San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

OCT 2 0 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 Bakersfield, CA 93389-1164	Engineer: Lead Engineer:	Richard Edgehill 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 ft^3/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% O2	Proposed and BACT
VOC	0.003 lb-VOC/MMBtu	7 ppmv VOC @3% O2	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 NOx, SOx, 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: PM2.5 assumed to be equal to PM10

This source is an existing Major Source for NOx, 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)						
	NO2	VOC	SO2	CO	PM	PM10
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 (inlcuding 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 futher 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, PM_{10}, CO, and VOC.

BACT is triggered for NO_X, SO_X, PM_{10}, 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 >= 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% O_2
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% O_2
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 NOx, SOx, 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.

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 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 ÷ 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

<u>NOx</u>
Offsets Required (lb/year) = ([PE2 – BE]) x DOR

PE2 (NO_X) = 6,132 x 4 = 24,528 lb/year

BE (NO_X) = 0 lb/year

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

Offsets Required (lb/year) = ([24,528 – 0] + 0) x 1.5
= 24,528 x 1.5
= 36,792 lb NO_X/year

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

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
9,198	9,198	9,198	9,198

For each steam generator*

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
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

PE2 (VOCs) = 2,628 x 4 = 10,512 lb/year
BE (VOCs) = 0 lb/year

The amount of VOCs ERCs that need to be withdrawn is:

Offsets Required (lb/year) = ([10,512 – 0] + 0) x 1.5
= 10,512 x 1.5
= 15,768 lb VOC/year

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

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
3,942	3,942	3,942	3,942

For each steam generator*

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
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

PM_{10}

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 PM_{10} ERCs that need to be withdrawn is:

The amount of PM_{10} ERCs that need to be withdrawn is:

Offsets Required (lb/year) = ([17,520 – 0] + 0) x 1.5
= 17,520 x 1.5
= 26,280 lb PM_{10}/year

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

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
6,570	6,570	6,570	6,570

For each steam generator

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
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 (SOx) = 0 lb/year

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

Offsets Required (lb/year) = ([9,988 – 0] + 0) x 1.5
= 9,988 x 1.5
= 14,982 lb SOx/year

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

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
3,745	3,745	3,746	3,746

For each steam generator

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
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 NOx, SOx, 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 NOx 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 NOx @ 3% O2 or 0.007 lb-NOx/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 Rule4320 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 PM_{10} as well as federal and state $PM_{2.5}$ thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM_{10} and $PM_{2.5}$.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a 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 futher 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-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 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 arenot 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.

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 unit's equipment description. 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.

District Rule 4001, §3.0 defines the Administrator as the APCO of the District. The following condition ensures compliance:

- *Permittee shall submit notification to the District of the date of construction, anticipated startup, and actual startup. Notifications shall be postmarked no later than 30 days after construction and 15 days after actual startup. The notifications shall include the design heat input and identification of fuels for this permit unit. [40 CFR 60.48c (a)]*

Section 60.48c (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 day. The following conditions will be added to the permit to ensure compliance with this section.

- *A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201 and 40 CFR 60.48c (g)]*

- *Permittee shall maintain daily records of the type and quantity of fuel combusted by the steam generator. [District Rule 2201 and 40 CFR 60.48c (g)]*

Section 60.48c (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. District Rule 4320 requires that records be kept for five years. Compliance is ensured with the following condition:

- *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, 4320, and 40 CFR 60.48c (i)]*

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

Rule 4101 Visible Emissions

Per Section 5.0, no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity). As the steam generators are fired solely on natural gas and the TEOR system will result in fugitive emissions only, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity. The following condition will remain listed on the facility-wide permit to ensure compliance:

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

Rule 4102 Nuisance

Rule 4102 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, compliance with this rule is expected.

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – *Risk Management Policy for Permitting New and Modified Sources* specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

An HRA is not required for a project with a total facility prioritization score of less than one. According to the Technical Services Memo for this project (**Attachment V**), the total facility prioritization score including this project was greater than one. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project.

Discussion of T-BACT

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated in the HRA, 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.

Rule 4201 Particulate Matter Concentration

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

F-Factor for NG: 8,578 dscf/MMBtu at 60 °F
PM_{10} Emission Factor: 0.005 lb-PM_{10}/MMBtu
Percentage of PM as PM_{10} in Exhaust: 100%
Exhaust Oxygen (O_2) Concentration: 3%

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

$$GL = \left(\frac{0.005\ lb-PM}{MMBtu} \times \frac{7{,}000\ grain}{lb-PM}\right) / \left(\frac{8{,}578\ ft^3}{MMBtu} \times\ 1.17\right)$$

$$GL = 0.0035\ grain/dscf < 0.1\ grain/dscf$$

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

California Health & Safety Code 42301.6 (School Notice)

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

Rule 4301 Fuel Burning Equipment

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

Section 5.0 gives the requirements of the rule.
A person shall not discharge into the atmosphere combustion contaminants exceeding in concentration at the point of discharge, 0.1 grain per cubic foot of gas calculated to 12% of carbon dioxide at dry standard conditions.

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

- 200 pound per hour of sulfur compounds, calculated as sulfur dioxide (SO_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			
Unit	**NO_2**	**Total PM**	**SO_2**
	0.007 x 100 = 0.7	0.005 x 100 = 0.5	0.00285 x 100 = 0.285
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 unit is natural gas-fired with a maximum heat input of 20.0 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4305, the unit is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters – Phase 2.*

In addition, the unit is also subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3.*

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

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

The unit is natural gas-fired with a maximum heat input of 20.0 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4306, the unit is subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3.*

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

Rule 4320 – Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr

Section 5.0 Requirements

Section 5.1 of the rule requires compliance with the NOx and CO emissions limits listed in Table 1 of Section 5.2 or payment of an annual emissions fee to the District as specified in Section 5.3 and compliance with the control requirements specified in Section 5.4; or as stated in Section 5.1.3, comply with the applicable Low-use Unit requirements of Section 5.5.

Section 5.2 NOx and CO Emission Limits

Oilfield Steam Generators

Rule 4320 Emissions Limits				
Category	Operated on gaseous fuel		Operated on liquid fuel	
	NO_X Limit	CO Limit	NO_X Limit	CO Limit
1. Units with a total rated heat input >20.0 MMBtu/hr	Standard Schedule 7 ppmv or 0.008 lb/MMBtu; or	400 ppmv @ 3% O2	40 ppmv or 0.052 lb/MMBtu	400 ppmv @ 3% O2
	Staged Enhanced Schedule Initial limit: 9 ppmv @ 3% O2, 0.011 lb/MMBtu			
	Final limit: 5 ppmv @ 3% O2, 0.0062 lb/MMBtu			

The proposed NOx and CO emission factors are 6 ppmv @ 3% O2 and 25 ppmv @ 3% O2.

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

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

Section 5.3 Annual Fee Calculation

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

Section 5.4 Particulate Matter Control Requirements

Section 5.4 of the rule requires one of four options for control of particulate matter: 1) combustion of PUC-quality natural gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases, 2) limit fuel sulfur content to no more than five (5) grains of total sulfur per one hundred (100) standard cubic, 3) install and properly operate an emission control system that reduces SO_2 emissions by at least 95% by weight; or limit exhaust SO_2 to less than or equal to 9 ppmv corrected to 3.0% O2 or 4) refinery units, which require modification of refinery equipment to reduce sulfur emissions, shall be in compliance with the applicable requirement in Section 5.4.1 no later than July 1, 2013.

The unit has a sulfur emission limit of 0.005 lb SO2/MMBtu (1.75 gr S/100scf) and are authorized to combust natural/TEOR gas. Therefore, compliance with this Section of the rule is expected.

