



DEC 27 2011

Mr. John Ludwick
Berry Petroleum Company
5201 Truxtun Ave.
Bakersfield, CA 93309-0640

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # S-1246
Project # S-1111928**

Dear Mr. Ludwick:


Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. The applicant is requesting that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The modification consists of the installation of a 85.0 MMBtu/hr natural gas fired steam generator (S-1246-354-0) and the modification of a Thermally Enhanced Oil Recovery (TEOR) system (-290-6) to include the new steam generator as an additional VOC disposal device.

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

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

Thank you for your cooperation in this matter.

Sincerely,



David Warner
Director of Permit Services

DW: ST/cm

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

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



DEC 27 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-1246
Project # S-1111928**

Dear Mr. Tollstrup:


Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. The applicant is requesting that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The modification consists of the installation of a 85.0 MMBtu/hr natural gas fired steam generator (S-1246-354-0) and the modification of a Thermally Enhanced Oil Recovery (TEOR) system (-290-6) to include the new steam generator as an additional VOC disposal device.

Enclosed is the engineering evaluation of this application with a copy of the current Title V permit and proposed Authorities to Construct # S-1246-290-16 & S-354-0 with Certificates of Conformity. After demonstrating compliance with the Authorities 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,



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Director of Permit Services

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San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT

DEC 27 2011



HEALTHY AIR LIVING™

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-1246
Project # S-1111928**

Dear Mr. Rios:

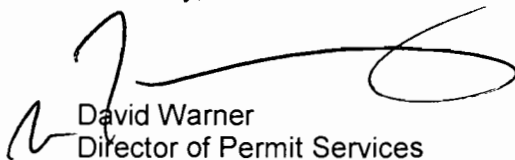
Enclosed for your review is the District's engineering evaluation of an application for Authorities to Construct for Berry Petroleum Company located at the Midway Sunset oilfield within Berry's Heavy Oil Western Stationary Source (SE/4 Sec 36, T 12N, R 24W), which has been issued a Title V permit. Berry Petroleum Company is requesting that Certificates of Conformity, with the procedural requirements of 40 CFR Part 70, be issued with this project. The modification consists of the installation of a 85.0 MMBtu/hr natural gas fired steam generator (S-1246-354-0) and the modification of a Thermally Enhanced Oil Recovery (TEOR) system (-290-6) to include the new steam generator as an additional VOC disposal device.

Enclosed is the engineering evaluation of this application with a copy of the current Title V permit and proposed Authorities to Construct # S-1246-290-16 & '-354-0 with Certificates 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: ST/cm

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

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Air Pollution Control District solicits public comment on the proposed significant modification of Berry Petroleum Company for its heavy oil facility located at the Midway Sunset oilfield within Berry's Heavy Oil Western Stationary Source (SE/4 Sec 36, T 12N, R 24W), California. The modification consists of the installation of a 85.0 MMBtu/hr natural gas fired steam generator (S-1246-354-0) and the modification of a Thermally Enhanced Oil Recovery (TEOR) system ('-290-16) to include the new steam generator as an additional VOC disposal device.

The District's analysis of the legal and factual basis for this proposed action, project #S-1111928, 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 contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900. Written comments on the proposed initial permit must be submitted within 30 days of the publication date of this notice to DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 1990 E. GETTYSBURG AVE, FRESNO, CA 93726-0244.

San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
New 85.0 MMBtu/hr Steam Generator

Facility Name:	Berry Petroleum Company	Date:	November 28, 2011
Mailing Address:	5201 Truxtun Ave. Bakersfield, CA 93309-0640	Engineer:	Steve Davidson
Contact Person:	John Ludwick	Lead Engineer:	Allan Phillips <i>AP</i>
Telephone:	661-616-3807		<i>AP</i>
Fax:	661-616-3892		DEC 28 2011
E-Mail:	jjl@bry.com		
Application #(s):	S-1246-290-16 & '-354-0		
Project #:	S-1111928		
Deemed Complete:	May 23, 2011		

I. Proposal

Berry Petroleum Company (Berry) has requested Authority to Construct (ATC) permits for the installation of a 85.0 MMBtu/hr natural gas fired steam generator (S-1246-354-0) and to modification of Thermally Enhanced Oil Recovery (TEOR) system (-290-6) to include the new steam generator ('-354-0) as an additional VOC disposal device.

Installation of the new steam generator triggers Best Available Control Technology (BACT), offsets, public notice, and requires the Best Performance Standard (BPS) to satisfy the California Environmental Quality Act (CEQA).

Including the new steam generator as a new control device is not a modification as defined by District Rule 2201; therefore, this is not an NSR modification of TEOR operation S-1246-354.

Berry received their Title V Permit on May 5, 2001. This modification can be classified as a Title V significant 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. Berry must apply to administratively amend their Title V permit.

II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (4/21/11)
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 4304	Equipment Tuning Procedure for Boilers, Steam Generators and Process Heaters (10/19/95)
Rule 4305	Boilers, Steam Generators and Process Heaters – Phase II (8/21/03)
Rule 4306	Boilers, Steam Generators and Process Heaters – Phase III (10/16/08)
Rule 4320	Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)
Rule 4351	Boilers, Steam Generators and Process Heaters – Phase 1 (8/21/03) - not applicable – facility is located west of Highway 5
Rule 4401	Steam Enhanced Crude Oil Production Well Vents (12/14/06)
Rule 4406	Sulfur Compounds From Oil-Field Steam Generators – Kern County (12/17/92)
Rule 4801	Sulfur Compounds (12/17/92)
CH&SC 41700	Health Risk Assessment
CH&SC 42301.6	School Notice
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)	
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines	

III. Project Location

This Steam Generator will be operated at the Midway Sunset oilfield within Berry's Heavy Oil Western Stationary Source SE/4 Sec 36, T 12N, R 24W. 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

Berry operates permitted equipment within their Heavy Oil Western stationary source, utilized for the thermally enhanced production of crude oil and natural gas. In thermally enhanced oil recovery (TEOR), natural gas is combusted in steam generators to produce steam for injection into heavy crude oil bearing strata via injection wells to reduce viscosity of the crude oil, thereby facilitating thermally enhanced oil production.

V. Equipment Listing

Pre-Project Equipment Description:

S-1246-290-11: TEOR SYSTEM WITH WELL VENT CASING GAS COLLECTION AND CONTROL SYSTEM INCLUDING UP TO 250 STEAM ENHANCED WELLS, GAS/LIQUID SEPARATORS, TRANSFER PUMPS, AIR-COOLED HEAT EXCHANGERS, CONDENSATE TANKS (< 100 BBL), CVR GAS SCRUBBER, UP TO TWO (2) VAPOR COMPRESSORS, UP TO TWO (2) SULFA-TREAT SULFUR SCRUBBERS OR UP TO TWO (2) LIQUID SULFUR SCRUBBERS, VAPOR PIPING TO FUEL GAS SYSTEM, AND BOOSTER COMPRESSOR WITH UP TO THREE (3) DOGGR APPROVED WASTE GAS DISPOSAL WELLS (ETHEL D PROPERTY)

Proposed Modification:

S-1246-290-16: MODIFICATION OF TEOR SYSTEM WITH WELL VENT CASING GAS COLLECTION AND CONTROL SYSTEM INCLUDING UP TO 250 STEAM ENHANCED WELLS, GAS/LIQUID SEPARATORS, TRANSFER PUMPS, AIR-COOLED HEAT EXCHANGERS, CONDENSATE TANKS (< 100 BBL), CVR GAS SCRUBBER, UP TO TWO (2) VAPOR COMPRESSORS, UP TO TWO (2) SULFA-TREAT SULFUR SCRUBBERS OR UP TO TWO (2) LIQUID SULFUR SCRUBBERS, VAPOR PIPING TO FUEL GAS SYSTEM, AND BOOSTER COMPRESSOR WITH UP TO THREE (3) DOGGR APPROVED WASTE GAS DISPOSAL WELLS (ETHEL D PROPERTY): INCLUDE STEAM GENERATOR S-1246-354 AS A DISPOSAL DEVICE

S-1246-354-0: INSTALL A 85 MMBTU/HR NATURAL/ETHANE-RICH NATURAL/TEOR/TVR GAS-FIRED STEAM GENERATOR (EDJ-431) WITH A NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) AND AN O2 CONTROLLER

Post Project Equipment Description:

S-1246-290-16: TEOR SYSTEM WITH WELL VENT CASING GAS COLLECTION AND CONTROL SYSTEM INCLUDING UP TO 250 STEAM ENHANCED WELLS, GAS/LIQUID SEPARATORS, TRANSFER PUMPS, AIR-COOLED HEAT EXCHANGERS, CONDENSATE TANKS (< 100 BBL), CVR GAS SCRUBBER, UP TO TWO (2) VAPOR COMPRESSORS, UP TO TWO (2) SULFA-TREAT SULFUR SCRUBBERS OR UP TO TWO (2) LIQUID SULFUR SCRUBBERS, VAPOR PIPING TO FUEL GAS SYSTEM, AND BOOSTER COMPRESSOR WITH UP TO THREE (3) DOGGR APPROVED WASTE GAS DISPOSAL WELLS (ETHEL D PROPERTY)

S-1246-354-0: 85 MMBTU/HR NATURAL/ETHANE-RICH NATURAL/TEOR/TVR GAS-FIRED STEAM GENERATOR (EDJ-431) WITH A NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) AND AN O2 CONTROLLER

VI. Emission Control Technology Evaluation

TEOR System S-1246-290:

The casing gas from the wells from the TEOR operation ('290) is collected in the casing gas collection system (CGCS) that controls VOCs by at least 99%. Fugitive VOC's are emitted from the CGCS via leaks from the TEOR components (seals, valves, flanges, etc.). Fugitive emissions from leaking components are minimized by a leak inspection and maintenance program consistent with Rule 4401.

Steam generator S-1246-354:

Emissions from the steam generator include NO_x, CO, VOC, PM₁₀, and SO_x.

NO_x is the major pollutant of concern when burning natural gas. NO_x formation is either due to thermal fixation of atmospheric nitrogen in the combustion air (thermal NO_x) or due to conversion of chemically bound nitrogen in the fuel (fuel NO_x). Due to the low fuel nitrogen content of natural gas, nearly all NO_x emissions are thermal NO_x. Formation of thermal NO_x is affected by four furnace zone factors: (1) nitrogen concentration, (2) oxygen concentration, (3) peak temperature, and (4) time of exposure at peak temperature.

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

Berry will comply with Rule 4320 by limiting the burner to 7 ppm-NO_x @ 3% O₂ (or 0.008 lb-NO_x/MMBtu) and limiting the fuel sulfur content to 2.34 gr-S/100 dscf (0.0067 lb/MMBtu).

Berry will comply with BACT by combusting natural gas or 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.

VII. General Calculations

A. Assumptions

1. The maximum operating schedule is 24 hours per day (per applicant)
2. VOC emissions for TEOR system S-1246-290 will not change.
3. Unit fired solely on PUC quality natural gas/TEOR gas/ethane rich gas (limited to 2.34 gr-S/100 dscf, per applicant)
4. Maximum Heat Input: 85.0 MMBtu/hr (per applicant)
5. Annual potential to emit is calculated based on 8,760 hours of operation per year
6. EPA F-factor for natural gas is 8,578 dscf/MMBtu (40 CFR 60, Appendix B)
7. Molar Specific Volume of a gas @ 60 °F is 379.5 ft³/lb-mol
8. Natural Gas Heating Value: 1,000 Btu/scf (District Practice)

B. Emission Factors

Pollutant	Emission Factors (EF)		Source
NO _x	0.008 lb-NO _x /MMBtu	7 ppmv NO _x (@ 3%O ₂)	Rule 4320, Table 1 Category C.2.a
SO _x	0.0067 lb SO _x /MMBtu	2.34 gr-S/100 dscf	Applicant Proposed (Scrubbed gas)
PM10	0.0076 lb-PM10/MMBtu	--	AP-42 (07/98) Table 1.4-2
CO	0.026 lb-CO/MMBtu	35 ppmv CO (@3% O ₂)	Proposed by Applicant (BACT requirement = 50 ppmv @ 3% O ₂)
VOC	0.0055 lb-VOC/MMBtu	--	AP-42 (07/98) Table 1.4-2

C. Calculations

1. Pre-Project Potential to Emit (PE1)

TEOR Operation S-1246-290:

The daily and annual PE1 from TEOR system are taken from base document S-1246-290-10 project 1074780 and are posted in the following table.

PE1: S-1246-290-11	
	VOC
Daily Emissions (lb/day)	75.9
Annual Emissions (lb/yr)	29,019

Steam Generator S-1246-354:

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

2. Post Project Potential to Emit (PE2)

TEOR Operation S-1246-290:

This TEOR system is being modified to allow steam generator S-1246-354 as a disposal device. Since this will not change the emissions, the PE2 is the same as the PE1 and is posted in the following table.

PE2: S-1246-290-16	
	VOC
Daily Emissions (lb/day)	75.9
Annual Emissions (lb/yr)	29,019

Steam Generator S-1246-354-0:

The PE2 for each pollutant is calculated with the following equation (and summarized on the next table):

$$PE2 = EF \text{ (lb/MMBtu)} \times \text{Heat Input (MMBtu)} \times \text{Operating Schedule (hours)}$$

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO _x	0.008	85	24	16.3
SO _x	0.00670	85	24	13.7
PM ₁₀	0.0050	85	24	10.2
CO	0.026	85	24	53.0
VOC	0.0055	85	24	11.2

Pollutant	Annual PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
NO _x	0.008	85	8,760	5,957
SO _x	0.00670	85	8,760	4,989
PM ₁₀	0.0050	85	8,760	3,723
CO	0.026	85	8,760	19,360
VOC	0.0055	85	8,760	4,095

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

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

Pre-Project Stationary Source Potential to Emit [SSPE1] (lb/year)					
Permit Unit/ERC	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE1 Permit Unit	265,069	99,024	129,940	622,239	533,133
ATC S-1246-46-28**		63,206			
ATC S-1246-329-2***			5659		
ATC S-1246-330-2***			5659		
ATC S-1246-331-2***			5659		
ATC S-1246-340-1***			5659		
Pre-Project SSPE (SSPE1 _{total})	>20,000	>140,000	>140,000	>200,000	>20,000

*SSPE calculator

**Condition #16 SLC '-3, '-46, '-119 (not included in SSPE calculator emissions)

***outstanding ATC for 85 MMBtu/hr steam generators

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.

