San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

SEP 23 2013

Mr. Shamim Reza
Berry Petroleum Company
5201 Truxtun Avenue Suite 300
Bakersfield, CA 93309

Re: Notice of Preliminary Decision – ATC / Certificate of Conformity (Title V Significant Modification)
Facility # S-1246
Project # 1124502

Dear Mr. Reza:

Enclosed for your review is the District's engineering evaluation of an application for Authorities to Construct for Berry Petroleum Company's operation in the Midway Sunset oilfield, which has been issued a Title V permit. Berry Petroleum Company is requesting that a Certificate of Conformity, with the procedural requirements of 40 CFR Part 70, be issued with this project. The proposed Authorities to Construct (ATCs) are subject to the requirements of Rule 2201 – New and Modified Stationary Source Review and Rule 2410 – Prevention of Significant Deterioration.

Berry is requesting ATCs for four (4) new 85 MMBtu/hr natural gas-fired steam generators and to lower the NOx emission limits for five (5) steam generators.

After addressing all comments made during the 30-day public notice and the 45-day EPA comment periods, the ATCs will be issued to the facility with Certificates of Conformity. Prior to operating with modifications authorized by the ATCs, 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.

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

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

www.valleyair.org www.healthyairliving.com

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

Sincerely,

David Warner
Director of Permit Services

DW:DT/st

Enclosures

cc: distribution list

Distribution list

Gerardo C. Rios, Chief (via email)
Permits Office
Air Division
U.S. EPA - Region IX
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San Francisco, CA 94105

Mike Tollstrup, Chief (via email)
Project Assessment Branch
Air Resources Board
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Lorelei H. Oviatt, AICP
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Bakersfield, CA 933301

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Santa Barbara County APCD
260 N. San Antonio Rd, Suite A
Santa Barbara, CA 93110-1315

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Ventura, CA 93003

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San Luis Obispo County APCD
3433 Roberto Court
San Luis Obispo, CA 93401

Glen Stephens
Eastern Kern APCD
2700 "M" Street, Suite 302
Bakersfield, CA 93301

Barry Wallerstein
South Coast AQMD
21865 Copley Dr.
Diamond Bar, CA 91765

Tule River Indian Tribe
Attn: Environmental Dept.
340 N. Reservation Road
Porterville, CA 93257

Santa Ynez Tribe (via email)
c/o Tribal Council
FreddyRomero1959@yahoo.com
Scohen@santaynezchumash.org

Newspaper notice for publication in the newspaper below and for posting on valleyair.org

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Bakersfield Californian

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

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct (ATC) permits to Berry Petroleum Company's operation in the Midway Sunset oilfield, 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 proposed ATCs are subject to the requirements of Rule 2201 – New and Modified Stationary Source Review and Rule 2410 – Prevention of Significant Deterioration.

Berry Petroleum Company is requesting ATCs for four (4) new 85 MMBtu/hr natural gas-fired steam generators and to lower the NOx emission limits for five (5) steam generators. The proposed modifications will result in a significant emissions increase, subject to the requirements of Rule 2410, of 174,236 tons/year of CO_2e. There is no increment consumption of any pollutant.

The analysis of the legal and factual basis for this proposed action, Project #S-1124502, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and at any District office. This will be the public's only opportunity to comment on the specific conditions of the modification. If requested, the District will hold a public hearing regarding proposed issuance of the subject ATCs. For additional information, please contact the District at (661) 392-5500.

Written comments on the proposed project must be submitted by October 28, 2013 to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 34946 FLYOVER COURT, BAKERSFIELD, CA 93308-9725.**

San Joaquin Valley Air Pollution Control District

Authority to Construct Application Review

Steam Generators

Facility Name:	Berry Petroleum Company	Date:	8/1/13
Mailing Address:	5201 Truxtun Ave Bakersfield, CA 93309	Engineer:	David Torii
		Lead Engineer:	Allan Phillips AP SUPR ARE
Contact Person:	Robert Boston/Mike Kelly		
Telephone:	661-616-3900/661-323-1477 x205		
Application #(s):	S-1246-19-33, '25-20, '253-19, '254-19, '269-18, '378-0, '379-0, '380-0 and '381-0		
Project #:	1124502		
Deemed Complete:	6/3/13		

SEP 16 2013

I. Proposal

Berry Petroleum Company (BPC) has requested Authority to Construct (ATC) permits for the following:

Four new 85 MMbtu/hr natural gas, ethane-rich natural gas and or TEOR gas-fired steam generators

Modify steam generators S-1246-19, '252, '253, '254 and '269 to achieve 5 ppmv @3% O2 for Rule 4320 compliance.

To mitigate the project's VOC emission increase, storage tank permits S-1246-185 and '186 will be surrendered.

Berry received their Title V Permit on 5/31/01. This project is a Federal Major Modification; therefore, it is classified as a Title V significant modification pursuant to Rule 2520, Section 3.29, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. 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 2410	Prevention of Significant Deterioration (adopted 6/16/2011, effective 11/26/12)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)

Rule 4301	Fuel Burning Equipment (12/17/92)
Rule 4305	Boilers, Steam Generators and Process Heaters – Phase II (8/21/03)
Rule 4306	Boilers, Steam Generators and Process Heaters – Phase III (3/17/05)
Rule 4320	Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)
Rule 4801	Sulfur Compounds (12/17/92)
CH&SC 41700	Health Risk Assessment
CH&SC 42301.6	School Notice

Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. Project Location

Steam generators S-1246-378-0, '379-0, '380-0 and '381-0 will be permitted for installation at any of the following various specified locations within the North Midway Sunset Oil Field at BPC's Heavy Oil Western Stationary Source:

Possible Steam Generator Locations		
Section	**Township**	**Range**
NW11	31S	22E
NE2	31S	22E
NW2	31S	22E

Steam generators S-1246-19, '252, '253, '254 and '269 are located at various locations within BPC's Heavy Oil Western Stationary Source

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

IV. Process Description

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

Proposed Modifications

The four new natural gas-fired steam generators will be equipped with ultra-low NOx burners capable of achieving 7 ppmv NOx @ 3% O_2 and 35 ppmv @3% O_2 CO will be installed. Sulfur content of the inlet gas will be limited to 1.75 gr S/100scf (0.005 lb SOx/MMBtu).

