



San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT

JAN 27 2010

Richard Garcia
Occidental of Elk Hills
PO Box 1001
Tupman, CA 93276-1001

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: S-1084448

Dear Mr. Garcia:

Enclosed for your review and comment is the District's analysis of Occidental of Elk Hills's application for an Authority to Construct for one 85 MMBTU/hr steam generator, at the SE/4 of Section 35, Township 30S, Range 22E.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. David Torii of Permit Services at 661-392-5620.

Sincerely,

David Warner
Director of Permit Services

DW:DBT/cm

Enclosures

Seyed Sadredin

Executive Director/Air Pollution Control Officer

Northern Region

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

Central Region (Main Office)

1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061
www.valleyair.org

Southern Region

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



San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

JAN 27 2010

Mike Tollstrup, Chief
Project Assessment Branch
Stationary Source Division
California Air Resources Board
PO Box 2815
Sacramento, CA 95812-2815

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: S-1084448

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of Occidental of Elk Hills's application for an Authority to Construct for one 85 MMBTU/hr steam generator, at the SE/4 of Section 35, Township 30S, Range 22E.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. David Torii of Permit Services at 661-392-5620.

Sincerely,

A handwritten signature in black ink, appearing to read "David Warner", with a long horizontal flourish extending to the right.

David Warner
Director of Permit Services

DW:DBT/cm

Enclosure

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Bakersfield Californian
Bakersfield Californian

**NOTICE OF PRELIMINARY DECISION
FOR THE PROPOSED ISSUANCE OF
AN AUTHORITY TO CONSTRUCT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct to Occidental of Elk Hills for one 85 MMBTU/hr steam generator, at the SE/4 of Section 35, Township 30S, Range 22E.

The analysis of the regulatory basis for this proposed action, Project #S-1084448, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 34946 FLYOVER COURT, BAKERSFIELD, CA 93308.**

- Rule 4201 Particulate matter Concentration (12/17/92)
- Rule 4301 Fuel Burning Equipment (12/17/92)
- Rule 4304 Equipment Tuning Procedure for Boilers, Steam Generators and Process Heaters (10/19/95)
- Rule 4305 Boilers, Steam Generators and Process Heaters – Phase 2 (8/21/03)
- Rule 4306 Boilers, Steam Generators and Process Heaters – Phase 3 (3/17/05)
- Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/Hr (Adopted October 16, 2008)
- Rule 4351 Boilers, Steam Generators and Process Heaters – Phase 1 (8/21/03)
- 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 subject equipment will operate in the Heavy Oil Western stationary source. The OEHI equipment will be authorized to operate in the SE/4 of Section 35, Township 30S, Range 22E. The Vintage equipment will be authorized to operate in Section 15, Township 27S, Range 19E. The equipment will not be located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

Vintage and OEHI plan to install a total of three 85 MMBtu/hr natural gas fired steam generators to produce steam for new thermally enhanced oil production operations in their Western Heavy Oil Stationary Source. The steam generators will be fired on a combination of produced gas and/or PUC-quality natural gas. Sour gas will be treated in a fuel sulfur removal system prior to combustion in the steam generators. The sulfur content of the treated sour gas is expected to contain no more than 1 grain of sulfur per 100 scf.

Steam generators are used to provide high quality steam for injection into heavy crude oil production zones. The heat added by the steam reduces the viscosity of the crude oil facilitating production.

V. Equipment Listing

- S-1327-71-0: 85 MMBTU/HR NATURAL GAS/TEOR-FIRED STEAM GENERATOR WITH NORTH AMERICAN MAGNA-FLAME G-LE BURNER AND FLUE GAS RECIRCULATION

S-1327-72-0: 85 MMBTU/HR NATURAL GAS/TEOR-FIRED STEAM GENERATOR WITH NORTH AMERICAN MAGNA-FLAME G-LE BURNER AND FLUE GAS RECIRCULATION

S-6848-12-0: 85 MMBTU/HR NATURAL GAS/TEOR-FIRED STEAM GENERATOR WITH MAGNA-FLAME LE BURNER AND FLUE GAS RECIRCULATION

VI. Emission Control Technology Evaluation

Low-NOX burners reduce NOX formation by producing lower flame temperatures (and longer flames) than conventional burners. Conventional burners thoroughly mix all the fuel and air in a single stage just prior to combustion, whereas low-NOX burners delay the mixing of fuel and air by introducing the fuel (or sometimes the air) in multiple stages. Generally, in the first combustion stage, the air-fuel mixture is fuel rich. In a fuel rich environment, all the oxygen will be consumed in reactions with the fuel, leaving no excess oxygen available to react with nitrogen to produce thermal NOX. In the secondary and tertiary stages, the combustion zone is maintained in a fuel-lean environment. The excess air in these stages helps to reduce the flame temperature so that the reaction between the excess oxygen with nitrogen is minimized.

The use of flue gas re-circulation (FGR) can reduce nitrogen oxides (NOX) emissions by 60% to 70%. In an FGR system, a portion of the flue gas is re-circulated back to the inlet air. As flue gas is composed mainly of nitrogen and the products of combustion, it is much lower in oxygen than the inlet air and contains virtually no combustible hydrocarbons to burn. Thus, flue gas is practically inert. The addition of an inert mass of gas to the combustion reaction serves to absorb heat without producing heat, thereby lowering the flame temperature. Since thermal NOX is formed by high flame temperatures, the lower flame temperatures produced by FGR serve to reduce thermal NOX.

VII. General Calculations

A. Assumptions

- The maximum operating schedule is 8760 hours per year (per Applicant).
- Heating value of natural gas is 1,000 MMBtu/MMscf (District policy).
- The unit is fired on natural gas/TEOR gas (per Applicant).
- F-factor for natural gas, corrected to 68 °F, is 8,578 dscf/MMBtu (40 CFR 60, Appendix B).
- Sulfur content of natural gas is 1 gr/100 scf (=0.00285 lb-SO_x/MMBtu) (BACT limit and per Applicant).

B. Emission Factors

Emissions Factors S-6848-12		
Pollutant	lb/MMBtu (ppmv @ 3% O2)	Source
NO _x	0.0085 (7)	BACT and Applicant
SO _x	0.00285	BACT and Applicant
PM ₁₀	0.005	Applicant
CO	0.022 (30)	Applicant
VOC	0.006	AP42 and Applicant

Emissions Factors S-1327-71-0 and '72-0		
Pollutant	lb/MMBtu (ppmv @ 3% O2)	Source
NO _x	0.0085 (7)	BACT and Applicant
SO _x	0.00285	BACT and Applicant
PM ₁₀	0.0076	AP-42 (07/98) Table 1.4-2
CO	0.019 (25)	Applicant
VOC	0.006	AP42 and Applicant

C. Calculations

1. Pre-Project Potential to Emit (PE1)

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

2. Post Project Potential to Emit (PE2)

The potential to emit for each steam generator is calculated as follows, and summarized in the table below:

$$\begin{aligned}
 PE2_{NO_x} &= (0.0085 \text{ lb/MMBtu}) * (85 \text{ MMBtu/hr}) * (24 \text{ hr/day}) \\
 &= 17.3 \text{ lb NO}_x/\text{day} \\
 &= (0.0085 \text{ lb/MMBtu}) * (85 \text{ MMBtu/hr}) * (24 \text{ hr/day}) * (365 \text{ day/year}) \\
 &= 6329 \text{ lb NO}_x/\text{year}
 \end{aligned}$$

S-6848-12-0		
Post Project Potential to Emit (PE2)		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO _x	17.3	6329
SO _x	5.8	2122
PM ₁₀	10.2	3723
CO	44.9	16,381
VOC	12.2	4468

S-1327-71-0		
Post Project Potential to Emit (PE2)		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO _x	17.3	6329
SO _x	5.8	2122
PM ₁₀	15.5	5659
CO	38.8	14,147
VOC	12.2	4468

S-1327-72-0		
Post Project Potential to Emit (PE2)		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO _x	17.3	6329
SO _x	5.8	2122
PM ₁₀	15.5	5659
CO	38.8	14,147
VOC	12.2	4468

Total for S-1327-71-0, '72-0 and S-6848-12-0		
Post Project Potential to Emit (PE2)		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO _x	51.9	18,987
SO _x	17.4	6,366
PM ₁₀	41.2	15,041
CO	122.5	44,675
VOC	36.6	13,404

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

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (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 that have occurred at the source, and which have not been used on-site.

