San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

JAN 19 2011

Mr. Jody Butler
Macpherson Oil Company
P.O. Box 5368
Bakersfield, CA 93388

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # S-1703
Project # S-1104570

Dear Mr. Butler:

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 project is to install a new 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. Leonard Scandura, Permit Services Manager, at (661) 392-5500.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

DW: DG/cm

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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www.valleyair.org www.healthyairliving.com

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

JAN 19 2011

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-1104570

Dear Mr. Rios:

Enclosed for your review is the District's engineering evaluation of an application for Authority to Construct for Macpherson Oil Company at Heavy Oil Central Stationary Source, 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 project is to install a new 85 MMBtu/hr natural gas-fired steam generator.

Enclosed is the engineering evaluation of this application with a copy of the proposed Authority to Construct # S-1703-198-0 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. Leonard Scandura, Permit Services Manager, at (661) 392-5500.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

DW: DG/cm

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San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

JAN 19 2011

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-1104570

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 project is to install a new 85 MMBtu/hr natural gas-fired steam generator.

Enclosed is the engineering evaluation of this application with a copy of the proposed Authority to Construct # S-1703-198-0 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. Leonard Scandura, Permit Services Manager, at (661) 392-5500.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

DW: DG/cm

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Executive Director/Air Pollution Control Officer

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www.valleyair.org www.healthyairliving.com

Bakersfield Californian

NOTICE OF PRELIMINARY DECISION
FOR THE ISSUANCE OF AUTHORITY TO CONSTRUCT

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Air Pollution Control District solicits public comment on the proposed modification of Macpherson Oil Company for its heavy oil production at Heavy Oil Central Stationary Source, California. The project is to install a new 85 MMBtu/hr natural gas-fired steam generator.

The District's analysis of the legal and factual basis for this proposed action, project #S-1104570, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and the District office at the address below. 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 call Mr. Leonard Scandura, Permit Services Manager at (661) 392-5500. 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

New Steam Generator

Facility Name:	Macpherson Oil Company	Date:	12/30/10
Mailing Address:	P.O. Box 5368	Engineer:	Dolores Gough
	Bakersfield, CA 93388	Lead Engineer:	~~Richard Karrs~~ AP Swpe AQE
Contact Person:	Jody Butler		JAN 0 3 2011
Telephone:	661-393-3204 ext 103		
Fax:	661-393-8065		
E-Mail:	Jody_butler@macpherson.com		
Application #(s):	S-1703-198-0		
Project #:	S-1104570		
Deemed Complete:	October 28, 2010		

I. Proposal

Macpherson Oil Company (MOC) is requesting an Authority to Construct (ATC) permit for the installation of a new gas-fired 85.0 MMBtu/hr steam generator in the Mt. Poso Oil Field. The steam generator will be utilized, along with their other permitted steam generators, to meet current steam requirements for thermally enhanced crude oil production.

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 MOC's other steam generators at this location, the 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 received their Title V Permit on May 31, 2001. This modification can be classified as a Title V Minor Modification pursuant to Rule 2520, Section 3.20, 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 must apply to administratively amend their Title V Operating Permit to include the requirements of the ATCs issued with this project.

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (06/10/10)
Rule 2520 Federally Mandated Operating Permits (6/21/01)
Rule 4001 New Source Performance Standards (4/14/99)
Rule 4101 Visible Emissions (2/17/05)
Rule 4102 Nuisance (12/17/92)
Rule 4201 Particulate Matter Concentration (12/17/92)

Rule 4301 Fuel Burning Equipment (12/17/92)
Rule 4305 Boilers, Steam Generators & Process Heaters – Phase II (8/21/03)
Rule 4306 Boilers, Steam Generators & Process Heaters – Phase III (3/17/05)
Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)
Rule 4351 Boilers, Steam Generators & Process Heaters – Phase I (8/21/03)
Rule 4801 Sulfur Compounds (12/17/92)
CH&SC 41700 Health Risk Assessment
California Health & Safety Code 42301.6
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 proposed steam generator will be located within MOC's Heavy Oil Central Stationary Source in Section 18, Township 25S, Range 29E (Location maps - Appendix A). 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

MOC operates permitted equipment at their Heavy Oil Central stationary source. Steam generators are produced for injection into heavy crude oil production zones. The heat added by the steam reduces the viscosity of the crude oil making it easier to produce.

Well head casing vapor collection systems and storage tank vapor recovery systems collect vapors from the well head or tank battery, condensed out the entrained liquids and route the non-condensible 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. MOC also proposes to utilize this new steam generator as an authorized well head casing gas destruction device.

V. Equipment Listing

GAS/VAPOR RECOVERY GAS FIRED

S-1703-198-0: 85.0 MMBTU/HR NATURAL ~~AND/OR TVR GAS~~ STEAM GENERATOR WITH COEN MODEL QLN II ULTRA-LOW NOX BURNER (OR EQUIVALENT) AND A FLUE GAS RECIRCULATION (FGR) SYSTEM

VI. Emission Control Technology Evaluation

The combustion equipment in this project is capable of generating emissions of NOx, CO, VOC, PM10, and SOx due to the combustion of natural gas, with NOx as the major pollutant of concern. The steam generator will be equipped with ultra-low NOx burner capable of achieving 6 ppmv NOx @ 3% O2. 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

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

VII. General Calculations

A. Assumptions

- The maximum operating schedule is 24 hours per day and 8,760 hr/year (365 days)
- Maximum heat input rating = 85.0 MMBtu/hr
- Natural Gas Heating Value: 1,000 Btu/scf
- F-Factor for Natural Gas @ 60°F: 8,578 dscf/MMBtu
- The unit will be fired exclusively on natural gas/vapor recovery gas

B. Emission Factors

Pollutant	Project Emission Factors (EF2)		Source
NO_X	0.007 lb-NO_X/MMBtu	6 ppmvd (@ 3%O_2)	Applicant's Proposal/ Burner Manufacturer's Guarantee
SO_X	0.00285 lb-SO_X/MMBtu	1.0 gr-S/100 scf	Applicant's Proposal
PM10	0.003 lb-PM10/MMBtu		Applicant's Proposal**
CO	0.0185 lb-CO/MMBtu	25 ppmv @ 3% O2	Applicant's Proposal
VOC	0.0055 lb-VOC/MMBtu	--	AP-42 (7/98), Table 1.4-2

** Per applicant, based on emissions testing documenting that natural gas-fired steam generators have a PM10 emission rate of 0.001 lb/MMBTU

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Since the proposed steam generator is a new emissions unit, PE1 =0 for all criteria pollutants.