Section 5.5 Low Use

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

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

Section 5.6, Startup and Shutdown Provisions

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

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

Section 5.7, Monitoring Provisions

Section 5.7 requires either use of a APCO approved Continuous Emissions Monitoring System (CEMS) for NOx, CO, and oxygen, or implementation of an APCO-approved Alternate Monitoring System consisting of:

5.7.1.1 Periodic NOx and CO exhaust emission concentrations,
5.7.1.2 Periodic exhaust oxygen concentration,
5.7.1.3 Flow rate of reducing agent added to exhaust,
5.7.1.4 Catalyst inlet and exhaust temperature,
5.7.1.5 Catalyst inlet and exhaust oxygen concentration,
5.7.1.6 Periodic flue gas recirculation rate, or
5.7.1.7 Other operational characteristics.

In order to satisfy the requirements of District Rule 4320, the applicant has proposed to use pre-approved alternate monitoring scheme A (pursuant to District Policy SSP-1105), which requires that monitoring of NO_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 incorporated into the permits in order to ensure compliance with the requirements of the proposed alternate monitoring plan:

{4063} The permittee shall monitor and record the stack concentration of NO_X, CO, and O2 at least once every month (in which a source test is not performed) using a portable analyzer that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306, and 4320]

{4064} If either the NO_X or CO concentrations corrected to 3% O2, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320]

{4065} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305, 4306, and 4320]

{4066} The permittee shall maintain records of: (1) the date and time of NO_X, CO, and O2 measurements, (2) the O2 concentration in percent by volume and the measured NOX and CO concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust

gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306, and 4320]

5.7.6 Monitoring SOx Emissions

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

Section 5.7.6.2 Operators complying with Section 5.4.1.3 by installing and operating a control device with 95% 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 Operators complying with Section 5.4.1.3 shall perform an annual source test unless a more frequent sampling and reporting period is included in the Permit to Operate. Source tests shall be performed in accordance with the test methods in Section 6.2.

Sulfur Monitoring

The following conditions will be included on the ATCs.

If the steam generator is not fired on PUC-regulated natural gas and compliance is achieved through fuel sulfur content limitations, then the sulfur content of the fuel shall be determined by testing sulfur content at a location after all fuel sources are combined prior to incineration, or by performing mass balance calculations based on monitoring the sulfur content and volume of each fuel source. The sulfur content of the fuel shall be determined using the test methods referenced in this permit. [District Rule 4320] Y

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

If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rule 4320] Y

Section 5.8, Compliance Determination

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

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

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

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

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

Section 5.8.4 For emissions monitoring pursuant to Sections 5.7.1, and 6.3.1 using a portable NOx analyzer as part of an APCO approved Alternate Emissions Monitoring System, emission readings shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15-consecutive-minute sample reading or by taking at least five readings evenly spaced out over the 15-consecutive-minute period.

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

Section 5.8.5 For emissions source testing performed pursuant to Section 6.3.1 for the purpose of determining compliance with an applicable standard or numerical limitation of this rule, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit.

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

Section 6.1 Recordkeeping

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

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

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

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

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

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

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

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

Section 6.2, Test Methods

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

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
Oxides of sulfur		EPA Method 6C, EPA Method 8, or ARB Method 100
Total Sulfur as Hydrogen Sulfide (H_2S) Content		EPA Method 11 or EPA Method 15, as appropriate.
Sulfur Content of Liquid Fuel		ASTM D 6920-03 or ASTM D 5453-99

The following test method conditions are included on the ATCs:

{2977} NO_X emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320]

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

{2979} Stack gas oxygen (O_2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320]

Section 6.2.8.2. The SOx emission control system efficiency shall be determined using the following:

$$\% \text{ Control Efficiency} = [(C_{SO2,\ inlet} - C_{SO2,\ outlet}) / C_{SO2,\ inlet}] \times 100$$

where:
$C_{SO2,\ inlet}$ = concentration of SOx (expressed as SO_2) at the inlet side of the SOx emission control system, in lb/dscf

$C_{SO2,\ outlet}$ = concentration of SOx (expressed as SO_2) at the outlet side of the SOx emission control system, in lb/dscf

The units are not equipped with a SO2 scrubber. Therefore this section is not applicable.

Section 6.3 Compliance Testing

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

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

Section 6.3.1.2 Tune-ups required by Sections 5.5.1 and 6.3.1 do not need to be performed for units that operate and maintain an APCO approved CEMS or an APCO approved Alternate Monitoring System where the applicable emission limits are periodically monitored. Applicant has proposed to monitor the emissions of NOx and CO Alternate Monitoring Scheme "A" and therefore tuning is not required.
Section 6.3.1.3 If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits specified in Section 5.2, the source testing frequency shall revert to at least once every 12 months.

The following conditions are included on the ATC:

{109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]

{3467} Source testing to measure 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]

{3466} 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 applicable for this project.

Section 6.4, Emission Control Plan (ECP)

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

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

Section 7.0, Compliance Schedule

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

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

Conclusion

Conditions are included on the ATCs in order to ensure compliance with each section of this rule, see attached draft permit(s). Therefore, compliance with District Rule 4320 requirements is expected.

Rule 4801 Sulfur Compounds

A person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: 0.2 % by volume calculated as SO_2, on a dry basis averaged over 15 consecutive minutes.
Using the ideal gas equation the sulfur compound emissions are calculated as follows:

$$\text{Volume } SO_2 = \frac{nRT}{P}$$

With:

N = moles SO_2
T (Standard Temperature) = 60°F = 520°R
P (Standard Pressure) = 14.7 psi

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

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

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

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

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

District is a Responsible Agency

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 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 revised Kern County Zoning Ordinance establishes a written process (Conformity Review permit process or Minor Activity permit) by which oil and gas exploration projects involving site-specific operations can be evaluated to determine whether the environmental effects of the operation were covered in the *Kern County Zoning Ordinance* EIR.

For stationary source emissions that are below the offset threshold, i.e. not required to surrender ERCs, and for non-stationary source emissions, Kern County entered into an Oil and Gas Emission Reduction Agreement (Oil and Gas ERA) with the District pursuant to the EIR. Per the Oil and Gas ERA, the applicant shall fully mitigate project emissions that are not required to be offset by District permit rules and regulations. Such mitigation can be achieved through any of the three options: (1) the applicants pay an air quality mitigation fee with each Oil and Gas Conformity Review permit issued by the Kern County, (2) the applicants may develop and propose to implement their own emission reduction projects instead of paying all or part of the mitigation fee, or (3) the applicants will be allowed to enter into an agreement directly with the District (if approved by Kern County) to develop an alternative fee schedule.

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. 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-1547-1341-0 through '-1344 and S-1548-623-0 through '-626-0 subject to the permit conditions on the attached draft ATCs in **Attachment VII**.

