



APR 30 2012

Mr. Terry Ellis
Macpherson Oil Company
P.O. Box 5368
Bakersfield, CA 93388

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # S-1703
Project # S-1120718**

Dear Mr. Ellis:

Enclosed for your review is the District's analysis of an application for Authority to Construct for the facility identified above. The applicant is requesting that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The applicant proposes to install a 85 MMBtu/hr natural gas-fired steam generator.

After addressing any EPA comments made during the 45-day comment period, the Authority to Construct will be issued to the facility with a Certificate of Conformity. Prior to operating with modifications authorized by the Authority to Construct, the facility must submit an application to modify the Title V permit as an administrative amendment, in accordance with District Rule 2520, Section 11.5.

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

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

Enclosures

c: Stanley Tom, Permit Services

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

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
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APR 30 2012

Gerardo C. Rios, Chief
Permits Office
Air Division
U.S. EPA - Region IX
75 Hawthorne St.
San Francisco, CA 94105

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # S-1703
Project # S-1120718**

Dear Mr. Rios:

Enclosed for your review is the District's engineering evaluation of an application for Authority to Construct for Macpherson Oil Company in Kern County, which has been issued a Title V permit. Macpherson Oil Company is requesting that a Certificate of Conformity, with the procedural requirements of 40 CFR Part 70, be issued with this project. The applicant proposes to install a 85 MMBtu/hr natural gas-fired steam generator.

Enclosed is the engineering evaluation of this application with a copy of the current Title V permit and proposed Authority to Construct # ATC # S-1703-210-0 with Certificate of Conformity. After demonstrating compliance with the Authority to Construct, the conditions will be incorporated into the facility's Title V permit through an administrative amendment.

Please submit your written comments on this project within the 45-day comment period that begins on the date you receive this letter. If you have any questions, please contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

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APR 30 2012

Mike Tollstrup, Chief
Project Assessment Branch
Air Resources Board
P O Box 2815
Sacramento, CA 95812-2815

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # S-1703
Project # S-1120718**

Dear Mr. Tollstrup:

Enclosed for your review is the District's analysis of an application for Authority to Construct for the facility identified above. The applicant is requesting that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The applicant proposes to install a 85 MMBtu/hr natural gas-fired steam generator.

Enclosed is the engineering evaluation of this application with a copy of the current Title V permit and proposed Authority to Construct # ATC # S-1703-210-0 with Certificate of Conformity. After demonstrating compliance with the Authority to Construct, the conditions will be incorporated into the facility's Title V permit through an administrative amendment.

Please submit your written comments on this project within the 30-day comment period that begins on the date you receive this letter. If you have any questions, please contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900.

Thank you for your cooperation in this matter.

Sincerely,



David Warner
Director of Permit Services

Enclosures

c: Stanley Tom, Permit Services

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Executive Director/Air Pollution Control Officer

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**NOTICE OF PRELIMINARY DECISION
FOR THE ISSUANCE OF AUTHORITY TO CONSTRUCT AND
THE PROPOSED SIGNIFICANT MODIFICATION OF FEDERALLY
MANDATED OPERATING PERMIT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Air Pollution Control District solicits public comment on the proposed significant modification of Macpherson Oil Company for its Heavy Oil Central Stationary Source in Kern County, California. The applicant proposes to install a 85 MMBtu/hr natural gas-fired steam generator.

The District's analysis of the legal and factual basis for this proposed action, project #S-1120718, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and the District office at the address below. There are no emission increases associated with this proposed action. This will be the public's only opportunity to comment on the specific conditions of the modification. If requested by the public, the District will hold a public hearing regarding issuance of this modification. For additional information, please contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900. Written comments on the proposed initial permit must be submitted within 30 days of the publication date of this notice to DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 1990 E. GETTYSBURG AVE, FRESNO, CA 93726-0244.

**San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Natural Gas-Fired Steam Generator**

Facility Name:	Macpherson Oil Company	Date:	April 19, 2012
Mailing Address:	P.O. Box 5368 Bakersfield, CA 93388	Engineer:	Stanley Tom
Contact Person:	Terry Ellis	Lead Engineer:	Joven Refuerzo
Telephone:	(661) 393-3204 ext. #108		
Application #:	S-1703-210-0		
Project #:	S-1120718		
Complete:	March 27, 2012		

I. PROPOSAL

Macpherson Oil Company is requesting an Authority to Construct (ATC) permit to install one new 85 MMBtu/hr natural gas-fired steam generator. The proposed steam generator will be equipped with a Coen QLN-II Ultra Low-NOx (or equivalent) natural gas-fired burner and a flue gas recirculation (FGR) system. As with other steam generators at this location, the proposed steam generator will be fired on purchased natural gas and/or a mixture of purchased and produced gas. The produced gas will be supplied by the field tank battery vapor recovery systems.

Macpherson Oil Company has received their Title V Permit. This modification can be classified as a Title V significant modification pursuant to Rule 2520, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. Macpherson Oil Company must apply to administratively amend their Title V permit.

II. APPLICABLE RULES

Rule 2201	New and Modified Stationary Source Review Rule (04/21/11)
Rule 2520	Federally Mandated Operating Permits (06/21/01)
Rule 4001	New Source Performance Standards – Subpart Dc (04/14/99)
Rule 4101	Visible Emissions (02/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/92)
Rule 4305	Boilers, Steam Generators, And Process Heaters - Phase 2 (08/21/03)
Rule 4306	Boilers, Steam Generators, And Process Heaters – Phase 3 (10/16/08)

- Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)
- Rule 4351 Boilers, Steam Generators, And Process Heaters – Phase 1 (08/21/03)
- Rule 4405 Oxides Of Nitrogen Emissions From Existing Steam Generators Used In Thermally Enhanced Oil Recovery -Central And Western Kern County Fields (12/17/92)
- Rule 4406 Sulfur Compounds From Oil-Field Steam Generators – Kern County (12/17/92)
- Rule 4801 Sulfur Compounds (12/17/92)
- 40 CFR Part 64 Compliance Assurance Monitoring (CAM)
- 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 steam generator is located at the Round Mountain Oil Field in Macpherson Oil Company's Heavy Oil Central Stationary Source.

Section	Township	Range
SE ¼ 18	28 S	29 E

The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. PROCESS DESCRIPTION

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

Well head casing vapor collection systems and storage tank vapor recovery systems collect vapors from the well head or tank battery, condense out the entrained liquids and route the non-condensable vapors to DOGGR-approved disposal wells for re-injection into the formation or to sulfur removal systems and then to selected steam generators for incineration. Macpherson Oil Company proposes to utilize this new steam generator as an authorized incineration device.

Macpherson Oil Company currently operates a thermally enhanced crude oil production operation in the Mt. Poso Oil Field. Steam for this operation is currently provided by an existing steam plant. Macpherson Oil Company has determined that additional steam is required to maintain current production of the field. Installation of a new steam generator along with previously approved steam generators will be required to meet these steam requirements.

V. EQUIPMENT LISTING

Permit #	Equipment Description
S-1703-210-0	85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR WITH A COEN QLN-II ULTRA LOW-NOX BURNER (OR EQUIVALENT) AND A FLUE GAS RECIRCULATION (FGR) SYSTEM

Per District policy APR 1035, "Flexibility in Equipment Descriptions in ATCs," flexibility in the final specifications of the equipment is requested and will be allowed as stated in the following ATC conditions:

- The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]
- The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2201]
- Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]
- No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]

VI. EMISSION CONTROL TECHNOLOGY EVALUATION

Emissions from natural gas-fired steam generators include NO_x, CO, VOC, PM₁₀, and SO_x.