2. Post Project Potential to Emit (PE2)

The PE2 calculations are shown below:

Pollutant	Daily PE2			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO_X	0.007	85	24	14.3
SO_X	0.00285	85	24	5.8
PM_{10}	0.0030	85	24	6.1
CO	0.0185	85	24	37.7
VOC	0.0055	85	24	11.2

Pollutant	Annual PE2			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
NO_X	0.007	85	8,760	5,212
SO_X	0.00285	85	8,760	2,122
PM_{10}	0.0030	85	8,760	2,234
CO	0.0185	85	8,760	13,775
VOC	0.0055	85	8,760	4,095

Greenhouse Gas (GHG) Emissions:

The GHG direct emissions from the proposed steam generator can be calculated using the following equation:

GHG (metric tons as CO_2) = EF (kg-CO2/MMBtu) * Ht Input/yr x (1×10^{-3})

Where EF = 52.87 kg-CO_2/MMBtu for 1,000 BTU/scf natural gas
(CARB Compendium of Emission Factors, 2008)

GHG (metric tons as CO_2) = 52.87 x 744,600 MMBtu/yr x 10^{-3}
= 39,367 metric tons as CO_2

As shown in the above calculation, the GHG as CO_2 is already above the District threshold of 230 metric tons of CO_2 equivalent. To address the potential increase in GHG emissions, MOC is proposing to comply with the best performance standard (BPS) developed by the District for steam generators. The steam generator will utilize high efficiency variable speed drive electric motors and a bare tube area exceeding 235 ft/MMBTU of heat input, which meets the District's BPS. BPS conditions will be included to ensure compliance with the GHG requirements.

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

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

The SSPE1 calculations are shown in Appendix B and summarized in the following table:

Pre-Project Stationary Source Potential to Emit (SSPE1)					
	NO_X	SO_X	PM_{10}	CO	VOC
SSPE1	98,449	47,001	39,307	144,351	1,997,787

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

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

The Potential to Emit from the proposed steam generator will be added to the SSPE1 to get the SSPE2.

Post-Project Stationary Source Potential to Emit (SSPE2)					
	NO_X	SO_X	PM_{10}	CO	VOC
SSPE1	98,449	47,001	39,307	144,351	1,997,787
PE2	5,212	2,122	2,234	13,775	4,095
SSPE2	103,661	49,123	41,541	158,126	2,001,882

5. Major Source Determination

Pursuant to Section 3.23 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.

Major Source Determination (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
SSPE1	98,449	47,001	39,307	144,351	1,997,787
SSPE2	103,661	49,123	41,541	158,126	2,001,882
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	Yes	No	No	No	Yes

As shown above, the facility will remain a major source for NOx and VOC as a result of this project.

6. Baseline Emissions (BE)

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

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

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

otherwise,

As shown above, the facility is not a major source for SOx, PM_{10} or CO. Therefore, BE are equal to PE1 for these pollutants. The facility is a major source for NOx and VOC and will be providing offsets for the increase in emissions of these pollutants. Therefore, BE are also equal to PE1 for NOx and VOC. Since the proposed steam generator is a new unit, PE1 = BE = 0.

7. SB 288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 (as in effect on Dec. 19, 2002) 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.*" The calculation procedure, as outlined in the version of 40 CFR 51.165 that existed on 12/19/02, states that for a major source, if a project results in a net emissions increase, i.e. the sum of the differences between the potential to emit and the actual emissions for all new and modified emission units are greater than the values listed in Rule 2201 Table 3-5, the project is an SB 288 Major Modification.

Pursuant to the draft APR XXX-1 "Implementation of rule 2201 (as amended on 12/18/08 and effective on 6/10/10) for SB288 Major Modifications and Federal Major modifications", for new emissions units:

- The Potential to Emit is the post project potential to emit for the emission unit
- The actual emissions are equal to zero.

Since the steam generator is a new unit, the project's emission increase is equal to the PE2.

SB 288 Major Modification Thresholds (lb/yr)				
	NOx	SOx	PM_{10}	VOC
Project PE**	5,212	2,122	2,234	4,095
Threshold	50,000	80,000	30,000	50,000
SB 288 Major Mod?	No	No	No	No

** From Section VII(C)(2)

As shown above, this project does not constitute an SB 288 major modification.

8. Federal Major Modification

District Rule 2201, Section 3.17 defines Federal Major Modification the same as "Major modification" as defined in 40 CFR 51.165 and Part D of Title I of the CAA. Section 3.17 also states that an SB 288 Major Modification is not a Federal Major Modification if the emission increase for the project or the net emission increase for the facility (calculated pursuant to 40 CFR 51.165(a)(2)(ii)(B) through (D) and (F) does not result in a significant emission increase as defined in Rule 2201 Table 3-1 (shown below) or the modification does not cause facility wide emissions to exceed a previously established plant wide applicability limit (PAL).

Pursuant to the District draft policy mentioned above, Federal Major Modification determination involves two steps. The first step is to determine if the project itself results in a significant emissions increase. In this determination, only emissions increases are counted. The second step is to determine if the project results in a significant net emissions increase.

However, for projects involving NOx and VOC emission increases (those pollutants for which the District is in extreme non-attainment), only Step 1 is performed as required in the Federal Clean Air Act Section 182 (e)(2). Step 2 does not need to be performed. Notwithstanding the above, a facility with a project that has an emission increase in NOx or VOCs can elect to offset the emission increase at a ratio of 1.3:1 using emission reductions that occcurred at the same stationary source. Such emission reductions must be surplus of all current Federally enforceable requirements. Such projects shall not constitute a Federal Major Modification.

The project's emission increase for each pollutant is equal to the sum of the differences between the projected actual emissions of PE and the baseline actual emissions (BAE) (for existing units) or the sum of the potential to emit (for new emission units). For new emission units, BAE = 0.

Federal Major Modification Thresholds (lb/yr)				
	NOx	SOx	PM_{10}	VOC
Project PE**	5,212	2,122	2,234	4,095
Threshold	0	80,000	30,000	0
Federal Major Mod?	Yes	No	No	Yes

** From Section VII(C)(2)

As shown above, the proposed steam generator has emissions increase over the Federal Major Modification thresholds for NOx and VOC. In addition, MOC is unable to provide offsets from the same stationary source; therefore, the project constitutes a Federal Major Modification.

9. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. The QNEC is calculated as follows:

QNEC (lb/tr) = [PE2 (lb/yr) – PE1 (lb/yr)] /4

	NOx	SOx	PM10	CO	VOC
PE2	5,212	2,122	2,234	13,775	4,095
PE1	0	0	0	0	0
QNEC (lb/qtr)	1,303	531	559	3,444	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 discussed in Section I above, MOC is proposing to install a new steam generator with a PE greater than 2 lb/day for NOx, SOx, PM_{10}, CO and VOC. The SSPE2 for CO is less than 200,000 lb/yr; therefore, BACT is not triggered for CO.

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

The proposed steam generator is not a modified emissions unit ; therefore, BACT for AIPE > 2.0 lb/day purposes, is not triggered.

d. Major Modification

As discussed in Section VII above, this project does not constitute an SB 288 Major modification; however, it is a Federal Major Modification for NOx and VOC; therefore, BACT is triggered for these two pollutants.

2. BACT Guideline

A BACT Guideline does not currently exist for natural-gas fired steam generators.