The five existing natural gas-fired steam generators are equipped with ultra-low NOx burners capable of achieving 9 ppmv NOx @ 3% O_2 and 35 ppmv @3% O_2 CO. The applicant proposes to replace programing, and possibly install new sensors and burner tips in order to achieve 5 ppmv NOx.

V. Equipment Listing

Pre-Project Equipment Description:

S-1246-19-32: 62.5 MMBTU/HR C.E. NATCO NATURAL/TEOR GAS-FIRED STEAM GENERATOR WITH FLUE GAS RECIRCULATION, NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, AND O2 CONTROLLER

S-1246-185-3: 43,470 GALLON (1,035 BBL) FIXED ROOF PETROLEUM SHIPPING TANK #5231

S-1246-186-3: 21,000 GALLON (500 BBL) FIXED ROOF OIL PRODUCTION TEST TANK

S-1246-252-19: 62.5 MMBTU/HR NATURAL GAS/VAPOR RECOVERY GAS-FIRED STRUTHERS STEAM GENERATOR (UNIT #MSJ-414) WITH NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FGR, AND OXYGEN ANALYZER/CONTROLLER

S-1246-253-18: 62.5 MMBTU/HR NATURAL GAS/VAPOR RECOVERY GAS-FIRED STRUTHERS STEAM GENERATOR (UNIT #MSJ-415) WITH NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FGR, AND OXYGEN ANALYZER/CONTROLLER

S-1246-254-18: 62.5 MMBTU/HR NATURAL GAS/VAPOR RECOVERY GAS-FIRED STRUTHERS STEAM GENERATOR (UNIT #MSJ-416) WITH NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FGR, AND OXYGEN ANALYZER/CONTROLLER

S-1246-269-17: 62.5 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FGR AND O2 CONTROLLER

Proposed ATCs:

S-1246-19-33: MODIFICATION OF 62.5 MMBTU/HR C.E. NATCO NATURAL/TEOR GAS-FIRED STEAM GENERATOR WITH FLUE GAS RECIRCULATION, NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, AND O2 CONTROLLER: POSSIBLY REPLACE BURNER TIPS AND LOWER NOX LIMIT TO 5 PPM FOR RULE 4320 COMPLIANCE

S-1246-252-20: MODIFICATION OF 62.5 MMBTU/HR NATURAL GAS/VAPOR RECOVERY GAS-FIRED STRUTHERS STEAM GENERATOR (UNIT #MSJ-414) WITH NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FGR, AND OXYGEN ANALYZER/CONTROLLER: POSSIBLY REPLACE BURNER TIPS AND LOWER NOX LIMIT TO 5 PPM FOR RULE 4320 COMPLIANCE

S-1246-253-19: MODIFICATION OF 62.5 MMBTU/HR NATURAL GAS/VAPOR RECOVERY GAS-FIRED STRUTHERS STEAM GENERATOR (UNIT #MSJ-415) WITH NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FGR, AND OXYGEN ANALYZER/CONTROLLER: POSSIBLY REPLACE BURNER TIPS AND LOWER NOX LIMIT TO 5 PPM FOR RULE 4320 COMPLIANCE

S-1246-254-19: MODIFICATION OF 62.5 MMBTU/HR NATURAL GAS/VAPOR RECOVERY GAS-FIRED STRUTHERS STEAM GENERATOR (UNIT #MSJ-416) WITH NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FGR, AND OXYGEN

ANALYZER/CONTROLLER: POSSIBLY REPLACE BURNER TIPS AND LOWER NOX LIMIT TO 5 PPM FOR RULE 4320 COMPLIANCE

S-1246-269-18: MODIFICATION OF 62.5 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FGR AND O2 CONTROLLER: POSSIBLY REPLACE BURNER TIPS AND LOWER NOX LIMIT TO 5 PPM FOR RULE 4320 COMPLIANCE

S-1246-378-0: 85.0 MMBTU/HR NATURAL GAS, ETHANE-RICH NATURAL GAS AND OR TEOR GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MODEL LE ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (#MNJ-416)

S-1246-379-0: 85.0 MMBTU/HR NATURAL GAS, ETHANE-RICH NATURAL GAS AND OR TEOR GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MODEL LE ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (#MNJ-416)

S-1246-380-0: 85.0 MMBTU/HR NATURAL GAS, ETHANE-RICH NATURAL GAS AND OR TEOR GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MODEL LE ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (#MNJ-416)

S-1246-381-0: 85.0 MMBTU/HR NATURAL GAS, ETHANE-RICH NATURAL GAS AND OR TEOR GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MODEL LE ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (#MNJ-416)

Post Project Equipment Description:

S-1246-19-33: 62.5 MMBTU/HR C.E. NATCO NATURAL/TEOR GAS-FIRED STEAM GENERATOR WITH FLUE GAS RECIRCULATION, NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, AND O2 CONTROLLER