Facility emissions are already above the Offset and Major Source Thresholds for NO_x, SO_x, PM₁₀, CO, and VOC emissions; therefore, SSPE2 calculations are not necessary.

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. However, Section 3.23.2 states, "for the purposes of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site."

Major Source Determination (lb/year)						
	NO _x	SO _x	PM ₁₀	PM _{2.5}	CO	VOC
Pre-Project SSPE (SSPE1)	>20,000	>140,000	129,940	<200,000	>200,000	>20,000
Post Project SSPE (SSPE2)	>20,000	>140,000	>140,000	<200,000	>200,000	>20,000
Major Source Threshold	>20,000	>140,000	>140,000	200,000	200,000	20,000
Major Source?	Yes	Yes	Yes	No	Yes	Yes

6. Baseline Emissions (BE)

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

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

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

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.22 of District Rule 2201.

Pursuant to Section 3.12.2, a clean emissions unit is a unit equipped with emission control technology that meets the requirements for achieved-in-practice BACT as accepted by the APCO during the five years immediately prior to the submission of the complete application.

The TEOR system's (S-1246-290) vapor recovery system is considered BACT; therefore, the unit meets the definition of clean emission units. BE for TEOR system is the same as the PE1 posted above.

The steam generator (S-1246-354-0) is a new emissions unit; therefore, BE = 0 for all pollutants.

7. SB 288 Major Modification

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

Note that Berry has additional District projects to install 26 new steam generators at this facility. These projects are considered to be one stationary source project.

As discussed in Section VII.C.5 above, the facility is an existing Major Source for NO_x, SO_x, PM₁₀, CO, and VOC; however, the project by itself would need to be a significant increase in order to trigger a Major Modification. The emissions from the stationary source project are greater than the Major Modification thresholds listed in the table below.

SB 288 Major Modification Thresholds (Existing Major Source)			
Pollutant	Project PE* (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
NO _x	>50,000	50,000	Yes
SO _x	>80,000	80,000	Yes
PM ₁₀	>30,000	30,000	Yes
VOC	>50,000	50,000	Yes

Stationary source project emissions

NO_x: $26 \times 0.0085 \text{ lb/MMBtu} \times 85 \text{ MMBtu/hr} \times 8760 \text{ hr/yr} = 164,556$
 SO_x: $26 \times 0.005 \text{ lb/MMBtu} \times 85 \text{ MMBtu/hr} \times 8760 \text{ hr/yr} = 96,978$
 (worst case of range 1.5 gr S/100 scf – 1.75 gr S/100 scf)
 PM₁₀: 126,136 lb/yr (calculated below)
 VOC: $26 \times 0.0055 \times 85 \text{ MMBtu/hr} \times 8760 \text{ hr/yr} = 106,477$

Applicant has requested that the project be processed as a SB 288 Major Modification. Therefore no further discussion is required.

40 CFR Part 51 - Appendix S requirement for PM2.5

On May 8, 2008 EPA finalized regulations to implement NSR program for PM2.5. The new requirements became effective July 15, 2008. Under the new regulations a major source for PM2.5 is defined as 100 tons/year. As stated above the SSPE1 including PTO and ATC emissions for PM10 is greater than 140,000 lb/yr but less than 200,000 lb/yr. Assuming all of the PM10 is PM2.5, the facility is not a major source of PM2.5.

The increase in PM10 emissions for the stationary source project is calculated in the table below and is less than 200,000 lb/year. Therefore, the Federal Major Modification threshold for PM2.5 for non-major sources is not triggered.

Project	ATCs	PM10 EF (lb/MMBtu)	Overall PM10 emissions (lb/yr)
1110237	'-342-0 through '-346-0	0.0076	$0.0076 \times 85 \times 5 \times 8760 = 28,294$
1111128	'-347-0 through '-350-0	0.005	$0.005 \times 85 \times 4 \times 8760 = 14,892$
1111129	'-352-0	0.005	$0.005 \times 85 \times 8760 = 3723$
1111510	'-353	0.005	$0.005 \times 85 \times 8760 = 3723$
1111928	'-354	0.0076	$0.0076 \times 85 \times 8760 = 5,959$
1111824	'-355 through '-359	0.005	$0.005 \times 85 \times 5 \times 8760 = 18,615$
1111901	'-360 and '-361	0.0076	$0.0076 \times 85 \times 2 \times 8760 = 11,318$
1111902	'-362 and '-363	0.0076	$0.0076 \times 85 \times 2 \times 8760 = 11,318$
1111978	'-364 through '-368	0.0076	$0.0076 \times 85 \times 5 \times 8760 = 28,294$
		Total	126,136

8. Federal Major Modification

District Rule 2201, Section 3.17 states that Federal Major Modifications are the same as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

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

Step 1

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

Since there is an increase in NOx and VOC emissions, this project constitutes a Federal Major Modification, and no further analysis for NOX and VOC is required.

Since the Federal Major Modification Thresholds have been surpassed for PM10 and SOx emissions, Step 2 is required.

Step 2

The second step includes comparing the total of all related emissions increases and decreases at the facility occurring within the past five years (including those projects not related to the subject project) to determine if the project results in a significant net emission increase and thus a Federal Major Modification. In this calculation, all creditable emission decreases and increases are counted.

Rather than supply the required historical operating data for every emissions change over the past 5 years, the applicant has conceded that this project does constitute a Federal Major Modification for PM10 and SOX.

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 for the new emissions unit was calculated for each pollutant by dividing annual emissions by 4 quarters/year.

Pollutant	Steam Generator S-1246- 352 QNEC			
	Annual emissions (lb/year)	divided by	4 quarters/yr =	Quarterly emissions (lb/qtr)
NO _x	5,957	/	4 qtr/year	1489
SO _x	3,723	/	4	931
PM ₁₀	3,723	/	4	931
CO	19,360	/	4	4840
VOC	4,095	/	4	1024

Pollutant	TEOR Operation S-1246- 352 QNEC		
	PE2 (lb/year)	PE2 (lb/year)	Quarterly emissions (lb/qtr)
VOC	29,019	29,019	0

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

Per District FYI 111, allowing the existing TEOR system (S-1246-290) to vent to steam generator S-1246-354-0 (a new control device) is not a NSR modification as long as the vapor controls system continues to meet it's control efficiency requirement. Therefore, the TEOR modification is not an NSR modification and no further discussion is required.

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 an SB288 Major Modification or a Federal Major Modification, as defined by the rule.

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

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

As seen in Section VII.C.2 of this evaluation, the applicant is proposing to install a new steam generator with a PE greater than 2 lb/day for NO_x, SO_x, PM₁₀, CO, and VOC.

BACT is triggered for NO_x, SO_x, PM₁₀, CO and VOC because the PEs are greater than 2 lbs/day and the SSPE for CO emissions are greater than 200,000 lb/year.

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

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

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

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

d. SB 288/Federal Major Modification

As discussed in Section VII.C.7 and VII.C.8 above, this project does constitute a SB 288 Major Modification for NO_x, SO_x, PM₁₀, and VOC emissions; therefore, BACT is triggered for NO_x and VOC for the steam generator.

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

2. BACT Guideline

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

3. Top-Down BACT Analysis

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

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

- NO_x: 7 ppmvd @ 3% O₂
- SO_x: Natural gas 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
- PM₁₀: Natural 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
- CO: 50 ppmvd or less @ 3% O₂
- VOC: Gaseous fuel

B. Offsets

1. Offset Applicability

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

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

Offset Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Post Project SSPE (SSPE2)	>20,000	>54,750	>29,200	>200,000	>20,000
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	Yes	Yes	Yes	Yes

2. Quantity of Offsets Required

As seen above, the facility is an existing Major Source for NO_x and the SSPE2 is greater than the offset thresholds; therefore offset calculations will be required for this project.

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

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

Where,

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

BE = Baseline Emissions, (lb/year)

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

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = Pre-project Potential to Emit for:

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

otherwise,

BE = Historic Actual Emissions (HAE)

There is only one emissions unit associated District Rule 2201 in this project and there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

Offset Calculations:

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

$$\text{BE} = 0 \text{ (new emissions unit)}$$

NOx:

$$\text{PE2} = 5957 \text{ lb NOx/yr}$$

The DOR = 1.5 (Federal Major Modification), the amount of NOx ERCs that need to be withdrawn is:

$$\begin{aligned} \text{Offsets Required (lb/year)} &= 5957 \times 1.5 \\ &= 8936 \text{ lb-NOX/year} \end{aligned}$$

The quarterly ERC required is as follows:

$$\text{DOR} = 1.5$$

<u>Pollutant</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
NOx	2,234	2,234	2,234	2,234

The applicant has stated that the facility plans to use ERC certificates C-1101-2, and S-3659-2 to offset the increases in NOx emissions associated with this project. The ERC certificates have available quarterly NOx credits as follows:

<u>ERC #*</u>	<u>1st Qtr</u>	<u>2nd Qtr</u>	<u>3rd Qtr</u>	<u>4th Qtr</u>
C-1101-2	0	342	4623	2801
S-3659-2 (S-3659-2)	5526	4712	1774	4778

*parent certificate in parentheses

Reserved in PAS (proposed by applicant)

<u>ERC #*</u>	<u>1st Qtr</u>	<u>2nd Qtr</u>	<u>3rd Qtr</u>	<u>4th Qtr</u>
C-1101-2	0	342	1838	2234
S-3659-2 (S-3659-2)	2234	1892	396	0
Total Reserved	2234	2234	2234	2234

*parent certificate in parentheses

SOx:

$$\text{PE2} = 4989 \text{ lb SOx/yr}$$

Assuming DOR = 1.5, the amount of SOx ERCs that need to be withdrawn is:

$$\begin{aligned} \text{Offsets Required (lb/year)} &= 4989 \times 1.5 \\ &= 7484 \text{ lb-SOX/year} \end{aligned}$$

DOR = 1.5

<u>Pollutant</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
SOx	1871	1871	1871	1871

The applicant has stated that the facility plans to use ERC certificates S-3413-5 to offset the increases in SOx emissions associated with this project. The ERC certificates* have available quarterly SOx credits as follows:

<u>ERC #*</u>	<u>1st Qtr</u>	<u>2nd Qtr</u>	<u>3rd Qtr</u>	<u>4th Qtr</u>
S-3665-5 (S-3413-5)	62,500	62,500	62,500	62,500

*parent certificate in parentheses

Reserved in PAS (proposed by applicant)

<u>ERC #*</u>	<u>1st Qtr</u>	<u>2nd Qtr</u>	<u>3rd Qtr</u>	<u>4th Qtr</u>
S-3665-5 (S-3413-5)	1871	1871	1871	1871
Total Reserved	1871	1871	1871	1871

*parent certificate in parentheses

PM₁₀:

$$PE2 = 3723 \text{ lb/yr}$$

Assuming DOR = 1.5, the amount of PM₁₀ ERCs that need to be withdrawn is:

$$\begin{aligned} \text{Offsets Required (lb/year)} &= 3723 \times 1.5 \\ &= 5585 \text{ lb-NOX/year} \end{aligned}$$

The quarterly ERC required is as follows:

DOR = 1.5

<u>Pollutant</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
PM10	1396	1396	1396	1396

The applicant has stated that the facility plans to use ERC S-3413-5 to offset the increases in SOx emissions associated with this project. PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10. The ERC certificate has available quarterly SOx credits as follows:

<u>ERC #*</u>	<u>1st Qtr</u>	<u>2nd Qtr</u>	<u>3rd Qtr</u>	<u>4th Qtr</u>
S-3665-5 (S-3413-5)	62,500	62,500	62,500	62,500

*parent certificate in parentheses

Reserved in PAS

<u>ERC #*</u>	<u>1st Qtr</u>	<u>2nd Qtr</u>	<u>3rd Qtr</u>	<u>4th Qtr</u>
S-3665-5 (S-3413-5)	1396	1396	1396	1396

*parent certificate in parentheses

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

CO:

PE2 = 19,360 lb/yr

Notwithstanding the above, Section 4.6.1 of Rule 2201 states that emissions offsets are not required for increases in carbon monoxide in attainment areas provided the applicant demonstrates to the satisfaction of the APCO that the Ambient Air Quality Standards are not violated in the areas to be affected, and such emissions will be consistent with Reasonable Further Progress, and will not cause or contribute to a violation of Ambient Air Quality Standards. The District performed an Ambient Air Quality Analysis (discussed later) and determined that this project will not result in or contribute to a violation of an Ambient Air Quality Standard for CO (see **Appendix C**). Therefore, CO offsets are not required for this project.