The total Pre-Project Stationary Source Potential to Emit (SSPE1_{total}) can be calculated by adding the Pre-Project Potential to Emit (PE1) from all units with valid ATCs or PTOs (SSPE1_{Permit Unit}) and the sum of the ERCs that have been banked at the source and which have not been used on-site (Total_{ERC}).

$$SSPE1_{Total} = SSPE1_{Permit Unit} + Total_{ERC}$$

Pre-Project Stationary Source Potential to Emit [SSPE1] (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
ATC S-1327-31-1	0	0	0	0	73
ATC S-1327-32-2	3,469	899	2,397	11,668	1,734
PTO S-1327-34-2	3627	574	1531	6649	604
ATC S-1327-35-1	9855	1560	5475	20,258	1643
ATC S-1327-36-0*	0	0	0	0	3665
ATC S-1327-37-0*	0	0	0	0	2482
ATC S-1327-38-0*	0	0	0	0	3665
PTO S-1327-41-1	5256	150	399	4415	289
PTO S-1327-42-4	2110	42	248	11,479	1955
ATC S-1327-52-0	0	0	0	0	229
ATC S-1327-53-0	0	0	0	0	54
ATC S-1327-54-0	0	0	0	0	54
PTO S-1327-55-0	0	0	0	0	60
PTO S-1327-56-0	0	0	0	0	87
PTO S-1327-57-0	0	0	0	0	183
PTO S-1327-58-0	0	0	0	0	329
PTO S-1327-59-0	0	0	0	0	694
PTO S-1327-60-0	0	0	0	0	694
PTO S-1327-70-0	4344	86	511	23634	5152
PTO S-1327-76 (T/O)	0	0	0	0	415
PTO S-1327-77 (T/O)	0	0	0	0	525
PTO S-1327-78 (T/O)	0	0	0	0	190
PTO S-1327-79 (T/O)	0	0	0	0	373
PTO S-1327-80 (T/O)	0	0	0	0	1993
PTO S-1327-81 (T/O)	0	0	0	0	1993
PTO S-1327-82 (T/O)	0	0	0	0	150
PTO S-1327-83 (T/O)	9898	438	1169	53911	9168
PTO S-1327-84-0	0	0	0	0	169
PTO S-1327-85-0	0	0	0	0	170
PTO S-1327-86-0	0	0	0	0	170
S-6848 contribution	0	0	0	0	5,696
Pre-Project (SSPE1 total)	38,559	3749	11,730	132,014	44,658

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

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) 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 that have occurred at the source, and which have not been used on-site.

The total Post Project Stationary Source Potential to Emit (SSPE2_{total}) can be calculated by adding the Post Project Potential to Emit (PE2) from all units with valid ATCs or PTOs (SSPE2_{Permit Unit}) and the sum of the ERCs that have been banked at the source and which have not been used on-site (Total_{ERC}).

$$\text{SSPE2}_{\text{Total}} = \text{SSPE2}_{\text{Permit Unit}} + \text{Total}_{\text{ERC}}$$

Post-Project Stationary Source Potential to Emit [SSPE2] (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
ATC S-1327-31-1	0	0	0	0	73
ATC S-1327-32-2	3,469	899	2,397	11,668	1,734
PTO S-1327-34-2	3627	574	1531	6649	604
ATC S-1327-35-1	9855	1560	5475	20,258	1643
ATC S-1327-36-0*	0	0	0	0	3665
ATC S-1327-37-0*	0	0	0	0	2482
ATC S-1327-38-0*	0	0	0	0	3665
PTO S-1327-41-1	5256	150	399	4415	289
PTO S-1327-42-4	2110	42	248	11,479	1955
ATC S-1327-52-0	0	0	0	0	229
ATC S-1327-53-0	0	0	0	0	54
ATC S-1327-54-0	0	0	0	0	54
PTO S-1327-55-0	0	0	0	0	60
PTO S-1327-56-0	0	0	0	0	87
PTO S-1327-57-0	0	0	0	0	183
PTO S-1327-58-0	0	0	0	0	329
PTO S-1327-59-0	0	0	0	0	694
PTO S-1327-60-0	0	0	0	0	694
PTO S-1327-70-0	4344	86	511	23634	5152
PTO S-1327-76 (T/O)	0	0	0	0	415
PTO S-1327-77 (T/O)	0	0	0	0	525
PTO S-1327-78 (T/O)	0	0	0	0	190
PTO S-1327-79 (T/O)	0	0	0	0	373
PTO S-1327-80 (T/O)	0	0	0	0	1993
PTO S-1327-81 (T/O)	0	0	0	0	1993
PTO S-1327-82 (T/O)	0	0	0	0	150
PTO S-1327-83 (T/O)	9898	438	1169	53911	9168
PTO S-1327-84-0	0	0	0	0	169
PTO S-1327-85-0	0	0	0	0	170
PTO S-1327-86-0	0	0	0	0	170
S-6848 contribution	0	0	0	0	5,696
ATC S-1327-71-0	6329	2122	5659	14,147	4468
ATC S-1327-72-0	6329	2122	5659	14,147	4468
ATC S-6848-12-0	6329	2122	3723	16,381	4468
Post-Project (SSPE2 total)	57,546	10115	26,771	176,689	58,062

5. Major Source Determination

Pursuant to Section 3.24 of District Rule 2201, a Major Source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values.

However, Section 3.24.1 states for determining major source status, fugitives shall only be included for calculating the air pollutant post-project emissions or SSPE2 if the source is included in the list of source categories identified in the major source definition in 40 CFR Part 70.2, or when determining if a stationary source is a major air toxics

source as defined in Rule 2520. The facility is not included in the list of source categories identified in the major source definition in 40 CFR Part 70.2; therefore. The SSPE2 will be recalculated to exclude fugitive emissions.

Also, Section 3.24.2 states, "for the purposes of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site."