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

VII. GENERAL CALCULATIONS

A. Assumptions

- The maximum operating schedule is 24 hours/day, 365 days/year (per applicant)
- The unit is fired on purchased natural gas and/or produced gas (per applicant)
- The unit shall only be fired on natural gas with a maximum sulfur content of 1.0 gr S/100 scf (per applicant)
- Maximum Heat Input: 85 MMBtu/hr (per applicant)
- EPA F-factor for natural gas is 8,578 dscf/MMBtu (corrected to 60 °F, 40 CFR 60, Appendix B)
- Molar Specific Volume of a gas @ 60 °F is 379.5 ft³/lb-mol
- Natural Gas Heating Value: 1,000 Btu/scf (District Practice)

B. Emission Factors

The emission factors (EF_{NG}) for the combustion of natural gas for NO_x, PM₁₀, and CO emissions will be based on the emission rates as proposed by the applicant. The emission factor for VOC was obtained from AP-42 (07/98), Table 1.4-2. The SO_x EF will be based on the generally accepted EF of 0.00285 lb-SO_x/MMBtu, as identified in District Policy APR 1720 (Generally Accepted SO_x Emission Factor for Combustion of PUC-quality Natural Gas). The applicant has proposed the same sulfur limit for both the purchased natural gas and produced gas.

Pollutant	Natural Gas Emission Factors		Source
NO _x	0.0070 lb-NO _x /MMBtu	5.85 ppmvd NO _x (@ 3%O ₂)	Per Applicant
SO _x	0.00285 lb-SO _x /MMBtu		District Policy APR 1720
PM ₁₀	0.00299 lb-PM ₁₀ /MMBtu		Per Applicant*
CO	0.0182 lb-CO/MMBtu	25 ppmvd CO (@ 3%O ₂)	Per Applicant
VOC	0.0055 lb-VOC/MMBtu		AP-42 (07/98) Table 1.4-2

* Based on emissions testing documenting that natural gas fired steam generators have a PM10 emission rate of 0.001 lb/MMBtu (see Attachment B). The applicant has proposed an emission factor that will provide a margin of compliance.

Start-up and Shutdown

The applicant has not proposed any start-up or shutdown provisions.

C. Calculations

1. Pre-Project Potential to Emit (PE1)

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

2. Post Project Potential to Emit (PE2)

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

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO _x	0.0070	85	24	14.3
SO _x	0.00285	85	24	5.8
PM ₁₀	0.00299	85	24	6.1
CO	0.0182	85	24	37.1
VOC	0.0055	85	24	11.2

Pollutant	Annual PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
NO _x	0.0070	85	8,760	5,212
SO _x	0.00285	85	8,760	2,122
PM ₁₀	0.00299	85	8,760	2,226
CO	0.0182	85	8,760	13,552
VOC	0.0055	85	8,760	4,095

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.

Per project S-1113747,

SSPE1 (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE1	91,017	23,145	41,673	184,216	> 20,000

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.

SSPE2 (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE1	91,017	23,145	41,673	184,216	> 20,000
ATC S-1703-210-0	5,212	2,122	2,226	13,552	4,095
SSPE2	96,229	25,267	43,899	197,768	> 20,000

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 3.24.2 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."

Major Source Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Pre-Project SSPE (SSPE1)	91,017	23,145	41,673	184,216	> 20,000
Post Project SSPE (SSPE2)	96,229	25,267	43,899	197,768	> 20,000
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	Yes	No	No	No	Yes

6. Baseline Emissions (BE)

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

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

7. SB 288 Major Modification

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

As discussed in Section VII.C.5 above, the facility is an existing Major Source for NO_x and VOC; however, the project by itself would need to be a significant increase in order to trigger a SB 288 Major Modification. The emission unit within this project does not have a total potential to emit which is greater than the SB 288 Major Modification thresholds (see table below). Therefore, the project cannot be a significant increase and the project does not constitute a SB 288 Major Modification.

SB 288 Major Modification Thresholds (Existing Major Source)			
Pollutant	Project PE (lb/year)	Threshold (lb/year)	Major Modification?
NO _x	5,212	50,000	No
VOC	4,095	50,000	No

8. Federal Major Modification

As discussed in Section VII.C.5 above, the facility is not a Major Source for SO_x, PM₁₀, or CO emissions; therefore, the project does not constitute a Federal Major Modification for SO_x or PM₁₀ emissions.

District Rule 2201, Section 3.17 states that Federal Major Modifications are the same as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA. SB 288 Major Modifications are not federal major modifications if they meet the criteria of the "Less-Than-Significant Emissions Increase" exclusion.

A Less-Than-Significant Emissions Increase exclusion is for an emissions increase for the project, or a Net Emissions Increase for the project (as defined in 40 CFR 51.165 (a)(2)(ii)(B) through (D), and (F)), that is not significant for a given regulated NSR pollutant, and therefore is not a federal major modification for that pollutant.

- To determine the post-project projected actual emissions from existing units, the provisions of 40 CFR 51.165 (a)(1)(xxviii) shall be used.
- To determine the pre-project baseline actual emissions, the provisions of 40 CFR 51.165 (a)(1)(xxxv)(A) through (D) shall be used.
- If the project is determined not to be a federal major modification pursuant to the provisions of 40 CFR 51.165 (a)(2)(ii)(B), but there is a reasonable possibility that the project may result in a significant emissions increase, the owner or operator shall comply with all of the provisions of 40 CFR 51.165 (a)(6) and (a)(7).
- Emissions increases calculated pursuant to this section are significant if they exceed the significance thresholds specified in the table below.

Significant Threshold (lb/year)	
Pollutant	Threshold (lb/year)
NO _x	0
SO _x	80,000
PM ₁₀	30,000
VOC	0

The Net Emissions Increases (NEI) for purposes of determination of a “Less-Than-Significant Emissions Increase” exclusion will be calculated below to determine if this project qualifies for such an exclusion.

Net Emission Increase for New Units (NEI_N)

Per 40 CFR 51.165 (a)(2)(ii)(D) for new emissions units in this project,

$$NEI_N = PE_{2N} - BAE$$

$$BAE = 0 \text{ for the new unit therefore } NEI_N = PE_{2N}$$

$$NEI_N (NO_x) = 5,212 \text{ lb/year}$$

$$NEI_N (VOC) = 4,095 \text{ lb/year}$$

The NEI for this project is thus calculated as follows:

$$NEI = NEI_N$$

$$NEI (NO_x) = 5,212 \text{ lb/year}$$

$$NEI (VOC) = 4,095 \text{ lb-VOC/year}$$

The NEI for this project will be greater than the federal Major Modification threshold of 0 lb/year for NO_x and VOC. Therefore, this project does not qualify for a “Less-Than-Significant Emissions Increase” exclusion and is thus determined to be a Federal Major Modification for NO_x and VOC.

9. 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:

$$QNEC = PE_2 - PE_1, \text{ where:}$$

- 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:

$$\begin{aligned} \text{PE2}_{\text{quarterly}} &= \text{PE2}_{\text{annual}} \div 4 \text{ quarters/year} \\ &= 5,212 \text{ lb/year} \div 4 \text{ qtr/year} \\ &= 1,303 \text{ lb NO}_x/\text{qtr} \end{aligned}$$

$$\begin{aligned} \text{PE1}_{\text{quarterly}} &= \text{PE1}_{\text{annual}} \div 4 \text{ quarters/year} \\ &= 0 \text{ lb/year} \div 4 \text{ qtr/year} \\ &= 0 \text{ lb NO}_x/\text{qtr} \end{aligned}$$

Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	1,303	0	1,303
SO _x	531	0	531
PM ₁₀	557	0	557
CO	3,388	0	3,388
VOC	1,024	0	1,024

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 a new steam generator 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, and VOC 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 above.

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

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

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

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

d. SB 288/Federal Major Modification

As discussed in Section VII.C.8 above, this project does constitute a Federal Major Modification for NO_x and VOC emissions; therefore BACT is triggered.