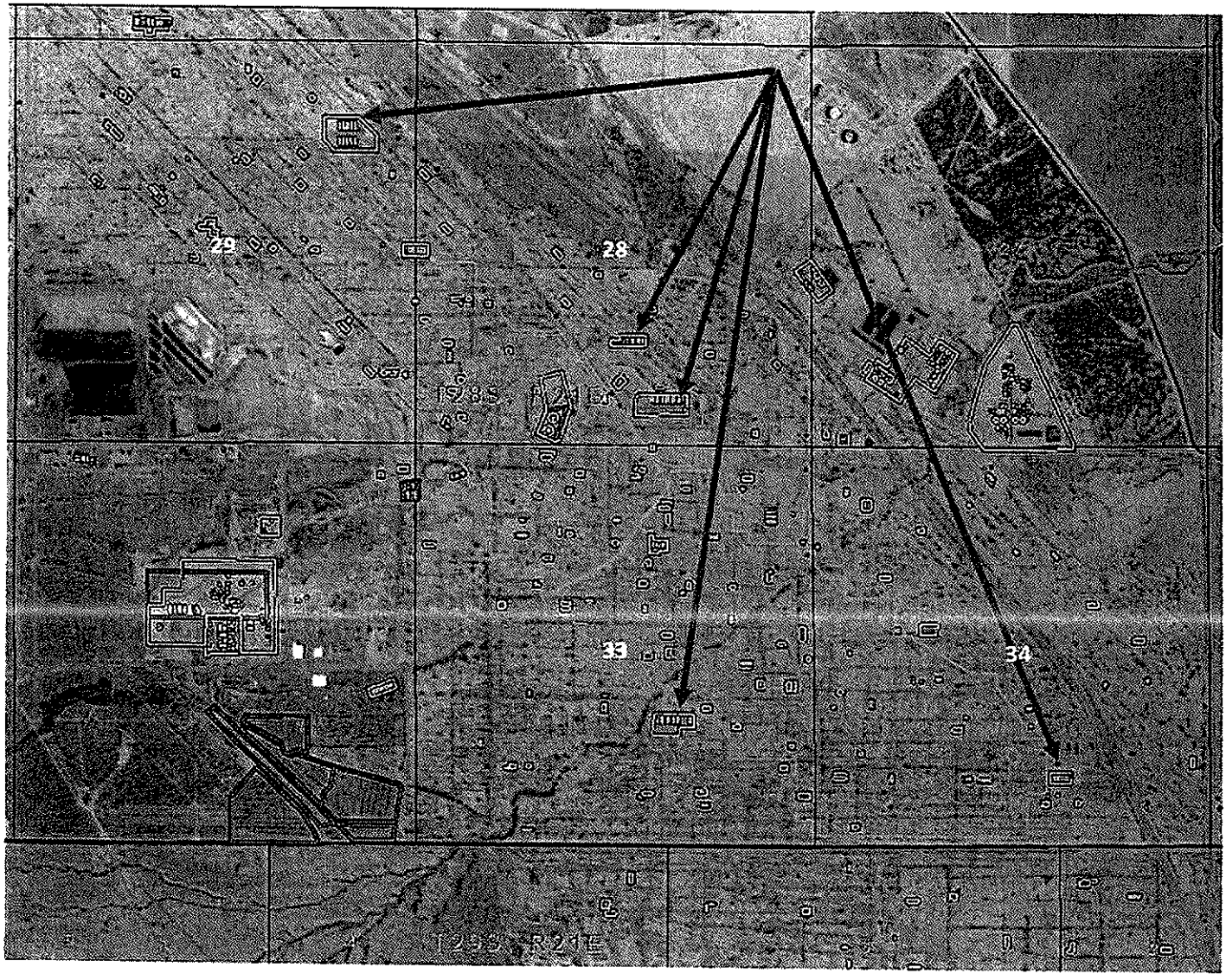
X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-1547-1341-0 through '-1344 and S-1548-623-0 through '-626-0	3020-02 H	100 MMBtu/hr	$1030

Attachments

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

ATTACHMENT I
Project Location Map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ATTACHMENT II
Emissions Profiles

Application Emissions

Permit #: S-1548-623-0 **Last Updated**
Facility: AERA ENERGY LLC 07/15/2015 EDGEHILR

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	6132.0	2497.0	4380.0	16206.0	2628.0
Daily Emis. Limit (lb/Day)	16.3	6.8	12.0	37.7	7.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1533.0	624.0	1095.0	4051.0	657.0
Q2:	1533.0	624.0	1095.0	4051.0	657.0
Q3:	1533.0	624.0	1095.0	4052.0	657.0
Q4:	1533.0	625.0	1095.0	4052.0	657.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Application Emissions

Permit #: S-1548-624-0 **Last Updated**
Facility: AERA ENERGY LLC 07/15/2015 EDGEHILR

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	6132.0	2497.0	4380.0	16206.0	2628.0
Daily Emis. Limit (lb/Day)	16.3	6.8	12.0	37.7	7.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1533.0	624.0	1995.0	4051.0	657.0
Q2:	1533.0	624.0	1095.0	4051.0	657.0
Q3:	1533.0	624.0	1095.0	4052.0	657.0
Q4:	1533.0	625.0	1095.0	4052.0	657.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Application Emissions

Permit #: S-1548-625-0 **Last Updated**
Facility: AERA ENERGY LLC 07/15/2015 EDGEHILR

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	6132.0	2497.0	4380.0	16206.0	2628.0
Daily Emis. Limit (lb/Day)	16.3	6.8	12.0	37.7	7.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1533.0	624.0	1095.0	4041.0	657.0
Q2:	1533.0	624.0	1095.0	4051.0	657.0
Q3:	1533.0	624.0	1095.0	4052.0	657.0
Q4:	1533.0	624.0	1095.0	4052.0	657.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Application Emissions

Permit #: S-1548-626-0 **Last Updated**
Facility: AERA ENERGY LLC 07/15/2015 EDGEHILR

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	6132.0	2497.0	4380.0	16206.0	2628.0
Daily Emis. Limit (lb/Day)	16.3	6.8	12.0	37.7	7.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1533.0	624.0	1095.0	4051.0	657.0
Q2:	1533.0	624.0	1095.0	4051.0	657.0
Q3:	1533.0	624.0	1095.0	4052.0	657.0
Q4:	1533.0	625.0	1095.0	4052.0	657.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Application Emissions

Permit #: S-1547-1341-0 **Last Updated**
Facility: AERA ENERGY LLC 07/15/2015 EDGEHILR

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	6132.0	2497.0	4380.0	16206.0	2628.0
Daily Emis. Limit (lb/Day)	16.3	6.8	12.0	37.7	7.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1533.0	624.0	1095.0	4051.0	657.0
Q2:	1533.0	624.0	1095.0	4051.0	657.0
Q3:	1533.0	624.0	1095.0	4052.0	657.0
Q4:	1533.0	625.0	1095.0	4052.0	657.0
Check if offsets are triggered but exemption applies	N	N	N	Y	N
Offset Ratio	1.5	1.5	1.5		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	2299.0	936.0	1642.0		985.0
Q2:	2299.0	936.0	1642.0		985.0
Q3:	2230.0	937.0	1643.0		986.0
Q4:	2230.0	937.0	1643.0		986.0

Application Emissions

Permit #: S-1547-1342-0 **Last Updated**
Facility: AERA ENERGY LLC 07/15/2015 EDGEHILR

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	6132.0	2497.0	4380.0	16206.0	2628.0
Daily Emis. Limit (lb/Day)	16.3	6.8	12.0	37.7	7.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1533.0	624.0	1095.0	4051.0	657.0
Q2:	1533.0	624.0	1095.0	4051.0	657.0
Q3:	1533.0	624.0	1095.0	4052.0	657.0
Q4:	1533.0	625.0	1095.0	4052.0	657.0
Check if offsets are triggered but exemption applies	N	N	N	Y	N
Offset Ratio	1.5	1.5	1.5		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	2299.0	936.0	1642.0		985.0
Q2:	2299.0	936.0	1642.0		985.0
Q3:	2230.0	937.0	1643.0		986.0
Q4:	2230.0	937.0	1643.0		986.0

Application Emissions

Permit #: S-1547-1343-0 **Last Updated**
Facility: AERA ENERGY LLC 07/15/2015 EDGEHILR