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 (Appendix C), BACT has been satisfied with the following:

NOx:	6 ppmv @ 3% O2
SOx:	Gaseous fuel with sulfur content not to exceed 1 gr/100 scf
PM_{10}:	Gaseous fuel with sulfur content not to exceed 1 gr/100 scf
VOC:	Gaseous fuel

B. Offsets

1. Offset Applicability

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

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

Offset Determination (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
Post Project SSPE (SSPE2)	103,661	49,123	41,541	158,126	2,001,882
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets calculations required?	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; 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); equal to PE1 (new emissions unit)
ICCE = Increase in Cargo Carrier Emissions, (lb/year)
DOR = Distance Offset Ratio, determined pursuant to Section 4.8

The amount of emissions to be offset is as follows:

	NO_X (lb/yr)	PM_{10} (lb/yr)	VOC (lb/yr)
PE2	5,212	2,234	4,095
BE	0	0	0
ICCE	0	0	0
Increase (lb/yr)	5,212	2,234	4,095
Increase (lb/qtr)	1,303	558.5	1,024

Macpherson is proposing to use the following ERC certificates:

ERC Certificate	Originally Issued to:	Location Generated	Distance Offset Ratio
S-3482-5	Frito-Lay Inc.	20807 Stockdale Hwy, Bakersfield	1.5: 1
S-3484-2	Aera Energy LLC	SW09, T27S, R28E	1.5: 1
S-3485-2	Aera Energy LLC	Sec 16, T27S, R28E	1.5: 1
S-3540-2	Calpine Corporation	Sec 16, T27S, R28E	1.5:1
C-1081-1	Ultramar Inc. - Refinery	525 W Third St., Hanford	1.5:1
C-1079-1	Anderson Clayton Corp	2365 E North Ave, Fresno	1.5:1

The amount of ERCs needed to offset the NOx, PM_{10} and VOC increases from this project are calculated below. The District recognizes SOx: PM_{10} interpollutant ratio of 1:1 (District Policy APR 14xx).

	Q1	Q2	Q3	Q4
NOx offsets req'd (w/o DOR)	1,303	1,303	1,303	1,303
NOx offsets req'd (1:5:1 DOR)	1,955	1,955	1,955	1,955
NOx ERCs available (from S-3484-2)	1,500	1,500	1,500	1,500
NOx offsets still req'd	455	455	455	455
NOx ERCs from S-3485-2	0	758 [a]	0	0
NOx ERCs from S-3540-2	0	1,064 [a]	0	0
Use Q2 to offset Q1,3 & 4	455	455	455	455
Remaining credits	0	2	0	0
PM_{10} offsets req'd (w/o DOR)	559	559	559	559
PM_{10} offsets req'd (1.5:1 DOR)	839	839	839	839
PM_{10} offsets req'd (1:1 Interpollutant ratio)	839	839	839	839
SOx ERCs available from (S-3482-5)	991	1002	1014	1014
Withdraw SOx ERCs	839	839	839	839
SOx ERCs to be re-issued	**152**	**163**	**175**	**175**
VOC offsets req'd (w/o DOR)	1,024	1,024	1,024	1,024
VOC offsets req'd (1:5:1 DOR)	1,536	1,536	1,536	1,536
VOC ERCs available from (C-1079-1)	0	232	232	0
VOC ERCs available from (C-1081-1)	1500	1350	1329	1500
Withdraw VOC ERCs	1500	1536	1536	1500
VOC offsets still req'd	36	0	0	35
Remaining ERCs (use to offset Q1 & Q4)	0	46 [a]	25 [a]	0
Withdraw VOC ERCs from Q2 & Q3	36	0	0	35
Remaining credits	0	0	0	0

[a] NOx and VOC ERCs that occurred from April to November may be used to offset increases in any period.

As shown above, Macpherson has provided sufficient credits to offset the NOx , PM10 and VOC increases from this project. Therefore, the following conditions will be listed on the ATCs to ensure compliance:

- *Prior to operating equipment under this Authority to Construct, permittee shall surrender emissions reduction credits for the following increases in emissions: NOx: 1,303 lb/qtr, VOC: 1024 lb/qtr, and PM10: 559 lb/qtr. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201. [District Rule 2201]*

- *ERC Certificate Numbers S-3482-5, S-3484-2, S-3485-2, S-3540-2, C-1079-1 and C-1081-1 or certificates split from these certificates shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]*

C. Public Notification

1. Applicability

Public noticing is required for:
a. Any new Major Source, which is a new facility that is also a Major Source,
b. Major Modifications,
c. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
d. Any project which results in the offset thresholds being surpassed, and/or
e. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

a. New Major Source

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

b. Major Modification

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

c. PE > 100 lb/day

Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. There are no new emissions unit associated with this project that

have a daily emissions greater than 100 lb/day; therefore, public noticing is not required for this project for Potential to > 100 lb/day purposes.

d. Offset Threshold

This is an existing facility; therefore, public notiicng for new stationary source exceeding offset threshold purposes is not required.

e. SSIPE > 20,000 lb/year

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

Stationary Source Increase in Permitted Emissions [SSIPE] Public Notice					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO_x	103,661	98,449	5,212	20,000 lb/year	No
SO_x	49,123	47,001	2,122	20,000 lb/year	No
PM_{10}	41,541	39,307	2,234	20,000 lb/year	No
CO	158,126	144,351	13,775	20,000 lb/year	No
VOC	2,001,882	1,997,787	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 NOx and VOC emissions exceeding Federal Major Modification threshold. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

D. Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.15.1 and 3.15.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

Proposed Rule 2201 (DEL) Conditions:

- *Emission rates shall not exceed any of the following: NOx (as NO2): 0.007 lb/MMBtu or 6 ppmv @ 3% O2; SOx (as SO2): 0.00285 lb/MMBtu; PM10: 0.003 lb/MMBtu, CO: 0.0185 lb/MMBtu or 25 ppmv @ 3% O2; or VOC: 0.0055 lb/MMBtu. [District Rules 2201 and 4320] Y*

E. Compliance Assurance

1. Source Testing

The unit in this project is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters, Phase 2*, District Rule 4306, *Boilers, Steam Generators and Process Heaters, Phase 3, and District Rule 4320, Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5 MMBtu/hr.* Source testing for NOx and CO will be required within 60 days of initial operation and at least once every 12 months thereafter. MOC proposed a PM_{10} emission factor that is lower than that specified in AP-42 for external natural gas combustion. Previous source tests of similar steam generators fired on similar fuel resulted in PM_{10} emissions of 0.001 lb/MMBtu. The proposed emission limit of 0.003 lb/MMBtu should be readily achievable; therefore, no PM_{10} source test will be required. Additional source testing requirements will be discussed in the compliance review section of this evaluation.

2. Monitoring

As required by District Rules 4305, 4306, and 4320, this unit is subject to monitoring requirements. Monitoring requirements in accordance with District Rules 4305, 4306, and 4320 are addressed in the compliance review section of this evaluation for each rule.

3. Recordkeeping

As required by District Rules 4305, 4306, and 4320, this unit is subject to recordkeeping requirements. Recordkeeping requirements in accordance with District Rules 4305, 4306, and 4320 are addressed in the compliance review section of this evaluation for each rule. The following permit condition will be listed on permits as follows:

- *All records shall be maintained 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 Appendix D of this document for the AAQA summary sheet.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

	1 Hour	3 Hours	8 Hours.	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO_x	Pass[2]	X	X	X	Pass
SO_x	Pass	Pass	X	Pass	Pass
PM_{10}	X	X	X	Pass[1]	Pass

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

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

G. Alternate Siting

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 will be located at an existing oilfield to support current operations; therefore, an alternate site would be impractical.