2. BACT Guideline

The District adopted District Rule 4320 on October 16, 2008. The NO_x emission limit requirements in District Rule 4320 are lower than the limits contained within BACT Guideline 1.2.1 which has since been rescinded; therefore a project specific BACT analysis will be performed to determine BACT for this project. District Rule 4320 limits oilfield steam generators with heat input ratings greater than 20 MMBtu/hr to 7 ppmv @ 3% O₂. Since this emission limit is required by the rule, it will be considered the 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. (See Attachment A)

3. Top-Down BACT Analysis

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

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

- NO_x: 5.85 ppmvd @ 3% O₂ (0.007 lb/MMBtu)
- SO_x: Natural gas fuel with a sulfur content not to exceed 1 gr-S/100 scf
- PM₁₀: Natural gas fuel with a sulfur content not to exceed 1 gr-S/100 scf
- VOC: Natural gas 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
Post Project SSPE (SSPE2)	96,229	25,267	43,899	197,768	> 20,000
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	No	Yes	No	Yes

2. Quantity of Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for NO_x, PM₁₀, and VOC emissions; 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 is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

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

Where,

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

BE = Baseline Emissions, (lb/year)

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

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = 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)

The facility is proposing to install a new emissions unit; therefore Baseline Emissions are equal to zero. There are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

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

NO_x-Offset Calculations:

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

$$\begin{aligned} \text{PE2} &= 5,212 \text{ lb/year} \\ \text{BE} &= 0 \text{ lb/year} \\ \text{ICCE} &= 0 \text{ lb/year} \end{aligned}$$

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([5,212 - 0] + 0) \times \text{DOR} \\ &= 5,212 \times \text{DOR} \\ &= 5,212 \text{ lb NO}_x/\text{year} \end{aligned}$$

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

<u>Pollutant</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
NO _x	1,303	1,303	1,303	1,303

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

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

$$\begin{aligned} \text{Offsets Required (lb/year)} &= 5,212 \times 1.5 \\ &= 7,818 \text{ lb-NO}_x/\text{year} \end{aligned}$$

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

<u>Pollutant</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
NO _x	1,954	1,954	1,955	1,955

The applicant has stated that the facility plans to use ERC certificate N-995-2 to offset the increases in NO_x emissions associated with this project. The above certificate has available quarterly NO_x credits as follows:

<u>Certificate</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
ERC #N-995-2	1,955	1,955	1,955	1,955

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

PM₁₀-Offset Calculations:

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

$$\begin{aligned} \text{PE2} &= 2,226 \text{ lb/year} \\ \text{BE} &= 0 \text{ lb/year} \\ \text{ICCE} &= 0 \text{ lb/year} \end{aligned}$$

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([2,234 - 0] + 0) \times \text{DOR} \\ &= 2,226 \times \text{DOR} \\ &= 2,226 \text{ lb PM}_{10}/\text{year} \end{aligned}$$

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

<u>Pollutant</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
PM10	556	556	557	557

The applicant proposes to use SO_x for PM10 offsets. The District has established an interpollutant offset ratio (IOR) of 1.000:1 per District Policy APR 14XX (Interpollutant Offset Ratio).

$$\begin{aligned} \text{PE2 (PM}_{10}\text{)}_{\text{Interpollutant}} &= \text{PE2 (PM}_{10}\text{)} \times \text{IOR} \\ \text{PE2 (PM}_{10}\text{)}_{\text{Interpollutant}} &= 2,226 \text{ lb/year} \times 1.000 \\ \text{PE2 (PM}_{10}\text{)}_{\text{Interpollutant}} &= 2,226 \text{ lb/year} \end{aligned}$$

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([2,226 - 0] + 0) \times \text{DOR} \\ &= 2,226 \text{ lb-SO}_x/\text{year} \times \text{DOR} \end{aligned}$$

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

$$\begin{aligned} \text{Offsets Required (lb/year)} &= 2,226 \times 1.5 \\ &= 3,339 \text{ lb-SO}_x/\text{year} \end{aligned}$$

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

<u>Pollutant</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
SO _x	834	835	835	835

The applicant has stated that the facility plans to use ERC certificates C-1102-5, N-1009-5, S-3674-5 to offset the increases in PM₁₀ emissions associated with this project. The above certificate has available quarterly SO_x credits as follows:

<u>Certificate</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
ERC #C-1102-5	167	167	167	167
ERC #N-1009-5	506	506	506	506
ERC #S-3674-5	152	163	175	175
Total	825	836	848	848

Per District Rule 2201 Section 4.13.7, AER for PM that occurred from October through March, inclusive, may be used to offset increases in PM during any period of the year.

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

VOC-Offset Calculations:

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

$$\begin{aligned} \text{PE2} &= 4,095 \text{ lb/year} \\ \text{BE} &= 0 \text{ lb/year} \\ \text{ICCE} &= 0 \text{ lb/year} \end{aligned}$$

$$\begin{aligned} \text{Offsets Required (lb/year)} &= ([4,095 - 0] + 0) \times \text{DOR} \\ &= 4,095 \times \text{DOR} \\ &= 4,095 \text{ lb VOC/year} \end{aligned}$$

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

<u>Pollutant</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
VOC	1,023	1,024	1,024	1,024

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

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

$$\begin{aligned} \text{Offsets Required (lb/year)} &= 4,095 \times 1.5 \\ &= 6,143 \text{ lb-VOC/year} \end{aligned}$$

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

<u>Pollutant</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
VOC	1,535	1,536	1,536	1,536

The applicant has stated that the facility plans to use ERC certificate S-3726-1 to offset the increases in VOC emissions associated with this project. The above certificate has available quarterly VOC credits as follows:

<u>Certificate</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
ERC #S-3726-1	1,536	1,536	1,536	1,536

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

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

Proposed Rule 2201 (offset) Conditions:

- Prior to operating equipment under this Authority to Construct, permittee shall surrender NO_x emission reduction credits for the following quantity of emissions: 1st quarter - 1,303 lb, 2nd quarter - 1,303 lb, 3rd quarter - 1,303 lb, and fourth quarter - 1,303 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]
- Prior to operating equipment under this Authority to Construct, permittee shall surrender PM₁₀ emission reduction credits for the following quantity of emissions: 1st quarter - 556 lb, 2nd quarter - 556 lb, 3rd quarter - 557 lb, and fourth quarter - 557 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). SO_x ERCs may be used to offset PM₁₀ increases at an interpollutant ratio of 1.000 lb-SO_x: 1.0 lb-PM₁₀. [District Rule 2201]
- Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1,023 lb, 2nd quarter - 1,024 lb, 3rd quarter - 1,024 lb, and fourth quarter - 1,024 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201]
- ERC Certificate Numbers N-995-2, C-1102-5, N-1009-5, S-3674-5, S-3726-1 (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. New Major Sources, Federal Major Modifications, and SB288 Major Modifications,
- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- c. Any project which results in the offset thresholds being surpassed, and/or
- d. Any project with an SSPE of greater than 20,000 lb/year for any pollutant.

a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications

New Major Sources are new facilities, which are also Major Sources. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes.

As demonstrated in VII.C.7, this project does constitute Federal Major Modification for NO_x and VOC; therefore, public noticing for Federal Major Modification purposes is required.

b. 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.

c. 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	91,017	96,378	20,000 lb/year	No
SO _x	23,145	25,267	54,750 lb/year	No
PM ₁₀	41,673	43,899	29,200 lb/year	No
CO	184,216	197,768	200,000 lb/year	No
VOC	> 20,000	> 20,000	20,000 lb/year	No

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

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a 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	Project PE2 (lb/year)	Project PE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	5,212	0	5,212	20,000 lb/year	No
SO _x	2,122	0	2,122	20,000 lb/year	No
PM ₁₀	2,226	0	2,226	20,000 lb/year	No
CO	13,552	0	13,552	20,000 lb/year	Yes
VOC	4,095	0	4,095	20,000 lb/year	No

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

2. Public Notice Action

As discussed above, public noticing is required for this project for Federal Major Modification for NO_x and VOC. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB), US Environmental Protection Agency (EPA), 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 3.16 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.16.1 and 3.16.2, 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.