S-1246-252-20: 62.5 MMBTU/HR NATURAL GAS/VAPOR RECOVERY GAS-FIRED STRUTHERS STEAM GENERATOR (UNIT #MSJ-414) WITH NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FGR, AND OXYGEN ANALYZER/CONTROLLER

S-1246-253-19: 62.5 MMBTU/HR NATURAL GAS/VAPOR RECOVERY GAS-FIRED STRUTHERS STEAM GENERATOR (UNIT #MSJ-415) WITH NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FGR, AND OXYGEN ANALYZER/CONTROLLER

S-1246-254-19: 62.5 MMBTU/HR NATURAL GAS/VAPOR RECOVERY GAS-FIRED STRUTHERS STEAM GENERATOR (UNIT #MSJ-416) WITH NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FGR, AND OXYGEN ANALYZER/CONTROLLER

S-1246-269-18: 62.5 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FGR AND O2 CONTROLLER

S-1246-378-0: 85.0 MMBTU/HR NATURAL GAS, ETHANE-RICH NATURAL GAS AND OR TEOR GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MODEL LE ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (#MNJ-416)

S-1246-379-0: 85.0 MMBTU/HR NATURAL GAS, ETHANE-RICH NATURAL GAS AND OR TEOR GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MODEL LE ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (#MNJ-416)

S-1246-380-0: 85.0 MMBTU/HR NATURAL GAS, ETHANE-RICH NATURAL GAS AND OR TEOR GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MODEL LE ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (#MNJ-416)

S-1246-381-0: 85.0 MMBTU/HR NATURAL GAS, ETHANE-RICH NATURAL GAS AND OR TEOR GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MODEL LE ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (#MNJ-416)

VI. Emission Control Technology Evaluation

Emissions from natural gas-fired steam generators include NO_X, CO, VOC, PM_{10}, and SO_X.

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

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

VII. General Calculations

A. Assumptions

- The maximum operating schedule is 24 hours per day (per applicant)
- Annual potential to emit is calculated based on 8,760 hours of operation per year
- EPA F-factor for natural gas is 8,578 dscf/MMBtu (40 CFR 60, Appendix B)

- Molar specific volume of a gas @ 60 °F is 379.5 ft^3/lb-mol

Tanks S-1246-185 and '186:

- TVP of oil: 0.5 psia (PTOs)
- Tank temperature: unheated
- Throughput: one turnover per day (District practice)

Steam Generators S-1246-378-0, '379-0, '380-0 and '381-0:

- Maximum Heat Input: 85.0 MMBtu/hr (per applicant)
- The steam generators are fired on natural gas with a sulfur content not to exceed 1.5 gr S/100scf.

Steam Generators S-1246-19-33, '25-20, '253-19, '254-19, '269-18:

Only NOx emissions will change as a result of this project

B. Emission Factors

Pollutant	S-1246-19-32, '25-19, '253-18, '254-18, '269-17 Emission Factors (EF1)		Source
NO_X	0.011 lb-NO_X/MMBtu	9 ppmvd NO_X (@ 3%O_2)	PTOs

Pollutant	S-1246-19-33, '25-20, '253-19, '254-19, '269-18 Emission Factors (EF2)		Source
NO_X	0.0062 lb-NO_X/MMBtu	5 ppmvd NO_X (@ 3%O_2)	Proposed and Rule 4320 limit

Pollutant	S-1246-378-0, '379-0, '380-0 and '381-0 Emission Factors (EF2)		Source
NO_X	0.008 lb-NO_X/MMBtu	7 ppmvd NO_X (@ 3%O_2)	Proposed and Rule 4320 limit
SO_X	0.0043 lb SO_X/MMBtu*	1.5 gr S/100 scf	Proposed
PM_{10}	0.005 lb-PM_{10}/MMBtu		Proposed *
CO	0.026 lb-CO/MMBtu	35 ppmv CO @3% O2	Proposed
VOC	0.0055 lb-VOC/MMBtu	13 ppmv VOC @3% O2	Proposed and AP-42 (7/98), Table 1.4-2

*(1.5 gr-S/100 scf)(lb/7000 gr)(scf/1000 btu)(2 lb-SO2/lb-S)(10E6) = 0.0043 lb-SOx/mmbtu

** Based on emissions testing documenting that natural gas fired steam generators have a PM_{10} emission rate of 0.001 lb/MM Btu.

Tanks S-1246-185 and '186:

- District's Microsoft Excel spreadsheets for Tank Emissions - Fixed Roof Crude Oil less than 26° API.

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Since S-1246-378-0, '379-0, '380-0 and '381-0 are new emissions units, PE1 = 0 for all pollutants.

The PE1 for S-1246-19-32, '25-19, '253-18, '254-1 and '269-17 is calculated as shown below and summarized in the following table:

0.011 lb-NOx/MMBtu × 62.5 MMBtu/hr × 24 hr/day = 16.5 lb-NOx/day
0.011 lb-NOx/MMBtu × 62.5 MMBtu/hr × 8760 hr/day = 6023 lb-NOx/yr

PE1		
	Daily Emissions (lb-NOx/day)	Annual Emissions (lb-NOx/year)
S-1246-19-32	16.5	6023
S-1246-252-19	16.5	6023
S-1246-253-18	16.5	6023
S-1246-254-18	16.5	6023
S-1246-259-17	16.5	6023
Total:		30,115

PE1		
Tanks	Daily Emissions (lb-VOC/day)	Annual Emissions (lb-VOC/year)
S-1246-185	53.5	19,515
S-1246-186	25.9	9445
Total:		28,960