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	6132.0	2497.0	4380.0	16206.0	2628.0
Daily Emis. Limit (lb/Day)	16.3	6.8	12.0	37.7	7.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1533.0	624.0	1095.0	4051.0	657.0
Q2:	1533.0	624.0	1095.0	4051.0	657.0
Q3:	1533.0	624.0	1095.0	4052.0	657.0
Q4:	1533.0	625.0	1095.0	4052.0	657.0
Check if offsets are triggered but exemption applies	N	N	N	Y	N
Offset Ratio	1.5	1.5	1.5		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	2299.0	936.0	1642.0		985.0
Q2:	2299.0	936.0	1642.0		985.0
Q3:	2230.0	937.0	1643.0		986.0
Q4:	2230.0	937.0	1643.0		986.0

Application Emissions

Permit #: S-1547-1344-0 **Last Updated**
Facility: AERA ENERGY LLC 07/15/2015 EDGEHILR

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	6132.0	2497.0	4380.0	16206.0	2628.0
Daily Emis. Limit (lb/Day)	16.3	6.8	12.0	37.7	7.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1533.0	624.0	1095.0	4051.0	657.0
Q2:	1533.0	624.0	1095.0	4051.0	657.0
Q3:	1533.0	624.0	1095.0	4052.0	657.0
Q4:	1533.0	625.0	1095.0	4052.0	657.0
Check if offsets are triggered but exemption applies	N	N	N	Y	N
Offset Ratio	1.5	1.5	1.5		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	2299.0	937.0	1642.0		985.0
Q2:	2299.0	936.0	1642.0		985.0
Q3:	2230.0	937.0	1643.0		986.0
Q4:	2230.0	937.0	1643.0		986.0

ATTACHMENT III
BACT Guideline

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 1.2.1*

Last Update: 3/24/2014

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

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Gaseous fuel		
SOx	Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO2 scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 9 ppmvd SO2 @ 3% O2		
PM10	Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO2 scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 9 ppmvd SO2 @ 3% O2		
NOx	•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		

ATTACHMENT IV
BACT Analysis

Top Down BACT Analysis for the Steam Generator

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

1. BACT Analysis for NO_X Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse Guideline 1.2.1, updated 3/24/14, identifies for achieved in practice BACT for NO_X emissions from oil field steam generators ≥5 MMBtu/hr as follows. The requirements listed below for 85 MMBtu/hr steam generators are assumed to be applicable to the proposed 100 MMBtu/hr steam generators.

Achieved-in-Practice

•Units rated 85 (100) MMBtu/hr and fired solely on PUC-quality natural gas: 6 ppmvd @ 3% O_2 – applicable, the units will be fired on PUC-quality natural gas

•Units firing on ≥50% PUC quality natural gas; commercial propane; and/or LPG: 7 ppmvd @ 3% O_2, except units rated 85 (100) MMBtu/hr and fired solely on PUC quality natural gas – not applicable, the units will be fired solely on PUC-quality natural gas

•Units firing on <50% PUC quality natural gas; commercial propane; and/or LPG: 9 ppmvd @ 3% O_2 – not applicable the units will be fired solely on PUC-quality natural gas

Technologically Feasible

5 ppmvd @ 3% O_2

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

1) 6 ppmvd @ 3% O_2 – Achieved-in-Practice
2) 5 ppmvd @ 3% O_2 – Technologically Feasible

d. Step 4 - Cost Effectiveness Analysis

The capital/installation cost for Selective Catalytic Reduction (SCR) to achieve 5 ppmv NOx @ 3% O_2 is $832,000 (please project S-1114, 1143178, for 87.7 MMBtu/hr steam generators, ATC issued 1/13/15). The above cost is assumed to be applicable to the proposed 100 MMBtu/hr steam generators (conservative assumption).

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

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

The reduction in NOx is from the proposed emissions limit of 6 ppmv NOx @ 3% O_2, 0.007 lb NOx/MMBtu) to 5 ppmv NOx @ 3% O_2, 0.0062 lb NOx/MMBtu.

(0.007 lb/MMBtu – 0.0061 lb/MMBtu) (100 MMBtu/hr)(8760 hr/yr)

= 788 lb NOx/yr (0.4 ton/yr)

Control Cost per Section X(A)(4)

Control Cost = ($135,364/yr)/(0.4 ton VOC/yr)
= $ 338,410/ton NOx

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

e. Step 5 - Select BACT

Applicant has proposed 6 ppmv NOx @ 3% O_2. BACT is satisfied.

2. BACT Analysis for SO_X Emissions:

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

a. Step 1 - Identify all control technologies

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

Achieved-in-Practice

Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated

such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO2 scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 9 ppmvd SO2 @ 3% O2

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

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

d. Step 4 - Cost Effectiveness Analysis

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

e. Step 5 - Select BACT

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

3. BACT Analysis for PM_{10} Emissions:

Particulate matter (PM_{10}) emissions result from the incomplete combustion of various elements in the fuel.

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse Guideline 1.2.1, updated 3/24/14, identifies for achieved in practice BACT for CO_{10} emissions from oil field steam generators ≥5 MMBtu/hr as follows:

Achieved-in-Practice

Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO2 scrubber and either achieve 95% by weight control of sulfur compounds or

achieve an emission rate of 9 ppmvd SO2 @ 3% O2

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

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

d. Step 4 - Cost Effectiveness Analysis

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

e. Step 5 - Select BACT

BACT for PM_{10} emissions from this oil field steam generator from this oil field steam generator is natural gas fuel with removal of 95% by weight of sulfur compounds (SOx scrubber) or with a sulfur content ≤1 gr-S/100 scf. BACT is satisfied.

4. **BACT Analysis for VOC Emissions:**

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

a. Step 1 - Identify all control technologies

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

1) Gaseous fuel

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

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

1) Gaseous fuel

d. Step 4 - Cost effectiveness analysis

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

e. Step 5 - Select BACT

BACT for VOC emissions from this oil field steam generator is gaseous fuel. The applicant has proposed to install an oil field steam generator fired on gaseous fuel; therefore BACT for PM_{10} emissions is satisfied.

ATTACHMENT V
HRA and AAQA Modeling

San Joaquin Valley Air Pollution Control District
Risk Management Review

To:	Richard Edgehill – Permit Services
From:	Cheryl Lawler – Technical Services
Date:	February 16, 2016
Facility Name:	Aera Energy LLC
Location:	Various Specified in Aera's Heavy Oil & Light Oil Western Stationary Sources
Application #(s):	S-1547-1341-0 thru 1344-0 S-1548-623-0 thru 626-0
Project #:	S-1151973 & S-1152366

A. RMR SUMMARY

RMR Summary			
Categories	**Four Natural Gas Steam Generators (S-1547-1341-0 thru 1344-0 & S-1548-623-0 thru 626-0)[1]**	**S-1547 Facility Totals**	**S-1548 Facility Totals**
Prioritization Score	48.9	>1.0	>1.0
Acute Hazard Index	0.00	0.43	0.11
Chronic Hazard Index	0.00	0.19	0.02
Maximum Individual Cancer Risk	1.40E-06[2]	18.79E-06	11.0E-06
T-BACT Required?	**No[2]**		
Special Permit Requirements?	**Yes**		

[1]ATCs will be issued for four identical generators under both S-1547 & S-1548 Facility IDs. The generators will be allowed to operate at three different locations within both Facility IDs. Therefore, the risks/scores reported in this table represent the worst case results found at any of the three locations.
[2]T-BACT is not required because each individual unit's Maximum Individual Cancer Risk calculated to less than 1 in a million.

Proposed Permit Requirements

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

Units S-1547-1341-0 thru 1344-0 & S-1548-623-0 thru 626-0

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

B. RMR REPORT

I. Project Description

Technical Services received a request on July 16, 2016, to perform a Risk Management Review for four identical 100 MMBtu/hr natural gas steam generators proposing to operate at three different locations. The three locations are all contained within the facility boundaries of both S-1547 and S-1548. Eight separate ATCs will be issued for the generators (four to S-1547 and four to S-1548).