The DELs for the unit is based on the use of natural/produced gas as a fuel, the rate heat input of the steam generator, and the emission factors as shown:

Proposed Rule 2201 (DEL) Conditions:

- Emissions from the natural gas-fired unit shall not exceed any of the following limits: 5.85 ppmvd NO_x @ 3% O₂ or 0.0070 lb-NO_x/MMBtu, 0.00285 lb-SO_x/MMBtu, 0.00299 lb-PM₁₀/MMBtu, 25 ppmvd CO @ 3% O₂ or 0.0182 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]
- The unit shall only be fired on natural gas with a maximum sulfur content of 1.0 gr S/100 scf. [District Rules 2201 and 4320]

E. Compliance Assurance

1. Source Testing

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

2. Monitoring

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

3. Recordkeeping

As required by District Rule 4320, *Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr*, this unit is subject to recordkeeping requirements. Recordkeeping requirements, in

accordance with District Rule 4320, will be discussed in Section VIII, *District Rule 4320*, of this evaluation.

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

- Records of the daily natural gas consumption shall be maintained on the premises. [District Rule 2201]
- {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]

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 Attachment E of this document for the AAQA summary sheet.

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

The proposed location is in a non-attainment area for PM₁₀. The increase in the ambient PM₁₀ concentration due to the proposed equipment is shown on the table titled Calculated Contribution. The levels of significance, from 40 CFR Part 51.165 (b)(2), are shown on the table titled Significance Levels.

Significance Levels					
Pollutant	Significance Levels (µg/m ³) - 40 CFR Part 51.165 (b)(2)				
	Annual Avg.	24 hr Avg.	8 hr Avg.	3 hr Avg.	1 hr Avg.
PM ₁₀	1.0	5	N/A	N/A	N/A
PM _{2.5}	0.3	1.2	N/A	N/A	N/A

Calculated Contribution					
Pollutant	Calculated Contributions (µg/m ³)				
	Annual Avg.	24 hr Avg.	8 hr Avg.	3 hr Avg.	1 hr Avg.
PM ₁₀	0.03	0.1371	N/A	N/A	N/A
PM _{2.5}	0.03	0.1371	N/A	N/A	N/A

As shown, the calculated contribution of PM₁₀ will not exceed the EPA significance level. This project is not expected to cause or make worse a violation of an air quality standard.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Title I Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Sections VIII-Rule 2201-C.1.a and VIII-Rule 2201-C.1.b, this facility is a major source and this project does constitute a Title I modification, therefore this requirement is applicable. Included in Attachment C is Macpherson Oil Company's compliance certification.

H. Alternate Siting Analysis

Section 4.15.1 of this Rule requires that an analysis of alternative sites, sizes and production processes is required under Section 173 of the Federal Clean Air Act. The applicant is required to prepare an analysis functionally equivalent to the requirements of Division 13, Section 21000 et seq. of the Public Resources Code.

The proposed steam generator represents an expansion at an existing stationary source and cannot be relocated since it is an existing heavy crude oil production operation. Therefore, an alternate location is not viable for this project.

Rule 2520 Federally Mandated Operating Permits

This facility is subject to this Rule. Section 3.29 defines a significant permit modification as a "permit amendment that does not qualify as a minor permit modification or administrative amendment."

Section 3.20.5 states that a minor permit modification is a permit modification that does not meet the definition of modification as given in Section 111 or Section 112 of the Federal Clean Air Act. Since this project is a Title I modification (i.e. Federal Major Modification), the proposed project is considered to be a modification under the Federal Clean Air Act. As a result, the proposed project constitutes a Significant Modification to the Title V Permit pursuant to Section 3.29.

As discussed above, the facility has applied for a Certificate of Conformity (COC) (see Attachment D); therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected. The facility shall not implement the changes requested until the final permit is issued.

Rule 4001 New Source Performance Standards

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

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60. 40 CFR Part 60, Subpart Dc applies to Small Industrial-Commercial-Industrial Steam Generators between 10 MMBtu/hr and 100 MMBtu/hr (post-6/9/89 construction, modification or, reconstruction). Subpart Dc has standards for SO_x and PM₁₀. The 85 MMBtu/hr steam generator is subject to Subpart Dc requirements.

60.42c – Standards for Sulfur Dioxide

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

60.43c – Standards for Particulate Matter

The steam generator is not fired on coal, combusts mixtures of coal with other fuels, combusts wood, combusts mixtures of wood with other fuels, or oil; therefore it will not be subject to the requirements of this section.

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

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

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

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

60.46c – Emission Monitoring for Sulfur Dioxide

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

60.47c – Emission Monitoring for Particulate Matter

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

60.48c – Reporting and Recordingkeeping Requirements

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

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

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

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

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

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

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

- (4) Notification if an emerging technology will be used for controlling SO₂ emissions. The Administrator will examine the description of the control device and will determine whether the technology qualifies as an emerging technology. In making this determination, the Administrator may require the owner or operator of the affected facility to submit additional information concerning the control device. The affected facility is subject to the provisions of §60.42c(a) or (b)(1), unless and until this determination is made by the Administrator

This requirement is not applicable since the unit will not be equipped with an emerging technology used to control SO₂ emissions.

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

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

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

- A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rules 2201 and 40 CFR 60.48c (g)]
- Permittee shall maintain daily records of the type and quantity of fuel combusted by the steam generator. [District Rule 2201 and 40 CFR 60.48c (g)]

Section 60.48c (i) states that all records required under this section shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record. District Rule 4320 requires that records be kept for five years. Compliance is assured with the following condition:

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

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

40 CFR Part 64 – Compliance Assurance Monitoring (CAM):

Except for back-up utility units that are exempt under paragraph (b)(2), Section 64.2 states that the requirements of this subpart shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a Part 70 or 71 permit if the unit satisfies all of the following criteria:

- 1) the unit must have an emission limit for the pollutant;
- 2) the unit must have add-on controls for the pollutant; these are devices such as flue gas recirculation (FGR), baghouses, catalytic oxidizers, etc; and
- 3) the unit must have a pre-control potential to emit of greater than the major source thresholds.

Pollutant	Major Source Threshold (lb/year)
VOC	20,000
NO _x	20,000
CO	200,000
PM ₁₀	140,000
SO _x	140,000

The permit for this steam generator contains emission limits for NO_x, CO, VOC, PM₁₀ and SO_x emissions. However, this steam generator is not equipped with any add on control devices for CO, VOC, PM₁₀ or SO_x emissions. Therefore, the CAM requirements of 40 CFR 64 are not applicable for these pollutants.

This steam generator is equipped with a flue gas recirculation (FGR) system. This system provides control for NO_x emissions. Based on emission factors from AP-42, Table 1.4-1, July 1998, the FGR will provide 36% control of NO_x emissions. Therefore, the uncontrolled NO_x emission rate from this steam generator can be determined using the emission factor and maximum heat input rating of the steam generator and the control efficiency of the FGR system.

NO_x Emissions:

Controlled Emission Factor = 0.0070 lb/MMBtu
Heat Input Rating = 85 MMBtu/hr
Maximum Operating Schedule = 8,760 hours/year
FGR System Control Efficiency = 36%

$$\text{Annual Uncontrolled PE} = \frac{[0.0070 \text{ lb/MMBtu} \times 85 \text{ MMBtu/hour} \times 8,760 \text{ hours/year}]}{(1 - 0.36)}$$

Annual Uncontrolled PE = 8,144 lb/year

As shown above, the uncontrolled PE for NO_x emissions is not greater than the major source threshold. Therefore, the steam generator is not subject to the requirements of 40 CFR 64.

Rule 4101 Visible Emissions

Per Section 5.0, no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity). A condition will be placed on the ATC to ensure compliance with the opacity limit.