VOC:

PE2 = 4095 lb VOC/yr

Assuming DOR = 1.5 (Federal Major Modification), the amount of VOC ERCs that need to be withdrawn is:

$$\begin{aligned} \text{Offsets Required (lb/year)} &= 4095 \times 1.5 \\ &= 6143 \end{aligned}$$

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

DOR = 1.5

<u>Pollutant</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
VOC	1536	1536	1536	1536

The applicant has stated that the facility plans to use ERC certificates N-926-1 to offset the increases in VOC emissions associated with this project. The above certificates* have available quarterly VOC credits as follows:

<u>ERC #*</u>	<u>1st Qtr</u>	<u>2nd Qtr</u>	<u>3rd Qtr</u>	<u>4th Qtr</u>
N-979-1 (N-926-1)	3138	3138	3138	3138

*parent certificate in parentheses

Reserved in PAS

<u>ERC #*</u>	<u>1st Qtr</u>	<u>2nd Qtr</u>	<u>3rd Qtr</u>	<u>4th Qtr</u>
N-979-1 (N-926-1)	1536	1536	1536	1536

*parent certificate in parentheses

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

Proposed Rule 2201 (offset) Conditions:

- Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 2234 lb/quarter; SOx: 1871 lb/quarter; PM10: 1396 lb/quarter, and VOC: 1536 lb/qtr. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 4/21/11). PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10 . [District Rule 2201] Y
- ERC Certificate Numbers C-1101-2, S-3659-2, S-3665-5, and N-979-1 (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] Y

C. Public Notification

1. Applicability

Public noticing is required for:

- a. New Major Sources, Federal Major Modifications, and SB288 Major Modifications,
- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- c. Any project which results in the offset thresholds being surpassed, and/or
- d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

a. New Major Sources, Federal Major Modifications, and SB288 Major Modifications

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

As demonstrated in VII.C.7, this project constitutes a SB 288 Major Modification; therefore, public noticing for SB 288 purposes is required.

As demonstrated in VII.C.8, this project is a Federal Major Modification; therefore, public noticing for Federal Major Modification purposes is required.

b. PE > 100 lb/day

Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. As seen in Section VII.C.2 above, this project does not include a new

emissions unit which has daily emissions greater than 100 lb/day for any pollutant, therefore public noticing for PE > 100 lb/day purposes is not required.

c. Offset Threshold

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

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	>20,000	>20,000	20,000 lb/year	No
SO _x	>54,750	>54,750	54,750 lb/year	No
PM ₁₀	>29,200	>29,200	29,200 lb/year	No
CO	>200,000	>200,000	200,000 lb/year	No
VOC	>20,000	>20,000	20,000 lb/year	No

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

d. SSIPE > 20,000 lb/year

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

Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	PE2 (lb/year)	PE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	5,957	0	5,957	20,000 lb/year	No
SO _x	4,989	0	3,723	20,000 lb/year	No
PM ₁₀	3723	0	3,723	20,000 lb/year	No
CO	19,360	0	19,360	20,000 lb/year	No
VOC	4,095	0	4,095	20,000 lb/year	No

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

2. Public Notice Action

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

D. Daily Emission Limits (DELs)

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

Proposed Rule 2201 (DEL) Conditions:

S-1246-354-0 (Steam Generator)

- Emissions from the gas-fired unit shall not exceed any of the following limits: 7 ppmvd NO_x @ 3% O₂ or 0.008 lb-NO_x/MMBtu, 0.0067 lb-SO_x/MMBtu, 0.0076 lb-PM₁₀/MMBtu, 35 ppmvd CO @ 3% O₂ or 0.026 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4201, 4301, 4305, 4306, 4320, and 4801]
- The unit shall only be fired on natural/TEOR/TVR/ ethane rich gas with a maximum sulfur content of 2.34 gr S/100scf..

E. Compliance Assurance

1. Source Testing

This steam generator 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 requirements, in accordance with these rules will be discussed in Section VIII of this evaluation.

2. Monitoring

This steam generator 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*. Monitoring requirements, in accordance with these rules will be discussed in Section VIII of this evaluation.

3. Recordkeeping

This steam generator 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*. Recordkeeping, in accordance with these rules will be discussed in Section VIII of this evaluation.

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis

Section 4.6.1 of this rule states that emissions offsets are not required for increases in carbon monoxide in attainment areas provided the applicant demonstrates to the satisfaction of the APCO that the Ambient Air Quality Standards are not violated in the areas to be affected, such emissions will be consistent with Reasonable Further Progress, and will not cause or contribute to a violation of Ambient Air Quality Standards.

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 proposed location is in an attainment area for NOX, CO, and SOX. The proposed location is in a non-attainment area for PM10. The increase in criteria pollutants due to the proposed equipment will not cause a violation as shown on the table below titled "Criteria pollutant Modeling Results".

Criteria Pollutant Modeling Results
Values are in $\mu\text{g}/\text{m}^3$

Steam Generator	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO _x	Pass	X	X	X	Pass
SO _x	Pass	Pass	X	Pass	Pass
PM ₁₀	X	X	X	Pass	Pass
PM _{2.5}	X	X	X	Pass	Pass

As shown, the calculated contribution of CO, NO_x, SO_x, PM₁₀, and PM_{2.5}, will not exceed the EPA significance level. This project is not expected to cause or make worse a violation of an air quality standard. See Appendix C of this document for the AAQA summary sheet.

Rule 2520 Federally Mandated Operating Permits

This facility is subject to this Rule, and has received their Title V Operating Permit. The proposed modification is a significant Modification to the Title V Permit pursuant to Section 3.20 of this rule:

In accordance with Rule 2520, 3.20, these modifications:

- Do not violate requirements of any applicable federally enforceable local or federal requirement;
- Do not relax monitoring, reporting, or recordkeeping requirements in the permit and are not significant changes in existing monitoring permit terms or conditions;
- Do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis;
- Do not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement and that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject. Such terms and conditions include:
 - A federally enforceable emission cap assumed to avoid classification as a modification under any provisions of Title I of the Federal Clean Air Act; and
 - An alternative emissions limit approved pursuant to regulations promulgated under section 112(i)(5) of the Federal Clean Air Act; and
- Are not Title I modifications as defined in District Rule 2520 or modifications as defined in section 111 or 112 of the Federal Clean Air Act; and
- Do not seek to consolidate overlapping applicable requirements.

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

Rule 4001 New Source Performance Standards (NSPS)

This rule incorporates NSPS from Part 60, Chapter 1, Title 40, Code of Federal Regulations (CFR); and applies to all new sources of air pollution and modifications of existing sources of air pollution listed in 40 CFR Part 60.

TEOR System S-1246-290-16

There are no subparts of 40 CFR 60 that apply to TEOR systems. Therefore, the TEOR unit in this project is not subject to Rule 4001.

Steam Generator S-1246-354-0

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

This steam generator has a rating of 85 MMBtu/hr and is fired on natural gas. Subpart Dc has no standards for gas-fired steam generators. Therefore 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 the steam generator is fired solely on natural gas, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity. The following condition will be listed on the steam generator permit to ensure compliance:

- 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]

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. This facility wide permit for BPC contains the following condition:

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

California Health & Safety Code 41700 (Health Risk Assessment)

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

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

The cancer risk for this project is shown below:

Categories	Units 290-16 and 354-0	Project Totals	Facility Totals
Prioritization Score	0.0	0.0	>1.0
Acute Hazard Index	0.00	0.00	0.46
Chronic Hazard Index	0.00	0.00	0.03
Maximum Individual Cancer Risk (10 ⁻⁶)	0.0	0.0	1.2
T-BACT Required?	No		
Special Permit Conditions?	Yes		

Discussion of T-BACT

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is not required for this project because the HRA indicates that the risk is not above the District's thresholds for triggering T-BACT requirements; therefore, compliance with the District's Risk Management Policy is expected.

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

The following conditions will be placed on the permit to ensure compliance:

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

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.

As discussed in Sections VII.A of this document, the F-Factor for NG, TEOR gas, and TVR gas is the same. Thus:

F-Factor:	8,578 dscf/MMBtu at 60 °F
PM10 Emission Factor:	0.0076 lb-PM10/MMBtu
Percentage of PM as PM10 in Exhaust:	100%
Exhaust Oxygen (O ₂) Concentration:	3%
Excess Air Correction to F Factor =	$\frac{20.9}{(20.9 - 3)} = 1.17$

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

$$GL = 0.0053 \text{ grain/dscf} < 0.1 \text{ grain/dscf}$$

Therefore, compliance with District Rule 4201 requirements is expected. Additionally, particulate matter emissions from the steam generator is already limited by Rule 2201 to a value less than or equal to the rule limit of 0.1 grain per cubic foot of gas at dry standard conditions. Therefore, the following condition, previously discussed, will ensure compliance with this rule:

- Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmvd NO_x @ 3% O₂ or 0.008 lb-NO_x/MMBtu, 0.0076 lb-

PM10/MMBtu, 35 ppmvd CO @ 3% O2 or 0.026 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4201, 4301, 4305, 4306, 4320, and 4801]

Rule 4301 Fuel Burning Equipment

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

District Rule 4301 Limits (lb/hr)			
Pollutant	NO ₂	Total PM	SO ₂
S-1246-290	0.68	0.43	0.57
Rule Limit (lb/hr)	140	10	200

The above table indicates compliance with the maximum lb/hr emissions in this rule; therefore, the following condition, previously discussed, will ensure compliance with this rule:

- Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmvd NO_x @ 3% O₂ or 0.008 lb-NO_x/MMBtu, 0.005 lb-PM10/MMBtu, 35 ppmvd CO @ 3% O₂ or 0.026 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4201, 4301, 4305, 4306, 4320, and 4801]
- The unit shall only be fired on natural/TEOR/TVR/ ethane rich gas with a maximum sulfur content of 2.34 gr S/100scf. [District Rules 2201, 4301, and 4320]

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

This rule provides equipment tuning procedures for boilers, steam generators and process heaters to control visible emissions and emissions of both nitrogen oxides (NO_x) and carbon monoxide (CO).

This unit follows District approved Alternate Monitoring scheme A, where the applicable emission limits are periodically monitored for compliance with Rule 4320 and is not required to perform tuning in accordance with the procedures of this Rule.

Rule 4305 Boilers, Steam Generators and Process Heaters – Phase II

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

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

Since the emissions limits of District Rule 4306 and all other requirements are equivalent or more stringent than District Rule 4305 requirements, compliance with District Rule 4306 requirements will satisfy the requirements of District Rule 4305.

Rule 4306 Boilers, Steam Generators and Process Heaters – Phase III

This unit is natural gas-fired with a maximum heat input of 85 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4306, the unit is subject to District Rule 4306.

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 the 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 the requirements of District Rule 4306.

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

This rule limits NO_x, 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 NO_x emitted over the previous year.

This unit is rated at greater than 5 MMBtu/hr heat input. Therefore this rule applies.

Section 5.1 NO_x 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:

- Operate the unit to comply with the emission limits specified in Sections 5.2 and 5.4; or
- 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
- 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 NO_x limit specified in Table 1 of this rule.

This unit is fired on >50% PUC quality gas and has a maximum heat input of 85.0 MMBtu/hr; therefore, the applicable emission limit category Section 5.2, Table 1, Category C.2.a from District Rule 4320 applies as follows:

C. Oilfield Steam Generators			
2. Units with a total rated heat input > 20.0 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 0.0062 lb/MMBtu	January 1, 2013	January 1, 2014

Berry has proposed to comply with Rule 4320 by limiting the burner to 7 ppm-NO_x @ 3% O₂ (or 0.008 lb-NO_x/MMBtu). The following condition will be listed on the ATC to ensure compliance:

- Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmvd NO_x @ 3% O₂ or 0.008 lb-NO_x/MMBtu, 0.005 lb-PM10/MMBtu, 35 ppmvd CO @ 3% O₂ or 0.026 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4201, 4301, 4305, 4306, 4320, and 4801]

Section 5.4 Particulate Matter Control Requirements

5.4.1 To limit particulate matter emissions, an operator shall comply with one of the following requirements:

- 5.4.1.1 On and after the applicable NO_x Compliance Deadline specified in Section 5.2 Table 1, operators shall fire units exclusively on PUC-quality natural gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases;
- 5.4.1.2 On and after the applicable NO_x Compliance Deadline specified in Section 5.2 Table 1, operators shall limit fuel sulfur content to no more than five (5) grains of total sulfur per one hundred (100) standard cubic feet; or
- 5.4.1.3 On and after the applicable NO_x Compliance Deadline specified in Section 5.2 Table 1, operators shall install and properly operate an emission control system that reduces SO₂ emissions by at least 95% by weight; or limit exhaust SO₂ to less than or equal to 9 ppmv corrected to 3.0% O₂.
- 5.4.1.4 Notwithstanding the compliance deadlines indicated in Sections 5.4.1.1 through 5.4.1.3, refinery units, which require modification of refinery equipment to reduce sulfur emissions, shall be in compliance with the applicable requirement in Section 5.4.1 no later than July 1, 2013.

BPC will address the particulate matter by limiting the fuel sulfur content to 2.34 gr-S/100 dscf (previously proposed in the Rule 2201 compliance section VIII.D):

- The unit shall only be fired on PUC-quality natural gas with a maximum sulfur content of 2.34 gr S/100scf. [District Rules 2201 and 4320]

Compliance with section 5.4 is expected.

Section 5.6 Startup and Shutdown Provisions

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

Emissions during start-up and shutdown will not be subject to the emission limits in Sections 5.2 and 5.2.2. The following conditions will be listed on the ATC:

- Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306, and 4320]
- Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rules 4305, 4306, and 4320]

Section 5.7 Monitoring Provisions

Section 5.7.1 requires that permit units subject to District Rule 4320, Section 5.2 shall both install and maintain an operational APCO approved Continuous Emission Monitoring System (CEMS) for NO_x, CO and O₂, or implement an APCO-approved alternate monitoring.