II. Analysis

Toxic emissions for the generators were calculated using emission factors derived from data in the 1992 Radian Corporation report to WSPA, and then input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015), risks from the project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines. The facilitywide cumulative prioritization scores totaled to greater than 1.0 (see RMR Summary Table). Therefore, a refined health risk assessment was required.

Because the four generators will be allowed to operate at three different locations, they were modeled separately at each location to determine which location resulted in the highest risks (worst case). Each location is located within the boundaries of both S-1547 (Heavy Oil Western Stationary Source) and S-1548 (Light Oil Western Stationary Source). The AERMOD model was used, with the parameters outlined below and meteorological data for 2004-2008 from Missouri Triangle 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 using the location that provided the worst case (highest) risks.

The following parameters were used for the review:

Analysis Parameters S-1547-1341-0 thru 1344-0 & S-1548-623-0 thru 626-0			
Source Type	Point	**Location Type**	Rural
Stack Height (m)	6.09	**Closest Receptor (ft)**	> 5000
Stack Diameter (m)	0.76	**Type of Receptor**	Business
Stack Exit Velocity (m/s)	28.74	**Max Hours per Year**	8760
Stack Exit Temp. (°K)	394	**Fuel Type**	Natural Gas
Generators' Rating (MMBtu/hr)	100		

Technical Services also performed modeling for criteria pollutants CO, NO_x, SO_x, and PM10 with the emission rates below:

Unit #	NO_x (Lbs.)		SO_x (Lbs.)		CO (Lbs.)		PM_{10} (Lbs.)	
	Hr.	Yr.	Hr.	Yr.	Hr.	Yr.	Hr.	Yr.
S-1547-1341-0	0.68	6,132	0.28	2,497	1.57	16,206	0.5	4,380
S-1547-1342-0	0.68	6,132	0.28	2,497	1.57	16,206	0.5	4,380
S-1547-1343-0	0.68	6,132	0.28	2,497	1.57	16,206	0.5	4,380
S-1547-1344-0	0.68	6,132	0.28	2,497	1.57	16,206	0.5	4,380
S-1548-623-0	0.68	6,132	0.28	2,497	1.57	16,206	0.5	4,380
S-1548-624-0	0.68	6,132	0.28	2,497	1.57	16,206	0.5	4,380
S-1548-625-0	0.68	6,132	0.28	2,497	1.57	16,206	0.5	4,380
S-1548-626-0	0.68	6,132	0.28	2,497	1.57	16,206	0.5	4,380

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

NG Steam Generators	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO_x	Pass[1]	X	X	X	Pass
SO_x	Pass	Pass	X	Pass	Pass
PM_{10}	X	X	X	Pass[2]	Pass[2]
$PM_{2.5}$	X	X	X	Pass[2]	Pass[2]

*Results were taken from the attached PSD spreadsheet.
[1]The project was compared to the 1-hour NO2 National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures.
[2]The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

III. Conclusion

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

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

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.

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

IV. Attachments

A. RMR Request Form
B. Additional Information Provided by the Applicant & Project Engineer
C. Natural Gas Emissions Speciation Worksheet
D. Prioritization
E. Risk Results
F. AAQA Results
G. Facility Summaries
H. AERMOD Non-Regulatory Option Checklist

ATTACHMENT VI
Statewide Compliance Statement and Title V Compliance Certification Form

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

RECEIVED

APR 21 2015

SJVAPCD
Southern Region

I. TYPE OF PERMIT ACTION (Check appropriate box)

[X] SIGNIFICANT PERMIT MODIFICATION
[ ] MINOR PERMIT MODIFICATION
[ ] ADMINISTRATIVE AMENDMENT

Permit four 100 MMBtu/hr steam generators within the S-1547 and S-1548 stationary sources.

COMPANY NAME: **AERA ENERGY LLC**	FACILITY ID:
1. Type of Organization: [X] Corporation [ ] Sole Ownership [ ] Government [ ] Partnership [ ] Utility	
2. Owner's Name: **AERA ENERGY LLC**	
3. Agent to the Owner: **N/A**	

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

(TAB) Based on information and belief formed after reasonable inquiry, the source identified in this application will continue to comply with the applicable federal requirement(s) which the source is in compliance.

(TAB) Based on information and belief formed after reasonable inquiry, the source identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.

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

(TAB) Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true, accurate and complete.

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

T. A. Bivens 821866

Signature of Responsible Official

4-21-15

Date

T. A. Bivens

Name of Responsible Official (please print)

Process Supervisor

Title of Responsible Official (please print)

Title I Compliance Certification - SJVUAPCD

CERTIFICATION

Aera Energy LLC hereby certifies as follows:

1. Aera Energy LLC owns or operates certain major stationary sources in the State of California. Such sources are comprised of a large number of emission points. As used in this certification, the term "major stationary source" shall, with respect to Aera Energy LLC stationary sources in the SJVUAPCD, have the meaning ascribed thereto in SJVUAPCD Rule 2201.3.15, and shall, with respect to all of Aera Energy LLC's other stationary sources in the State of California, have the meaning ascribed thereto in section 302(J) of the Clean Air Act (42 U.S.C. Section 7602 (J)).

2. Subject to paragraphs 3 and 4 below, all major stationary sources owned or operated by Aera Energy LLC in the State of California are either in compliance, or on a schedule of compliance, with all applicable emission limitations and standards under the Clean Air Act and all of the State Implementation Plan approved by the Environmental Protection Agency.

3. This certification is made on information and belief and is based upon a review of Aera Energy LLC's major stationary sources in the State of California by those employees of Aera Energy LLC who have operational responsibility for compliance. In conducting such reviews, Aera Energy LLC and its employees have acted in good faith and have exercised reasonable best efforts to identify any exceedances of the emission limitations and standards referred to in paragraph 2 thereof.

4. This certification shall speak as of the time and date of its execution.

CERTIFICATION

By: R. L. Chambers Date: 4/14/15

Title: EHS Advisor Time: 1:40 p.m.

ATTACHMENT VII
Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1547-1341-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

EQUIPMENT DESCRIPTION:
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)

CONDITIONS

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

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

S-1547-1341-0 : Oct 17 2018 8:01AM - EDGEHILR : Joint Inspection NOT Required

5. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 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] Federally Enforceable Through Title V Permit
6. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 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] Federally Enforceable Through Title V Permit
7. 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] Federally Enforceable Through Title V Permit
8. This unit is authorized to operate at the following locations: Section 34, T28S, R21E, NE Section 33, T28S, R21E, NE Section 29, T28S, R21E, and Southern ½ Section 28, T28S, R21E [District Rule 2201] Federally Enforceable Through Title V Permit
9. Permittee shall notify the District Compliance Division to arrange a start-up inspection at the initial location of the unit. [District Rule 1070] Federally Enforceable Through Title V Permit
10. Permittee shall notify the District Compliance Division in writing of each facility location at which the operation is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit
11. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
13. 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
14. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
15. 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] Federally Enforceable Through Title V Permit
16. At least quarterly, the permittee shall monitor using the methods specified in this permit the higher heating value of each non-certified fuel supplied to this unit, or, alternatively, have the higher heating value certified by the fuel supplier. The records of higher heating value and quantity of fuel combusted shall be used to demonstrate that the rated heat input capacity of this unit, as averaged over a calendar quarter, is not exceeded. [District Rules 2201] Federally Enforceable Through Title V Permit
17. The higher heating value of each non-certified fuel shall be certified by a third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D 3588. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
18. Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 6 ppmvd NOx @ 3% O2 or 0.007 lb-NOx/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] Federally Enforceable Through Title V Permit
19. Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

20. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

21. Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial startup and at least once every twelve (12) months thereafter. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