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

Rule 4102 Nuisance

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 Analysis

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 (Attachment E), 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.

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification not have acute or chronic indices, or a cancer risk greater than the District's significance levels (i.e. acute and/or chronic indices greater than 1 and a cancer risk greater than 10 in a million). As outlined by the HRA Summary in Attachment E of this report, the emissions increases for this project was determined to be less than significant.

Therefore, compliance with the requirements of this rule 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: 0.00299 lb-PM₁₀/MMBtu
Percentage of PM as PM₁₀ in Exhaust: 100%
Exhaust Oxygen (O₂) Concentration: 3%

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

$$GL = \left(\frac{0.00299 \text{ lb-PM}}{\text{MMBtu}} \times \frac{7,000 \text{ grain}}{\text{lb-PM}} \right) / \left(\frac{8,578 \text{ ft}^3}{\text{MMBtu}} \times 1.17 \right)$$

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

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

Rule 4301 Fuel Burning Equipment

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

Section 5.0 gives the requirements of the rule.

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

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

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

District Rule 4301 Limits			
Pollutant	NO ₂	Total PM	SO ₂
S-1703-210-0 (lb/hr)	0.60	0.25	0.24
Rule Limit (lb/hr)	140	10	200

The particulate emissions from the steam generators will not exceed 0.1 gr/dscf at 12% CO₂ or 10 lb/hr. Further, the emissions of SO_x and NO_x will not exceed 200 lb/hr or 140 lb/hr, respectively.

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

Rule 4305 Boilers, Steam Generators, And Process Heaters - Phase 2

The steam generator is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters – Phase 2*. In addition, the steam generator is also subject to 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*.

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

Rule 4306 Boilers, Steam Generators, And Process Heaters – Phase 3

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

The steam generator is subject to District Rule 4320 requirements pursuant to Section 2.0 of District Rule 4320.

Section 5.2, NO_x and CO Emissions Limits

Section 5.2.1 states that on and after the indicated Compliance Deadline, units shall not be operated in a manner which exceeds the applicable NO_x limit specified in Table 1 of this rule, shown below. On and after October 1, 2008, units shall not be operated in a manner which exceeds a carbon dioxide (CO) emissions limit of 400 ppmv.

The steam generator is rated greater than 20 MMBtu/hr; thus, the applicable emission limit category is Section 5.2, Table 1, Category C, from District Rule 4320.

Rule 4320 NO _x Emission Limits	
C. Oilfield Steam Generators	NO _x Limit
Units with a total rated heat input > 20 MMBtu/hr	a) Standard Schedule 7 ppmv or 0.008 lb/MMBtu; or
	b) Staged Enhanced Schedule Initial Limit 9 ppmv or 0.011 lb/MMBtu; and ----- Final Limit 5 ppmv or 0.0062 lb/MMBtu

The steam generator will be limited to 5.85 ppmvd NO_x and 25 ppmvd CO, all corrected to 3% O₂. Thus, compliance with the District Rule 4320 NO_x and CO emission limits is expected.

Section 5.3, Annual Fee Calculation

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

Section 5.4, Particulate Matter Control Requirements

Section 5.4.1 of this rule requires the operator to comply with one of the following requirements:

1. Fire the steam generator exclusively on 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 grains of total sulfur per one hundred (100) standard cubic feet;
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;

The steam generator will be fired exclusively on purchased and/or produced natural gas. The steam generator fuel will have a fuel sulfur content limit of no more than 1.0 gr-S/100 scf. Therefore, compliance with Section 5.4 of District Rule 4320 is expected.

Section 5.5, Low Use

The steam generator's annual heat input will exceed the 1.8 billion Btu heat input per calendar year criteria limit addressed by this section. Thus, the requirements of Section 5.5 are not applicable.

Section 5.6, Startup and Shutdown Provisions

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

The applicant has not proposed startup and shutdown provisions; therefore, this section of the rule is not applicable to this project.

Section 5.7, Monitoring Provisions

Section 5.7.1 requires that permit units subject to District Rule 4320, Section 5.2 emissions limits shall either install and maintain Continuous Emission Monitoring (CEM) equipment for NO_x, CO and O₂, or install and maintain APCO-approved alternate monitoring.

For the steam generator in this project, the facility will 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:

- The permittee shall monitor and record the stack concentration of NO_x, CO, NH₃, and O₂ at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. NH₃ monitoring shall be conducted utilizing Draeger tubes or a District approved equivalent method. 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 five days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4102, 4305, 4306, and 4320]
- If the NO_x, CO or NH₃ concentrations, as measured by the portable analyzer or the District approved ammonia monitoring equipment, exceed the permitted levels, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than one hour of operation after detection. If the portable analyzer or the ammonia monitoring equipment continue to show emission limit violations after 1 hour of operation following detection, the permittee shall notify the District within the following one 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 4102, 4305, 4306, and 4320]
- All NO_x, CO, O₂ and NH₃ 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 NO_x, CO and O₂ analyzer as well as the NH₃ emission monitoring equipment 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 readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4102, 4305, 4306, and 4320]
- The permittee shall maintain records of: (1) the date and time of NO_x, CO, NH₃ and O₂ measurements, (2) the O₂ concentration in percent by volume and the measured NO_x, CO and NH₃ concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records,

(5) the method of determining the NH₃ emission concentration, and (6) a description of any corrective action taken to maintain the emissions at or below the acceptable levels. [District Rules 4102, 4305, 4306, and 4320]

Section 5.7.6 outlines requirements for monitoring SO_x emissions. For units that are complying with Section 5.4.1.1 or 5.4.1.2 of this Rule, the facility must provide an annual fuel analysis to the District unless a more frequent sampling and reporting period is included in the Permit to Operate. The steam generator in this project is complying using Sections 5.4.1.1 or 5.4.1.2.

This unit is fired on purchased and/or produced natural gas. Therefore, the following requirement will be included on the permit to comply with the SO_x emissions monitoring requirement:

- If the unit is fired on PUC-regulated natural gas, then maintain on file copies of all natural gas bills. [District Rules 2201 and 4320]
- If the unit is not fired on PUC-regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rules 2201 and 4320]

Section 5.8 Compliance Determination

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

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

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

- {2972} All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. Unless otherwise specified in the Permit to Operate, no determination of compliance shall be established within two hours after a

continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4320. For the purposes of permittee-performed alternate monitoring, emissions measurements may be performed at any time after the unit reaches conditions representative of normal operation. [District Rules 4305, 4306 and 4320]

Section 5.8.4 requires that for emissions monitoring pursuant to Sections 5.7.1 and 6.3.1 using a portable NO_x analyzer as part of an APCO approved Alternate Emissions Monitoring System, emission readings shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15-consecutive-minute sample reading or by taking at least five (5) readings evenly spaced out over the 15-consecutive-minute period. Therefore, the following previously listed condition will be on the permit as follows:

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

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

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

Section 6.1, Recordkeeping

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

The following condition will be listed on the permit to ensure compliance:

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

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

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

Section 6.1.4 requires that the operator of a unit with startup or shutdown provisions keep records of the duration of the startup or shutdowns. The applicant has not proposed any startup or shutdown provisions for the steam generator in this project. Therefore, the requirements of this section do not apply.

Section 6.1.5 requires that the operator of a unit fired on liquid fuel during PUC-quality natural gas curtailment periods record the sulfur content of the fuel, amount of fuel used, and duration of the natural gas curtailment period. The steam generator in this project is not fired on liquid fuels. Therefore, the requirements of this section do not apply.