See emission calculations in Appendix B

2. Post Project Potential to Emit (PE2)

The PE2 for S-1246-19-33, '25-20, '253-19, '254-19 and '269-18 is calculated as shown below and summarized in the following table:

0.0062 lb-NOx/MMBtu × 62.5 MMBtu/hr × 24 hr/day = 9.3 lb-NOx/day
0.0062 lb-NOx/MMBtu × 62.5 MMBtu/hr × 8760 hr/day = 3395 lb-NOx/yr

PE2 (each unit)		
	Daily Emissions (lb-NOx/day)	Annual Emissions (lb-NOx/year)
S-1246-19-32	9.3	3395
S-1246-252-19	9.3	3395
S-1246-253-18	9.3	3395
S-1246-254-18	9.3	3395
S-1246-259-17	9.3	3395
Total:		16,975

The PE2 for S-1246-378-0, '379-0, '380-0 and '381-0 is calculated as shown below and summarized in the following table:

0.0008 lb-NOx/MMBtu × 85.0 MMBtu/hr × 24 hr/day = 16.3 lb-NOx/day
0.0008 lb-NOx/MMBtu × 85.0 MMBtu/hr × 8760 hr/day = 5957 lb-NOx/yr

PE2 (each unit) S-1246-378-0, '379-0, '380-0 and '381-0			
	Daily Emissions (lb/day)	Annual Emissions (lb/year)	Total Annual Emissions for All Four Units (lb/year)
NO_X	16.3	5,957	23,828
SO_X	8.8	3,202	12,808
PM_{10}	10.2	3,723	14,892
CO	53.0	19,360	77,440
VOC	11.2	4,095	16,380

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

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

Facility emissions are already above the Offset and Major Source Thresholds for all pollutants; therefore, SSPE1 calculations are not necessary.

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

Pursuant to District Rule 2201, the SSPE2 is the PE from all units with valid ATCs or PTOs at the Stationary Source and the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site.

Since facility emissions are already above the Offset and Major Source Thresholds for all pollutants, SSPE2 calculations are not necessary.

5. Major Source Determination

Rule 2201 Major Source Determination:

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status the following shall not be included:

- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

Major Source Determination (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
Pre-Project SSPE (SSPE1)	>20,000	>140,000	>140,000	>200,000	>20,000
Post Project SSPE (SSPE2)	>20,000	>140,000	>140,000	>200,000	>20,000
Major Source Threshold	>20,000	>140,000	>140,000	200,000	20,000
Major Source?	Yes	Yes	Yes	Yes	Yes

This source is an existing Major Source for all pollutants and will remain so. No change in other pollutants are proposed or expected as a result of this project.

Rule 2410 Major Source Determination:

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). Therefore the following PSD Major Source thresholds are applicable.

PSD Major Source Determination (tons/year)							
	NO2	VOC	SO2	CO	PM	PM10	CO2e
PSD Major Source Thresholds	250	250	250	250	250	250	100,000

The facility stipulates that this is a Rule 2410 major stationary source, i.e. contiguous and adjacent properties, constitute a Rule 2410 major source. As such, no emission calculations will be conducted.

6. Baseline Emissions (BE)

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

Pursuant to District Rule 2201, BE = PE1 for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,

- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to District Rule 2201.
S-1246-378-0, '379-0, '380-0 and '381-0:

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

Pursuant to Rule 2201, a Clean Emissions Unit is defined as an emissions unit that is "equipped with an emissions control technology with a minimum control efficiency of at least 95% or is 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.

S-1246-19, '25, '253, '254 and '269 met the achieved-in-practice BACT requirements of the 2008 BACT guideline for this class and category of source for all pollutants. Therefore, their BE=PE1.

S-1246-185 and '186 meet the achieved-in-practice BACT requirements of the current BACT guideline for this class and category of source. Therefore, their BE=PE1.

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." Since this facility is a major source for all pollutants, the project's PE2 is compared to the SB 288 Major Modification Thresholds in the following table in order to determine if the SB 288 Major Modification calculation is required.

SB 288 Major Modification Thresholds			
Pollutant	Project PE2 (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
NO_x	23,828	50,000	No
SO_x	12,808	80,000	No
PM_{10}	14,892	30,000	No
VOC	16,380	50,000	No

Since none of the SB 288 Major Modification Thresholds are surpassed with this project, this project does not constitute an SB 288 Major Modification.

8. Federal Major Modification

District Rule 2201 states that a Federal Major Modification is the same as a "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

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

Step 1

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

The modifications to units S-1246-19-33, '25-20, '253-19, '254-19 and '269-18 is solely for District, State, or Federal rule compliance, and there is no change in the capacity of the units, the modification will not allow the emission unit to operate at a higher utilization rate. Therefore, the emission increase is presumed to be zero for all pollutants.

The project's combined total emission increases are compared to the Federal Major Modification Thresholds in the following table. Note that this application is a separate "project" from other pending applications submitted by Berry (S-1111128 and S-1111978) for new steam generators at the same contiguous and adjacent property, as the proposed steam generators are not economically dependent or technically dependent on the installation of the other proposed steam generators. See discussion under 9 – Rule 2410 Prevention of Significant Deterioration Applicability below.