H. Compliance by Other Owned, Operated or Controlled Source

Pursuant to Section 4.15.2, the owner of the proposed new major source or federal major modification shall demonstrate to the satisfaction of the APCO that all major stationary sources owned or operated by such person (or any entity controlling, controlled by, or under common control with such person) in California which are subject to emission limitations are in compliance or on a schedule for compliance with all applicable limitations and standards.

MOC provided verification that all major Stationary Sources owned or operated by MOC in California are in compliance or on a schedule for compliance with all applicable emission limitations and standards (Appendix F).

Rule 2520 Federally Mandated Operating Permits

This facility is subject to this Rule, and has received their Title V Operating Permit. The proposed modification may be considered a significant modification to their Title V Permit. As discussed above, the facility has applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with an administrative amendment/minor modification, prior to operating with the proposed modifications. MOC's Title V compliance certification form is included in Appendix F. The following permit conditions will be listed to ensure compliance:

- *{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]*
- *{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]*

Rule 4001 New Source Performance Standards (NSPS)

40 CFR Part 60, Subpart Dc Small Industrial-Commercial-Industrial Steam Generators between 10 MMBtu/hr and 100 MMBtu/hr (post-6/9/89 construction, modification or, reconstruction).

The subject steam generator has a rating of 85 MMBtu/hr and are fired on gaseous fuel. Subpart Dc has no standards for gas-fired steam generators. Therefore the subject steam generator is not an affected facility and subpart Dc does not apply.

Rule 4101 Visible Emissions

Per Section 5.0, no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity). As long as the equipment is operated properly, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity. Compliance is expected.

Rule 4102 Nuisance

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

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – Risk Management Policy for Permitting New and Modified Sources specifies that for an increase in emissions associated with a proposed new

source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

An HRA is not required for a project with a total facility prioritization score ≤ one. According to the Technical Services Memo for this project (Appendix D), the total prioritization score is ≤ 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.

RMR Summary			
Categories	**NG Steam Generator (Unit 198-0)**	**Project Totals**	**Facility Totals**
Prioritization Score	0.00	0.00	>1
Acute Hazard Index	0.00	0.00	0.01
Chronic Hazard Index	0.00	0.00	0.00
Maximum Individual Cancer Risk (10^{-6})	1.52E-07	1.52E-07	1.94E-07
T-BACT Required?	No		
Special Permit Conditions?	No		

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 Appendix D of this report, the emissions increases for this project was determined to be less than significant.

Rule 4201 Particulate Matter Concentration

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

F-Factor for NG: 8,578 dscf/MMBtu at 60 °F
PM_{10} Emission Factor: 0.0032 lb-PM_{10}/MMBtu
Percentage of PM as PM_{10} in Exhaust: 100%
Exhaust Oxygen (O_2) Concentration: 3%

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

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

$$GL = 0.0029\ grain/dscf < 0.1\ grain/dscf$$

Therefore, compliance with District Rule 4201 requirements is expected.

Rule 4301 Fuel Burning Equipment

This rule specifies maximum emission rates in lb/hr for SO_2, NO_2, and combustion contaminants (defined as total PM in Rule 1020). This rule also limits combustion contaminants to ≤ 0.1 gr/scf. According to AP 42 (Table 1.4-2, footnote c), all PM emissions from natural gas combustion are less than 1 μm in diameter.

The maximum emission rates in lb/hr for each of the steam generator in this project are as follows:

District Rule 4301 Limits (lb/hr)			
Unit	NO_2	Total PM	SO_2
S-1326-198-0	0.6	0.25	0.24
Rule Limit (lb/hr)	**140**	**10**	**200**

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

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

The proposed steam generator is natural gas-fired with a maximum heat input of 85.0 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4305, the unit is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters – Phase 2.*

In addition, the unit is also subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3* and Rule 3420, *Advanced Emission Reduction Options for Boilers, Steam Generators and Process Heaters Greater than 5 MMBtu/hr.*

Since the 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 proposed steam generator is natural gas-fired with a maximum heat input of 85.0 MMBtu/hr each. Pursuant to Section 2.0 of District Rule 4306, the unit is subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3.*

In addition, the unit is also subject to District Rule 4320, *Advanced Emission Reduction Options for Boilers, Steam Generators and Process Heaters Greater than 5 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 MMBTU/hr

This rule limits NOx, CO, SO2 and PM10 emissions from boilers, steam generators and process heaters rated greater than 5 MMBtu/hr. This rule also provides a compliance option of payment of fees in proportion to the actual amount of NOx emitted over the previous year.

The units in this project are all rated at greater than 5 MMBtu/hr heat input and are subject to this rule.

Section 5.1 NOx Emission Limits

Section 5.1 states that an operator of a unit(s) subject to this rule shall comply with all applicable requirements of the rule and one of the following, on a unit-by-unit basis:

5.1.1 Operate the unit to comply with the emission limits specified in Sections 5.2 and 5.4; or
5.1.2 Pay an annual emissions fee to the District as specified in Section 5.3 and comply with the control requirements specified in Section 5.4; or
5.1.3 Comply with the applicable Low-use Unit requirements of Section 5.5.

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 NOx limit specified in Table 1 of this rule, shown below. On and after October 1, 2008, units shall not be operated in a manner to which exceeds a carbon dioxide (CO) emissions limit of 400 ppmv.

Rule 4320 NOx Emission Limits

C. Oilfield Steam Generators	NOx Limit	Authority to Construct	Compliance Deadline
2. Units with a total rated heat input >20 MMBtu/hr	a) Standard Schedule 7 ppmv or 0.008 lb/MMBtu ; or	July 1, 2009	July 1, 2010
	b) Staged Enhanced Schedule Initial Limit 9 ppmv or 0.011 lb/MMBtu; and	July 1, 2011	July 1, 2012
	Final Limit 5 ppmv or 0.0062lb/MMBtu	January 1, 2013	January 1, 2014

For the subject steam generator, MOC is proposing to comply with Category C2 – standard schedule. However, MOC is proposing a NOx limit of 6 ppmv instead of 7 ppmv @ 3% O2. The proposed CO emission factor is 25 ppmvd @ 3% O2 or 0.0185 lb/MMBtu. Compliance with the rule emission requirements is expected.

Section 5.4 Particulate Matter Control Requirements

Section 5.4.1 states that to limit particulate matter emissions, an operator shall comply with one of the options listed in the rule.

Section 5.4.1.1 provides option for the operator to comply with the rule by firing the unit exclusively on PUC-quality gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases;

Section 5.4.1.2 provides option for the operator to comply with the rule by limiting the fuel sulfur content to no more than five (5) grains of total sulfur per hundred (100) standard cubic feet.

Section 5.4.1.3 provides option for the operator to comply with the rule by installing and properly operating an emissions control system that reduces SO2 emissions by at least 95% by weight; or limit exhaust SO2 to less than or equal to 9 ppmv corrected to 3 % O2.

The steam generator will be fired on purchased and/or mixture of purchased and produced natural gas. MOC will have a fuel sulfur content limit of no more than 1.0 gr S/100 scf. Therefore, compliance with this section of the rule is expected.

Section 5.5 Low-Use Unit

This section discusses the requirements of low-use units. Vintage is not requesting low-use status; 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 shall either install and maintain an operational APCO approved Continuous Emission Monitoring System (CEMS) for NO_X, CO and O_2, or implement an APCO-approved alternate monitoring.