22. 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

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

24. 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

25. NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

26. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

27. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

28. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 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. 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

31. 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

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CONDITIONS CONTINUE ON NEXT PAGE

32. 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

33. 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

34. If the steam generator is not fired on PUC-regulated natural gas and compliance is achieved through fuel sulfur content limitations, then the sulfur content of the fuel shall be determined by testing sulfur content at a location after all fuel sources are combined prior to incineration, or by performing mass balance calculations based on monitoring the sulfur content and volume of each fuel source. The sulfur content of the fuel shall be determined using the test methods referenced in this permit. [District Rule 4320] Federally Enforceable Through Title V Permit

35. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, permittee shall demonstrate compliance at least annually. [District Rule 4320] Federally Enforceable Through Title V Permit

36. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rule 4320] Federally Enforceable Through Title V Permit

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

38. Permittee shall submit notification to the District of the date of construction, anticipated startup, and actual startup. Notifications shall be postmarked no later than 30 days after construction and 15 days after actual startup. The notifications shall include the design heat input and identification of fuels for this permit unit. [40 CFR 60.48c (a)] [District Rules 1070, 4305, 4306, 4320, and 40 CFR 60.48c (i)] Federally Enforceable Through Title V Permit

39. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201 and 40 CFR 60.48c (g)] Federally Enforceable Through Title V Permit

40. Permittee shall maintain daily records of the type and quantity of fuel combusted by the steam generator. [District Rule 2201 and 40 CFR 60.48c (g)] Federally Enforceable Through Title V Permit

41. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

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PERMIT NO: S-1547-1342-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

EQUIPMENT DESCRIPTION:
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)

CONDITIONS

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

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

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Arnaud Marjollet, Director of Permit Services
S-1547-1342-0 : Oct 17 2016 8:01AM -- EDGEHILR : Joint Inspection NOT Required

5. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 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] Federally Enforceable Through Title V Permit
6. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 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] Federally Enforceable Through Title V Permit
7. 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] Federally Enforceable Through Title V Permit
8. This unit is authorized to operate at the following locations: Section 34, T28S, R21E, NE Section 33, T28S, R21E, NE Section 29, T28S, R21E, and Southern ½ Section 28, T28S, R21E [District Rule 2201] Federally Enforceable Through Title V Permit
9. Permittee shall notify the District Compliance Division to arrange a start-up inspection at the initial location of the unit. [District Rule 1070] Federally Enforceable Through Title V Permit
10. Permittee shall notify the District Compliance Division in writing of each facility location at which the operation is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit
11. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
13. 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
14. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
15. 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] Federally Enforceable Through Title V Permit
16. At least quarterly, the permittee shall monitor using the methods specified in this permit the higher heating value of each non-certified fuel supplied to this unit, or, alternatively, have the higher heating value certified by the fuel supplier. The records of higher heating value and quantity of fuel combusted shall be used to demonstrate that the rated heat input capacity of this unit, as averaged over a calendar quarter, is not exceeded. [District Rules 2201] Federally Enforceable Through Title V Permit
17. The higher heating value of each non-certified fuel shall be certified by a third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D 3588. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
18. Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 6 ppmvd NOx @ 3% O2 or 0.007 lb-NOx/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] Federally Enforceable Through Title V Permit
19. Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

20. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

21. Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial startup and at least once every twelve (12) months thereafter. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

22. 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

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

24. 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

25. NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

26. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

27. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

28. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 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. 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

31. 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

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CONDITIONS CONTINUE ON NEXT PAGE

32. 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

33. 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

34. If the steam generator is not fired on PUC-regulated natural gas and compliance is achieved through fuel sulfur content limitations, then the sulfur content of the fuel shall be determined by testing sulfur content at a location after all fuel sources are combined prior to incineration, or by performing mass balance calculations based on monitoring the sulfur content and volume of each fuel source. The sulfur content of the fuel shall be determined using the test methods referenced in this permit. [District Rule 4320] Federally Enforceable Through Title V Permit

35. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, permittee shall demonstrate compliance at least annually. [District Rule 4320] Federally Enforceable Through Title V Permit

36. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rule 4320] Federally Enforceable Through Title V Permit

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

38. Permittee shall submit notification to the District of the date of construction, anticipated startup, and actual startup. Notifications shall be postmarked no later than 30 days after construction and 15 days after actual startup. The notifications shall include the design heat input and identification of fuels for this permit unit. [40 CFR 60.48c (a)] [District Rules 1070, 4305, 4306, 4320, and 40 CFR 60.48c (i)] Federally Enforceable Through Title V Permit

39. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201 and 40 CFR 60.48c (g)] Federally Enforceable Through Title V Permit

40. Permittee shall maintain daily records of the type and quantity of fuel combusted by the steam generator. [District Rule 2201 and 40 CFR 60.48c (g)] Federally Enforceable Through Title V Permit

41. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1547-1343-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

EQUIPMENT DESCRIPTION:
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)

CONDITIONS

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

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

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Arnaud Marjollet, Director of Permit Services
S-1547-1343-0 : Oct 17 2016 9:01AM – EDGEHILR : Joint Inspection NOT Required

5. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 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] Federally Enforceable Through Title V Permit
6. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 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] Federally Enforceable Through Title V Permit
7. 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] Federally Enforceable Through Title V Permit
8. This unit is authorized to operate at the following locations: Section 34, T28S, R21E, NE Section 33, T28S, R21E, NE Section 29, T28S, R21E, and Southern ½ Section 28, T28S, R21E [District Rule 2201] Federally Enforceable Through Title V Permit
9. Permittee shall notify the District Compliance Division to arrange a start-up inspection at the initial location of the unit. [District Rule 1070] Federally Enforceable Through Title V Permit
10. Permittee shall notify the District Compliance Division in writing of each facility location at which the operation is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit
11. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
13. 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
14. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
15. 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] Federally Enforceable Through Title V Permit
16. At least quarterly, the permittee shall monitor using the methods specified in this permit the higher heating value of each non-certified fuel supplied to this unit, or, alternatively, have the higher heating value certified by the fuel supplier. The records of higher heating value and quantity of fuel combusted shall be used to demonstrate that the rated heat input capacity of this unit, as averaged over a calendar quarter, is not exceeded. [District Rules 2201] Federally Enforceable Through Title V Permit
17. The higher heating value of each non-certified fuel shall be certified by a third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D 3588. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
18. Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 6 ppmvd NOx @ 3% O2 or 0.007 lb-NOx/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] Federally Enforceable Through Title V Permit
19. Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

20. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

21. Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial startup and at least once every twelve (12) months thereafter. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

22. 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

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

24. 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

25. NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

26. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

27. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

28. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 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. 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

31. 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

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CONDITIONS CONTINUE ON NEXT PAGE

32. 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

33. 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

34. If the steam generator is not fired on PUC-regulated natural gas and compliance is achieved through fuel sulfur content limitations, then the sulfur content of the fuel shall be determined by testing sulfur content at a location after all fuel sources are combined prior to incineration, or by performing mass balance calculations based on monitoring the sulfur content and volume of each fuel source. The sulfur content of the fuel shall be determined using the test methods referenced in this permit. [District Rule 4320] Federally Enforceable Through Title V Permit

35. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, permittee shall demonstrate compliance at least annually. [District Rule 4320] Federally Enforceable Through Title V Permit

36. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rule 4320] Federally Enforceable Through Title V Permit

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

38. Permittee shall submit notification to the District of the date of construction, anticipated startup, and actual startup. Notifications shall be postmarked no later than 30 days after construction and 15 days after actual startup. The notifications shall include the design heat input and identification of fuels for this permit unit. [40 CFR 60.48c (a)] [District Rules 1070, 4305, 4306, 4320, and 40 CFR 60.48c (i)] Federally Enforceable Through Title V Permit

39. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201 and 40 CFR 60.48c (g)] Federally Enforceable Through Title V Permit

40. Permittee shall maintain daily records of the type and quantity of fuel combusted by the steam generator. [District Rule 2201 and 40 CFR 60.48c (g)] Federally Enforceable Through Title V Permit

41. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

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PERMIT NO: S-1547-1344-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

EQUIPMENT DESCRIPTION:
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)

CONDITIONS

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

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

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Arnaud Marjollet, Director of Permit Services
S-1547-1344-0 : Oct 17 2016 8:01AM – EGOEHLR : Joint Inspection NOT Required

5. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 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] Federally Enforceable Through Title V Permit

6. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 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] Federally Enforceable Through Title V Permit

7. 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] Federally Enforceable Through Title V Permit

8. This unit is authorized to operate at the following locations: Section 34, T28S, R21E, NE Section 33, T28S, R21E, NE Section 29, T28S, R21E, and Southern ½ Section 28, T28S, R21E [District Rule 2201] Federally Enforceable Through Title V Permit

9. Permittee shall notify the District Compliance Division to arrange a start-up inspection at the initial location of the unit. [District Rule 1070] Federally Enforceable Through Title V Permit

10. Permittee shall notify the District Compliance Division in writing of each facility location at which the operation is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit

11. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

13. 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

14. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit

15. 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] Federally Enforceable Through Title V Permit

16. At least quarterly, the permittee shall monitor using the methods specified in this permit the higher heating value of each non-certified fuel supplied to this unit, or, alternatively, have the higher heating value certified by the fuel supplier. The records of higher heating value and quantity of fuel combusted shall be used to demonstrate that the rated heat input capacity of this unit, as averaged over a calendar quarter, is not exceeded. [District Rules 2201] Federally Enforceable Through Title V Permit

17. The higher heating value of each non-certified fuel shall be certified by a third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D 3588. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

18. Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 6 ppmvd NOx @ 3% O2 or 0.007 lb-NOx/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] Federally Enforceable Through Title V Permit

19. Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

20. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

21. Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial startup and at least once every twelve (12) months thereafter. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

22. 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

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

24. 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

25. NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

26. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

27. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

28. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 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. 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

31. 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

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CONDITIONS CONTINUE ON NEXT PAGE

32. 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

33. 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

34. If the steam generator is not fired on PUC-regulated natural gas and compliance is achieved through fuel sulfur content limitations, then the sulfur content of the fuel shall be determined by testing sulfur content at a location after all fuel sources are combined prior to incineration, or by performing mass balance calculations based on monitoring the sulfur content and volume of each fuel source. The sulfur content of the fuel shall be determined using the test methods referenced in this permit. [District Rule 4320] Federally Enforceable Through Title V Permit

35. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, permittee shall demonstrate compliance at least annually. [District Rule 4320] Federally Enforceable Through Title V Permit

36. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rule 4320] Federally Enforceable Through Title V Permit

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

38. Permittee shall submit notification to the District of the date of construction, anticipated startup, and actual startup. Notifications shall be postmarked no later than 30 days after construction and 15 days after actual startup. The notifications shall include the design heat input and identification of fuels for this permit unit. [40 CFR 60.48c (a)] [District Rules 1070, 4305, 4306, 4320, and 40 CFR 60.48c (i)] Federally Enforceable Through Title V Permit

39. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201 and 40 CFR 60.48c (g)] Federally Enforceable Through Title V Permit

40. Permittee shall maintain daily records of the type and quantity of fuel combusted by the steam generator. [District Rule 2201 and 40 CFR 60.48c (g)] Federally Enforceable Through Title V Permit

41. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1548-623-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: LIGHT OIL WESTERN STATIONARY SOURCE
CA

EQUIPMENT DESCRIPTION:
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)

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 unit is authorized to operate at the following locations: Section 34, T28S, R21E, NE Section 33, T28S, R21E, NE Section 29, T28S, R21E, and Southern ½ Section 28, T28S, R21E [District Rule 2201] Federally Enforceable Through Title V Permit
4. Permittee shall notify the District Compliance Division to arrange a start-up inspection at the initial location of the unit. [District Rule 1070] Federally Enforceable Through Title V Permit
5. Permittee shall notify the District Compliance Division in writing of each facility location at which the operation is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit
6. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

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Arnaud Marjollet, Director of Permit Services

S-1548-623-0 : Oct 20 2016 8:59AM -- EDGEHILR : Joint Inspection NOT Required

7. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
8. 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
9. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
10. 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] Federally Enforceable Through Title V Permit
11. At least quarterly, the permittee shall monitor using the methods specified in this permit the higher heating value of each non-certified fuel supplied to this unit, or, alternatively, have the higher heating value certified by the fuel supplier. The records of higher heating value and quantity of fuel combusted shall be used to demonstrate that the rated heat input capacity of this unit, as averaged over a calendar quarter, is not exceeded. [District Rules 2201] Federally Enforceable Through Title V Permit
12. The higher heating value of each non-certified fuel shall be certified by a third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D 3588. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
13. Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 6 ppmvd NOx @ 3% O2 or 0.007 lb-NOx/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] Federally Enforceable Through Title V Permit
14. Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
15. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
16. Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial startup and at least once every twelve (12) months thereafter. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
17. 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
18. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
19. 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
20. NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
21. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

22. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

23. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 4320] Federally Enforceable Through Title V Permit

24. 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

25. 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

26. 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

27. 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

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. If the steam generator is not fired on PUC-regulated natural gas and compliance is achieved through fuel sulfur content limitations, then the sulfur content of the fuel shall be determined by testing sulfur content at a location after all fuel sources are combined prior to incineration, or by performing mass balance calculations based on monitoring the sulfur content and volume of each fuel source. The sulfur content of the fuel shall be determined using the test methods referenced in this permit. [District Rule 4320] Federally Enforceable Through Title V Permit

30. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, permittee shall demonstrate compliance at least annually. [District Rule 4320] Federally Enforceable Through Title V Permit

31. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rule 4320] Federally Enforceable Through Title V Permit

32. 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

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CONDITIONS CONTINUE ON NEXT PAGE

33. Permittee shall submit notification to the District of the date of construction, anticipated startup, and actual startup. Notifications shall be postmarked no later than 30 days after construction and 15 days after actual startup. The notifications shall include the design heat input and identification of fuels for this permit unit. [40 CFR 60.48c (a)] [District Rules 1070, 4305, 4306, 4320, and 40 CFR 60.48c (i)] Federally Enforceable Through Title V Permit

34. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201 and 40 CFR 60.48c (g)] Federally Enforceable Through Title V Permit

35. Permittee shall maintain daily records of the type and quantity of fuel combusted by the steam generator. [District Rule 2201 and 40 CFR 60.48c (g)] Federally Enforceable Through Title V Permit

36. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1548-624-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: LIGHT OIL WESTERN STATIONARY SOURCE
CA

EQUIPMENT DESCRIPTION:
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)

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 unit is authorized to operate at the following locations: Section 34, T28S, R21E, NE Section 33, T28S, R21E, NE Section 29, T28S, R21E, and Southern ½ Section 28, T28S, R21E [District Rule 2201] Federally Enforceable Through Title V Permit
4. Permittee shall notify the District Compliance Division to arrange a start-up inspection at the initial location of the unit. [District Rule 1070] Federally Enforceable Through Title V Permit
5. Permittee shall notify the District Compliance Division in writing of each facility location at which the operation is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit
6. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

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Arnaud Marjollet, Director of Permit Services