Federal Major Modification Thresholds for Emission Increases			
Pollutant	Total Emissions Increases (lb/yr)	Thresholds (lb/yr)	Federal Major Modification?
NO_x	23,828	0	yes
VOC	12,808	0	yes
PM_{10}	14,892	30,000	No
$PM_{2.5}$	14,892	20,000	No
SO_x	16,380	80,000	No

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

9. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to pollutants for which the District is in attainment or for unclasssified, pollutants. The pollutants addressed in the PSD applicability determination are listed as follows:

- NO2 (as a primary pollutant)
- SO2 (as a primary pollutant)
- CO
- PM
- PM10
- Greenhouse gases (GHG): CO2, N2O, CH4, HFCs, PFCs, and SF6

The first step of this PSD evaluation consists of determining whether the facility is an existing PSD Major Source or not (See Section VII.C.5 of this document).

In the case the facility is an existing PSD Major Source, the second step of the PSD evaluation is to determine if the project results in a PSD significant increase.

In the case the facility is NOT an existing PSD Major Source but is an existing source, the second step of the PSD evaluation is to determine if the project, by itself, would be a PSD major source.

In the case the facility is new source, the second step of the PSD evaluation is to determine if this new facility will become a new PSD major Source as a result of the project and if so, to determine which pollutant will result in a PSD significant increase.

Project Location Relative to Class 1 Area

As demonstrated in the "PSD Major Source Determination" Section above, the facility was determined to be a existing major source for PSD. Because the project is not located within 10 km of a Class 1 area – modeling of the emission increase is not required to determine if the project is subject to the requirements of Rule 2410.

I. Significance of Project Emission Increase Determination

a. Emission Increase for Each Attainment/Unclassified Pollutant with a Significant Emission Increase vs PSD Significant Emission Increase Thresholds

In this step, the emission increase for each attainment/unclassified pollutant is compared to the PSD significant emission increase thresholds, and if emission increase for each attainment pollutant is below this threshold, no futher analysis is needed.

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

For existing emissions units, the increase in emissions is calculated as follows:

Emission Increase = PAE – BAE - UBC

Where: PAE = Projected Actual Emissions, and
BAE = Baseline Actual Emissions
UBC = Unused baseline capacity

The project's combined total emission increases are compared to the PSD significant emission increase thresholds in the following table.

PSD Significant Emission Increase Determination: Emission Increase (tons/year)						
	NO2	SO2	CO	PM	PM10	CO2e
Emission Increases (only)	11.9	6.4	37.7	7.4	7.4	117,236*
PSD Significant Emission Increase Thresholds	40	40	100	25	15	75,000
PSD Significant Emission Increase?	n	n	n	n	n	y

*4 x 85 MMBtu/hr x 117 lb-CO2e/MMBtu x 8760 hr/yr x ton/2000 lb = 117,236 tpy

As demonstrated in the table above, the project emission increases exceed the PSD significant emission increase threshold for CO2e.

10. Quarterly Net Emissions Change (QNEC)

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

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

a. Any new emissions unit with a potential to emit exceeding two pounds per day,
b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined by the rule.

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

However, BACT shall not be required for the following:

4.2.3 For existing facilities, the installation or modification of an emission control technique performed solely for the purpose of compliance with the requirements of District, State or Federal air pollution control laws,

regulations, or orders, as approved by the APCO, shall be exempt from Best Available Control Technology for all air pollutants, provided all of the following conditions are met:

4.2.3.1 There shall be no increase in the physical or operational design of the existing facility, except for those changes to the design needed for the installation or modification of the emission control technique itself;

4.2.3.2 There shall be no increase in the permitted rating or permitted operating schedule of the permitted unit;

4.2.3.3 There shall be no increase in emissions from the stationary source that will cause or contribute to any violation of a National Ambient Air Quality Standard, Prevention of Significant Deterioration increment, or Air Quality Related Value in Class I areas; and

4.2.3.4 The project shall not result in an increase in permitted emissions or potential to emit of more than 25 tons per year of NO_x, or 25 tons per year of VOC, or 15 tons per year of SO_x, or 15 tons per year of PM10, or 50 tons per year of CO.

Since each of the above-listed criteria are met for S-1246-19-33, '25-20, '253-19, '254-19 and '269-18, BACT is not triggered for these units.

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

As seen in Section VII.C.2 above, the applicant is proposing to install new steam generators each with a PE greater than 2 lb/day for NO_X, SO_X, PM_{10}, CO, and VOC. BACT is therefore triggered for NO_X, SO_X, PM_{10}, CO and VOC since the PEs are greater than 2 lbs/day.

2. BACT Guideline

BACT Guideline 1.2.1 (Steam Generator ≥ 5 MMBtu/hr, Oilfield) has been rescinded. Therefore, a project specific BACT analysis will be performed to determine BACT for this project (see Appendix C).

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 C), BACT has been satisfied with the following:

NO_X: 7 ppmv @ 3% O2
SO_X: Natural gas,
PM_{10}: Natural gas,
CO: 50 ppmvd @ 3% O_2
VOC: Gaseous fuel

B. Offsets

1. Offset Applicability

Emission offsets shall not be required for the following:

4.6.8 For existing facilities, the installation or modification of an emission control technique performed solely for the purpose of compliance with the requirements of District, State or Federal air pollution control laws, regulations, or orders, as approved by the APCO, shall be exempt from offset requirements for all air pollutants provided all of the following conditions are met:

4.6.8.1 There shall be no increase in the physical or operational design of the existing facility, except for those changes to the design needed for the installation or modification of the emission control technique itself;

4.6.8.2 There shall be no increase in the permitted rating or permitted operating schedule of the permitted unit;

4.6.8.3 There shall be no increase in emissions from the stationary source that will cause or contribute to any violation of a National Ambient Air Quality Standard, Prevention of Significant Deterioration increment, or Air Quality Related Value in Class I areas; and

4.6.8.4 The project shall not result in an increase in permitted emissions or potential to emit of more than 25 tons per year of NO_x, or 25 tons per year of VOC, or 15 tons per year of SO_x, or 15 tons per year of PM-10, or 50 tons per year of CO.