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 or 19
Stack Gas Moisture Content	%	EPA Method 4

The following permit conditions will be listed on the permit:

- The following test methods shall be used: 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 oxygen (O₂) - EPA Method 3 or 3A or ARB Method 100; stack gas velocities - EPA Method 2; Stack gas moisture content - EPA Method 4; SO_x - EPA Method 6C or 8 or ARB Method 100; fuel gas sulfur as H₂S content - EPA Method 11 or 15; and fuel hhv (MMBtu) -ASTM D 1826 or D 1945 in conjunction with ASTM D 3588. [District Rule 1081, 4305, 4306, 4320, and 4351]

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. Upon demonstrating compliance on two consecutive compliance source tests, the source test may be deferred for up to thirty-six months. The following condition will be included on the permit:

- Source testing to measure NO_x and CO emissions from this unit shall be conducted at least once every twelve months. After demonstrating compliance on two consecutive annual source tests, the unit shall be tested not less than once every 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 months. [District Rules 2201, 4305, 4306, and 4320]

Conclusion

Compliance with District Rule 4320 requirements is expected.

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. If applicable, the emission limits, monitoring provisions, and testing requirements of this rule are satisfied when the unit is operated in compliance with Rule 4320.

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

Rule 4405 Oxides of Nitrogen Emissions from Existing Steam Generators Used in Thermally Enhanced Oil Recovery - Central/Western Kern County Fields

This rule limits NOx emissions from existing steam generators used in thermally enhanced oil recovery operations prior to August 22, 1986. The NOx emissions limits of the steam generator in this project is well below the NOx limit of 0.14 lb/MMBtu allowed by this rule for natural gas-fired units.

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

Rule 4406 - Sulfur Compounds from Oil-Field Steam Generators - Kern County

This rule limits sulfur compound emissions from existing steam generators used in oil field operations prior to September 12, 1979. The limit imposed by the rule is 0.11 lb S/MMBtu, either individually or on average basis for all of an operating steam generators subject to the rule requirements. The proposed SO2 emissions factor, 0.00285 lb-SOx/MMBtu (0.001425 lb-S/MMBtu), is in compliance with the rule.

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

Rule 4801 Sulfur Compounds

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

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

$$\text{Volume SO}_2 = \frac{nRT}{P}$$

With:

N = moles SO₂

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

P (Standard Pressure) = 14.7 psi

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

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

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

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

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.

Greenhouse Gas (GHG) Significance Determination

It is determined that no other agency has or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project.

Project specific impacts on global climate change were evaluated consistent with the adopted District policy – *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. The District's engineering evaluation (this document – Attachment F) demonstrates that the project includes Best Performance Standards (BPS) for each class and category of greenhouse gas emissions unit. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

The following condition will be listed on the permit to ensure compliance:

- This unit shall be equipped with horizontal convection section with at least 235 square feet of bare tube surface area (or thermodynamically equivalent number of square feet of finned tube) per MMBtu/hr of heat input and variable frequency drive high efficiency electrical motors driving the blower and water pump. Documentation showing this unit is so equipped shall be retained on site. [Public Resources Code 21000-21177, California Environmental Quality Act]

District CEQA Findings

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)).

VII. RECOMMENDATION

Compliance with all applicable rules and regulations is expected. Issue Authority to Construct S-1703-210-0 subject to the permit conditions on the attached draft Authority to Construct in Attachment G.

VIII. BILLING INFORMATION

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-1703-210-0	3020-02-H	85 MMBtu/hr	\$1030.00

Attachments

- A Top Down BACT Analysis
- B PM₁₀ Source Test Result
- C Compliance Certification
- D Certificate of Conformity
- E Health Risk Assessment and Ambient Air Quality Analysis
- F Greenhouse Gas Calculations and Best Performance Standard
- G Draft Authority to Construct

ATTACHMENT A
Top Down BACT Analysis

TOP DOWN BACT ANALYSIS

I. BACT Analysis for Steam Generator S-1703-210-0:

For steam generator S-1703-210-0, BACT is required for NO_x, SO_x, PM₁₀, and VOC.

Top-Down BACT Determination for NO_x Emissions

a. Step 1 - Identify All Possible Control Technologies

The District adopted District Rule 4320 on October 16, 2008. The NO_x emission limits requirements in District Rule 4320 are lower than the limits in BACT Guideline 1.2.1 (Steam Generator ≥ 5 MMBtu/hr, Oilfield), which has been rescinded. 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 > 20.0 MMBtu/hr to 7 ppm @ 3% O₂. This emission limit will be considered Achieved in Practice control technology for the BACT analysis. District Rule 4320 also contains an enhanced schedule with initial and final limit options that allows applicants additional time to meet the requirements of the rule. The enhanced schedule allows for an initial NO_x emission limit of 9 ppmv @ 3% O₂ and a final limit of 5 ppmv @ 3% O₂. Since this is an enhanced option in the rule, the final limit of 5 ppmv @ 3% O₂ 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:

- 5 ppmvd @ 3% O₂ – Technologically Feasible
- 7 ppmvd @ 3% O₂ – Achieved in Practice

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

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

Step 4 - Cost Effectiveness Analysis

The applicant has proposed to limit the NO_x emissions of the steam generator in this project to 5.85 ppmv @ 3% O₂; therefore a cost effective analysis is required.

SCR Emission Reductions

Assumptions:

- District standard emissions is the NO_x emission rate of 7 ppmv @ 3% O₂ (0.0084 lb/MMBtu) in accordance with Rule 4320.
- Unit's maximum emissions are defined by the burner size multiplied by the emissions rate and a maximum annual operating schedule of 8,760 hours.

SCR Capital Cost

Obtained from PCL Construction on September 22, 2010: \$745,000.00 (includes all purchased equipment, taxes, freight and installation of SCR for an 85 MMBtu/hr unit).

Equivalent Annual Capital Cost (CC):

$$A = (P) \left[\frac{(i)(1+i)^n}{(1+i)^n - 1} \right] \text{ where,}$$

- A: Equivalent annual capital cost of the control equipment
- P: Present value of the control equipment
- i: Interest rate (District policy is to use 10%)
- n: Equipment life (District policy is to use 10 years)

$$A = (\$745,000) \left[\frac{(0.1)(1+0.1)^{10}}{(1+0.1)^{10} - 1} \right] = \frac{\$121,245}{\text{yr}}$$

Annual Direct Cost (ADC):

Operation & Maintenance = \$125,000/year (PCL quote)

Annual Indirect Cost (AIC):

Included in PCL quote.

$$\begin{aligned} \text{Total Annualized Cost} &= \text{CC} + \text{ADC} + \text{AIC} \\ &= \$121,245 + \$125,000/\text{year} \\ &= \$246,245/\text{year} \end{aligned}$$

Emission Calculations:

District Std NOx Emissions = 85 MMBtu/hr x 0.0084 lb/MMBtu x 8,760 hr/yr
= 6,255 lb/year

Technologically Feasible NOx Emissions = 85 MMBtu/hr x 0.006 lb/MMBtu x 8,760 hr/yr
= 4,468 lb/yr

NOx reduction due to SCR:

Total reduction = Emissions_(7 ppmv) – Emissions_(5 ppmv)

Total reduction = 6,255 lb/yr – 4,468 lb/yr

Total reduction = 1,787 lb/yr = 0.89 ton/yr

Cost Effectiveness:

Cost effectiveness = \$246,245/0.89 ton

Cost effectiveness = \$276,680/ton

The cost effectiveness is greater than the \$24,500/ton cost effectiveness threshold specified in 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 for NOx emissions from the oilfield steam generator is 7 ppmvd @ 3% O₂. The applicant has proposed to install a steam generator with a NOx limit of 5.85 ppmvd @ 3% O₂; therefore, BACT for NOx emissions is satisfied.

Top Down BACT Analysis for SO_x and PM₁₀ Emissions:

Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse Guideline 1.2.1 (Oilfield Steam Generators \geq 5 MMBtu/hr) has been rescinded. The District adopted District Rule 4320 on October 16, 2008. Therefore, a project specific BACT analysis will be performed to determine BACT for this project.