Pre-Project Stationary Source Potential to Emit [SSPE1] (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
ATC S-1327-31-1	0	0	0	0	73*
ATC S-1327-32-2	3,469	899	2,397	11,668	1,734
PTO S-1327-34-2	3627	574	1531	6649	604
ATC S-1327-35-1	9855	1560	5475	20,258	1643
ATC S-1327-36-0*	0	0	0	0	3665
ATC S-1327-37-0*	0	0	0	0	2482
ATC S-1327-38-0*	0	0	0	0	3665
PTO S-1327-41-1	5256	150	399	4415	289
PTO S-1327-42-4	2110	42	248	11,479	1955
ATC S-1327-52-0	0	0	0	0	229*
ATC S-1327-53-0	0	0	0	0	54*
ATC S-1327-54-0	0	0	0	0	54*
PTO S-1327-55-0	0	0	0	0	60
PTO S-1327-56-0	0	0	0	0	87
PTO S-1327-57-0	0	0	0	0	183
PTO S-1327-58-0	0	0	0	0	329
PTO S-1327-59-0	0	0	0	0	694
PTO S-1327-60-0	0	0	0	0	694
PTO S-1327-70-0	4344	86	511	23634	4021 1332*
PTO S-1327-76 (T/O)	0	0	0	0	415
PTO S-1327-77 (T/O)	0	0	0	0	525
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PTO S-1327-83 (T/O)	9898	438	1169	53911	9168
PTO S-1327-84-0	0	0	0	0	169
PTO S-1327-85-0	0	0	0	0	170
PTO S-1327-86-0	0	0	0	0	170
S-6848 contribution	0	0	0	0	4784 912*
Post-Project (SSPE2 total)	38,559	3749	11,730	132,014	42,205

*fugitive emissions – not counted

Post-Project Stationary Source Potential to Emit [SSPE2] (lb/year)					
Permit Unit	NO _x	SO _x	PM ₁₀	CO	VOC
ATC S-1327-31-1	0	0	0	0	73*
ATC S-1327-32-2	3,469	899	2,397	11,668	1,734
PTO S-1327-34-2	3627	574	1531	6649	604
ATC S-1327-35-1	9855	1560	5475	20,258	1643
ATC S-1327-36-0*	0	0	0	0	3665
ATC S-1327-37-0*	0	0	0	0	2482
ATC S-1327-38-0*	0	0	0	0	3665
PTO S-1327-41-1	5256	150	399	4415	289
PTO S-1327-42-4	2110	42	248	11,479	1955
ATC S-1327-52-0	0	0	0	0	229*
ATC S-1327-53-0	0	0	0	0	54*
ATC S-1327-54-0	0	0	0	0	54*
PTO S-1327-55-0	0	0	0	0	60
PTO S-1327-56-0	0	0	0	0	87
PTO S-1327-57-0	0	0	0	0	183
PTO S-1327-58-0	0	0	0	0	329
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PTO S-1327-80 (T/O)	0	0	0	0	1993
PTO S-1327-81 (T/O)	0	0	0	0	1993
PTO S-1327-82 (T/O)	0	0	0	0	150
PTO S-1327-83 (T/O)	9898	438	1169	53911	9168
PTO S-1327-84-0	0	0	0	0	169
PTO S-1327-85-0	0	0	0	0	170
PTO S-1327-86-0	0	0	0	0	170
S-6848 contribution	0	0	0	0	4784 912*
ATC S-1327-71-0	6329	2122	5659	14,147	4468
ATC S-1327-72-0	6329	2122	5659	14,147	4468
ATC S-6848-12-0	6329	2122	3723	16,381	4468
Post-Project (SSPE2 total)	57,546	10,115	26,771	176,689	55,609

*fugitive emissions – not counted

Major Source Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Pre-Project SSPE (SSPE1)	38,559	3749	11,730	132,014	42,205
Post Project SSPE (SSPE2)	57,546	10,115	26,771	176,689	55,609
Major Source Threshold	50,000	140,000	140,000	200,000	50,000
Major Source?	Yes	No	No	No	Yes

As seen in the table above, the facility is becoming a new Major Source for NO_x and VOC.

6. Baseline Emissions (BE)

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

Pursuant to Section 3.7 of District Rule 2201, BE = Pre-project Potential to Emit 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 Section 3.22 of District Rule 2201.

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

7. Major Modification

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

As discussed in Section VII.C.5 above, the facility is becoming a Major Source for VOC as a result of this project; however, the project by itself would need to be a significant increase in order to trigger a Major Modification. The emissions units within this project do not have a total potential to emit which is greater than Major Modification thresholds (see table below). Therefore, the project cannot be a significant increase and the project does not constitute a Major Modification.

Major Modification Thresholds (Non-Major Source Becoming Major Source)			
Pollutant	Project PE (lb/year)	Threshold (lb/year)	Major Modification?
NO _x	18,987	50,000	No
SO _x	6,366	140,000	No
PM ₁₀	11,318	140,000	No
VOC	13,404	50,000	No

8. Federal Major Modification

As shown above, this project does not constitute a Major Modification. Therefore, in accordance with District Rule 2201, Section 3.17, this project does not constitute a Federal Major Modification and no further discussion is required.

9. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. Detailed QNEC calculations are included in Appendix A.

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 for the following*:

- 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 a Major Modification.

*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, the applicant is proposing to install three new steam generators each with a PE greater than 2 lb/day for NO_x, SO_x,

PM₁₀, CO, and VOC. BACT is triggered for NO_x, SO_x, PM₁₀, VOC and CO since the PEs are greater than 2 lbs/day; however, BACT is not triggered for CO since the SSPE2 for CO is not greater than 200,000 lbs/year, as demonstrated in Section VII.C.5 of this document.

2. BACT Guideline

Please note that BACT Guideline 1.2.1 [Steam Generator (\geq 5 MMBtu/hr, Oilfield)] has been rescinded. The NO_x emission limit requirement of District Rule 4320 is lower than the Achieved-in-Practice requirement of BACT Guideline 1.2.1 (14 ppmv @ 3% O₂) ; therefore a project specific BACT analysis will be performed to determine BACT for this project. More details regarding this are provided in Appendix B.

3. Top-Down BACT Analysis

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

Pursuant to the attached Top-Down BACT Analysis (see Appendix B), BACT has been satisfied with the following:

NO_x: 7 ppmvd @ 3% O₂

SO_x: Natural gas, LPG and waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO₂ scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO₂ at stack O₂.

PM₁₀: Natural gas, LPG and waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO₂ scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO₂ at stack O₂.

VOC: Gaseous fuel

B. Offsets

1. Offset Applicability

Pursuant to Section 4.5.3, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the Post Project Stationary Source Potential to Emit (SSPE2) equals to or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The following table compares the post-project facility-wide annual emissions in order to determine if offsets will be required for this project.

Offset Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Pre-Project SSPE (SSPE1)	38,559	3749	11,730	132,014	44,658
Post Project SSPE (SSPE2)	57,546	10,115	26,771	176,689	58,062
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	No	No	No	Yes

2. Quantity of Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for NO_x and VOC; therefore offset calculations will be required for this project.

a. NO_x

As seen above, the SSPE2 is greater than the offset thresholds; therefore offset calculations will be required for this project.