Since each of the above-listed criteria are met for S-1246-19-33, '25-20, '253-19, '254-19 and '269-18, offsets are not required for these units.

Offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals to or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The SSPE2 is compared to the offset thresholds in the following table.

Offset Determination (lb/year)					
	NO_X	SO_X	PM_{10}	CO	VOC
SSPE2	>20,000	>54,750	>29,200	>200,000	>20,000
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	yes	yes	yes	yes*	yes

*modeling results indicate that CO offsets are not required (see results below in section VIII.F)

2. Quantity of Offsets Required

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

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

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

Offsets Required (lb/year) = $(\Sigma[PE2 - BE] + ICCE) \times DOR$, 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 = PE1 for:

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

otherwise,

BE = HAE

As calculated in Section VII.C.6 above, the BE for S-1246-19, '25, '185, '186, '253, '254 and '269 equal to the PE1 since the units are Clean Emissions Units.

Also, there are no increases in cargo carrier emissions. Therefore offsets can be determined as follows:

Offsets Required (lb/year) = (PE2 – BE) x DOR

BE	
Annual Emissions (lb-NOx/year)	
S-1246-19-32	6023
S-1246-252-19	6023
S-1246-253-18	6023
S-1246-254-18	6023
S-1246-259-17	6023
BE Total:	30,115

BE	
Annual Emissions (lb-VOC/year)	
S-1246-185	19,515
S-1246-186	9445
BE Total:	28,960

PE2 (each unit)	
	Annual Emissions (lb-NOx/year)
S-1246-19-32	3395
S-1246-252-19	3395
S-1246-253-18	3395
S-1246-254-18	3395
S-1246-259-17	3395
Total:	16,975

PE2 S-1246-378-0, '379-0, '380-0 and '381-0		
	Annual Emissions for each unit (lb/year)	Total Annual Emissions for All Four Units (lb/year)
NO_X	5,957	23,828
SO_X	3,202	12,808
PM_{10}	3,723	14,892
CO	19,360	77,440
VOC	4,095	16,380

Offset Requirements					
	BE	PE2	PE2 – BE	at offset ratio of 1.5:1	Offsets Required at 1.5:1 (lb/qtr)
NO_X	30,115	23,828 + 16,975 = 40,803	10,688	16,032	4008
SO_X		12,808	12,808	19,212	4,803
PM_{10}		14,892	14,892	22,338	5,585
VOC	28,960	16,380	0	0	0

Offset requirements will be distributed equally among S-1246-378-0, '379-0, '380-0 and '381-0 as shown below:

	Offsets Required for each of S-1246-378-0, '379-0, '380-0 and '381-0 at 1.5:1 (lb/yr)	Offsets Required for each of S-1246-378-0, '379-0, '380-0 and '381-0 at 1.5:1 (lb/qtr)
NO_X	4008	1002
SO_X	4,803	1201
PM_{10}	5,585	1396

The applicant has stated that the facility plans to use the following ERC certificates which have available quarterly credits as follows:

NOx				
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
N-980-2	0	0	5529	581
N-981-2	177	172	1273	128
S-3256-2	239	239	239	239
S-3962-2	121	121	0	119
S-3656-2	12976	0	0	0
S-3970-2	26,672	26,672	26,672	26,672
S-4015-2	0	0	121	0
S-3913-2	416	833	0	417
S-3915-2	1751	0	0	0
Total:	42,352	28,037	33,834	28,156
Offsets Required at 1.5:1	4008	4008	4008	4008

SOx				
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
S-3980-5	37,830	38,246	38,050	39,371
Total:	37,830	38,246	38,050	39,371
Offsets Required at 1.5:1	4803	4803	4803	4803

PM10				
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
C-1166-4	0	0	0	2586
N-961-4	329	553	326	213
N-962-4	0	8185	13499	5136
S-2480-4	0	0	0	6000
S-3624-4	0	0	789	0
Total:	329	8738	14614	13935
Offsets Required at 1.5:1	5585	5585	5585	5585

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

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

Proposed Rule 2201 (offset) Conditions:

- Prior to operating equipment under this Authority to Construct, permittee shall surrender NO_x emission reduction credits for the following quantity of emissions: 1st quarter - 1002 lb, 2nd quarter – 1002 lb, 3rd quarter – 1002 lb, and fourth quarter – 1002 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]

- ERC Certificate Numbers N-980-2, N-981-2, S-3256-2, S-3962-2, S-3656-2, S-3970-2, S-4015-2, S-3913-2 and S-3915-2 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

- Prior to operating equipment under this Authority to Construct, permittee shall surrender SO_x emission reduction credits for the following quantity of emissions: 1st quarter – 1201 lb, 2nd quarter – 1201 lb, 3rd quarter – 1201 lb, and fourth quarter – 1201 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]

- ERC Certificate Number S-3980-5 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

- Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter – 1396 lb, 2nd quarter – 1396 lb, 3rd quarter – 1396 lb, and fourth quarter – 1396 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]

- ERC Certificate Numbers C-1166-4, N-961-4, N-962-4, S-2480-4 and S-3624-4 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

C. Public Notification

1. Applicability

Public noticing is required for:

a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
c. Any project which results in the offset thresholds being surpassed, 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 SB 288 Major Modifications

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

As demonstrated in Sections VII.C.7 and VII.C.8, this project 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 PE greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. As seen in Section VII.C.2 above, this project does not include a new emissions unit which has daily emissions greater than 100 lb/day for any pollutant, therefore public noticing for PE > 100 lb/day purposes is not required.

c. Offset Threshold

The SSPE1 and SSPE2 are compared to the offset thresholds in the following table.

