpollutant Offset Ratio" SOx ERC may be used to offset PM10 at an interpollutant offset ratio of 1:1

SOx

PE2 (SOx) = 2,497 x 4 = 9,988 lb/year

$$BE (SO_x) = 0 \text{ lb/year}$$

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

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([9,988 - 0] + 0) \times 1.5 \\ &= 9,988 \times 1.5 \\ &= 14,982 \text{ lb SO}_x/\text{year} \end{aligned}$$

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

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
3,745	3,745	3,746	3,746

For each steam generator

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
936	936	937	937

*redistribution of 3746/4

Applicant proposes to use ERC S-1032-5 which has been reserved for the project as described below.

Certificate	Q1	Q2	Q3	Q4
S-1032-5	3,745	3,745	3,746	3,746

As seen above, the facility has sufficient credits to fully offset the quarterly NO_x, SO_x, PM₁₀, and VOC emissions increases associated with this project.

Note that offsets conditions were only added to S-1547 ATCs.

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

- 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 – 2,299 lb, 2nd quarter – 2,299 lb, 3rd quarter – 2,230 lb, and fourth quarter – 2,230 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- Prior to operating equipment under this Authority to Construct, permittee shall surrender SO_x emission reduction credits for the following quantity of emissions: 1st quarter – 936 lb, 2nd quarter – 936 lb, 3rd quarter – 937 lb, and fourth quarter – 937 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- Prior to operating equipment under this Authority to Construct, permittee shall surrender PM₁₀ emission reduction credits for the following quantity of emissions: 1st quarter – 1,642 lb, 2nd quarter – 1,642 lb, 3rd quarter – 1,643 lb, and fourth quarter – 1,643 lb.

These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]

- Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter – 985 lb, 2nd quarter – 985 lb, 3rd quarter – 986 lb, and fourth quarter – 986 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- ERC Certificate Numbers S-4489-1, S-4422-2, S-1821-2, S-1032-5, and S-4424-5 (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

C. Public Notification

1. Applicability

Public noticing is required for:

- a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- c. Any project which results in the offset thresholds being surpassed,
- 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 Sections VII.C.7 and VII.C.8, this project constitutes a Federal Major Modification; therefore, public noticing for Federal Major Modification purposes is required.

b. PE > 100 lb/day

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

c. Offset Threshold

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

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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

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Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	110,235	138,763	20,000 lb/year	No
SO _x	80,591	90,579	54,750 lb/year	No
PM ₁₀	7,323	24,843	29,200 lb/year	No
CO	916,855	981,679	200,000 lb/year	No
VOC	643,309	653,821	20,000 lb/year	No

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

d. SSIPE > 20,000 lb/year

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

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SSIPE Public Notice Thresholds					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	>20,000	>20,000	28,528	20,000 lb/year	Yes
SO _x	>20,000	>20,000	9,988	20,000 lb/year	No
PM ₁₀	>20,000	>20,000	17,520	20,000 lb/year	No
CO	>20,000	>20,000	64,824	20,000 lb/year	Yes
VOC	>20,000	>20,000	10,512	20,000 lb/year	No

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SSIPE Public Notice Thresholds					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	138,763	110,235	28,528	20,000 lb/year	Yes
SO _x	90,579	80,591	9,988	20,000 lb/year	No
PM ₁₀	24,843	7,323	17,520	20,000 lb/year	No
CO	981,679	916,855	64,824	20,000 lb/year	Yes
VOC	653,821	643,309	10,512	20,000 lb/year	No

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

e. Title V Significant Permit Modification

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

2. Public Notice Action

As discussed above, public noticing is required for this project for exceeding the SSIPE for CO and triggering a Federal Major Modification. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

D. Daily Emission Limits (DELs)

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

Proposed Rule 2201 (DEL) Conditions:

- This unit shall be fired on PUC quality natural gas, but not solely PUC quality natural gas; or gaseous fuel treated to remove 95% by weight of sulfur compounds, or gaseous fuel treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf. [District Rule 2201] Y
- The unit shall only be fired on natural gas with a maximum sulfur content of 1.0 gr S/100scf. [District Rules 2201, 4301, and 4320] Y

- Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 6 ppmvd NO_x @ 3% O₂ or 0.007 lb-NO_x/MMBtu, 0.005 lb-PM₁₀/MMBtu, 25 ppmvd CO @ 3% O₂ or 0.0185 lb-CO/MMBtu, or 0.003 lb-VOC/MMBtu. [District Rules 2201, 4201, 4301, 4305, 4306, 4320, and 4801]
Y

E. Compliance Assurance

1. Source Testing

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

2. Monitoring

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

3. Recordkeeping

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

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

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

The proposed location is in an attainment area for NO_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 PM₁₀ as well as federal and state PM_{2.5} thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM₁₀ and PM_{2.5}.

G. Compliance Certification

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

H. Alternate Siting Analysis

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

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

Rule 2410 Prevention of Significant Deterioration

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

Rule 2520 Federally Mandated Operating Permits

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

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

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

Rule 4001 New Source Performance Standards

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-Institutional 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 PM₁₀. The 100 MMBtu/hr steam generators are subject to Subpart Dc requirements.

60.42c – Standards for Sulfur Dioxide

Since coal is not combusted by the steam generators in this project, the requirements of this section are not applicable.

60.43c – Standards for Particulate Matter

The steam generators do not fired on coal, combust mixtures of coal with other fuels, combust wood, combust mixtures 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 steam generators 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 steam generators in this project.

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

Since the steam generators 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 steam generator in this project.

60.46c – Emission Monitoring for Sulfur Dioxide

Since the steam generators 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 steam generators in this project.

60.47c – Emission Monitoring for Particulate Matter

Since the steam generators 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 steam generators in this project.