Rule 4320 requires SO_x and PM₁₀ control by complying with SO_x limits. The rule specified that the sulfur content of the fuel be limited to no more than 5 grains/100 scf, or fire the unit with PUC-quality natural gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases, or operate an emissions control system that reduces SO₂ emissions by at least 95% by weight or limit exhaust SO₂ to less than or equal to 9 ppmv corrected to 3.0% O₂. The following can be considered BACT and are technologically possible options:

- 1) PUC Natural gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases. (Achieved in Practice).
- 2) Limit sulfur content of the fuel to no more than 5 grains/100 scf.
- 3) Operate an emissions control system that reduces SO₂ emissions by at least 95% by weight or limit exhaust SO₂ to less than or equal to 9 ppmv corrected to 3.0% O₂

Step 2 - Eliminate Technologically Infeasible Options

All control options are technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

- 1) PUC Natural gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases. (Achieved in Practice).
- 2) Limit sulfur content of the fuel to no more than 5 grains/100 scf.
- 3) Operate an emissions control system that reduces SO₂ emissions by at least 95% by weight or limit exhaust SO₂ to less than or equal to 9 ppmv corrected to 3.0% O₂

Step 4 - Cost Effectiveness Analysis

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

Step 5 - Select BACT

The applicant has proposed the use of natural gas as a primary fuel with a sulfur content not to exceed 1 gr-S/100 scf. This proposal is selected as BACT for SO_x and PM₁₀ emissions; therefore, BACT for SO_x and PM₁₀ emissions is satisfied.

Top Down BACT Analysis for VOC Emissions:

Step 1 - Identify All Possible VOC Control Technologies

The SJVUAPCD BACT Clearinghouse Guideline 1.2.1 (Oilfield Steam Generators ≥ 5 MMBtu/hr) has been rescinded. The District adopted District Rule 4320 on October 16, 2008. Therefore, a project specific BACT analysis will be performed to determine BACT for this project.

The SJVAPCD BACT Clearinghouse Guideline 1.2.1 identifies the following technologies:

- 1) Natural gas fuel with LPG backup - Achieved-In-Practice

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) Natural gas fuel with LPG backup - Achieved-In-Practice

Step 4 - Cost Effectiveness Analysis

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

Step 5 - Select BACT

BACT for VOC emissions from the steam generator in this project is natural gas fuel. The applicant has proposed natural gas fuel; therefore BACT for VOC emissions is satisfied.

ATTACHMENT B

PM10 Source Test Result

AEROS ENVIRONMENTAL, INC.

Summary Of Results

Vintage Production California, LLC
 Kern Front Facility
 Steam Generator 5

Project 300-5871A
 March 27, 2008
 ATC No. S-1326-338-0

Pollutant	gr/dscf	gr/scf	lb/hr	lb/MMBtu	Permit Limits
Particulate PM-10	0.00107	0.00090	0.150	0.0016	0.005 lb/MMBtu
	0.00044	0.00037	0.068	0.0007	
	0.00042	0.00036	0.068	0.0006	
	Mean	0.00065	0.00054	0.095	
Particulate Total	0.00107	0.00090	0.150	0.0016	N/A
	0.00044	0.00037	0.068	0.0007	
	0.00057	0.00048	0.092	0.0008	
	Mean	0.00070	0.00058	0.103	
Comments:					

ATTACHMENT C

Compliance Certification

CERTIFICATION

Macpherson Oil Company hereby certifies as follows:


1. Macpherson Oil Company owns or operates certain major stationary sources in the State of California. Such sources are comprised of a vast number of emission points. As used in this certification, the term "major stationary source" shall, with respect to Macpherson Oil Company stationary sources in the SJVUAPCD, have the meaning ascribed thereto in SJVUAPCD Rule 2201, Section 3.23, and shall, with respect to all of Macpherson's other stationary sources in the State of California, have the meaning ascribed thereto in section 302(J) of the Clean Air Act (42 U.S.C. Section 7602 (J)).

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

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

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

CERTIFICATION

By:  Date: 3/7/12
Jody Butler
Title: Operations Superintendent Time: 9:40 AM

ATTACHMENT D
Certificate of Conformity

**San Joaquin Valley
Unified Air Pollution Control District**

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

I. TYPE OF PERMIT ACTION (Check appropriate box)

- SIGNIFICANT PERMIT MODIFICATION ADMINISTRATIVE
 MINOR PERMIT MODIFICATION AMENDMENT

COMPANY NAME: Macpherson Oil Company	FACILITY ID: S - 1703
1. Type of Organization: <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Sole Ownership <input type="checkbox"/> Government <input type="checkbox"/> Partnership <input type="checkbox"/> Utility	
2. Owner's Name:	
3. Agent to the Owner:	

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

- Based on information and belief formed after reasonable inquiry, the source identified in this application will continue to comply with the applicable federal requirement(s).
- Based on information and belief formed after reasonable inquiry, the source identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.
- Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.
- Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true accurate and complete.

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



Signature of Responsible Official

3/7/12

Date

Jody Butler

Name of Responsible Official (please print)

Operations Superintendent

Title of Responsible Official (please print)

Add SG 720 to Section 18 Steam Plant.

ATTACHMENT E

Health Risk Assessment and Ambient Air Quality Analysis

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Stanley Tom – Permit Services
 From: Leland Villalvazo – Technical Services
 Date: April 7, 2012
 Facility Name: McPherson Oil Company
 Location: HOC
 Application #(s): S-1703-210-0
 Project #: S-1120718

A. RMR SUMMARY

RMR Summary				
Categories	Steam Gen (210-0)		Project Totals	Facility Totals
Prioritization Score	0.02		0.02	0.05
Acute Hazard Index	NA		NA	0.01
Chronic Hazard Index	NA		NA	0.0
Maximum Individual Cancer Risk (10^{-6})	NA		NA	3.94
T-BACT Required?	No			
Special Permit Conditions?	No			

Proposed Permit Conditions

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

Unit # 210-0

No special conditions are required.

B. RMR REPORT

I. Project Description

Technical Services received a request on March 26, 2012 to perform a Risk Management Review for a proposed installation of an 85 MMBTU/hr. steam generator.

II. Analysis

Toxic emissions for this proposed unit were calculated using District approved petroleum NG steam generator emission factors. 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 210-0			
Throughput (SCF)	744.6	Max Hours per Year	8760
Closest Receptor (m)	1609		

Criteria Pollutant Modeling Results*

Diesel ICE	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO _x	Pass ¹	X	X	X	Pass
SO _x	Pass	Pass	X	Pass	Pass
PM ₁₀	X	X	X	Pass ²	Pass ²
PM _{2.5}	X	X	X	Pass ²	Pass ²

*Results were taken from the attached PSD spreadsheet.

¹The project was compared to the 1-hour NO₂ National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures.

²The 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.

IV. Attachments

- A. RMR request from the project engineer
- B. Toxic emissions summary
- C. Prioritization score
- D. Facility Summary

AAQA for MacPherson Oil Co. (S1120718)

All Values are in ug/m³

	NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM 24 Hour	PM Annual
210_0	1.792E+00	4.377E-02	4.529E+00	2.160E+00	6.995E-01	6.334E-01	1.305E-01	1.718E-02	1.371E-01	1.809E-02
Background	1.224E+02	3.252E+01	4.078E+03	2.563E+03	1.598E+02	1.332E+02	7.193E+01	2.664E+01	2.670E+02	8.300E+01
Facility Totals	1.242E+02	3.256E+01	4.082E+03	2.565E+03	1.605E+02	1.338E+02	7.206E+01	2.666E+01	2.671E+02	8.302E+01
AAQS	188.68	56	23000	10000	195	1300	105	80	50	30
	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Fail	Fail

EPA's Significance Level (ug/m³)

1.2 0.3

NOx 1 Hour	NOx Annual	CO 1 Hour	CO 8 Hour	SOx 1 Hour	SOx 3 Hour	SOx 24 Hour	SOx Annual	PM 24 Hour	PM Annual
0.0	1.0	2000.0	500.0	0.0	25.0	5.0	1.0	5.0	1.0