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO_x	>20,000	>20,000	20,000 lb/year	No
SO_x	>54,750	>54,750	54,750 lb/year	No
PM_{10}	>29,200	>29,200	29,200 lb/year	No
CO	>200,000	>200,000	200,000 lb/year	No
VOC	>20,000	>20,000	20,000 lb/year	No

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

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE = SSPE2 – SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table.

SSIPE Public Notice Thresholds			
Pollutant	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO_x	10,413	20,000 lb/year	No
SO_x	12,808	20,000 lb/year	No
PM_{10}	14,892	20,000 lb/year	No
CO	77,440	20,000 lb/year	Yes
VOC	16,380	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.

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

2. Public Notice Action

As discussed above, public noticing is required for this project for NO_X emissions in excess of 20,000 lb/yr for triggering a Federal Major Modification. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

D. Daily Emission Limits (DELs)

DELs are listed for all pollutants on a permit unit-by-permit unit, or on an emissions unit-by-emissions unit basis, as the appropriate case may be. Be alert to the facts. Also note, according to APR 1605, "Do not use redundant conditions. If DEL is already established by other conditions, do not write additional conditions intended to do the same thing."

DELs and other enforceable conditions are required by Rule 2201 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. The DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

Proposed Rule 2201 (DEL) Conditions:

S-1246-19-33:

Except during startup and shutdown, the emission rate for firing on natural gas shall not exceed any of the following: PM10 - 0.005 lb/MMBtu, NOx (as NO2) - 0.0062 lb/MMBtu or 5 ppmvd NOx @ 3% O2, VOC - 0.003 lb/MMBtu, or CO - 0.033 lb/MMBtu (46.6 ppmv @ 3% O2). [District Rules 2201, 4305, 4306, 4320 and 2520, 9.3.2] Y

Except during startup and shutdown, the emission rate for incineration of waste gas from TEOR S-1246-268 shall not exceed any of the following: PM10 - 0.0075 lb/MMBtu, NOx (as NO2) - 0.011 lb/MMBtu or 9 ppmvd NOx @ 3% O2, VOC - 0.003 lb/MMBtu, or CO - 0.033 lb/MMBtu. [District Rules 2201, 4305, 4306, 4320 and 2520, 9.3.2] Y

Daily SOx emissions shall not exceed 15 lbs/day. [District Rules 2201 and 4301] Y

Daily emissions shall not exceed any of the following: PM10 - 9.5 lb/day, NOx (as NO2) - 54.0 lb/day, VOC - 4.5 lb/day, CO - 49.5 lb/day. [District Rule 2201] Y

S-1246-252-20:

Except during periods of startup and shutdown, emission rates shall not exceed any of the following: PM10: 0.005 lb/MMBtu, NOx (as NO2): 0.0062 lb/MMBtu or 5 ppmvd NOx @ 3% O2, VOC: 0.003 lb/MMBtu; or CO: 46.6 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320] Y

Daily emissions shall not exceed any of the following: PM10 - 7.5 lb/day, NOx (as NO2) - 54.0 lb/day, VOC - 4.5 lb/day, CO - 49.5 lb/day. [District Rule 2201] Y

S-1246-253-19:

Except during periods of startup and shutdown, emission rates shall not exceed any of the following: PM10: 0.005 lb/MMBtu, NOx (as NO2): 0.0062 lb/MMBtu or 5 ppmvd NOx @ 3% O2, VOC: 0.003 lb/MMBtu; or CO: 46.6 ppmv @ 3% O2. [District Rules 2201, 4305,4306, and 4320] Y

Daily emissions shall not exceed any of the following: PM10 - 7.5 lb/day, NOx (as NO2) - 54.0 lb/day, VOC - 4.5 lb/day, CO - 49.5 lb/day. [District Rule 2201] Y

S-1246-254-19:

Except during periods of startup and shutdown, emission rates shall not exceed any of the following: PM10: 0.005 lb/MMBtu, NOx (as NO2): 0.0062 lb/MMBtu or 5 ppmvd NOx @ 3% O2, VOC: 0.003 lb/MMBtu; or CO: 46.6 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320] Y

Daily emissions shall not exceed any of the following: PM10 - 7.5 lb/day, NOx (as NO2) - 54.0 lb/day, VOC - 4.5 lb/day, CO - 49.5 lb/day. [District Rule 2201] Y

S-1246-269-18:

Except during periods of startup and shutdown, emission rates shall not exceed any of the following: 0.0062 lb NOx/MMBtu (as NO2) or 5 ppmv NOx @ 3% O2, or 46.6 ppmv CO @ 3% O2. [District NSR Rule and Rules 4305, 4306, 5.1, and 4320] Y

Daily emissions shall not exceed any of the following: PM10 - 7.5 lb/day, NOx (as NO2) - 36.0 lb/day, VOC - 4.5 lb/day, CO - 49.5 lb/day. [District NSR Rule] Y

S-1246-378-0, '379-0, '380-0 and '381-0:

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

E. Compliance Assurance

1. Source Testing

These units are subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters, Phase 2*, District Rule 4306, *Boilers, Steam Generators and Process Heaters, Phase 3, and District Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr.* Source testing requirements, in accordance with District Rules 4305, 4306, and 4320 will be discussed in Section VIII, District Rule4320 of this evaluation.