Per Sections 4.7.1 and 4.7.3, the quantity of offsets in pounds per year for NO_x 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) = $(\Sigma[PE2 - BE] + ICCE) \times DOR$, 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 = Pre-project Potential to Emit 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)

As calculated in Section VII.C.6 above, the Baseline Emissions (BE) from these units equal zero. Also, there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

Offsets Required for each steam generator:

$$(\text{lb/year}) = ((\text{PE2} - \text{BE}) + \text{ICCE}) \times \text{DOR}$$

$$\text{PE2 (NO}_x\text{)} = 6329 \text{ lb/year}$$

$$\text{BE (NO}_x\text{)} = 0 \text{ lb/year}$$

$$\text{ICCE} = 0 \text{ lb/year}$$

$$\begin{aligned} \text{Offsets Required (lb/year)} &= 6329 - 0 + 0 \\ &= 6329 \text{ lb NO}_x\text{/year} \end{aligned}$$

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

S-1372-71-0			
1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
1582	1582	1582	1582

S-1372-72-0			
1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
1582	1582	1582	1582

S-6848-12-0			
1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
1582	1582	1582	1582

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

S-1327-71-0 and '72-0				
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
S-1372-71-0	1582	1582	1582	1582
S-1372-72-0	1582	1582	1582	1582
Total	3164	3164	3164	3164
@ 1.5:1	4746	4746	4746	4746

S-6848-12-0				
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
S-6848-12-0	1582	1582	1582	1582
Total	1582	1582	1582	1582
@ 1.5:1	2373	2373	2373	2373

The applicants have stated they plan to use ERC certificate S-3237-2 and S-2824-2, or their daughter(s), to offset the increases in NO_x emissions associated with project S-1083338 and S-1084448, respectively. The above certificates have available quarterly NO_x credits as follows:

S-1083338 (S-1327)				
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
ERC #S-3237-2	42,208	42,944	43,683	43,681

S-1084448 (S-6848)				
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
ERC #S-2824-2	29,265	29,810	30,356	30,356

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

Proposed Rule 2201 (offset) Conditions:

For project S-1083338 ATCs:

- 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 – 1582 lb, 2nd quarter - 1582 lb, 3rd quarter - 1582 lb, and fourth quarter - 1582 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 9/21/06). [District Rule 2201]
- ERC Certificate Number S-3237-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

For project S-1084448 ATCs:

- 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 – 1582 lb, 2nd quarter - 1582 lb, 3rd quarter - 1582 lb, and fourth quarter - 1582 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 9/21/06). [District Rule 2201]
- ERC Certificate Number S-2824-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

b. VOC

As seen above, the SSPE2 for VOC is greater than the offset thresholds; therefore offset calculations will be required for this project.

Per Sections 4.7.1 and 4.7.3, the quantity of offsets in pounds per year for NO_x is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

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

Where,

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

BE = Baseline Emissions, (lb/year)

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

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = Pre-project Potential to Emit 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)

As calculated in Section VII.C.6 above, the Baseline Emissions (BE) from these units equal zero. Also, there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

Offsets Required for each steam generator:

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

$$\text{PE2 (NO}_x\text{)} = 4468 \text{ lb/year}$$

$$\text{BE (NO}_x\text{)} = 0 \text{ lb/year}$$

$$\text{ICCE} = 0 \text{ lb/year}$$

$$\begin{aligned} \text{Offsets Required (lb/year)} &= 4468 - 0 + 0 \\ &= 4468 \text{ lb VOC/year} \end{aligned}$$

Calculating the appropriate quarterly VOC emissions to be offset for each steam generator is as follows:

S-1372-71-0			
1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
1117	1117	1117	1117

S-1372-72-0			
1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
1117	1117	1117	1117

S-6848-12-0			
1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
1117	1117	1117	1117

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

S-6848-12-0 and '13-0				
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
S-6848-12-0	1117	1117	1117	1117
S-6848-13-0	1117	1117	1117	1117
Total	2234	2234	2234	2234
@ 1.5:1	3351	3351	3351	3351

S-1327-71-0 and '72-0				
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
S-1372-71-0	1117	1117	1117	1117
S-1372-72-0	1117	1117	1117	1117
Total	2234	2234	2234	2234
@ 1.5:1	3351	3351	3351	3351

S-6848-12-0				
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
S-6848-12-0	1117	1117	1117	1117
Total	1117	1117	1117	1117
@ 1.5:1	1676	1676	1676	1676

The applicant for project 1083338 has stated they plan to use ERC certificates S-1703-1, -1705-1 and S-1706-1 to offset the increase in VOC emissions associated with the project. The applicant for project 1084448 has stated they plan to use ERC certificates S-1704-1 and S-1708-1 to offset the increase in VOC emissions associated with the project. The above certificates have available quarterly VOC credits as follows:

S-1083338 (S-1327)				
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
ERC #S-1703-1	394	1333	1998	1038
ERC #S-1705-1	1759	4105	4872	2140
ERC #S-1706-1	2314	5505	6449	2760
Total	4467	10,943	13,319	5938

S-1084448 (S-6848)				
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
ERC #S-1704-1	1695	3741	4523	1688
ERC #S-1708-1	1664	3970	4474	1890
Total	3359	7711	8997	3578

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

Proposed Rule 2201 (offset) Conditions:

For project 1083338 ATCs:

- Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter – 1117 lb, 2nd quarter - 1117 lb, 3rd quarter - 1117 lb, and fourth quarter - 1117 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 9/21/06). [District Rule 2201]
- ERC Certificate numbers S-1703-1, S-1705 and S-1706-1 (or a 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]

For project 1084448 ATCs:

- Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter – 1117 lb, 2nd quarter - 1117 lb, 3rd quarter - 1117 lb, and fourth quarter - 1117 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 9/21/06). [District Rule 2201]
- ERC Certificate numbers S-1704-1 and S-1708-1 (or a 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. Any new Major Source, which is a new facility that is also a Major Source,
- b. Major Modifications,
- c. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- d. Any project which results in the offset thresholds being surpassed, and/or
- e. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

a. New Major Source

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.

b. Major Modification

As demonstrated in VII.C.7, this project does not constitute a Major Modification; therefore, public noticing for Major Modification purposes is not required.

c. PE > 100 lb/day

Applications which include a new emissions unit with a Potential to Emit 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.

d. Offset Threshold

The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	38,559	57,546	20,000 lb/year	No
SO _x	3749	10,115	54,750 lb/year	No
PM ₁₀	11,730	26,771	29,200 lb/year	No
CO	132,014	176,689	200,000 lb/year	No
VOC	44,658	58,062	20,000 lb/year	No

As detailed above, offset thresholds were not surpassed with this project; therefore public noticing isn't required for offset purposes.

e. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e. SSIPE = SSPE2 – SSPE1. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table:

Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	38,559	57,546	18,987	20,000 lb/year	No
SO _x	3749	10,115	6,366	20,000 lb/year	No
PM ₁₀	11,730	26,771	15,041	20,000 lb/year	No
CO	132,014	176,689	44,675	20,000 lb/year	Yes
VOC	44,658	58,062	13,404	20,000 lb/year	No

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

2. Public Notice Action

As discussed above, public noticing is required for this project for the CO SSIPE greater than 20,000 lbb/yr. 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)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.15.1 and 3.15.2, 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:

S-1327-71-0 and '72-0:

- Emission rates shall not exceed: PM10: 0.0076 lb/MMBtu, VOC: 0.006 lb/MMBtu, NO_x (as NO₂): 7 ppmvd NO_x @ 3% O₂, or CO: 25 ppmv @ 3% O₂. [District Rules 2201, 4305, 4306, and 4320] N

S-6848-12-0:

- Emission rates shall not exceed: PM10: 0.005 lb/MMBtu, VOC: 0.006 lb/MMBtu, NO_x (as NO₂): 7 ppmvd NO_x @ 3% O₂, or CO: 30 ppmv @ 3% O₂. [District Rules 2201, 4305, 4306, and 4320] N

E. Compliance Assurance

1. Source Testing

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

The proposed PM10 emission factor for S-6848-12-0 is lower than the AP42 emission factor for natural gas combustion (AP42, Table 1.4-2); therefore, PM10 source testing is required to verify compliance.

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 Rules 4305, 4306 and 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 Rules 4305, 4306 and 4320*, of this evaluation.

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

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

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis

Section 4.14.1 of this Rule requires that an ambient air quality analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The Technical Services Division of the SJVAPCD conducted the required analysis. Refer to Appendix C of this document for the AAQA summary sheet.