PASS 0.03
PASS

ATTACHMENT F

Greenhouse Gas Calculations and Best Performance Standard

**San Joaquin Valley
Unified Air Pollution Control District**

Best Performance Standard (BPS) x.x.xx

Date: 6/24/10

Class	Steam Generators
Category	Oilfield
Best Performance Standard	<p>Very High Efficiency Steam Generator Design With:</p> <ol style="list-style-type: none"> 1. A convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by manufacturer) or a manufacturer's overall thermal efficiency rating of 88%. <p>And</p> <ol style="list-style-type: none"> 2. Variable frequency drive high efficiency electrical motors driving the blower and water pump.
Percentage Achieved GHG Emission Reduction Relative to Baseline Emissions	13.0%

District Project Number	C-1100391
Evaluating Engineer	Steve Roeder
Lead Engineer	Arnaud Marjollet
Initial Public Notice Date	April 28, 2010
Final Public Notice Date	May 28, 2010
Determination Effective Date	June 24, 2010

GHG Calculations

Basis and Assumptions

- The steam generator is fired with natural gas at a rate of 85 MMBtu/hour (HHV)
- The steam generator operates 8,760 hours per year and is in commercial/institutional service
- Emission factors are taken from 40 CFR Part 98, Subpart A, Table C-1 and C-2 and global warming potentials (GWP) are taken from 40 CFR Part 98, Subpart A, Table A-1:

CO₂ 116.5 lb/MMBtu
CH₄ 0.002 lb/MMBtu
N₂O 0.0002 lb/MMBtu

GWP for CH₄ = 21 lb-CO₂(eq) per lb-CH₄
GWP for N₂O = 310 lb-CO₂(eq) per lb-N₂O

Calculations

Hourly Emissions

CO₂ Emissions = 85 MMBtu/hr x 116.5 lb/MMBtu = 990.25 lb-CO₂(eq)/hour
CH₄ Emissions = 85 MMBtu/hr x 0.002 lb/MMBtu x 21 lb-CO₂(eq) per lb-CH₄
= 3.57 lb-CO₂(eq)/hour
N₂O Emissions = 85 MMBtu/hr x 0.0002 lb/MMBtu x 310 lb-CO₂(eq) per lb-N₂O
= 5.27 lb-CO₂(eq)/hour

Total = 990.25 + 3.57 + 5.27 = 999.09 lb-CO₂(eq)/hour

Annual Emissions

999.09 lb-CO₂(eq)/hour x 8,760 hr/year ÷ 2,000 lb/ton = **4,376.0 short tons-CO₂(eq)/year**

4,376.0 short tons-CO₂e/year x 0.9072 metric tons/short ton = **3,970 metric tons-CO₂(eq)/year**

This exceeds the District's threshold of 230 metric tons of CO₂ equivalent. To address the potential increase in GHG emissions, the applicant is proposing to comply with the best performance standard (BPS) developed by the District for steam generators.

The proposed steam generator will utilize high efficiency variable speed drive electric motors and a bare tube area exceeding 235 ft²/MMBtu/hr of heat input (the unit will have 20,450 ft² ÷ 85 MMBtu/hr = 240 ft²/MMBtu/hr of heat input). BPS conditions will be included in the ATC to ensure compliance with the GHG requirements.

ATTACHMENT G
Draft Authority to Construct

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-1703-210-0

LEGAL OWNER OR OPERATOR: MACPHERSON OIL COMPANY
MAILING ADDRESS: PO BOX 5368
BAKERSFIELD, CA 93388

LOCATION: HEAVY OIL CENTRAL STATIONARY SOURCE
CA

SECTION: SE18 TOWNSHIP: 28S RANGE: 29E

EQUIPMENT DESCRIPTION:

85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR WITH A COEN QLN-II ULTRA LOW-NOX BURNER (OR EQUIVALENT) AND A FLUE GAS RECIRCULATION (FGR) SYSTEM

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director APCO

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DAVID WARNER, Director of Permit Services
S-1703-210-0: Apr 19 2012 7:26AM - TOMS : Joint Inspection NOT Required

6. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
7. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 1,303 lb, 2nd quarter - 1,303 lb, 3rd quarter - 1,303 lb, and fourth quarter - 1,303 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201] Federally Enforceable Through Title V Permit
8. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 556 lb, 2nd quarter - 556 lb, 3rd quarter - 557 lb, and fourth quarter - 557 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). SOx ERCs may be used to offset PM10 increases at an interpollutant ratio of 1.000 lb-SOx: 1.0 lb-PM10. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 1,023 lb, 2nd quarter - 1,024 lb, 3rd quarter - 1,024 lb, and fourth quarter - 1,024 lb. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201 (as amended 4/21/11). [District Rule 2201] Federally Enforceable Through Title V Permit
10. ERC Certificate Numbers N-995-2, C-1102-5, N-1009-5, S-3674-5, S-3726-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
11. This unit shall be equipped with horizontal convection section with at least 235 square feet of bare tube surface area (or thermodynamically equivalent number of square feet of finned tube) per MMBtu/hr of heat input and variable frequency drive high efficiency electrical motors driving the blower and water pump. Documentation showing this unit is so equipped shall be retained on site. [Public Resources Code 21000-21177, California Environmental Quality Act]
12. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
13. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101] Federally Enforceable Through Title V Permit
14. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
15. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of fuel combusted in the unit shall be installed, utilized and maintained. [District Rule 2201 and 40 CFR 60.48c (g)] Federally Enforceable Through Title V Permit
16. The unit shall only be fired on natural gas with a maximum sulfur content of 1.0 gr S/100 scf. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
17. If the unit is fired on PUC-regulated natural gas, then maintain on file copies of all natural gas bills. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
18. If the unit is not fired on PUC-regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
19. If the unit is not fired on PUC-regulated natural gas, then the sulfur content of the natural gas being fired in the unit shall be determined using ASTM method D 1072, D 3031, ~~D 4084~~ or D 3246. [District Rule 2201] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

20. Emissions rates from unit shall not exceed any of the following limits: 5.85 ppmv NO_x @ 3% O₂ or 0.0070 lb-NO_x/MMBtu, 0.00299 lb-PM₁₀/MMBtu, 25 ppmv CO @ 3% O₂ or 0.0182 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, 4320] Federally Enforceable Through Title V Permit
21. A source test to demonstrate compliance with NO_x and CO emission limits shall be performed within 60 days of initial startup of this unit. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
22. 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 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
23. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. Unless otherwise specified in the Permit to Operate, no determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4320. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
24. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
25. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
26. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
27. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
28. The following test methods shall be used: 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 oxygen (O₂) - EPA Method 3 or 3A or ARB Method 100; stack gas velocities - EPA Method 2; Stack gas moisture content - EPA Method 4; SO_x - EPA Method 6C or 8 or ARB Method 100; fuel gas sulfur as H₂S content - EPA Method 11 or 15; and fuel hhv (MMBtu) - ASTM D 1826 or D 1945 in conjunction with ASTM D 3588. [District Rule 1081, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit
29. 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 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
30. 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] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

31. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
32. Operator shall provide that fuel hhv be certified by third party fuel supplier or determined annually by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
33. Permittee shall submit notification to the District of the date of construction, anticipated startup, and actual startup. Notifications shall be postmarked no later than 30 days after construction and 15 days after actual startup. The notifications shall include the design heat input and identification of fuels for this permit unit. [40 CFR 60.48c (a)] Federally Enforceable Through Title V Permit
34. Permittee shall maintain daily records of the type and quantity of fuel combusted by the steam generator. [District Rule 2201 and 40 CFR 60.48c (g)] Federally Enforceable Through Title V Permit
35. 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 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
36. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, 4320, and 40 CFR 60.48c (i)] Federally Enforceable Through Title V Permit

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