MOC has proposed to implement Alternate Monitoring Scheme A (pursuant to District Policy SSP-1105), which requires periodic monitoring of NO_X, CO, and O_2 concentrations at least once a month using a portable analyzer. The following conditions will be placed in the ATCs to ensure compliance with the requirements of this alternate monitoring plan:

- *{2395} The permittee shall monitor and record the stack concentration of NO_X, CO, and O2 at least once every month (in which a source test is not performed) using a portable analyzer that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306, and 4320]*

- *If the NOx or CO concentrations corrected to 3%, as measured by the portable analyzer, the permittee shall return the emissions to within the acceptable range as*

soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 4102, 4305, 4306 and 4320]

- *All NOx, CO, and O2 emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The NOx, CO, and O2 analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute sample period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive minute period. [District Rules 4102, 4305, 4306 and 4320]*

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

Section 5.7.6 requires monitoring SOx emissions. The following condition will be placed in the ATCs to be in compliance with this rule requirement:

- *PUC quality natural gas is any gaseous fuel where the sulfur content is no more than one-fourth (0.25) grain of hydrogen sulfide per one hundred (100) standard cubic feet, no more than five (5) grains of total sulfur per one hundred (100) standard cubic feet, and at least 80% methane by volume. [District Rule 4320]*

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

- *If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the*

fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rule 4320]

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 retained or listed on the ATCs 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 permit condition will be listed on the ATCs 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 permit condition will be on the ATCs 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 and EPA upon request. Failure to maintain records or information contained in the records that demonstrate noncompliance with the applicable requirements of this rule shall constitute a violation of this rule.

The condiiton on start-up and shutdown record keeping conditions shall be retaine din the ATCs to ensure Aera's compliance with this section of the rule.

Section 6.2, Test Methods

Section 6.2 identifies test methods to be used when determining compliance with the rule. The following existing permit conditions will be retained on the ATCs:

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

- *The following test methods shall be used: NO_X (ppmv) - EPA Method 7E or ARB Method 100, NOx (lb/MMBtu) - EPA Method 19; CO (ppmv) - EPA Method 10 or ARB Method 100; Stack gas oxygen (O_2) - EPA Method 3 or 3A or ARB Method 100; stack gas velocities – EPA Method 2; Stack gas moisture content – EPA Method 4; SOx – EPA Method 6C or 8 or ARB Method 100; fuel gas sulfur as H2S content – EPA Method 11 or 15; and fuel hhv (MMBtu) –ASTM D 1826* or D 1945 in conjunction with ASTM D 3588. *[District Rules 4305, 4306 and 4320]*

Section 6.3, Compliance Testing

Section 6.3.1 requires that each unit subject to the requirements in Section 5.2 shall be source tested at least once every 12 months, except if two consecutive annual source tests demonstrate compliance, source testing may be performed every 36 months. If such a source test demonstrates non-compliance, source testing shall revert to every 12 months. The following conditions will be included in the appropriate ATCs:

- *A source test to demonstrate compliance with NOx and CO emission limits shall be performed within 60 days of startup of this unit. [District Rules 2201 and 4320]*

- *Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted at least once every twelve (12) months (no more than 30 days before or after the required annual source test date). After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months (no more than 30 days before or after the required 36-month source test date). If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306 and 4320]*

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

Rule 4801 Sulfur Compounds

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

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

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

With:

N = moles SO_2
T (Standard Temperature) = 60°F = 520°R
P (Standard Pressure) = 14.7 psi
R (Universal Gas Constant) = $\frac{10.73\,psi \cdot ft^3}{lb \cdot mol \cdot °R}$

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

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

Therefore, compliance with District Rule 4801 requirements is expected.

California Health & Safety Code 42301.6 (School Notice)

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

California Environmental Quality Act (CEQA)

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

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

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) 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.

District CEQA Findings

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15031 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which

have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Issue Authority to Construct S-1703-198-0 subject to the permit conditions on the attached draft Authority to Construct in Appendix E.

X. Billing Information

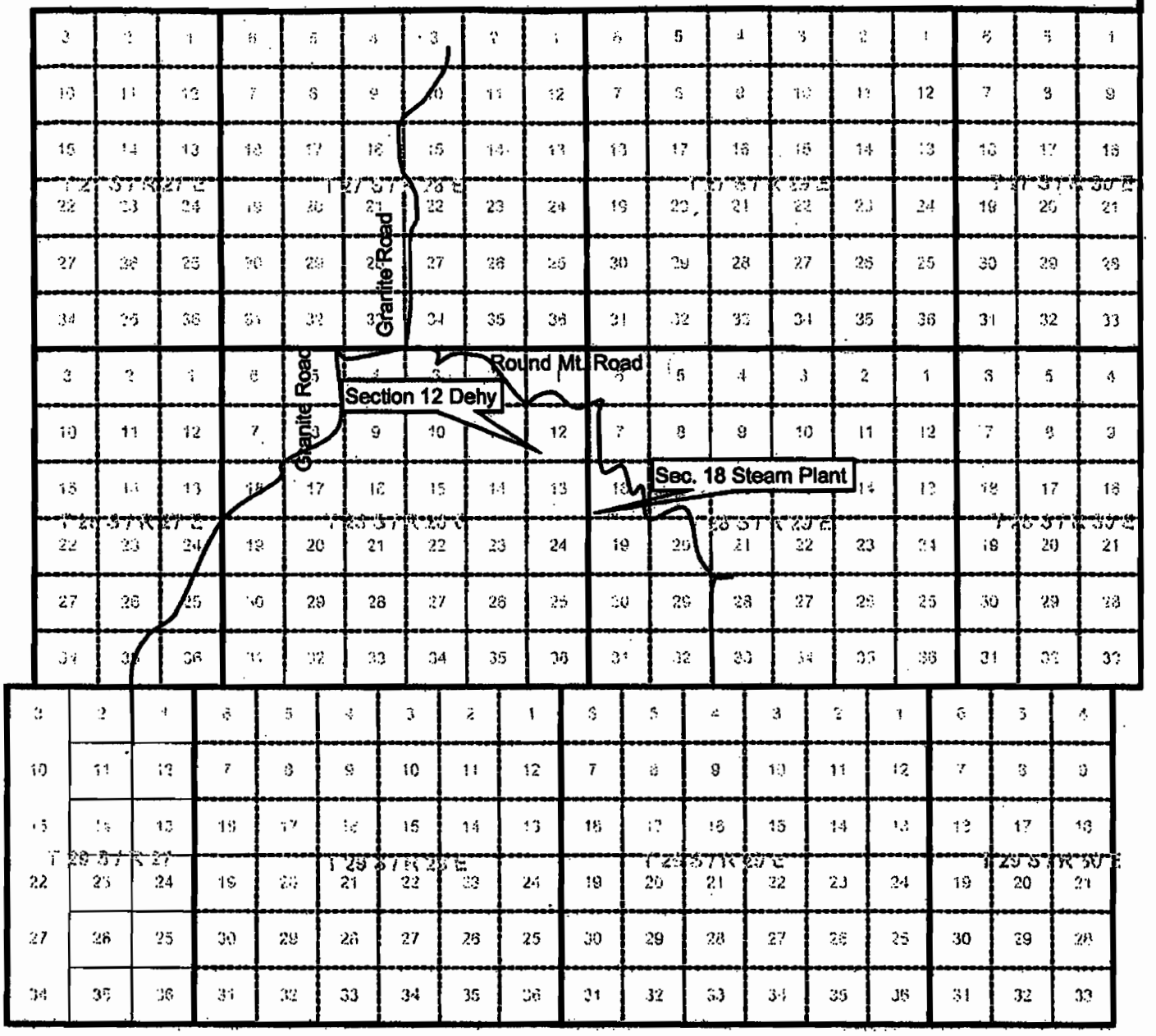
Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-1703-198-0	3020-02-H	85.0 MMBtu/hr	$1,030.00