BPC proposes to use Alternate Monitoring Scheme A (pursuant to District Policy SSP-1105), which requires that monitoring of NO_x, CO, and O₂ exhaust concentrations shall be conducted at least once per month (in which a source test is not performed) using a portable analyzer. The following conditions will be incorporated into the ATCs to ensure compliance with the requirements of the proposed alternate monitoring plan:

- {4063} The permittee shall monitor and record the stack concentration of NO_x, CO, and O₂ at least once every month (in which a source test is not performed) using a portable analyzer that meets District specifications. Measurement shall be made with the FGR system in the mode of operation (closed or open) in which it was used in the preceding 30 days. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306, and 4320]
- {4064} If either the NO_x or CO concentrations corrected to 3% O₂, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying

breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305, 4306 and 4320]

- {4065} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305, 4306 and 4320]
- {4066} The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent by volume and the measured NO_x and CO concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306 and 4320]

Section 5.7.6 requires operators complying with Sections 5.4.1.1 or 5.4.1.2 to provide an annual fuel analysis to the District unless a more frequent sampling and reporting period is included in the Permit to Operate. Sulfur analysis shall be performed in accordance with the test methods in Section 6.2.

- {4356} Permittee shall determine sulfur content of all types of fuel combusted gas annually. [District Rules 1081 and 4320]

The following condition will be listed on the ATCs to ensure compliance with the reporting section of this requirement:

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

Section 5.8 Compliance Determination

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

Therefore, the following condition will be listed on the ATCs as follows:

- {2976} The source test 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. 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. 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:

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

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.

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

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

Section 6.2, Test Methods

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

Pollutant	Units	Test Method Required
NO _x	ppmv	EPA Method 7E or ARB Method 100
NO _x	lb/MMBtu	EPA Method 19
CO	ppmv	EPA Method 10 or ARB Method 100
Stack Gas O ₂	%	EPA Method 3 or 3A, or ARB Method 100
Stack Gas Velocities	ft/min	EPA Method 2
Stack Gas Moisture Content	%	EPA Method 4
Oxides of sulfur		EPA Method 6C, EPA Method 8, or ARB Method 100
Total Sulfur as Hydrogen Sulfide (H ₂ S) Content		EPA Method 11 or EPA Method 15, as appropriate.
Sulfur Content of Liquid Fuel		ASTM D 6920-03 or ASTM D 5453-99

The following permit conditions will be listed on the permit as follows:

- {4346} NO_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306 and 4320]
- {4347} CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306 and 4320]
- {4348} Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306 and 4320]
- {4349} Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 4320]

Section 6.3, Compliance Testing

Section 6.3.1 requires that this unit be tested to determine compliance with the applicable requirements of section 5.1 and 5.2.3 not less than once every 12 months. Upon demonstrating compliance on two consecutive compliance source tests, the following source test may be deferred for up to thirty-six months.

The following permit conditions will be listed on the ATCs:

- Source testing to measure natural gas-combustion NO_x and CO emissions from this unit shall be conducted within 60 days of initial startup and at least once every twelve (12) months thereafter. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test

demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320]

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

Section 7.0, Compliance Schedule

Section 7.0 identifies the dates by which the operator shall submit an application for an ATC and the date by which the owner shall demonstrate compliance with this rule.

The unit will be in compliance with the emissions limits listed in Table 1, Section 5.2 of this rule, and periodic monitoring and source testing as required by District Rule 4320. Therefore, requirements of the compliance schedule, as listed in Section 7.0 of District Rule 4320, are satisfied. No further discussion is required.

Conclusion

Conditions will be incorporated into the permit in order to ensure compliance with each section of this rule, see attached draft permits in Appendix G. Therefore, compliance with District Rule 4320 requirements is expected.

Rule 4401 Steam Enhanced Crude Oil Production Well Vents

The purpose of this rule is to limit the VOC emissions from steam-enhanced crude oil production well vents. This rule is applicable to all steam-enhanced crude oil production wells and any associated vapor collection and control systems.

Section 3.0, Definitions

Section 3.20.1 defines various types of gas and liquid leaks.

The following condition will be included on the ATCs to ensure compliance:

- Gas and liquid leaks are as defined in Section 3.20 of Rule 4401. [District Rule 4401 3.20]

Section 4.0, Exemptions

Section 4.1 states that any steam-enhanced crude oil production well undergoing service or repair during the time the well is not producing is exempt from the requirements of this rule as stated in the following ATC condition:

- During the time any steam-enhanced crude oil production well is undergoing service or repair while the well is not producing, it shall be exempt from the emission control requirements of District Rule 4401, 5.0 (as amended December 14, 2006). [District Rule 4401, 4.1]

Section 5.1 Vapor Control System Requirements

- An operator shall not operate a steam-enhanced crude oil production well unless the operator complies with the following requirements: The steam-enhanced crude oil production well vent is

closed and the front line production equipment downstream of the wells that carry produced fluids (crude oil or mixture of crude oil and water) is connected to a VOC collection and control system as defined in Section 3.0 of Rule 4401, the well vent may be temporarily opened during periods of attended service or repair of the well provided such activity is done as expeditiously as possible with minimal spillage of material and VOC emissions to the atmosphere, the steam-enhanced crude oil production well vent is open and the well vent is connected to a VOC collection and control system as defined in Section 3.0 of Rule 4401. [District Rule 4401, 5.1.1 and 5.1.2]

Section 5.2 Determination of Compliance with Leak Standards:

- An operator shall be in violation of this rule if any District inspection demonstrates that one or more of the following conditions in Section 5.2.2 exist at the facility or if any operator inspection conducted pursuant to Section 5.4 of Rule 4401 demonstrates that one or more of the following conditions in Section 5.2.2 exist at the facility: Existence of an open-ended line or a valve located at the end of the line that is not sealed with a blind flange, plug, cap, or a second closed valve that is not closed at all times, except during attended operations as defined by Section 5.2.2.1 of Rule 4401 requiring process fluid flow through the open-ended lines. [District Rule 4401 5.4.2]
- An operator shall be in violation of this rule if any District inspection demonstrates that one or more of the following conditions exist at the facility or if any operator inspection conducted pursuant to Section 5.4 of Rule 4401 demonstrates that one or more of the conditions in Section 5.2.2 exist at the facility: existence of a component with any of the following: a major liquid leak, a gas leak greater than 50,000 ppmv, a minor liquid leak or a minor gas leak in excess of the allowable number of leaks allowed by Table 3 of Rule 4401, or a gas leak greater than 10,000 ppmv up to 50,000 ppmv in excess of the allowable number of leaks allowed by Table 3 of Rule 4401. [District Rule 4401 5.2.2]

Section 5.3 Operating Requirements

- An operator shall not use any component with a leak as defined in Section 3.0 of Rule 4401, or that is found to be in violation of the provisions of Section 5.2.2 of Rule 4401. However, components that were found leaking may be used provided such leaking components have been identified with a tag for repair, are repaired, or awaiting re-inspection after being repaired within the applicable time frame specified in Section 5.5 of Rule 4401. [District Rule 4401 5.3.1]
- Each hatch shall be closed at all times except during sampling or adding of process material through the hatch, or during attended repair, replacement, or maintenance operations, provided such activities are done as expeditiously as possible with minimal spillage of material and VOC emissions to the atmosphere. [District Rule 4401 5.3.2]
- An operator shall comply with the requirements of Section 6.7 of Rule 4401 if there is any change in the description of major components or critical components. [District Rule 4401 5.3.3]

Section 5.4 Inspection and Re-Inspection Requirements:

- Except for pipes and unsafe-to-monitor components, an operator shall inspect all other components pursuant to the requirements of Section 6.3.3 of Rule 4401 at least once every year. [District Rule 4401 5.4.1]
- An operator shall visually inspect all pipes at least once every year. Any visual inspection of pipes that indicates a leak that cannot be immediately repaired to meet the leak standards of

this rule shall be inspected within 24 hours after detecting the leak. If a leak is found, the leak shall be repaired as soon as practicable but not later than the time frame specified in Table 4 of Rule 4401. [District Rule 4401 5.4.2]

- An operator shall inspect for leaks all accessible operating pumps, compressors, and PRDs in service as follows: 1) An operator shall audio-visually (by hearing and by sight) inspect for leaks all accessible operating pumps, compressors, and PRDs in service at least once each calendar week. 2) Any audio-visual inspection of an accessible operating pump, compressor, and PRD performed by an operator that indicates a leak that cannot be immediately repaired to meet the leak standards of this rule shall be inspected not later than 24 hours after conducting the audio-visual inspection. If a leak is found, the leak shall be repaired as soon as practicable but not later than the time frame specified in Table 4 of this Rule. [District Rule 4401, 5.4.3]
- The operator shall also perform the following inspections: 1) An operator shall initially inspect a PRD that releases to the atmosphere as soon as practicable but not later than 24 hours after the discovery of the release. An operator shall re-inspect the PRD not earlier than 24 hours after the initial inspection but not later than 15 calendar days after the initial inspection. 2) An operator shall inspect all new, replaced, or repaired fittings, flanges, and threaded connections within 72 hours of placing the component in service, and 3) Except for PRDs subject to the requirements of Section 5.8.4.1 of this Rule, an operator shall inspect a component that has been repaired or replaced not later than 15 calendar days after the component was repaired or replaced. [District Rule 4401, 5.4.4]
- An operator shall inspect all unsafe-to-monitor components during each turnaround. [District Rule 4401 5.4.7]
- District inspection in no way fulfills any of the mandatory inspection requirements that are placed upon operators and cannot be used or counted as an inspection required of an operator. [District Rule 4401 5.4.8]

Section 5.5, Leak Repair Requirements

- Upon detection of a leak, an operator shall affix a readily visible weatherproof tag to that leaking component that includes the following information: 1) The date and time of leak detection; 2) The date and time of the leak measurement; 3) For a gaseous leak, the leak concentration in ppmv; 4) For a liquid leak, whether it is a major or minor liquid leak; and 5) Whether the component is an essential component, and unsafe-to-monitor component, or a critical component. [District Rule 4401, 5.5.1]
- The tag shall remain affixed to the leaky component until all the following requirements are met: 1) The component is repaired or replaced, 2) The component is re-inspected as set forth in Section 6.3, and 3) The component is found to be in compliance with this Rule. [District Rule 4401, 5.5.2]
- An operator shall minimize a component leak in order to stop or reduce leakage to the atmosphere immediately to the extent possible, but not later than one (1) hour after detection of the leak. [District Rule 4401 5.5.3]
- Except for leaking critical components or leaking essential components subject to the requirements of Section 5.5.7 of Rule 4401, if an operator has minimized a leak but the leak still exceeds the applicable leak limits as defined in Section 3.0 of Rule 4401, an operator shall comply with at least one of the following requirements as soon as practicable but not later than the time period specified in Table 4 of Rule 4401: Repair or replace the leaking component; or

vent the leaking component to a VOC collection and control system as defined in Section 3.0 of Rule 4401, or remove the leaking component from operation. [District Rule 4401 5.5.4]

- The repair period in calendar days shall not exceed 14 days for minor gas leaks, 5 days for major gas leaks less than or equal to 50,000 ppmv, 2 days for gas leak greater than 50,000 ppmv, 3 days for minor liquid leaks, 2 days for major liquid leaks. [District Rule 4401 5.5.4]
- The leak rate measured after leak minimization has been performed shall be the leak rate used to determine the applicable repair period specified in Table 4 of Rule 4401. [District Rule 4401 5.5.5]
- The time of the initial leak detection shall be the start of the repair period specified in Table 4 of Rule 4401. [District Rule 4401 5.5.6]
- If the leaking component is an essential component or a critical component that cannot be immediately shut down for repairs, and if the leak has been minimized but the leak still exceeds the applicable leak standard of this rule, the operator shall repair or replace the essential component or critical component to eliminate the leak during the next process unit turnaround, but in no case later than one year from the date of the original leak detection, whichever comes earlier. [District Rule 4401 5.5.7]

Section 6.1, Recordkeeping and Submissions

Section 6.1 requires that an operator shall maintain the records required by Sections 6.1 and 6.2 for a period of five (5) years. These records shall be made available to the APCO upon request. The following condition will be listed on the ATC to ensure compliance:

- The operator of any steam-enhanced crude oil production well shall maintain records of the date and well identification where steam injection or well stimulation occurs. [District Rule 4401 6.1.1]
- An operator of any steam-enhanced crude oil production well shall keep source test records which demonstrate compliance with the control efficiency requirements of the VOC collection and control system as defined in Section 3.0 of Rule 4401. [District Rule 4401 6.1.3]
- Operator of any steam-enhanced crude oil production well shall keep an inspection log maintained pursuant to Section 6.4 of Rule 4401. [District Rule 4401 6.1.4]
- Records of each calibration of the portable hydrocarbon detection instrument utilized for inspecting components, including a copy of current calibration gas certification from the vendor of said calibration gas cylinder, the date of calibration, concentration of calibration gas, instrument reading of calibration gas before adjustment, instrument reading of calibration gas after adjustment, calibration gas expiration date, and calibration gas cylinder pressure at the time of calibration shall be maintained. [District Rule 4401 6.1.5]
- An operator shall maintain copies at the facility of the training records of the training program operated pursuant to Section 6.5 of Rule 4401. [District Rule 4401 6.1.6]
- Operator shall keep a copy of the APCO-approved Operator Management Plan at the facility. [District Rule 4401 6.1.7]
- Operator shall submit to the APCO not later than June 14, 2007 a list of all gauge tanks, as defined in Section 3.17. The list shall contain the size, identification number, the location of each

gauge tank and specify whether the gauge tank is upstream of all front line production equipment. [District Rule 4401 6.1.8]

- The results of gauge tank TVP testing conducted pursuant to Section 6.2.3 shall be submitted to the APCO within 60 days after the completion of the testing. [District Rule 4401 6.1.9]
- An operator that discovers that a PRD has released shall record the date that the release was discovered, and the identity and location of the PRD that released. An operator shall submit such information recorded during the calendar year to the APCO no later than 60 days after the end of the calendar year. [District Rule 4401 6.1.10]