S-1548-624-0 : Oct 20 2018 9:59AM – EDGEHILR : Joint Inspection NOT Required

7. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
8. 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
9. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
10. 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] Federally Enforceable Through Title V Permit
11. At least quarterly, the permittee shall monitor using the methods specified in this permit the higher heating value of each non-certified fuel supplied to this unit, or, alternatively, have the higher heating value certified by the fuel supplier. The records of higher heating value and quantity of fuel combusted shall be used to demonstrate that the rated heat input capacity of this unit, as averaged over a calendar quarter, is not exceeded. [District Rules 2201] Federally Enforceable Through Title V Permit
12. The higher heating value of each non-certified fuel shall be certified by a third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D 3588. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
13. Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 6 ppmvd NOx @ 3% O2 or 0.007 lb-NOx/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] Federally Enforceable Through Title V Permit
14. Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
15. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
16. Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial startup and at least once every twelve (12) months thereafter. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
17. 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
18. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
19. 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
20. NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
21. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

22. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

23. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 4320] Federally Enforceable Through Title V Permit

24. 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

25. 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

26. 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

27. 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

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. If the steam generator is not fired on PUC-regulated natural gas and compliance is achieved through fuel sulfur content limitations, then the sulfur content of the fuel shall be determined by testing sulfur content at a location after all fuel sources are combined prior to incineration, or by performing mass balance calculations based on monitoring the sulfur content and volume of each fuel source. The sulfur content of the fuel shall be determined using the test methods referenced in this permit. [District Rule 4320] Federally Enforceable Through Title V Permit

30. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, permittee shall demonstrate compliance at least annually. [District Rule 4320] Federally Enforceable Through Title V Permit

31. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rule 4320] Federally Enforceable Through Title V Permit

32. 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

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CONDITIONS CONTINUE ON NEXT PAGE

33. Permittee shall submit notification to the District of the date of construction, anticipated startup, and actual startup. Notifications shall be postmarked no later than 30 days after construction and 15 days after actual startup. The notifications shall include the design heat input and identification of fuels for this permit unit. [40 CFR 60.48c (a)] [District Rules 1070, 4305, 4306, 4320, and 40 CFR 60.48c (i)] Federally Enforceable Through Title V Permit

34. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201 and 40 CFR 60.48c (g)] Federally Enforceable Through Title V Permit

35. Permittee shall maintain daily records of the type and quantity of fuel combusted by the steam generator. [District Rule 2201 and 40 CFR 60.48c (g)] Federally Enforceable Through Title V Permit

36. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

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PERMIT NO: S-1548-625-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: LIGHT OIL WESTERN STATIONARY SOURCE
CA

EQUIPMENT DESCRIPTION:
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)

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 unit is authorized to operate at the following locations: Section 34, T28S, R21E, NE Section 33, T28S, R21E, NE Section 29, T28S, R21E, and Southern ½ Section 28, T28S, R21E [District Rule 2201] Federally Enforceable Through Title V Permit
4. Permittee shall notify the District Compliance Division to arrange a start-up inspection at the initial location of the unit. [District Rule 1070] Federally Enforceable Through Title V Permit
5. Permittee shall notify the District Compliance Division in writing of each facility location at which the operation is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit
6. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

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Arnaud Marjollet, Director of Permit Services
S-1548-625-0 : Oct 20 2016 9:59AM – EDGEHILR : Joint Inspection NOT Required

7. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
8. 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
9. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
10. 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] Federally Enforceable Through Title V Permit
11. At least quarterly, the permittee shall monitor using the methods specified in this permit the higher heating value of each non-certified fuel supplied to this unit, or, alternatively, have the higher heating value certified by the fuel supplier. The records of higher heating value and quantity of fuel combusted shall be used to demonstrate that the rated heat input capacity of this unit, as averaged over a calendar quarter, is not exceeded. [District Rules 2201] Federally Enforceable Through Title V Permit
12. The higher heating value of each non-certified fuel shall be certified by a third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D 3588. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
13. Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 6 ppmvd NOx @ 3% O2 or 0.007 lb-NOx/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] Federally Enforceable Through Title V Permit
14. Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
15. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
16. Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial startup and at least once every twelve (12) months thereafter. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
17. 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
18. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
19. 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
20. NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
21. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

22. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

23. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 4320] Federally Enforceable Through Title V Permit

24. 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

25. 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

26. 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

27. 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

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. If the steam generator is not fired on PUC-regulated natural gas and compliance is achieved through fuel sulfur content limitations, then the sulfur content of the fuel shall be determined by testing sulfur content at a location after all fuel sources are combined prior to incineration, or by performing mass balance calculations based on monitoring the sulfur content and volume of each fuel source. The sulfur content of the fuel shall be determined using the test methods referenced in this permit. [District Rule 4320] Federally Enforceable Through Title V Permit

30. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, permittee shall demonstrate compliance at least annually. [District Rule 4320] Federally Enforceable Through Title V Permit

31. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rule 4320] Federally Enforceable Through Title V Permit

32. 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

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CONDITIONS CONTINUE ON NEXT PAGE

33. Permittee shall submit notification to the District of the date of construction, anticipated startup, and actual startup. Notifications shall be postmarked no later than 30 days after construction and 15 days after actual startup. The notifications shall include the design heat input and identification of fuels for this permit unit. [40 CFR 60.48c (a)] [District Rules 1070, 4305, 4306, 4320, and 40 CFR 60.48c (i)] Federally Enforceable Through Title V Permit

34. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201 and 40 CFR 60.48c (g)] Federally Enforceable Through Title V Permit

35. Permittee shall maintain daily records of the type and quantity of fuel combusted by the steam generator. [District Rule 2201 and 40 CFR 60.48c (g)] Federally Enforceable Through Title V Permit

36. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

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PERMIT NO: S-1548-626-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: AERA ENERGY LLC
MAILING ADDRESS: PO BOX 11164
BAKERSFIELD, CA 93389-1164

LOCATION: LIGHT OIL WESTERN STATIONARY SOURCE
CA

EQUIPMENT DESCRIPTION:
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)

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 unit is authorized to operate at the following locations: Section 34, T28S, R21E, NE Section 33, T28S, R21E, NE Section 29, T28S, R21E, and Southern ½ Section 28, T28S, R21E [District Rule 2201] Federally Enforceable Through Title V Permit
4. Permittee shall notify the District Compliance Division to arrange a start-up inspection at the initial location of the unit. [District Rule 1070] Federally Enforceable Through Title V Permit
5. Permittee shall notify the District Compliance Division in writing of each facility location at which the operation is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit
6. {1898} The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

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Arnaud Marjollet, Director of Permit Services
S-1548-626-0 : Oct 20 2016 9:59AM – EDGEHILR : Joint Inspection NOT Required

7. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
8. 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
9. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
10. 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] Federally Enforceable Through Title V Permit
11. At least quarterly, the permittee shall monitor using the methods specified in this permit the higher heating value of each non-certified fuel supplied to this unit, or, alternatively, have the higher heating value certified by the fuel supplier. The records of higher heating value and quantity of fuel combusted shall be used to demonstrate that the rated heat input capacity of this unit, as averaged over a calendar quarter, is not exceeded. [District Rules 2201] Federally Enforceable Through Title V Permit
12. The higher heating value of each non-certified fuel shall be certified by a third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D 3588. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
13. Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 6 ppmvd NOx @ 3% O2 or 0.007 lb-NOx/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] Federally Enforceable Through Title V Permit
14. Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
15. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
16. Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial startup and at least once every twelve (12) months thereafter. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
17. 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
18. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
19. 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
20. NOx emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
21. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

22. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

23. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 4320] Federally Enforceable Through Title V Permit

24. 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

25. 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

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30. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, permittee shall demonstrate compliance at least annually. [District Rule 4320] Federally Enforceable Through Title V Permit

31. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rule 4320] Federally Enforceable Through Title V Permit

32. 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

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