Appendices

A: Project Location Map
B: SSPE Calculations
C: BACT Guideline and Top-Down Analysis
D: Risk Management Review
E: Draft ATC & Emissions Profile
F: Compliance Certifications

Appendix A

Project Location Map



- N -

Macpherson Oil Company

Round Mountain Field

Prepared by:

Insight Environmental Consultants

June 2007

Appendix B

SSPE Calculations

Facility	Unit	Mod.	NOx	SOx	PM10	CO	VOC
S-1703	5	3	23,068	30,222	4,336	1,460	292
S-1703	12	4	-	-	-	-	47,240
S-1703	16	6	-	-	-	-	9,593
S-1703	17	4	-	-	-	-	9,593
S-1703	18	4	-	-	-	-	9,593
S-1703	19	4	-	-	-	-	94,576
S-1703	20	4	-	-	-	-	94,576
S-1703	21	4	-	-	-	-	56,751
S-1703	22	4	-	-	-	-	56,751
S-1703	23	4	-	-	-	-	38,286
S-1703	24	4	-	-	-	-	38,286
S-1703	25	4	-	-	-	-	38,286
S-1703	26	4	-	-	-	-	1,904
S-1703	27	3	15,330	-	256	3,869	365
S-1703	67	1	-	-	-	-	223
S-1703	76	3	-	-	-	-	19,157
S-1703	77	3	-	-	-	-	19,157
S-1703	78	3	-	-	-	-	19,157
S-1703	79	3	-	-	-	-	19,157
S-1703	80	3	-	-	-	-	19,157
S-1703	81	3	-	-	-	-	47,240
S-1703	82	3	-	-	-	-	47,240
S-1703	91	3	-	-	-	-	47,240
S-1703	92	3	-	-	-	-	47,240
S-1703	93	3	-	-	-	-	9,593
S-1703	94	4	-	-	-	-	9,335
S-1703	95	3	-	-	-	-	19,157
S-1703	96	3	-	-	-	-	19,157
S-1703	97	3	-	-	-	-	9,593
S-1703	99	3	-	-	-	-	9,593
S-1703	100	3	-	-	-	-	9,593
S-1703	101	3	-	-	-	-	9,593
S-1703	102	3	-	-	-	-	1,904
S-1703	103	3	-	-	-	-	1,904
S-1703	104	3	-	-	-	-	1,904
S-1703	105	3	-	-	-	-	47,240
S-1703	106	3	-	-	-	-	19,157
S-1703	107	3	-	-	-	-	47,240
S-1703	108	3	-	-	-	-	47,240
S-1703	109	3	-	-	-	-	47,240
S-1703	113	3	-	-	-	-	19,157

S-1703	114	3	-	-	-	-	47,240
S-1703	115	3	-	-	-	-	1,904
S-1703	116	3	-	-	-	-	1,904
S-1703	117	3	-	-	-	-	1,904
S-1703	118	3	-	-	-	-	9,593
S-1703	119	3	-	-	-	-	9,593
S-1703	120	3	-	-	-	-	47,240
S-1703	126	3	-	-	-	-	19,157
S-1703	127	3	-	-	-	-	4,801
S-1703	128	3	-	-	-	-	28,393
S-1703	129	3	-	-	-	-	28,393
S-1703	130	3	-	-	-	-	47,240
S-1703	131	3	-	-	-	-	47,240
S-1703	132	3	-	-	-	-	47,240
S-1703	133	3	-	-	-	-	47,240
S-1703	134	3	-	-	-	-	6,745
S-1703	139	8	-	-	-	-	0
S-1703	140	7	-	-	-	-	0
S-1703	141	3	-	-	-	-	94,576
S-1703	143	17	-	-	-	-	0
S-1703	144	12	-	-	-	-	0
S-1703	145	8	-	-	-	-	0
S-1703	146	8	-	-	-	-	0
S-1703	150	8	-	-	-	-	0
S-1703	152	7	-	-	-	-	0
S-1703	156	3	-	-	-	-	47,240
S-1703	157	10	9,855	1,560	3,285	15,330	1,643
S-1703	158	10	4,380	3,121	4,161	15,330	1,643
S-1703	159	15	9,855	1,560	3,285	15,330	1,643
S-1703	160	12	4,380	1,560	3,285	15,330	1,643
S-1703	161	15	4,654	1,560	3,285	15,330	1,643
S-1703	162	11	4,654	1,560	4,161	15,330	3,011
S-1703	163	3	-	-	-	-	94,576
S-1703	164	3	-	-	-	-	14,213
S-1703	165	3	-	-	-	-	19,157
S-1703	166	3	-	-	-	-	1,904
S-1703	167	3	-	-	-	-	47,240
S-1703	168	3	-	-	-	-	47,240
S-1703	169	3	-	-	-	-	1,904
S-1703	170	7	-	-	-	-	0
S-1703	171	7	-	-	-	-	0
S-1703	172	3	-	-	-	-	4,801
S-1703	173	3	-	-	-	-	4,801

S-1703	174	3	-	-	-	-	4,801
S-1703	175	3	-	-	-	-	1,904
S-1703	176	3	-	-	-	-	1,904
S-1703	177	3	-	-	-	-	9,593
S-1703	178	3	-	-	-	-	9,593
S-1703	179	4	-	-	-	-	56,751
S-1703	180	13	9,855	2,738	4,928	16,425	1,643
S-1703	181	7	7,977	1,560	4,161	16,425	3,833
S-1703	183	2	-	-	-	-	7,922
S-1703	184	6	-	-	-	-	0
S-1703	186	4	-	-	-	-	0
S-1703	187	2	-	-	-	-	0
S-1703	191	1	-	-	-	-	0
S-1703	192	0	4,380	1,560	4,161	14,160	3,285
S-1703	193	0					0
S-1703	194	0					2,190
S-1703	195	0	61	0	3	32	0
S-1703	196	0					3
S-1703	197	0					0
SSPE1			**98,449**	**47,001**	**39,307**	**144,351**	**1,997,784**
S-1703	198	0	5,212	2,122	2,234	13,775	4,095
SSPE2			**103,661**	**49,123**	**41,541**	**158,126**	**2,001,879**

Appendix C

BACT Guideline and Top-Down Analysis

Best Available Control Technology (BACT) Guideline 1.2.1
Last Update: 5/24/2004

Oil field Steam Generator (> or = 5 MMBtu/hr)

Pollutant	Achieved in Practice or in the SIP	Technologically Feasible	Alternate Basic Equipment
CO	50 ppmvd @ 3% O2		
NOx	14 ppmvd @ 3% O2	1) 9 ppmvd @ 3% O2 (low NOx burner and/or SCR) 2) 12 ppmvd @ 3% O2	
PM10	natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO2 scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emissions rate of 30 ppmvd SO2 at stack O2		
SOx	natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO2 scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emissions rate of 30 ppmvd SO2 at stack O2		
VOC	Gaseous fuel		

Top Down BACT Analysis for NOx Emissions:

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% O_2. This emission limit is 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 NO_X emission initial limit requirement is 9 ppmv @ 3% O_2 and final limit of 5 ppmv @ 3% O_2. Since this is an enhanced option in the rule, the final limit of 5 ppmv @ 3% O_2 will be considered the Technologically Feasible control technology for the BACT analysis.