The proposed location is in an attainment area for 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, PM10 or SO_x.

Rule 2520 Federally Mandated Operating Permits

Since this facility's emissions exceed the major source thresholds of District Rule 2201, this facility is a major source. Pursuant to Rule 2520 Section 5.1, and as required by permit condition, the facility will have up to 12 months from the date of ATC issuance to either submit a Title V Application or comply with District Rule 2530 *Federally Enforceable Potential to Emit*.

Rule 4001 New Source Performance Standards (NSPS)

40 CFR Part 60, Subpart Dc applies to affected Small Industrial-Commercial-Industrial Steam Generation Units between 10 MMBtu/hr and 100 MMBtu/hr (post-6/9/89 construction, modification or, reconstruction). Steam generation units only fired on gaseous fuel are not affected units since this subpart does not include any applicable standards for gaseous fired units. Therefore, Subpart Dc does not apply to these units.

Rule 4101 Visible Emissions

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

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

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

Therefore, compliance with District Rule 4101 requirements is expected.

Rule 4102 Nuisance

Section 4.0 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, compliance with this rule is expected.

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 or equal to one. According to the Technical Services Memo for this project (Appendix C), the total facility prioritization score including this project was less than or equal to one. Therefore, no future analysis is required to determine the impact from this project and 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
PM10 Emission Factor:	0.0076 lb-PM10/MMBtu
Percentage of PM as PM10 in Exhaust:	100%
Exhaust Oxygen (O ₂) Concentration:	3%
Excess Air Correction to F Factor =	$\frac{20.9}{(20.9 - 3)} = 1.17$

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

$$GL = 0.006 \text{ grain/dscf} < 0.1 \text{ grain/dscf}$$

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

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

District Rule 4301 Fuel Burning Equipment

This rule specifies maximum emission rates in lb/hr for SO₂, NO₂, and combustion contaminants (defined as total PM in Rule 1020). This rule also limits combustion contaminants to ≤ 0.1 gr/scf. According to AP 42 (Table 1.4-2, footnote c), all PM emissions from natural gas combustion are less than 1 μm in diameter.

District Rule 4301 Limits			
Pollutant	NO₂	Total PM	SO₂
S-1327-71-0 (lb/hr)	0.7	0.6	0.2
S-1327-72-0 (lb/hr)	0.7	0.6	0.2
S-6848-12-0 (lb/hr)	0.7	0.4	0.2
Rule Limit (lb/hr)	140	10	200

The above table indicates compliance with the maximum lb/hr emissions in this rule; therefore, continued compliance is expected.

District Rule 4304 - Equipment Tuning Procedure for Boilers, Steam Generators and Process Heaters

Pursuant to District Rules 4305, 4306 and 4320 Section 6.3.1, the steam generators are not required to tune since it follows a District approved Alternate Monitoring scheme where the applicable emission limits are periodically monitored. Therefore, the steam generators are not subject to this rule.

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

The units are natural gas-fired with a maximum heat input of 85 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4305, the unit is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters – Phase 2*.

In addition, the unit is also subject to District Rule 4320, Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr. Since emissions limits of District Rule 4306 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 85 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4306, the unit is subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3*.

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

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

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			
	Staged Enhanced Schedule Initial limit: 9 ppmv @ 3% O ₂ , 0.011 lb/MMBtu	400 ppmv @ 3% O ₂	40 ppmv or 0.052 lb/MMBtu	400 ppmv @ 3% O ₂
	Final limit: 5 ppmv @ 3% O ₂ , 0.0062 lb/MMBtu			

- the proposed NOx emission factor is 7 ppmvd @ 3% O₂ (0.0108 lb/MMBtu), and
- the proposed CO emission factors are 25 or 30 ppmvd @ 3% O₂

Therefore, as both the proposed NOx and CO emissions factors meet the limits of the rule, compliance with Section 5.1 of District Rule 4320 is expected.

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

Section 5.3 Annual Fee Calculation

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 SO₂ emissions by at least 95% by weight; or limit exhaust SO₂ 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 new steam generators have a sulfur emissions limit of 0.00285 lb SO₂/MMBtu (1.0 gr S/100scf) and will be in compliance with the SO_x/PM₁₀ requirements of Section 5.4.1.2 of the rule which states the following:

5.4.1.2 On and after the applicable NO_x Compliance Deadline specified in Section 5.2 Table 1, operators shall limit fuel sulfur content to no more than five (5) grains of total sulfur per one hundred (100) standard cubic feet

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 generators are 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. Startup and shutdown provisions have not been requested.

Section 5.7, Monitoring Provisions

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

- 5.7.1.1 Periodic NO_x 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 O₂ 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 permit 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 NO_x 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 SO_x Emissions

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

Section 5.7.6.2 Operators complying with Section 5.4.1.3 by installing and operating a control device with 95% SO_x 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. This option is not proposed and therefore the section is not applicable.

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. Semi-annual testing of sulfur is required for the new steam generators as stated below.

Sulfur Monitoring

The following conditions will be included on the ATCs for the steam generators which are authorized to combust natural gas and TEOR gas:

Natural gas fuel sulfur content shall not exceed 1.0 grains-S/100 scf. [District Rule 2201 and 4320] Y

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

When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume. [District Rules 1070, 2201, 2520, and 4320] Y

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

Section 5.8, Compliance Determination

Section 5.8.1 requires that the operator of any unit 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 generators are 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 permit as follows:

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

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. The units are not low use and therefore these records are not necessary.

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. The following condition is included on the ATC:

Permittee shall maintain a record of the duration of each startup and shutdown of this unit. [District Rules 4305, 4306, and 4320] Y

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 ₂ S) Content		EPA Method 11 or EPA Method 15, as appropriate.
Sulfur Content of Liquid Fuel		ASTM D 6920-03 or ASTM D 5453-99

The following test method conditions are included on the ATCs:

{2977} NO_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 (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320]

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

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

where:

C_{SO₂, inlet} = concentration of SO_x (expressed as SO₂) at the inlet side of the SO_x emission control system, in lb/dscf

C_{SO₂, outlet} = concentration of SO_x (expressed as SO₂) at the outlet side of the SO_x 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 NO_x 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 units are 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.

District Rule 4351 Boilers, Steam Generators and Process Heaters – Phase 1

This rule applies to boilers, steam generators, and process heaters at NO_x Major Sources that are not located west of Interstate 5 in Fresno, Kings, or Kern counties. The facility is located west of Interstate 5 in Kern County. Therefore, this rule does not apply.

District Rule 4801 Sulfur Compounds

A person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: 0.2 % by volume calculated as SO₂, on a dry basis averaged over 15 consecutive minutes.

Using the ideal gas equation and the emission factors presented in Section VII, the sulfur compound emissions are calculated as follows:

$$\text{Volume SO}_2 = \frac{n RT}{P}$$

With:

N = moles SO₂

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

P (Standard Pressure) = 14.7 psi

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

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

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

Therefore, compliance with District Rule 4801 requirements is expected.