Section 6.2, Compliance Source Testing

- An operator shall source test annually all vapor collection and control systems used to control emissions from steam-enhanced crude oil production well vents to determine the control efficiency of the device(s) used for destruction or removal of VOC. Compliance testing shall be performed annually by source testers certified by ARB. Testing shall be performed during June, July, August, or September of each year if the system's control efficiency is dependent upon ambient air temperature. [District Rule 4401 6.2.1]
- If approved by EPA, ARB, and the APCO, an operator need not comply with the annual testing requirement of Section 6.2.1 if all uncondensed VOC emissions collected by a vapor collection and control system are incinerated in fuel burning equipment, an internal combustion engine or in a smokeless flare. [District Rule 4401 6.2.2]
- If approved by EPA, ARB, and the APCO, an operator need not comply with the annual testing requirement of Section 6.2.1 for a vapor control system which does not have a VOC destruction device. [District Rule 4401 6.2.3]
- An operator seeking approval pursuant to Section 6.2.2 or Section 6.2.3 shall submit a written request and supporting information to the APCO. The District shall evaluate the request and if approved by the APCO, the District shall provide EPA and ARB with a copy of the evaluation and shall request EPA and ARB approval. The District evaluation and the APCO request shall be deemed approved unless EPA or ARB objects to such approval in writing within 45 days of the receipt of the APCO request. [District Rule 4401 6.2.4]
- An operator shall comply with the following requirements for each gauge tank, as defined in Section 3.0 of Rule 4401: Conduct periodic TVP testing of each gauge tank at least once every 24 months during summer (July - September), and whenever there is a change in the source or type of produced fluid in the gauge tank, the TVP testing shall be conducted at the actual storage temperature of the produced fluid in the gauge tank using the applicable TVP test method specified in Section 6.4 of Rule 4623 (Storage of Organic Liquids). The operator shall submit the TVP testing results to the APCO as specified in Section 6.1.9 of Rule 4401. [District Rule 4401 6.2.3]

Section 6.3, Test Methods

Section 6.3.1 specifies that the control efficiency of any VOC control device, measured and calculated as carbon, shall be determined by EPA Method 25, except when the outlet concentration must be below 50 ppm in order to meet the standard, in which case EPA Method 25a may be used. EPA Method 18 may be used in lieu of EPA Method 25 or EPA Method 25a provided the identity and approximate concentrations of the analytes/compounds in the sample

gas stream are known before analysis with the gas chromatograph and the gas chromatograph is calibrated for each of those known analyte/compound to ensure that the VOC concentrations are neither under- or over-reported.

- The control efficiency of any VOC control device, measured and calculated as carbon, shall be determined by EPA Method 25, except when the outlet concentration must be below 50 ppm in order to meet the standard, in which case EPA Method 25a may be used. EPA Method 18 may be used in lieu of EPA Method 25 or EPA Method 25a provided the identity and approximate concentrations of the analytes/compounds in the sample gas stream are known before analysis with the gas chromatograph and the gas chromatograph is calibrated for each of those known analyte/compound to ensure that the VOC concentrations are neither under- or over-reported. [District Rule 4401 6.3.1]
- VOC content shall be analyzed by using the latest revision of ASTM Method E168, E169, or E260 as applicable. Analysis of halogenated exempt compounds shall be performed by using ARB Method 432. [District Rule 4401 6.3.2]
- Leak inspection, other than audio-visual, and measurements of gaseous leak concentrations shall be conducted according to EPA Method 21 using an appropriate portable hydrocarbon detection instrument calibrated with methane. The instrument shall be calibrated in accordance with the procedures specified in EPA Method 21 or the manufacturer's instruction, as appropriate, not more than 30 days prior to its use. The operator shall record the calibration date of the instrument. Where safety is a concern, such as measuring leaks from compressor seals or pump seals when the shaft is rotating, a person shall measure leaks by placing the instrument probe inlet at a distance of one (1) centimeter or less from the surface of the component interface. [District Rule 4401 6.3.3]
- The VOC content by weight percent (wt.%) shall be determined using American Society of Testing and Materials (ASTM) D1945 for gases and South Coast Air Quality Management District (SCAQMD) Method 304-91 or the latest revision of ASTM Method E168, E169 or E260 for liquids. [District Rule 4401 6.3.4]

Section 6.4 Inspection Log

- Operator shall maintain an inspection log in which an operator records, at a minimum, all of the following information for each inspection performed: The total number of components inspected, total number and percentage of leaking components found by component type, location, type, and name or description of each leaking component and description of any unit where the leaking component is found, date of leak detection and the method of leak detection. For gaseous leaks, the leak concentration in ppmv, and for liquid leaks record whether the leak is a major liquid leak or a minor liquid leak. the date of repair, replacement, or removal from operation of leaking components, identify and location of essential components and critical components found leaking that cannot be repaired until the next process unit turnaround or not later than one year after leak detection, whichever comes earlier, methods used to minimize the leak from essential components and critical components found leaking that cannot be repaired until the next process unit turnaround or not later than one year after leak detection, whichever comes earlier, the date of re-inspection and the leak concentration in ppmv after the component is repaired or is replaced, the inspector's name, business mailing address, and business telephone number, date and signature of the facility operator responsible for the inspection and repair program certifying the accuracy of the information recorded in the log. [District Rule 4401 6.4]

Section 7.0, Compliance Schedule

Section 7.0 establishes a compliance schedule for existing and new steam-enhanced crude oil production wells. The wells in this project are expected to operate in compliance with the requirements of this rule. Therefore, no further discussion is required.

- By January 30 of each year, an operator shall submit to the APCO for approval, in writing, an annual report indicating any changes to an existing Operator Management Plan. [District Rule 4401, 6.7]

Continued compliance is expected.

Rule 4406 Sulfur Compounds From Oil-Field Steam Generators – Kern County

This rule limits sulfur compound emissions to 0.11 lb/MMBtu for existing steam generators located in Kern County. An existing steam generator is defined as one that had an ATC or PTO prior to September 12, 1979. This project involves a new steam generator only. Therefore, this rule is not applicable.

Rule 4801 Sulfur Compounds

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

In addition, the unit is also subject to District Rule 4320, *Advanced Emission Reduction Options for Boilers, Steam Generators, and Process heaters Greater than 5.0 MMBTU/hr*. Since emissions limits of District Rule 4320 and all other requirements are equivalent or more stringent than District Rule 4801 requirements, compliance with District Rule 4320 requirements will satisfy requirements of District Rule 4801. Therefore the following condition, previously discussed, will ensure compliance with this rule:

- Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmvd NO_x @ 3% O₂ or 0.008 lb-NO_x/MMBtu, 0.005 lb-PM₁₀/MMBtu, 35 ppmvd CO @ 3% O₂ or 0.026 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4201, 4301, 4305, 4306, 4320, and 4801]

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 another agency has prepared an environmental review document for the project. The District is a Responsible Agency for the project because of its discretionary approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CEQA Guidelines §15381). As a Responsible Agency, the District is limited to mitigating or avoiding impacts for which it has statutory authority. The District does not have statutory authority for regulating greenhouse gas emissions. The District has determined that the applicant is responsible for implementing greenhouse gas mitigation measures, if any, imposed by the Lead Agency.

District CEQA Findings

The District is a Responsible Agency for the project because of its discretionary approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CEQA Guidelines §15381). The District's engineering evaluation of the project (this document) demonstrates that compliance with District rules and permit conditions would reduce Stationary Source emissions from the project to levels below the District's significance thresholds for criteria pollutants. The District has determined that no additional findings are required (CEQA Guidelines §15096(h)).

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Issue Authorities to Construct S-1246-290-16 and 354-0 subject to the permit conditions on the attached draft Authority to Construct in Appendix H.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-1246-290-6	3020-09-A	250 wells	\$2335.00
S-1246-354-0	3020-02-H	85.0 MMBtu/hr	\$1,030.00

Appendices

- A: PTO S-1246-290-11
- B: BACT Guideline and BACT Anaysis
- C: Health Risk Assessment and Ambient Air Quality Analysis
- D: Emissions Profiles
- E: Statewide Compliance Statement and Title V Compliance Certification Form
- F: QNEC
- G: Draft ATC

APPENDIX A

PTO S-1246-290-11

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1246-290-11

EXPIRATION DATE: 03/31/2010

SECTION: SE36 TOWNSHIP: 12N RANGE: 24W

EQUIPMENT DESCRIPTION:

TEOR SYSTEM WITH WELL VENT CASING GAS COLLECTION AND CONTROL SYSTEM INCLUDING UP TO 250 STEAM ENHANCED WELLS, GAS/LIQUID SEPARATORS, TRANSFER PUMPS, AIR-COOLED HEAT EXCHANGERS, CONDENSATE TANKS (< 100 BBL), CVR GAS SCRUBBER, UP TO TWO (2) VAPOR COMPRESSORS, UP TO TWO (2) SULFA-TREAT SULFUR SCRUBBERS OR UP TO TWO (2) LIQUID SULFUR SCRUBBERS, VAPOR PIPING TO FUEL GAS SYSTEM, AND BOOSTER COMPRESSOR WITH UP TO THREE (3) DOGGR APPROVED WASTE GAS DISPOSAL WELLS (ETHEL D PROPERTY)

PERMIT UNIT REQUIREMENTS

1. Permittee shall maintain with the permit a current listing of all steam enhanced wells with casing vents connected to the well vent collection and control system. [District Rules 1070 and 2520, 9.3.2] Federally Enforceable Through Title V Permit
2. Operator shall maintain all components of a well vent vapor collection and control system in good repair. Components of the well vent vapor collection and control system shall include all piping, valves, fittings, pumps, compressors, tanks, etc. used to collect, control, store, or dispose of VOC condensate or non-condensable VOCs and which is prior to any blending of VOC condensate with crude oil or blending of non-condensable VOCs with gases to be used as a fuel. [District Rule 4401, 5.3 and 5.3.2] Federally Enforceable Through Title V Permit
3. Well vent vapor collection and control system includes piping from sulfur scrubber(s) to steam generators S-1246-19, '-24 and -269, and a permit exempt 4.2 MMBtu/hr heater treater. Well vent vapor collection and control system includes bypass piping around sulfur scrubber(s) to booster compressor for up to 3 DOGGR-approved vapor disposal well(s). Only one sulfur scrubber need operate at any time provided compliance with emissions limits have been demonstrated when operating only one sulfur scrubber. [District NSR Rule] Federally Enforceable Through Title V Permit
4. Scrubbed well vent vapor collection and control system (TEOR) gas shall be incinerated only in steam generators S-1246-19, '-24 and -269, and a 4.2 MMBtu/hr heater treater, and unscrubbed gas may be disposed of in up to 3 DOGGR-approved vapor disposal wells. [District NSR Rule] Federally Enforceable Through Title V Permit
5. The crude oil production from wells associated with this permit unit shall not lie within 1,000 feet of an air injection well used for in-situ combustion. [District Rule 4407, 2.0, 3.4, and 3.5] Federally Enforceable Through Title V Permit
6. During the time any steam-enhanced crude oil production well is undergoing service or repair while the well is not producing, it shall be exempt from the emission control requirements of District Rule 4401, section 5.0. [District Rule 4401, 4.1] Federally Enforceable Through Title V Permit
7. Permittee shall maintain accurate component count for TEOR operation according to CAPCOA's "California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities," Table IV-2c (Feb 1999), Screening Value Range emission factors. Permittee shall update such records when new components are installed. [District NSR Rule] Federally Enforceable Through Title V Permit
8. Fugitive emissions from all components in gas service including polish rods associated with this TEOR operation shall not exceed 79.5 lb VOC/day. [District NSR Rule] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

9. Permittee shall perform leak inspections at least annually using a portable hydrocarbon detection instrument in accordance with USEPA Method 21. [District NSR Rule and District Rule 4401, 6.3.3] Federally Enforceable Through Title V Permit
10. A leak shall be defined as a reading on a portable hydrocarbon detection instrument (calibrated with methane) in excess of 10,000 ppm when measured in accordance with EPA Method 21. [District NSR Rule and District Rule 4401] Federally Enforceable Through Title V Permit
11. Total number of leaks from components comprising the vapor collection and control system, including condensate handling components, shall not exceed the lower of the number allowed by Rule 4401 for the number of wells installed or 8 leaks. [District NSR Rule and District Rule 4401, 5.3] Federally Enforceable Through Title V Permit
12. Operator shall affix a readily visible tag bearing the date on which a leak is detected. The tag shall remain in place until the leaking component is repaired. [District Rule 4401, 5.3.1] Federally Enforceable Through Title V Permit
13. Operator shall repair each leak within 15 days of detection. The APCO may grant a 10-day extension if the operator demonstrates that the necessary and sufficient actions have and are being taken to correct the leak. [District Rule 4401, 5.3.1] Federally Enforceable Through Title V Permit
14. Permittee shall maintain records of annual inspections including measured leaks greater than 10,000 ppmv, maintenance performed for components leaking greater than 10,000 ppmv, and date of re-check for components leaking greater than 10,000 ppmv. [District Rules 2520, 9.3.2 and 4401] Federally Enforceable Through Title V Permit
15. Collected vapors sent to District approved incineration devices shall be processed through sulfur scrubber(s) prior to incineration. [District NSR Rule] Federally Enforceable Through Title V Permit
16. The sulfur scrubber(s) shall be operated to maintain continued compliance with fuel sulfur content limits on steam generator S-1246-24. [District NSR Rule] Federally Enforceable Through Title V Permit
17. Sulfur scrubber(s) shall meet at least one of the following performance criteria: sulfur compounds reduction efficiency shall be maintained at 95% or greater, or the sulfur compounds concentration in the vapors exiting the sulfur scrubber(s) shall not exceed 3 ppmv. [District NSR Rule] Federally Enforceable Through Title V Permit
18. Compliance with sulfur scrubber efficiency requirement shall be demonstrated by measurement of total sulfur compound concentrations at scrubber inlet and outlet. The measurement shall be conducted on grab samples taken at scrubber inlet and outlet using one of the following test methods: ASTM D1072, ASTM D3246, ASTM D6228 (GC-FPD), double GC for H₂S and mercaptans, or equivalent test method with prior District approval. Grab samples shall be taken and analyzed upon initial use of the scrubber and, thereafter, every six months. If scrubber is not in use at six month anniversary date, then efficiency shall be demonstrated within two weeks of returning scrubber to service. For each month in which scrubber is operated and laboratory analysis of grab samples is not required, operator shall monitor and adjust scrubber performance as needed using gas-detection tubes calibrated for existing sulfur species or other equivalent District approved sulfur detection method(s) or device(s). [District NSR Rule] Federally Enforceable Through Title V Permit
19. Permittee shall maintain a written record of inlet and outlet sulfur compound measurements and recharging dates and such records shall be made readily available for District inspection upon request. [District NSR Rule] Federally Enforceable Through Title V Permit
20. During recharging of the sulfur scrubber(s), untreated well casing vent collection system vapors shall not be introduced into the fuel system or vented to the atmosphere. [District NSR Rule] Federally Enforceable Through Title V Permit
21. Scrubbed well casing vent vapor collection and control system gas burned in 4.2 MMBtu/hr heater treater shall be demonstrated by fuel gas analysis to qualify for permit exemption immediately upon burning TEOR gas in unit and at least every six months thereafter. [District Rule 2020, 8.0] Federally Enforceable Through Title V Permit
22. The operator shall maintain monitoring records of the date and well identification where steam injection or well stimulation occurs. [District Rules 2520, 9.3.2 and 4401, 6.1] Federally Enforceable Through Title V Permit
23. Permittee shall provide District with copy of DOGGR approval of vapor disposal well prior to injecting any TEOR gas. [District Rule 2010] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