The following are possible control technologies:

1. 5 ppmvd @ 3% O2 - Technologically Feasible
2. 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 a NOx limit of 6 ppmvd @ 3% O_2, therefore a cost analysis for the 5 ppmvd with SCR (0.0062 lb/MMBTU) option is required.

SCR Cost Effective Analysis:

Assumptions:

- Industry standard (IS) is assumed to be a NOx emission rate of 15 ppmv @3% O2 in accordance with Rule 4306
- 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

Calculations:

Industry Std NOx Emissions = 85 MMBtu/hr x 0.018 lb/MMBtu x 8,760 hr/yr

= 13,403 lb/yr

Feasible NOx Emissions = 85 MMBtu/hr x 0.0062 lb/MMBtu x 8,760 hr/yr
= 4,617 lb/yr

NOx reduction due to SCR:

Total reduction = Emissions $_{(15\ ppmv)}$ – Emissions $_{(5\ ppmv)}$
Total reduction = 13, 403 lb/yr – 4,617 lb/yr
Total reduction = 8,786 lb/yr = 4.39 ton/yr

SCR Capital Cost (PCL Construction, August 19, 2010): $745,000.00 (includes all purchased equipment, taxes, freight and installation of SCR for a 85 MMBtu/hr unit) – detailed cost follow/attached.

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)

$$A = (\$745{,}000)\left[\frac{(0.1)(1+0.1)^{10}}{(1+0.1)^{10} - 1}\right] = \frac{\$121{,}050}{yr}$$

Annual Direct Cost (ADC):

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

Annual Indirect Cost (AIC) = included (PCL quote)

Total Annualized Cost = CC + ADC + AIC
= $121,050 + $125,000 + $0.00
= $ 246,050/yr

Cost Effectiveness:

Cost effectiveness = $246,050/4.39 ton/yr
Cost effectiveness = $56,047/ton

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

Step 5 – Select BACT for NOx

BACT for NOx emissions from the oilfield steam generator is 7 ppmv @ 3% O2. The applicant has proposed to install the steam generators each with a NOx limit of 6 ppmvd @ 3% O2; therefore, BACT for NOx emissions is satisfied.

Top Down BACT Analysis for VOC Emissions:

Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.2.1 (5/24/2004), identifies achieved in practice and technologically feasible BACT for Steam Generator ≥ 5 MMbtu/hr, at an oil field as follows:

1. Gaseous fuel - achieved in practice

Step 2 - Eliminate Technologically Infeasible Options

The above listed technology is technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. Gaseous fuel - achieved in practice

Step 4 - Cost Effectiveness Analysis

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

Step 5 - Select BACT for VOC

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

Top Down BACT Analysis for PM_{10} and SOx Emissions:

Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.2.1, (5/24/04), identifies achieved in practice and technologically feasible BACT for Steam Generator ≥ 5 MMbtu/hr, at an oil field as follows:

1. Natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as

S) per 100 scf, or use of a continuously operating SO2 scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO2 at stack O2 - achieved in practice

Step 2 - Eliminate Technologically Infeasible Options

The above listed technology is technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

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

Step 4 - Cost Effectiveness Analysis

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

Step 5 - Select BACT for SOx and PM10

The use of natural gas as a primary fuel with a sulfur content not to exceed 1 gr-S/100 scf with no back up fuel is selected as BACT for SOx and PM_{10} emissions.

CONSTRUCTION LEADERS

September 22, 2010

Mr. Richard Scholl
Macpherson Oil Company
24118 Round Mountain Road
Bakersfield, CA 93308

Re: Steam Generator SCR Retrofits

Dear Mr. Scholl,

In response to your requests, PCL Industrial Services, Inc. offers for your review a budget price to install SCR technology on an 85MM Btu fired once through steam generator. The scope of work as detailed below includes all engineering, materials, labor, and equipment to procure and install a system that will reduce the NOx levels from 9 ppm to sub 5 ppm.

Project Details
The SCR system proposed will utilize catalyst which has an optimized operating temperature range of 850 – 925 deg F. Placement of the catalyst housing will require the separation of the economizer to operate in this temperature range . As additional room will be required, the radiant section must also be relocated to accommodate the SCR housing. The SCR unit will add 1 – 2" W.C. additional pressure drop across the steam generator. The added pressure drop will adversely affect the steam generator Lo Nox burner. To offset this additional pressure, an ID fan will be required downstream of the convection section for stable operation.

Scope of Work

Remove the convection box from the steam generator

Cut the box frame at row 7 . Add flanges to the cut splices. Repair refractory .

Fabricate SCR flanged FGR housing including refractory and painting

Provide and install approx 200 cubic feet catalyst with associated injection system

Excavate, form, and pour 15 foot extension to the generator foundation for SCR and ID Fan

Disconnect electrical and utilities from radiant and cab section.

Relocate the radiant to accommodate new steam generator length (avoid pipe rack relocation)

PCL INDUSTRIAL SERVICES, INC.
1500 S. Union Ave, Bakersfield, CA 93307
Telephone: (661) 832-3995 ☎ Fax: (661) 832-3412

Reinstall electrical and utilities.

Supply and modify convection box ASME piping to accommodate SCR housing

Modify electrical conduit and wiring for SCR housing

Provide and install a 75 HP ID fan in 316Lss construction

Provide and install interconnecting ductwork for the ID fan

Provide chemical injection and storage system for SCR

Provide instrumentation and controls for SCR and ID fan

Provide insulation repair and new as required for personnel protection

Provide start up and tuning of ID fan and SCR equipment

Budget Price **$ 745,000.**

Budget price includes taxes and materials and freight to Kern County, CA

Operating costs are estimated to be $ 125,000 per annum.

The above budget pricing is good for sixty (60) days from date of letter.

We trust the above will be of assistance at this time. Please feel free to contact our office should you have any questions or further requests.

Sincerely,

Mark Pittser
Business Development Manager
PCL Industrial Services, Inc.
(661) 343-2789 cell
(661) 835-4440 office

Appendix D

HRA and AAQA

San Joaquin Valley Air Pollution Control District
Risk Management Review

To:	Dolores Gough – Permit Services
From:	Cheryl Lawler – Technical Services
Date:	November 2, 2010
Facility Name:	MacPherson Oil Company
Location:	Heavy Oil Central
Application #(s):	S-1703-198-0
Project #:	S-1104570

RECEIVED
NOV - 8 2010
SJVAPCD
Southern Region

A. RMR SUMMARY

RMR Summary			
Categories	**Natural Gas Steam Generator (Unit 198-0)**	**Project Totals**	**Facility Totals**
Prioritization Score	0.00	0.00	>1
Acute Hazard Index	0.00	0.00	0.01
Chronic Hazard Index	0.00	0.00	0.00
Maximum Individual Cancer Risk	**1.52E-07**	1.52E-07	1.94E-07
T-BACT Required?	**No**		
Special Permit Conditions?	**No**		

B. RMR REPORT

I. Project Description

Technical Services received a request on October 28, 2010, to perform an Ambient Air Quality Analysis (AAQA) and a Risk Management Review (RMR) for an 85 MMBtu/hr natural gas steam generator.