California Health & Safety Code 42301.6 (School Notice)

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

California Environmental Quality Act (CEQA)

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

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

The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15031 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue Authorities to Construct S-6848-12-0 and '13-0 subject to the permit conditions on the attached draft Authorities to Construct in Appendix D.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-1327-71-0	3020-02-H	85 MMBtu/hr	\$953.00
S-1327-72-0	3020-02-H	85 MMBtu/hr	\$953.00
S-6848-12-0	3020-02-H	85 MMBtu/hr	\$953.00

APPENDIX A

Quarterly Net Emissions Change (QNEC)

Quarterly Net Emissions Change (QNEC)

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

QNEC = PE2 - PE1, where:

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

Using the values in Sections VII.C.2 and VII.C.6 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

$$\begin{aligned} PE2_{\text{quarterly}} &= PE2_{\text{annual}} \div 4 \text{ quarters/year} \\ &= 6329 \text{ lb/year} \div 4 \text{ qtr/year} \\ &= 1582 \text{ lb NOx/qtr} \end{aligned}$$

$$\begin{aligned} PE1_{\text{quarterly}} &= PE1_{\text{annual}} \div 4 \text{ quarters/year} \\ &= 0 \text{ lb/year} \div 4 \text{ qtr/year} \\ &= 0 \text{ lb NOx/qtr} \end{aligned}$$

S-1372-71-0 Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	1582	0	1582
SO _x	531	0	531
PM ₁₀	1415	0	1415
CO	3537	0	3537
VOC	1117	0	1117

S-1372-72-0 Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	1582	0	1582
SO _x	531	0	531
PM ₁₀	1415	0	1415
CO	3537	0	3537
VOC	1117	0	1117

S-6847-12-0			
Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	1582	0	1582
SO _x	531	0	531
PM ₁₀	931	0	931
CO	4095	0	4095
VOC	1117	0	1117

Permit #: S-1327-72-0	Last Updated
Facility: VINTAGE PRODUCTION CALIFORNIA	12/24/2009 TORID

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	6329.0	2122.0	2234.0	14147.0	4468.0
Daily Emis. Limit (lb/Day)	17.3	5.8	6.1	38.8	12.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1582.0	531.0	559.0	3537.0	1117.0
Q2:	1582.0	531.0	559.0	3537.0	1117.0
Q3:	1582.0	531.0	559.0	3537.0	1117.0
Q4:	1582.0	531.0	559.0	3537.0	1117.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

C:\Program Files\Microsoft Office\Office12\OUTLOOK.EXE [mailto:torid@sjvuapcd.com]

Permit #: S-6848-12-0	Last Updated
Facility: OCCIDENTAL OF ELK HILLS, INC	12/11/2008 TORID

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	6329.0	2122.0	5659.0	16381.0	4468.0
Daily Emis. Limit (lb/Day)	17.3	5.8	15.5	44.9	12.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1582.0	531.0	1415.0	4095.0	1117.0
Q2:	1582.0	531.0	1415.0	4095.0	1117.0
Q3:	1582.0	531.0	1415.0	4095.0	1117.0
Q4:	1582.0	531.0	1415.0	4095.0	1117.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.0				1.0
Quarterly Offset Amounts (lb/Qtr)					
Q1:	1582.0				1117.0
Q2:	1582.0				1117.0
Q3:	1582.0				1117.0
Q4:	1582.0				1117.0

Appendix B Top Down BACT Analysis

BACT Analysis

Top Down BACT Analysis for NO_x Emissions:

Step 1 - Identify All Possible Control Technologies

The District adopted District Rule 4320 on October 16, 2008. The NO_x emission limit requirements in District Rule 4320 are lower than the current BACT limits; therefore a project specific BACT analysis will be performed to determine BACT for this project. District Rule 4320 includes a compliance option that limits oilfield steam generators with heat input ratings greater than 20 MMBtu/hr to 7 ppm @ 3% O₂. This emission limit is Achieved in Practice control technology for the BACT analysis. District Rule 4320 also contains an enhanced schedule option that allows applicants additional time to meet the requirements of the rule. The enhanced schedule NO_x emission limit requirement is 5 ppmv @ 3% O₂. Since this is an enhanced option in the rule, it will be considered the Technologically Feasible control technology for the BACT analysis.

The SJVUAPCD BACT Clearinghouse Guideline 1.2.1 has been rescinded. Therefore a new BACT analysis is required. The following are possible control technologies:

1. 7 ppmvd @ 3% O₂ - Achieved in Practice.
2. 5 ppmvd @ 3% O₂ with SCR – Technologically Feasible

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. 7 ppmvd @ 3% O₂ - Achieved in Practice.
2. 5 ppmvd @ 3% O₂ with SCR – Technologically Feasible

Step 4 - Cost Effectiveness Analysis

A cost effective analysis is required for technologically feasible control options that are not proposed. The applicant has proposed 7 ppmvd NO_x @ 3% O₂; therefore, a cost effective analysis is required for the 5 ppmvd NO_x @ 3% O₂ with Selective Catalytic Reduction option.

SCR Cost Effectiveness Analysis

Assumptions:

Industry standard (IS) assumed to be a NO_x emission rate of 15 ppmv @ 3% O₂ in accordance with District Rule 4306.

Unit's maximum emissions are defined by the burner size multiplied by the emissions factor and a maximum annual operating schedule of 8,760 hr/year.

Calculations:

$$\begin{aligned} \text{Industrial Standard NOx Emissions} &= 85 \text{ MMBtu/hr} \times 0.018 \text{ lb/MMBtu} \times 8760 \text{ hrs/year} \\ &= 13,403 \text{ lb/year} \end{aligned}$$

$$\begin{aligned} \text{Technologically Feasible NOx Emissions} &= 85 \text{ MMBtu/hr} \times 0.006 \text{ lb/MMBtu} \times 8760 \text{ hrs/year} \\ &= 4,468 \text{ lb/year} \end{aligned}$$

Selective Catalytic Reduction system (Detailed costs follow the BACT Analysis Section):

Capital Cost (SCR Vendor & TJ Cross): **\$1,102,046** (includes all purchased equipment, taxes, freight, and installation for a 62.5 MMBtu/hr unit) – detailed costs follow.

Total Estimated Capital Cost: **\$1,102,046**

Equivalent Annual Capital Cost (Capital Recovery)

$$A = P \frac{i(1+i)^n}{(1+i)^n - 1} \quad \text{where;}$$

A = Equivalent Annual Control Equipment Capital Cost

P = Present value of the control equipment, including installation cost

i = interest rate (use 10%, or demonstrate why alternate is more representative of the specific operation).

n = equipment life (assume 10 years or demonstrate why alternate is more representative of the specific operation)

Where

$$P = \$1,102,046$$

$$i = 10\%$$

$$n = 10 \text{ years}$$

$$A = \$179,303$$

Because the capital recovery and annual costs of ammonia, catalyst replacement, and energy (\$179,303/yr + \$35,583/yr + \$10,512/yr = \$225,398) correspond to a 62.5 MMBtu/hr unit they are adjusted using the "6/10" rule as follows:

$$\$225,398 \times (85/62.5)^{0.6} = \$271,064/\text{yr}$$

$$\text{Operation and Maintenance Labor} = \$7875/\text{yr} + \$1181/\text{yr}$$

$$\begin{aligned} \text{Indirect annual costs} &= \$2 \times 13,120 + 4725 \\ &= \$30,965 \end{aligned}$$

$$\text{Total annualized cost} = \underline{\underline{\$311,085/\text{yr}}}$$

NOx Reduction due to Selective Catalytic Reduction system:

Total reduction = Emissions_{15 ppm} – Emissions_{5 ppm}
Total reduction = 13,403 lb/year– 4468 lb/year
Total reduction = 8,935 lb/year = 4.5 ton NOx per year

Cost effectiveness:

Cost effectiveness = \$311,085/ 4.47 tpy
Cost effectiveness = \$69,594/ ton

The cost effectiveness is greater than the \$24,500/ton cost effectiveness threshold of the District BACT policy. Therefore the use of SCR with ammonia injection is not cost effective and is not required as BACT.