24. Permittee shall cease injection vapors and notify the District immediately if DOGGR vapor disposal well approval is revoked, denied, terminated, surrendered or altered to disallow injection. [District NSR Rule] Federally Enforceable Through Title V Permit
25. An inspection and maintenance program consistent with Rule 4409 shall be implemented and maintained for polish rod stuffing boxes (identified by annual well roster required by this permit). [District NSR Rule] Federally Enforceable Through Title V Permit
26. All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rules 1070 and 2520, 9.4.2] Federally Enforceable Through Title V Permit

These terms and conditions are part of the Facility-wide Permit to Operate.

APPENDIX B

BACT Guideline and Analysis

Per » B A C T » Bact Guideline.asp?category Level1=1&category Level2=2&category Level3=1&last Update=5 » 24 :

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**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% O ₂		
NO _x	14 ppmvd @ 3% O ₂	1) 9 ppmvd @ 3% O ₂ (low NO _x burner and/or SCR) 2) 12 ppmvd @ 3% O ₂	
PM ₁₀	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 SO ₂ scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emissions rate of 30 ppmvd SO ₂ at stack O ₂		
SO _x	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 SO ₂ scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emissions rate of 30 ppmvd SO ₂ at stack O ₂		
VOC	Gaseous fuel		

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

Top Down BACT Analysis for the Steam Generator

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

1. BACT Analysis for NO_x Emissions:

a. Step 1 - Identify all control technologies

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

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

- 1) 5 ppmvd @ 3% O₂ with SCR
- 2) 7 ppmvd @ 3% O₂

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

- 1) 5 ppmvd @ 3% O₂ with SCR
- 2) 7 ppmvd @ 3% O₂

d. Step 4 - Cost Effectiveness Analysis

A cost effective analysis is required for technologically feasible control options that are not proposed. The applicant is proposing a NO_x limit of 7 ppmvd @ 3% O₂; therefore, a cost effective analysis is required for the 5 ppmvd option (SCR).

SCR Cost Effectiveness Analysis

Assumptions:

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

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

Calculations:

Industrial Standard NO_x Emissions = 85 MMBtu/hr x 0.018 lb/MMBtu x 8760 hrs/year
(15 ppm) = 13,403 lb/year

Tech. Feasible NO_x Emissions = 85 MMBtu/hr x 0.006 lb/MMBtu x 8760 hrs/year
(5 ppm) = 4,468 lb/year

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

Capital Cost (SCR Vendor & TJ Cross, provided for project S-1084509): **\$1,102,046**
(includes all purchased equipment, taxes, freight, and installation of SCR for a 62.5 MMBtu/hr unit) – detailed costs follow.

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

Equivalent Annual Capital Cost (Capital Recovery)

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

A = Equivalent Annual Control Equipment Capital Cost

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

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

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

Where

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

$$i = 10\%$$

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

$$A = \$179,303$$

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

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

$$\text{Operation and Maintenance Labor} = \$7,875/\text{yr} + \$1,181/\text{yr}$$

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

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

NOx Reduction due to Selective Catalytic Reduction system:

Total reduction = Emissions_{15 ppm} – Emissions_{5 ppm}
Total reduction = 13,403 lb/year – 4,468 lb/year
Total reduction = 8,935 lb/year = 4.5 ton NO_x per year

Cost effectiveness:

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

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

e. Step 5 - Select BACT

BACT for NO_x emissions from this oil field steam generator is a NO_x limit of 7 ppmvd @ 3% O₂. The applicant has proposed to install an oil field steam generator with a NO_x limit of 7 ppmvd @ 3% O₂; therefore BACT for NO_x emissions is satisfied.

2. BACT Analysis for SO_x Emissions:

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

a. Step 1 - Identify all control technologies

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

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

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

- 1) 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

d. Step 4 - Cost Effectiveness Analysis

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

e. Step 5 - Select BACT

The applicant has proposed to combust natural gas or 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; therefore BACT for SO_x emissions is satisfied.

3. BACT Analysis for PM₁₀ Emissions:

Particulate matter (PM₁₀) emissions result from the incomplete combustion of various elements in the fuel.

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.2.1, 1st quarter 2005, identifies for achieved in practice BACT for CO₁₀ emissions from oil field steam generators ≥5 MMBtu/hr 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.

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

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

- 1) 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.

d. Step 4 - Cost Effectiveness Analysis

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

e. Step 5 - Select BACT

The applicant has proposed to combust natural gas or 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; therefore BACT for PM₁₀ emissions is satisfied.

4. BACT Analysis for CO Emissions:

Carbon monoxide (CO) emissions are generated from the incomplete combustion of air and fuel.

a. Step 1 - Identify all control technologies

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

- 1) 50 ppmvd @ 3% O₂

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

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

- 1) 50 ppmvd @ 3% O₂

d. Step 4 - Cost Effectiveness Analysis

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

e. Step 5 - Select BACT

BACT for CO emissions from this oil field steam generator is a CO limit of 50 ppmvd @ 3% O₂. The applicant has proposed to install an oil field steam generator with a CO limit of 50 ppmvd @ 3% O₂; therefore BACT for CO emissions is satisfied.

5. BACT Analysis for VOC Emissions:

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

a. Step 1 - Identify all control technologies

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

- 1) Gaseous fuel

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

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

- 1) Gaseous fuel

d. Step 4 - Cost effectiveness analysis

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

e. Step 5 - Select BACT

BACT for VOC emissions from this oil field steam generator is gaseous fuel. The applicant has proposed to install an oil field steam generator fired on gaseous fuel; therefore BACT for PM₁₀ emissions is satisfied.

APPENDIX C

HRA/AAQA Summary

**San Joaquin Valley Air Pollution Control District
Risk Management Review
REVISED**

To: Ashley Dahlstrom, AQE – Permit Services
 From: Trevor Joy, AQS – Technical Services
 Date: November 14, 2011
 Facility Name: Berry Petroleum Co
 Location: Latitude 35.078519 Longitude -119.386725
 Application #(s): S-1246-290-16 and 354-0
 Project #: 1111928

A. RMR SUMMARY

Categories	Units 290-16 and 354-0	Project Totals	Facility Totals
Prioritization Score	0.0	0.0	>1.0
Acute Hazard Index	0.00	0.00	0.46
Chronic Hazard Index	0.00	0.00	0.03
Maximum Individual Cancer Risk (10 ⁻⁶)	0.0	0.0	1.2
T-BACT Required?	No		
Special Permit Conditions?	Yes		

Proposed Permit Conditions

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

Unit # 290-16

No special conditions required.

Unit # 354

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

B. RMR REPORT

I. Project Description

Technical Services received a request on May 23, 2011, to perform a Risk Management Review for the proposed modification of unit 290, a thermally enhanced oil recovery operation – to include steam generator S-1246-354 as a VOC disposal device; and the addition of a proposed new unit 354-0, a TEOR Gas-Fired steam generator. On October 8, 2011 the RMR request was modified requesting that an AAQA be performed.

II. Analysis

Technical Services performed a prioritization using the District's HEARTs database. There was no increase in emissions or change in emission parameters associated with unit 290 modification so no further review for the unit was required. For unit 354, emissions were calculated using the spreadsheet "Petroleum Steam Generators.xls" Tab -- Steam Gen NG CVRG. NOTE: unit 35

4 is a steam generators that can run on Natural Gas OR TEOR Gas. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905, March 2, 2001), risks from the proposed unit's toxic emissions were prioritized using the procedure in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEARTs database. The prioritization score for the facility was greater than 1.0 (see RMR Summary Table). Therefore, a refined analysis was required and performed. AERMOD was used, with the parameters outlined below. For the RMR, meteorological data for Fellows 2004 to 2008 was used to determine the high concentration at the nearest residential and business receptors. These dispersion factors were input into the HARP model to calculate the chronic and acute hazard indices and the carcinogenic risk for the project. As per AAQA protocol, Bakersfield 2005 to 2009 meteorological data was used to determine the maximum dispersion factors beyond the property boundary.

III. The following parameters were used for the review:

Analysis Parameter Units 290-16 and 354-0			
Closest Receptor - Business (m)	1803	Closest Receptor – Resident (m)	1803
TEOR Gas (MMScf/hr)	0.085	TEOR Gas (MMScf/yr)	744.6
Release Ht (m)	6.1	Gas Exit Temp (K)	366
Gas Exit Velocity (m/s)	9.5	Stack Inside Diameter (m)	1.067

Technical Services also performed modeling for criteria pollutants CO, NOx, Sox, PM₁₀ and PM_{2.5}; as well as a RMR. The emission rates used for criteria pollutant modeling were

	NOx	Sox	CO	PM10
Lbs/hr	0.68	0.57	2.21	0.47
Lbs/yr	5,957	4,989	NA*	4,095

*CO does not have an annual standard.

The results from the Criteria Pollutant Modeling are as follows:

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

Steam Generator	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass ¹	X	Pass	X	X
NO _x	Pass ¹	X	X	X	Pass
SO _x	Pass ²	Pass	X	Pass	Pass
PM ₁₀	X	X	X	Pass ³	Pass ³
PM _{2.5}	X	X	X	Pass ⁴	Pass ⁴

*Results were taken from the attached PSD spreadsheet.

¹The project was compared to the 1-hour NO₂ National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures. The criteria pollutant 1-hour value passed using TIER I NO₂ NAAQS modeling

²The project was compared to the 1-hour SO₂ National Ambient Air Quality Standard that became effective on August 23, 2010 using the District's approved procedures.

³The maximum predicted concentration for emissions of these criteria pollutants from the proposed unit are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

⁴A refined PM_{2.5} review was performed using AERMOD's PM_{2.5} NAAQS pollutant type.

III. Conclusion

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

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

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

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.

Attachments:

- A. RMR request from the project engineer
- B. Prioritization score with toxic emissions summary
- C. HEARTS – Facility Summary
- D. HARP Risk Report
- E. AAQA spreadsheet

APPENDIX D

Emissions Profiles

Permit #: S-1246-290-16	Last Updated
Facility: BERRY PETROLEUM COMPANY	06/11/2011 DAVIDSOS

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	29019.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	75.9
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	0.0
Q2:	0.0	0.0	0.0	0.0	0.0
Q3:	0.0	0.0	0.0	0.0	0.0
Q4:	0.0	0.0	0.0	0.0	0.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Permit #: S-1246-354-0	Last Updated
Facility: BERRY PETROLEUM COMPANY	06/11/2011 DAVIDSOS

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	5957.0	4989.0	5659.0	19360.0	4095.0
Daily Emis. Limit (lb/Day)	16.3	13.7	15.5	53.0	11.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1489.0	1247.0	1415.0	4840.0	1024.0
Q2:	1489.0	1247.0	1415.0	4840.0	1024.0
Q3:	1489.0	1247.0	1415.0	4840.0	1024.0
Q4:	1489.0	1247.0	1415.0	4840.0	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 E

Statewide Compliance Statement and Title V Compliance Certification Form

RECEIVED
APR 15 2011
SJVAPCD
Southern Region

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: Berry Petroleum Company	FACILITY ID: S - 1246
1. Type of Organization: <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Sole Ownership <input type="checkbox"/> Government <input type="checkbox"/> Partnership <input type="checkbox"/> Utility	
2. Owner's Name: Berry Petroleum Company	
3. Agent to the Owner: Robert Boston	

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

4/3/2011

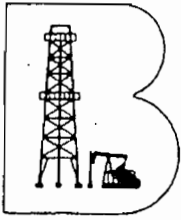
Date

Robert Boston

Name of Responsible Official (please print)

Manager of EH&S

Title of Responsible Official (please print)



Berry Petroleum Company

5201 Truxtun Ave.
Bakersfield, CA 93309-0421

(661) 616-3900
www.bry.com

September 28, 2011

RECEIVED

SEP 29 2011

SJVAPCD
Southern Region

Mr. Leonard Scandura
San Joaquin Valley Unified APCD
34946 Flyover Court
Bakersfield, CA 93308

RE: ATC Applications S-1246, 1111129, 1111510, and 1111928 Compliance Certification per District Rule 2201 Section 4.15.2

Dear Mr. Scandura:

Pursuant to the requirement of San Joaquin Valley APCD Rule 2201 section 4.15.2, Berry Petroleum Company (BPC) submits this Compliance Certification regarding other owned, operated, or controlled major stationary sources in California. As of the date of this letter, BPC asserts that all major stationary sources owned or operated by BPC (or by any entity controlling, controlled by, or under common control with BPC) in California, which are subject to emission limitations, are in compliance or on a schedule for compliance with all applicable emission limitations and standards.