II. Analysis

For the Risk Management Review, toxic emissions from the generator were calculated using Ventura County emission factors for natural gas external combustion. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905-1, March 2, 2001), risks from the proposed project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEART's database. The prioritization score was less than 1.0 (see RMR Summary Table); however, the facility's total cumulative prioritization scores already totaled to over 1.0. Therefore, a refined Health Risk Assessment was required and performed for the project. AERMOD was used with point source parameters outlined below and concatenated 5-year meteorological data from Bakersfield to determine maximum dispersion factors at the

nearest residential and business receptors. The dispersion factors were input into the HARP model to calculate the Chronic and Acute Hazard Indices and the Carcinogenic Risk.

The following parameters were used for the review:

Analysis Parameters Unit 113-0			
Source Type	Point	**Closest Receptor (m)**	1609
Stack Height (m)	4.57	**Closest Receptor Type**	Residence & Business
Inside Diameter (m)	0.91	**Project Location Type**	Rural
Gas Exit Temperature (K)	450	**Stack Gas Velocity (m/s)**	4.38

Technical Services also performed modeling for criteria pollutants CO, NOx, SOx, and PM_{10}; as well as the RMR. The emission rates used for criteria pollutant modeling were 1.57 lb/hr CO, 0.6 lb/hr NOx, 0.24 lb/hr SOx, and 0.26 lb/hr PM_{10}.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*
Values are in $\mu g/m^3$

Unit 198-0	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass[1]	X	Pass[1]	X	X
NO_x	Pass[2]	X	X	X	Pass[1]
SO_x	Pass[1]	Pass[1]	X	Pass[1]	Pass[1]
PM_{10}	X	X	X	Pass[1]	Pass[1]

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

III. Conclusion

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

The acute and chronic indices are below 1.0; and the maximum individual cancer risk associated with the project is **1.52E-07**, which is less than the 1 in a million threshold. In accordance with the District's Risk Management Policy, the project is approved **without** Toxic Best Available Control Technology (T-BACT).

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.

Appendix E

Draft ATC and Emissions Profile

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: S-1703-198-0 **ISSUANCE DATE:** DRAFT

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

LOCATION: HEAVY OIL CENTRAL STATIONARY SOURCE
CA

SECTION: 18 **TOWNSHIP:** 25S **RANGE:** 29E

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

CONDITIONS

1. 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 ATC. Approval of the equivalent equipment shall be made in writing and only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the authorized equipment [District Rule 2010] 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 emissions rates, equipment drawing(s) and operational characteristics/parameters [District Rule 2010] 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

DAVID WARNER, Director of Permit Services
S-1703-198-0 : Jan 11 2011 11:57AM -- GOUGHD : Joint Inspection NOT Required

5. 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. [CEQA]
6. Prior to operating equipment under this Authority to Construct, permittee shall surrender emissions reduction credits for the following increases in emissions: NOx: 1,303 lb/qtr; VOC: 1,024 lb/qtr; and PM10: 559 lb/qtr. Offsets shall be provided at the applicable offset ratio specified in Table 4-2 of Rule 2201. [District Rule 2201] Federally Enforceable Through Title V Permit
7. ERC Certificate Numbers S-3482-5, S-3484-2, S-3485-2, S-3540-2, C-1079-1 and C-1081-1 (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
8. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
9. 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
10. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
11. Natural gas and/or TEOR and TVR gas combusted in this unit shall have a sulfur content no greater than 1 gr S/100 scf. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
12. Permittee shall test annually the sulfur content of noncertified (non-PUC/FERC regulated) fuel gas combusted in steam generator using ASTM method D1072, D3031, D4084, or D3246 and make test results readily available for District inspection. [District Rules 2520, 9.3.2 and 4320] Federally Enforceable Through Title V Permit
13. Emissions rates from unit shall not exceed any of the following limits: 6 ppmv NOx @ 3% O2 or 0.007 lb-NOx/MMBtu, 0.003 lb-PM10/MMBtu, 25 ppmv CO @ 3% O2 or 0.0185 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4301, 4305, 4306, 4320, and 40 CFR 60.43c(e)(1)] Federally Enforceable Through Title V Permit
14. A source test to demonstrate compliance with NOx 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
15. Source testing to measure NOx 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
16. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. 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
17. 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
18. 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
19. 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

CONDITIONS CONTINUE ON NEXT PAGE

20. 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, 5.5.5, 4306, 5.5.5, and 4320] Federally Enforceable Through Title V Permit

21. The following test methods shall be used: NOX (ppmv) - EPA Method 7E or ARB Method 100, NOx (lb/MMBtu) - EPA Method 19; CO (ppmv) - EPA Method 10 or ARB Method 100; Stack gas oxygen (O2) - EPA Method 3 or 3A or ARB Method 100; stack gas velocities - EPA Method 2; Stack gas moisture content - EPA Method 4; SOx - EPA Method 6C or 8 or ARB Method 100; fuel gas sulfur as H2S content - EPA Method 11 or 15; and fuel hhv (MMBtu) - ASTM D 1826 or D 1945 in conjunction with ASTM D 3588. [District Rule 1081, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit

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

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

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

25. All NOx, CO, and O2 emission 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

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

27. PUC quality natural gas is any gaseous fuel where the sulfur content is no more than one-fourth (0.25) grain of hydrogen sulfide per one hundred (100) standard cubic feet, no more than five (5) grains of total sulfur per one hundred (100) standard cubic feet, and at least 80% methane by volume. [District Rule 4320] Federally Enforceable Through Title V Permit

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

CONDITIONS CONTINUE ON NEXT PAGE

29. Permittee shall maintain records of noncertified (non-PUC/FERC regulated) fuel gas sulfur compound measurements. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

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

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

Permit #: S-1703-198-0	**Last Updated**
Facility: MACPHERSON OIL COMPANY	12/30/2010 GOUGHD

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	5212.0	2122.0	2234.0	13775.0	4095.0
Daily Emis. Limit (lb/Day)	14.3	5.8	6.1	37.7	11.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1303.0	531.0	559.0	3444.0	1024.0
Q2:	1303.0	531.0	559.0	3444.0	1024.0
Q3:	1303.0	531.0	559.0	3444.0	1024.0
Q4:	1303.0	531.0	559.0	3444.0	1024.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Appendix F

Compliance Certifications

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: ☒ Corporation ☐ Sole Ownership ☐ Government ☐ Partnership ☐ 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

10-6-10
Date

Jody Butler
Name of Responsible Official (please print)

Operations Superintendent
Title of Responsible Official (please print)

Add SG 700 to Section 18 Steam Plant.

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 OXY USA Inc.'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: 10-6-10

Jody Butler

Title: Operations Superintendent Time: 2:10 pm