Step 5 - Select BACT

BACT is satisfied by the applicant's proposal to meet a NOx limit of 7 ppmvd @ 3% O₂ to be achieved with a Low NO_x burner and flue gas recirculation (FGR).

❖ **Top Down BACT Analysis for VOC Emissions:**

Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.2.1, 3rd quarter 2008, identifies achieved in practice and technologically feasible BACT for Steam Generator \geq 5 MMbtu/hr, at an oil field as follows:

1. Gaseous fuel - achieved in practice

Step 2 - Eliminate Technologically Infeasible Options

The above listed technology is technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. Gaseous fuel - achieved in practice

Step 4 - Cost Effectiveness Analysis

Only one control technology identified and this technology is achieved in practice, therefore, cost effectiveness analysis not necessary.

Step 5 - Select BACT for VOC

The use of gaseous fuel (natural gas) is selected as BACT for VOC emissions.

❖ **Top Down BACT Analysis for PM₁₀ and SO_x Emissions:**

Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.2.1, 3rd quarter 2007, identifies achieved in practice and technologically feasible BACT for Steam Generator ≥ 5 MMbtu/hr, at an oil field as follows:

1. Natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO₂ scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO₂ at stack
O₂ - achieved in practice

Step 2 - Eliminate Technologically Infeasible Options

The above listed technology is technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. Natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO₂ scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO₂ at stack
O₂ - achieved in practice

Step 4 - Cost Effectiveness Analysis

Only one control technology identified and this technology is achieved in practice, therefore, cost effectiveness analysis not necessary.

Step 5 - Select BACT for SO_x and PM₁₀

The use of natural gas as a primary fuel with a sulfur content not to exceed 1.0 gr-S/100 scf with no back up fuel is selected as BACT for SO_x and PM₁₀ emissions.

Appendix C HRA/AAQA

San Joaquin Valley Air Pollution Control District Risk Management Review

To: David Torii– Permit Services
 From: Yu Vu – Technical Services
 Date: January 5, 2010
 Facility Name: Vintage Production California LLC
 Location: HOW SS
 Application #(s): S-1327-71-0 and -72-0
 Project #: S-1083338

A. RMR SUMMARY

RMR Summary				
Categories	Steam Generator (Unit 71-0)	Steam Generator (Unit 72-0)	Project Totals	Facility Totals
Prioritization Score	0.00	0.00	0.00	0.84
Acute Hazard Index	N/A ¹	N/A ¹	N/A ¹	N/A ¹
Chronic Hazard Index	N/A ¹	N/A ¹	N/A ¹	N/A ¹
Maximum Individual Cancer Risk (10 ⁻⁶)	N/A ¹	N/A ¹	N/A ¹	N/A ¹
T-BACT Required?	No	No		
Special Permit Conditions?	No	No		

¹ The prioritization score for this project was less than the District's significance threshold (1.0); therefore, no further analysis is necessary.

Proposed Permit Conditions

To ensure that human health risks will not exceed District allowable levels; the following permit conditions must be included for:

Unit #s 71-0 and 72-0

No special conditions are required.

B. RMR REPORT

I. Project Description

Technical Services received a request on December 24, 2009, to perform an Ambient Air Quality Analysis and a Risk Management Review for a two identical 85 MMbtu/hr steam generators. This project includes a unit that was originally from project S-1084448.

II. Analysis

Toxic emissions for this proposed units were calculated using Ventura County's emission factors for external combustion sources (NG external combustion 10-100 MMbtu/hr). In accordance with the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, March 2, 2001), risks from the proposed unit's toxic emissions were prioritized using the procedure in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEARTs database. The prioritization score for this proposed unit was less than 1.0 (see RMR Summary Table). Therefore, no further analysis was necessary.

The following parameters were used for the review:

Analysis Parameters Unit 1-0 and 2-0			
Annual consumption (MMscf/yr)	744.6	Max Hours per Year	8760
Closest Receptor (m)	1609		

Technical Services also performed modeling for criteria pollutants CO, NO_x, SO_x and PM₁₀. The emission rates used for criteria pollutant modeling were 1.56 lb/hr CO, 0.93 lb/hr NO_x, 0.24 lb/hr SO_x, and 0.43 lb/hr PM₁₀. The engineer supplied the maximum fuel rate for the IC engine used during the analysis.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Diesel ICE	1 Hour	3 Hours	8 Hours.	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO _x	Pass	X	X	X	Pass
SO _x	Pass	Pass	X	Pass	Pass
PM ₁₀	X	X	X	Pass	Pass

*Results were taken from the attached PSD spreadsheet.

¹The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

III. Conclusion

The prioritization score is less than 1.0. **In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

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

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

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

Attachments:

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Toxic emissions summary
- D. Prioritization score

Appendix D Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-1327-71-0

LEGAL OWNER OR OPERATOR: VINTAGE PRODUCTION CALIFORNIA LLC
MAILING ADDRESS: 9600 MING AVE, SUITE 300
BAKERSFIELD, CA 93311

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 15 TOWNSHIP: 27S RANGE: 19E

EQUIPMENT DESCRIPTION:

85 MMBTU/HR NATURAL GAS/TEOR-FIRED STEAM GENERATOR WITH NORTH AMERICAN MAGNA-FLAME G-LE BURNER AND FLUE GAS RECIRCULATION

CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, tank vapor recovery gas, and gas produced during thermally enhanced oil recovery (TEOR) operation or a mixture of any of these fuels. [District Rule 2201]
5. Sulfur content in the gaseous fuel shall not exceed 1.0 grain per 100 dry standard cubic feet. [District Rule 2201]
6. Emission rates shall not exceed: PM10: 0.0076 lb/MMBtu, VOC: 0.006 lb/MMBtu, NOx (as NO2): 7 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
7. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 1070, 2201, 4305, 4306, and 4320]

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

DAVID WARNER, Director of Permit Services

S-1327-71-0; Jan 26 2010 2:45PM - TORID : Joint Inspection NOT Required

8. Sulfur content of the gaseous fuel being fired in the unit shall be determined using Draeger tube analysis, ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD, double GC for H₂S and mercaptans, performed in the laboratory. Should the applicant decide to use different methodology, the methodology must be approved by the District prior to its use. [District Rule 1070, 2201, 4305, 4306, and 4320]
9. Testing to demonstrate compliance with the sulfur content limit is not required when the unit is fired on PUC certified gas. [District Rule 2201]
10. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2201, 4305, 4306, and 4320]
11. Source testing to measure fuel combustion NO_x and CO emissions from this unit shall be conducted within 60 days of initial start-up. Source test shall be conducted using a gas mixture including PUC-quality natural gas and the expected amounts of tank vapor recovery (TVR) gas and thermally enhanced oil recovery (TEOR) gas for PM₁₀ emissions testing. [District Rules 2201, 4305, 4306, and 4320]
12. 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 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 2201, 4305, 4306, and 4320]
13. 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 performing the notification and testing required by this condition. [District Rules 2201, 4305, 4306, and 4320]
14. 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 2201, 4305, 4306, and 4320]
15. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x 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 2201, 4305, 4306, and 4320]
16. 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 2201, 4305, 4306, and 4320]
17. Source testing to measure NO_x and CO emissions from this unit 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 2201, 4305, 4306, and 4320]
18. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rule 4305, 4306 and 4320]

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CONDITIONS CONTINUE ON NEXT PAGE