If you have any questions or require additional information please contact Mr. John Ludwick at phone number (661) 616-3807 or by cell phone number (661) 703-2920.

Sincerely,

Tim Crawford
Senior V.P. of California

APPENDIX F

Quarterly Net Emissions Change

Quarterly Net Emissions Change (QNEC)

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

$QNEC = PE2 - PE1$, where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.

PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr.

PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr.

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

$PE2_{quarterly} = PE2_{annual} \div 4 \text{ quarters/year}$

$PE1_{quarterly} = PE1_{annual} \div 4 \text{ quarters/year}$

S-1246-290-16 Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	0	0	0
SO _x	0	0	0
PM ₁₀	0	0	0
CO	0	0	0
VOC	7,255	7,255	0

S-1326-354-0 Quarterly NEC [QNEC]			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO _x	1489	0	1489
SO _x	1247	0	1247
PM ₁₀	930	0	930
CO	4840	0	4840
VOC	1024	0	1024

APPENDIX G

Draft ATC

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-1246-290-16

LEGAL OWNER OR OPERATOR: BERRY PETROLEUM COMPANY
MAILING ADDRESS: ATTN: EH&S MANAGER
5201 TRUXTUN AVENUE SUITE 100
BAKERSFIELD, CA 93309-0422

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

SECTION: SE36 TOWNSHIP: 12N RANGE: 24W

EQUIPMENT DESCRIPTION:

MODIFICATION OF TEOR OPERATION WITH WELL VENT CASING GAS COLLECTION AND CONTROL SYSTEM INCLUDING UP TO 250 STEAM ENHANCED WELLS, GAS/LIQUID SEPARATORS, TRANSFER PUMPS, AIR-COOLED HEAT EXCHANGERS, CONDENSATE TANKS (< 100 BBL), VAPOR COMPRESSORS, SULFUR SCRUBBERS VENTED TO STEAM GENERATORS S-1246-19, '-24, '-269, '-332, PERMIT EXEMPT 4.2 MMBTU/HR HEATER TREATER, OR DOGGR APPROVED WASTE GAS DISPOSAL WELLS (ETHEL D PROPERTY): INCLUDE STEAM GENERATOR S-1246-354 AS A DISPOSAL DEVICE

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Well vent vapor collection and control system includes piping from sulfur scrubber(s) to steam generators S-1246-19, '-24 -269 and -354, and a permit exempt 4.2 MMBtu/hr heater treat. Well vent vapor collection and control system includes bypass piping around sulfur scrubber(s) to booster compressor for up to 3 DOGGR-approved vapor disposal well(s). Only one sulfur scrubber need operate at any time provided compliance with emissions limits have been demonstrated when operating only one sulfur scrubber. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Sayed Sadredin, Executive Director APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-1246-290-16 - Dec 20 2011 1:23PM - DAVIDSOS : Joint Inspection NOT Required

4. Scrubbed well vent vapor collection and control system (TEOR) gas shall be incinerated only in steam generators S-1246-19, -24, -269, and -354 and a 4.2 MMBtu/hr heater treater, and unscrubbed gas may be disposed of in up to 3 DOGGR-approved vapor disposal wells. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Sulfur scrubber(s) shall meet at least one of the following performance criteria: sulfur compounds reduction efficiency shall be maintained at 95% or greater, or the sulfur compounds concentration in the vapors exiting the sulfur scrubber(s) shall not exceed 3 ppmv. [District Rule 2201] Federally Enforceable Through Title V Permit
6. Compliance with sulfur scrubber efficiency requirement shall be demonstrated by measurement of total sulfur compound concentrations at scrubber inlet and outlet. The measurement shall be conducted on grab samples taken at scrubber inlet and outlet using one of the following test methods: ASTM D1072, ASTM D3246, ASTM D6228 (GC-FPD), double GC for H₂S and mercaptans, or equivalent test method with prior District approval. Grab samples shall be taken and analyzed upon initial use of the scrubber and, thereafter, every six months. If scrubber is not in use at six month anniversary date, then efficiency shall be demonstrated within two weeks of returning scrubber to service. For each month in which scrubber is operated and laboratory analysis of grab samples is not required, operator shall monitor and adjust scrubber performance as needed using gas-detection tubes calibrated for existing sulfur species or other equivalent District approved sulfur detection method(s) or device(s). [District Rule 2201] Federally Enforceable Through Title V Permit
7. During recharging of the sulfur scrubber(s), untreated well casing vent collection system vapors shall not be introduced into the fuel system or vented to the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
8. Scrubbed well casing vent vapor collection and control system gas burned in 4.2 MMBtu/hr heater treater shall be demonstrated by fuel gas analysis to qualify for permit exemption immediately upon burning TEOR gas in unit and at least every six months thereafter. [District Rule 2020, 8.0] Federally Enforceable Through Title V Permit
9. Fugitive emissions from all components in gas service including polish rods associated with this TEOR operation shall not exceed 79.5 lb VOC/day. [District Rule 2201] Federally Enforceable Through Title V Permit
10. Collected vapors sent to District approved incineration devices shall be processed through sulfur scrubber(s) prior to incineration. [District Rule 2201] Federally Enforceable Through Title V Permit
11. The sulfur scrubber(s) shall be operated to maintain continued compliance with fuel sulfur content limits on steam generator S-1246-24 and -354. [District Rule 2201] Federally Enforceable Through Title V Permit
12. Permittee shall cease injection vapors and notify the District immediately if DOGGR vapor disposal well approval is revoked, denied, terminated, surrendered or altered to disallow injection. [District Rule 2201] Federally Enforceable Through Title V Permit
13. During the time any steam-enhanced crude oil production well is undergoing service or repair while the well is not producing, it shall be exempt from the emission control requirements of District Rule 4401, 5.0 (as amended December 14, 2006). [District Rule 4401, 4.1] Federally Enforceable Through Title V Permit
14. An operator shall not operate a steam-enhanced crude oil production well unless the operator complies with the following requirements: The steam-enhanced crude oil production well vent is closed and the front line production equipment downstream of the wells that carry produced fluids (crude oil or mixture of crude oil and water) is connected to a VOC collection and control system as defined in Section 3.0 of Rule 4401, the well vent may be temporarily opened during periods of attended service or repair of the well provided such activity is done as expeditiously as possible with minimal spillage of material and VOC emissions to the atmosphere, the steam-enhanced crude oil production well vent is open and the well vent is connected to a VOC collection and control system as defined in Section 3.0 of Rule 4401. [District Rule 4401, 5.1.1 and 5.1.2] Federally Enforceable Through Title V Permit
15. An operator shall be in violation of this rule if any District inspection demonstrates that one or more of the following conditions in Section 5.2.2 exist at the facility or if any operator inspection conducted pursuant to Section 5.4 of Rule 4401 demonstrates that one or more of the following conditions in Section 5.2.2 exist at the facility: Existence of an open-ended line or a valve located at the end of the line that is not sealed with a blind flange, plug, cap, or a second closed valve that is not closed at all times, except during attended operations as defined by Section 5.2.2.1 of Rule 4401 requiring process fluid flow through the open-ended lines. [District Rule 4401, 5.4.2] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

16. An operator shall be in violation of this rule if any District inspection demonstrates that one or more of the following conditions exist at the facility or if any operator inspection conducted pursuant to Section 5.4 of Rule 4401 demonstrates that one or more of the conditions in Section 5.2.2 exist at the facility: existence of a component with any of the following: a major liquid leak, a gas leak greater than 50,000 ppmv, a minor liquid leak or a minor gas leak in excess of the allowable number of leaks allowed by Table 3 of Rule 4401, or a gas leak greater than 10,000 ppmv up to 50,000 ppmv in excess of the allowable number of leaks allowed by Table 3 of Rule 4401. [District Rule 4401, 5.2.2] Federally Enforceable Through Title V Permit
17. An operator shall source test annually all vapor collection and control systems used to control emissions from steam-enhanced crude oil production well vents to determine the control efficiency of the device(s) used for destruction or removal of VOC. Compliance testing shall be performed annually by source testers certified by ARB. Testing shall be performed during June, July, August, or September of each year if the system's control efficiency is dependent upon ambient air temperature. [District Rule 4401 6.2.1] Federally Enforceable Through Title V Permit
18. If approved by EPA, ARB, and the APCO, an operator need not comply with the annual testing requirement of Section 6.2.1 if all uncondensed VOC emissions collected by a vapor collection and control system are incinerated in fuel burning equipment, an internal combustion engine or in a smokeless flare. [District Rule 4401 6.2.2] Federally Enforceable Through Title V Permit
19. If approved by EPA, ARB, and the APCO, an operator need not comply with the annual testing requirement of Section 6.2.1 for a vapor control system which does not have a VOC destruction device. [District Rule 4401 6.2.3] Federally Enforceable Through Title V Permit
20. An operator seeking approval pursuant to Section 6.2.2 or Section 6.2.3 shall submit a written request and supporting information to the APCO. The District shall evaluate the request and if approved by the APCO, the District shall provide EPA and ARB with a copy of the evaluation and shall request EPA and ARB approval. The District evaluation and the APCO request shall be deemed approved unless EPA or ARB objects to such approval in writing within 45 days of the receipt of the APCO request. [District Rule 4401 6.2.4] Federally Enforceable Through Title V Permit
21. An operator shall comply with the following requirements for each gauge tank, as defined in Section 3.0 of Rule 4401: Conduct periodic TVP testing of each gauge tank at least once every 24 months during summer (July - September), and whenever there is a change in the source or type of produced fluid in the gauge tank, the TVP testing shall be conducted at the actual storage temperature of the produced fluid in the gauge tank using the applicable TVP test method specified in Section 6.4 of Rule 4623 (Storage of Organic Liquids). The operator shall submit the TVP testing results to the APCO as specified in Section 6.1.9 of Rule 4401. [District Rule 4401 6.2.3] Federally Enforceable Through Title V Permit
22. The control efficiency of any VOC control device, measured and calculated as carbon, shall be determined by EPA Method 25, except when the outlet concentration must be below 50 ppm in order to meet the standard, in which case EPA Method 25a may be used. EPA Method 18 may be used in lieu of EPA Method 25 or EPA Method 25a provided the identity and approximate concentrations of the analytes/compounds in the sample gas stream are known before analysis with the gas chromatograph and the gas chromatograph is calibrated for each of those known analyte/compound to ensure that the VOC concentrations are neither under- or over-reported. [District Rule 4401 6.3.1] Federally Enforceable Through Title V Permit
23. VOC content shall be analyzed by using the latest revision of ASTM Method E168, E169, or E260 as applicable. Analysis of halogenated exempt compounds shall be performed by using ARB Method 432. [District Rule 4401 6.3.2] Federally Enforceable Through Title V Permit
24. Leak inspection, other than audio-visual, and measurements of gaseous leak concentrations shall be conducted according to EPA Method 21 using an appropriate portable hydrocarbon detection instrument calibrated with methane. The instrument shall be calibrated in accordance with the procedures specified in EPA Method 21 or the manufacturer's instruction, as appropriate, not more than 30 days prior to its use. The operator shall record the calibration date of the instrument. Where safety is a concern, such as measuring leaks from compressor seals or pump seals when the shaft is rotating, a person shall measure leaks by placing the instrument probe inlet at a distance of one (1) centimeter or less from the surface of the component interface. [District Rule 4401 6.3.3] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

25. The VOC content by weight percent (wt.%) shall be determined using American Society of Testing and Materials (ASTM) D1945 for gases and South Coast Air Quality Management District (SCAQMD) Method 304-91 or the latest revision of ASTM Method E168, E169 or E260 for liquids. [District Rule 4401 6.3.4] Federally Enforceable Through Title V Permit
26. Gas and liquid leaks are as defined in Section 3.20 of Rule 4401. [District Rule 4401, 3.20] Federally Enforceable Through Title V Permit
27. An operator shall not use any component with a leak as defined in Section 3.0 of Rule 4401, or that is found to be in violation of the provisions of Section 5.2.2 of Rule 4401. However, components that were found leaking may be used provided such leaking components have been identified with a tag for repair, are repaired, or awaiting re-inspection after being repaired within the applicable time frame specified in Section 5.5 of Rule 4401. [District Rule 4401 5.3.1] Federally Enforceable Through Title V Permit
28. Each hatch shall be closed at all times except during sampling or adding of process material through the hatch, or during attended repair, replacement, or maintenance operations, provided such activities are done as expeditiously as possible with minimal spillage of material and VOC emissions to the atmosphere. [District Rule 4401 5.3.2] Federally Enforceable Through Title V Permit
29. An operator shall comply with the requirements of Section 6.7 of Rule 4401 if there is any change in the description of major components or critical components. [District Rule 4401 5.3.3] Federally Enforceable Through Title V Permit
30. Except for pipes and unsafe-to-monitor components, an operator shall inspect all other components pursuant to the requirements of Section 6.3.3 of Rule 4401 at least once every year. [District Rule 4401 5.4.1] Federally Enforceable Through Title V Permit
31. An operator shall visually inspect all pipes at least once every year. Any visual inspection of pipes that indicates a leak that cannot be immediately repaired to meet the leak standards of this rule shall be inspected within 24 hours after detecting the leak. If a leak is found, the leak shall be repaired as soon as practicable but not later than the time frame specified in Table 4 of Rule 4401. [District Rule 4401 5.4.2] Federally Enforceable Through Title V Permit
32. An operator shall inspect for leaks all accessible operating pumps, compressors, and PRDs in service as follows: 1) An operator shall audio-visually (by hearing and by sight) inspect for leaks all accessible operating pumps, compressors, and PRDs in service at least once each calendar week. 2) Any audio-visual inspection of an accessible operating pump, compressor, and PRD performed by an operator that indicates a leak that cannot be immediately repaired to meet the leak standards of this rule shall be inspected not later than 24 hours after conducting the audio-visual inspection. If a leak is found, the leak shall be repaired as soon as practicable but not later than the time frame specified in Table 4 of this Rule. [District Rule 4401, 5.4.3] Federally Enforceable Through Title V Permit
33. The operator shall also perform the following inspections: 1) An operator shall initially inspect a PRD that releases to the atmosphere as soon as practicable but not later than 24 hours after the discovery of the release. An operator shall re-inspect the PRD not earlier than 24 hours after the initial inspection but not later than 15 calendar days after the initial inspection. 2) An operator shall inspect all new, replaced, or repaired fittings, flanges, and threaded connections within 72 hours of placing the component in service, and 3) Except for PRDs subject to the requirements of Section 5.8.4.1 of this Rule, an operator shall inspect a component that has been repaired or replaced not later than 15 calendar days after the component was repaired or replaced. [District Rule 4401, 5.4.4] Federally Enforceable Through Title V Permit
34. An operator shall inspect all unsafe-to-monitor components during each turnaround. [District Rule 4401 5.4.7] Federally Enforceable Through Title V Permit
35. District inspection in no way fulfills any of the mandatory inspection requirements that are placed upon operators and cannot be used or counted as an inspection required of an operator. [District Rule 4401.5.4.8] Federally Enforceable Through Title V Permit
36. Upon detection of a leak, an operator shall affix a readily visible weatherproof tag to that leaking component that includes the following information: 1) The date and time of leak detection; 2) The date and time of the leak measurement; 3) For a gaseous leak, the leak concentration in ppmv; 4) For a liquid leak, whether it is a major or minor liquid leak; and 5) Whether the component is an essential component, and unsafe-to-monitor component, or a critical component. [District Rule 4401, 5.5.1] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

37. The tag shall remain affixed to the leaky component until all the following requirements are met: 1) The component is repaired or replaced, 2) The component is re-inspected as set forth in Section 6.3, and 3) The component is found to be in compliance with this Rule. [District Rule 4401, 5.5.2] Federally Enforceable Through Title V Permit
38. An operator shall minimize a component leak in order to stop or reduce leakage to the atmosphere immediately to the extent possible, but not later than one (1) hour after detection of the leak. [District Rule 4401 5.5.3] Federally Enforceable Through Title V Permit
39. Except for leaking critical components or leaking essential components subject to the requirements of Section 5.5.7 of Rule 4401, if an operator has minimized a leak but the leak still exceeds the applicable leak limits as defined in Section 3.0 of Rule 4401, an operator shall comply with at least one of the following requirements as soon as practicable but not later than the time period specified in Table 4 of Rule 4401: Repair or replace the leaking component; or vent the leaking component to a VOC collection and control system as defined in Section 3.0 of Rule 4401, or remove the leaking component from operation. [District Rule 5.5.4] Federally Enforceable Through Title V Permit
40. The repair period in calendar days shall not exceed 14 days for minor gas leaks, 5 days for major gas leaks less than or equal to 50,000 ppmv, 2 days for gas leak greater than 50,000 ppmv, 3 days for minor liquid leaks, 2 days for major liquid leaks. [District Rule 5.5.4] Federally Enforceable Through Title V Permit
41. The leak rate measured after leak minimization has been performed shall be the leak rate used to determine the applicable repair period specified in Table 4 of Rule 4401. [District Rule 4401 5.5.5] Federally Enforceable Through Title V Permit
42. The time of the initial leak detection shall be the start of the repair period specified in Table 4 of Rule 4401. [District Rule 4401 5.5.6] Federally Enforceable Through Title V Permit
43. If the leaking component is an essential component or a critical component that cannot be immediately shut down for repairs, and if the leak has been minimized but the leak still exceeds the applicable leak standard of this rule, the operator shall repair or replace the essential component or critical component to eliminate the leak during the next process unit turnaround, but in no case later than one year from the date of the original leak detection, whichever comes earlier. [District Rule 4401 5.5.7] Federally Enforceable Through Title V Permit
44. By January 30 of each year, an operator shall submit to the APCO for approval, in writing, an annual report indicating any changes to an existing Operator Management Plan. [District Rule 4401 6.7] Federally Enforceable Through Title V Permit
45. An inspection and maintenance program consistent with Rule 4409 shall be implemented and maintained for polish rod stuffing boxes (identified by annual well roster required by this permit). [District Rule 2201] Federally Enforceable Through Title V Permit
46. Permittee shall provide District with copy of DOGGR approval of vapor disposal well prior to injecting any TEOR gas. [District Rule 2010] Federally Enforceable Through Title V Permit
47. Permittee shall maintain a written record of inlet and outlet sulfur compound measurements and recharging dates and such records shall be made readily available for District inspection upon request. [District Rule 2201] Federally Enforceable Through Title V Permit
48. Permittee shall maintain with the permit a current listing of all steam enhanced wells with casing vents connected to the well vent collection and control system. [District Rules 1070 and 2520, 9.3.2] Federally Enforceable Through Title V Permit
49. Permittee shall maintain accurate component count for TEOR operation according to CAPCOA's "California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities," Table IV-2c (Feb 1999), Screening Value Range emission factors. Permittee shall update such records when new components are installed. [District Rule 2201] Federally Enforceable Through Title V Permit

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50. Operator shall maintain an inspection log in which an operator records, at a minimum, all of the following information for each inspection performed: The total number of components inspected, total number and percentage of leaking components found by component type, location, type, and name or description of each leaking component and description of any unit where the leaking component is found, date of leak detection and the method of leak detection. For gaseous leaks, the leak concentration in ppmv, and for liquid leaks record whether the leak is a major liquid leak or a minor liquid leak, the date of repair, replacement, or removal from operation of leaking components, identify and location of essential components and critical components found leaking that cannot be repaired until the next process unit turnaround or not later than one year after leak detection, whichever comes earlier, methods used to minimize the leak from essential components and critical components found leaking that cannot be repaired until the next process unit turnaround or not later than one year after leak detection, whichever comes earlier, the date of re-inspection and the leak concentration in ppmv after the component is repaired or is replaced, the inspector's name, business mailing address, and business telephone number, date and signature of the facility operator responsible for the inspection and repair program certifying the accuracy of the information recorded in the log. [District Rule 4401 6.4] Federally Enforceable Through Title V Permit
51. The operator of any steam-enhanced crude oil production well shall maintain records of the date and well identification where steam injection or well stimulation occurs. [District Rule 4401 6.1.1] Federally Enforceable Through Title V Permit
52. An operator of any steam-enhanced crude oil production well shall keep source test records which demonstrate compliance with the control efficiency requirements of the VOC collection and control system as defined in Section 3.0 of Rule 4401. [District Rule 6.1.3] Federally Enforceable Through Title V Permit
53. Operator of any steam-enhanced crude oil production well shall keep an inspection log maintained pursuant to Section 6.4 of Rule 4401. [District Rule 4401 6.1.4] Federally Enforceable Through Title V Permit
54. Records of each calibration of the portable hydrocarbon detection instrument utilized for inspecting components, including a copy of current calibration gas certification from the vendor of said calibration gas cylinder, the date of calibration, concentration of calibration gas, instrument reading of calibration gas before adjustment, instrument reading of calibration gas after adjustment, calibration gas expiration date, and calibration gas cylinder pressure at the time of calibration shall be maintained. [District Rule 4401 6.1.5] Federally Enforceable Through Title V Permit
55. An operator shall maintain copies at the facility of the training records of the training program operated pursuant to Section 6.5 of Rule 4401. [District Rule 4401 6.1.6] Federally Enforceable Through Title V Permit
56. Operator shall keep a copy of the APCO-approved Operator Management Plan at the facility. [District Rule 4401 6.1.7] Federally Enforceable Through Title V Permit
57. Operator shall submit to the APCO not later than June 14, 2007 a list of all gauge tanks, as defined in Section 3.17. The list shall contain the size, identification number, the location of each gauge tank and specify whether the gauge tank is upstream of all front line production equipment. [District Rule 4401 6.1.8] Federally Enforceable Through Title V Permit
58. The results of gauge tank TVP testing conducted pursuant to Section 6.2.3 shall be submitted to the APCO within 60 days after the completion of the testing. [District Rule 4401 6.1.9] Federally Enforceable Through Title V Permit
59. An operator that discovers that a PRD has released shall record the date that the release was discovered, and the identity and location of the PRD that released. An operator shall submit such information recorded during the calendar year to the APCO no later than 60 days after the end of the calendar year. [District Rule 4401-6.1.10] Federally Enforceable Through Title V Permit
60. All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rules 1070, 4401, and 2520, 9.4.2] Federally Enforceable Through Title V Permit
61. ATC S-1246-290-10 shall be implemented prior to or concurrently with this ATC. [District Rule 2201] Federally Enforceable Through Title V Permit
62. ATC S-1246--1246-354-0 shall be implemented prior to or concurrently with this ATC. [District Rule 2201] Federally Enforceable Through Title V Permit

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
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PERMIT NO: S-1246-354-0

LEGAL OWNER OR OPERATOR: BERRY PETROLEUM COMPANY
MAILING ADDRESS: ATTN: EH&S MANAGER
5201 TRUXTUN AVENUE SUITE 100
BAKERSFIELD, CA 93309-0422

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

SECTION: SE 36 TOWNSHIP: 12N RANGE: 24W

EQUIPMENT DESCRIPTION:

85 MMBTU/HR NATURAL/ETHANE-RICH NATURAL/TEOR/TVR GAS-FIRED STEAM GENERATOR (EDJ-431) WITH A NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) AND AN O2 CONTROLLER

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap, roof overhang, or any other obstruction. [District Rule 4102] Federally Enforceable Through Title V Permit
4. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. 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

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

Seyed Sadredin, Executive Director, APCO

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DAVID WARNER, Director of Permit Services

S-1246-354-0: Nov 24 2011 9:54AM - DAVIDSOS : Joint Inspection NOT Required

6. This unit shall be fired on natural gas, TEOR gas, and/or TVR 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. [District Rule 2201] Federally Enforceable Through Title V Permit
7. The unit shall only be fired on natural/TEOR/TVR/ ethane rich gas with a maximum sulfur content of 2.34 gr S/100scf. [District Rule 2201] Federally Enforceable Through Title V Permit
8. The higher heating value of each non-certified fuel shall be certified by a third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D 3588. [District Rule 2201 and 4320] Federally Enforceable Through Title V Permit
9. Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmvd NO_x @ 3% O₂ or 0.008 lb-NO_x/MMBtu, 0.005 lb-PM₁₀/MMBtu, 35 ppmvd CO @ 3% O₂ or 0.026 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu. [District Rules 2201, 4201, 4301, 4305, 4306, 4320, and 4801] Federally Enforceable Through Title V Permit
10. Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
11. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
12. Source testing to measure natural gas-combustion NO_x and CO emissions from this unit shall be conducted within 60 days of initial startup and at least once every twelve (12) months thereafter. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
13. 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
14. 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
15. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. 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
16. 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
17. NO_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
18. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
19. Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

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20. Fuel sulfur content shall be determined using EPA Method 11 or Method 15. [District Rule 4320] Federally Enforceable Through Title V Permit
21. 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
22. The permittee shall monitor and record the stack concentration of NO_x, CO, and O₂ at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
23. 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 and 4306] Federally Enforceable Through Title V Permit
24. If either the NO_x or CO concentrations corrected to 3% O₂, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
25. At least quarterly, the permittee shall monitor using the methods specified in this permit the higher heating value of each non-certified fuel supplied to this unit, or, alternatively, have the higher heating value certified by the fuel supplier. The records of higher heating value and quantity of fuel combusted shall be used to demonstrate that the rated heat input capacity of this unit, as averaged over a calendar quarter, is not exceeded. [District Rules 2201] Federally Enforceable Through Title V Permit
26. Permittee shall determine sulfur content of combusted gas weekly for eight consecutive weeks. After demonstrating compliance for eight consecutive weeks testing may be conducted on a quarterly basis. Weekly sulfur testing shall resume if quarterly testing does not indicate compliance. Weekly gas analysis shall be performed using Draeger tubes and quarterly analysis using ASTM method D3246 or double GC for H₂S and mercaptans. First of the weekly gas analyses shall be done using laboratory analysis. [District Rules 1081 and 2201] Federally Enforceable Through Title V Permit
27. Compliance with fuel sulfur limit(s) can be demonstrated either by monitoring sulfur content at location(s) after all fuel sources are combined prior to incineration, or by monitoring the sulfur content and volume of each fuel source and performing mass balance calculations. Records of monitoring locations, detected sulfur concentrations, and mass balance calculations, if necessary, shall be maintained and kept onsite and made readily available for District inspection upon request. [District Rules 1081 and 2201] Federally Enforceable Through Title V Permit
28. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x and CO concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
29. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, 4320 and 40 CFR 60.48c(i)] Federally Enforceable Through Title V Permit

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30. Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 2234 lb/quarter; SOx: 1871 lb/quarter; PM10: 1396 lb/quarter, and VOC: 1536 lb/qtr. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 4/21/11). PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10 . . [District Rule 2201] Federally Enforceable Through Title V Permit
31. ERC Certificate Numbers C-1101-2, S-3659-2, S-3665-5, and N-979-1 (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] Federally Enforceable Through Title V Permit

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