19. {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]
20. 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 2201, 4305, 4306, and 4320]
21. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
22. Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
23. 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 2201, 4305, 4306, and 4320]
24. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
25. Permittee shall maintain a record of the duration of each startup and shutdown of this unit. [District Rule 4305, 4306, and 4320]
26. 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, 2201, 4305, 4306, and 4320]
27. 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 - 1582 lb, 2nd quarter - 1582 lb, 3rd quarter - 1582 lb, and fourth quarter - 1582 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 9/21/06). [District Rule 2201]
28. ERC Certificate Number S-3237-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
29. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1117 lb, 2nd quarter - 1117 lb, 3rd quarter - 1117 lb, and fourth quarter - 1117 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 9/21/06). [District Rule 2201]
30. ERC Certificate numbers S-1703-1, S-1705 and S-1706-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-1327-72-0

LEGAL OWNER OR OPERATOR: VINTAGE PRODUCTION CALIFORNIA LLC
MAILING ADDRESS: 9600 MING AVE, SUITE 300
BAKERSFIELD, CA 93311

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 15 **TOWNSHIP:** 27S **RANGE:** 19E

EQUIPMENT DESCRIPTION:

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3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, tank vapor recovery gas, and gas produced during thermally enhanced oil recovery (TEOR) operation or a mixture of any of these fuels. [District Rule 2201]
5. Sulfur content in the gaseous fuel shall not exceed 1.0 grain per 100 dry standard cubic feet. [District Rule 2201]
6. Emission rates shall not exceed: PM10: 0.0076 lb/MMBtu, VOC: 0.006 lb/MMBtu, NOx (as NO2): 7 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
7. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 1070, 2201, 4305, 4306, and 4320]

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Seyed Sadredin, Executive Director, APCO

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DAVID WARNER, Director of Permit Services

6-1327-72-0 : Jan 28 2010 2:45PM - TORID : Joint Inspection NOT Required

8. Sulfur content of the gaseous fuel being fired in the unit shall be determined using Draeger tube analysis, ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD, double GC for H₂S and mercaptans, performed in the laboratory. Should the applicant decide to use different methodology, the methodology must be approved by the District prior to its use. [District Rule 1070, 2201, 4305, 4306, and 4320]
9. Testing to demonstrate compliance with the sulfur content limit is not required when the unit is fired on PUC certified gas. [District Rule 2201]
10. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2201, 4305, 4306, and 4320]
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12. 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 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 2201, 4305, 4306, and 4320]
13. 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 performing the notification and testing required by this condition. [District Rules 2201, 4305, 4306, and 4320]
14. 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 2201, 4305, 4306, and 4320]
15. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x 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 2201, 4305, 4306, and 4320]
16. 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 2201, 4305, 4306, and 4320]
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CONDITIONS CONTINUE ON NEXT PAGE

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20. 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 2201, 4305, 4306, and 4320]
21. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
22. Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
23. 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 2201, 4305, 4306, and 4320]
24. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
25. Permittee shall maintain a record of the duration of each startup and shutdown of this unit. [District Rule 4305, 4306, and 4320]
26. 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, 2201, 4305, 4306, and 4320]
27. 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 - 1582 lb, 2nd quarter - 1582 lb, 3rd quarter - 1582 lb, and fourth quarter - 1582 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 9/21/06). [District Rule 2201]
28. ERC Certificate Number S-3237-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
29. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1117 lb, 2nd quarter - 1117 lb, 3rd quarter - 1117 lb, and fourth quarter - 1117 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 9/21/06). [District Rule 2201]
30. ERC Certificate numbers S-1703-1, S-1705 and S-1706-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
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PERMIT NO: S-6848-12-0

LEGAL OWNER OR OPERATOR: OCCIDENTAL OF ELK HILLS, INC
MAILING ADDRESS: 10800 STOCKDALE HWY
BAKERSFIELD, CA 93311

LOCATION: HEAVY OIL WESTERN

SECTION: SE 35 TOWNSHIP: 30S RANGE: 22E

EQUIPMENT DESCRIPTION:
85 MMBTU/HR NATURAL GAS/TEOR-FIRED STEAM GENERATOR WITH MAGNA-FLAME LE BURNER AND FLUE GAS RECIRCULATION

CONDITIONS

1. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
3. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, tank vapor recovery gas, and gas produced during thermally enhanced oil recovery (TEOR) operation or a mixture of any of these fuels. [District Rule 2201]
5. Sulfur content in the gaseous fuel shall not exceed 1.0 grain per 100 dry standard cubic feet. [District Rule 2201]
6. Emission rates shall not exceed: PM10: 0.005 lb/MMBtu, VOC: 0.006 lb/MMBtu, NOx (as NO2): 7 ppmvd NOx @ 3% O2, or CO: 30 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
7. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 1070, 2201, 4305, 4306, and 4320]

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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DAVID WARNER, Director of Permit Services

S-6848-12-0; Jan 26 2010 2:45PM - TORID : Joint Inspection NOT Required

8. Sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD, double GC for H₂S and mercaptans, performed in the laboratory. Should the applicant decide to use different methodology, the methodology must be approved by the District prior to its use. [District Rule 1070, 2201, 4305, 4306, and 4320]
9. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2201, 4305, 4306, and 4320]
10. Source testing to measure fuel combustion NO_x, CO and PM₁₀ emissions from this unit shall be conducted within 60 days of initial start-up. Source test shall be conducted using a gas mixture including PUC-quality natural gas and the expected amounts of tank vapor recovery (TVR) gas and thermally enhanced oil recovery (TEOR) gas for PM₁₀ emissions testing. [District Rules 2201, 4305, 4306, and 4320]
11. 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 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 2201, 4305, 4306, and 4320]
12. 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 performing the notification and testing required by this condition. [District Rules 2201, 4305, 4306, and 4320]
13. 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 2201, 4305, 4306, and 4320]
14. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x 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 2201, 4305, 4306, and 4320]
15. 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 2201, 4305, 4306, and 4320]
16. Source testing to measure NO_x and CO emissions from this unit 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 2201, 4305, 4306, and 4320]
17. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rule 4305, 4306 and 4320]

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CONDITIONS CONTINUE ON NEXT PAGE

18. {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]
19. 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 2201, 4305, 4306, and 4320]
20. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
21. Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
22. Source testing to measure PM₁₀ shall be conducted using either: EPA Method 201 or 201A, and 202; or CARB Method 5 in combination with 501. Should the applicant decided to use different methodology, the methodology must be approved by the District prior to its use. [District Rule 2201]
23. In lieu of performing a source test for PM₁₀, the results of the total particulate test may be used for compliance with the PM₁₀ emissions limit provided the results include both the filterable and condensable (back half) particulate, and that all particulate matter is assumed to be PM₁₀. Source testing to measure concentrations of total particulate emissions shall be conducted using EPA method 5. [District Rule 2201]
24. 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 2201, 4305, 4306, and 4320]
25. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
26. Permittee shall maintain a record of the duration of each startup and shutdown of this unit. [District Rule 4305, 4306, and 4320]
27. 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, 2201, 4305, 4306, and 4320]
28. 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 - 1582 lb, 2nd quarter - 1582 lb, 3rd quarter - 1582 lb, and fourth quarter - 1582 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 9/21/06). [District Rule 2201]
29. ERC Certificate Number S-2824-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
30. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1117 lb, 2nd quarter - 1117 lb, 3rd quarter - 1117 lb, and fourth quarter - 1117 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 9/21/06). [District Rule 2201]
31. ERC Certificate numbers S-1704-1 and S-1708-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

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