2. Monitoring

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

3. Recordkeeping

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

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

An AAQA shall be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The District's Technical Services Division conducted the required analysis. Refer to **Appendix D** of this document for the AAQA summary sheet.

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

The proposed location is in a non-attainment area for the state's PM_{10} as well as federal and state $PM_{2.5}$ thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM_{10} and $PM_{2.5}$.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Title I Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Section VIII above, this facility is a new major source and this project does constitute a Title I modification, therefore this requirement is applicable. Berry's compliance certification is included in Appendix E.

H. Alternate Siting Analysis

The current project occurs at an existing facility. The applicant proposes to install a four steam generators.

Since the project will provide steam to be used at the same location, the existing site will result in the least possible impact from the project. Alternative sites would involve the relocation and/or construction of various support structures on a much greater scale, and would therefore result in a much greater impact.

Rule 2410 Prevention of Significant Deterioration

As demonstrated in Section VII C 9 above, the project is subject to the requirements of Rule 2410 for GHGs (as CO2e).

Below is a listing of the requirements of Rule 2410, and demonstration that compliance with the requirements is expected.

A. Best Available Control Technology (BACT)

GHG emissions

Currently, there is no BACT CO_2E Guideline for a Steam Generator > 5 MMBtu/hr, Oilfield. However, the District has created a draft Top-Down Steam Generator Rule 2410 BACT Analysis for GHGs. (See Appendix F)

BACT for GHGs has been satisfied with the following:

CO_2e: A convection section with at least 235 suare feet of convection section per MMBtu/hr of maximum rated heat input (as verified by the manufacturer)

And

Variable frequency drive high efficiency electrical motors driving the blower and water pump

B. Ambient air quality impact analysis

40 CFR 52.21(k) (as referenced in Rule 2410) requires that applications with significant emission increases would not cause or contribute to a violation of and Federal Ambient

air quality standard or any applicable maximum allowable increase over baseline concentration (increment consumption).

EPA's March 2011 guidance titled "PSD and Title V Permitting Guidance for Greenhouse Gases" (pages 47 and 48) states that because there are no ambient air quality standards for GHGs that EPA does not recommend that sources be required to model the impacts of GHG emissions due to a project.

The District concurs with this recommendation. Therefore, no modeling of GHG emission increases is required.

C. Ambient air quality monitoring,

40 CFR 52.21(m) (as referenced in Rule 2410) requires that applications with significant emission increases contain an analysis of air ambient air quality in the area that the project would affect, i.e. ambient air quality monitoring.

EPA's March 2011 guidance titled "PSD and Title V Permitting Guidance for Greenhouse Gases" (pages 47 and 48) states that there is an exemption from ambient air quality monitoring in 40 CFR 52.(i)(5)(iii) for pollutants for which there is not an ambient air quality standard (AAQS), i.e. GHGs. Additionally, notwithstanding the provisions of 40 CFR 52.21 (m)(1)(i) that allows the Administrator to require ambient air monitoring for pollutants for which an AAQS does not exist, EPA does not consider it necessary or appropriate for applicants to perform ambient monitoring of GHGs.

The District concurs with this recommendation. Therefore, no ambient monitoring of GHGs is required.

D. Additional impact analyses, including visibility, soils, vegetation

40 CFR 52.21(o) (as referenced in Rule 2410) requires that applications prepare an analysis on the impairment to visibility, soils, and vegetation that would occur as a result of the proposed modification and the general commercial, residential, industrial, or other growth associated with the project.

EPA's March 2011 guidance titled "PSD and Title V Permitting Guidance for Greenhouse Gases" (pages 47 and 48) states that it is not necessary for applicants to assess impacts due to GHG emission increases as there is no method to quantify project level on visibility, soils, and vegetation. The only modeling techniques available for emission increases several orders of magnitude greater than project level emission increases.

The District concurs with this recommendation. Therefore, no additional impact analysis for visibility, soils, vegetation or other related growth is required.

E. Public noticing requirements

District Rule 2410 requires the preliminary decision on the project must undergo a 30-day public notification process prior to issuance of ATC(s). Therefore, notification of the preliminary decision shall be given by the following methods:

Copies of the notice to the following entities:

Gerardo C. Rios, Chief Permits Office Air Division U.S. EPA - Region IX 75 Hawthorne St. San Francisco, CA 94105	Mike Tollstrup, Chief Project Assessment Branch Air Resources Board P O Box 2815 Sacramento, CA 95812-2815	Lorelei H. Oviatt, AICP County of Kern 2700 "M" Street, Suite 100 Bakersfield, CA 933301
Trent Proctor, US Forest Service Land Management Sequoia National Forest 1839 South Newcomb Street Porterville, CA 93257-2035	Dave Van Mullem Santa Barbara County APCD 260 N. San Antonio Rd, Suite A Santa Barbara, CA 93110-1315	Mike Villegas Ventura County APCD 669 County Square Dr., 2nd Fl. Ventura, CA 93003
Larry Allen San Luis Obispo PCD 3433 Roberto Court San Luis Obispo, CA 93401	Glen Stephens Eastern Kern County KAPCD 2700 "M" Street, Suite 302 Bakersfield, CA 93301	Barry Wallerstein South Coast AQMD 21865 E. Copley Dr. Diamond Bar, CA 91765
Tonnie Cummings (via email) Air Resources Specialist National Park Service, Pacific West Region Tonnie_Cummings@nps.gov	Tule River Indian Tribe Attn: Environmental Dept. 340 N. Reservation Road Porterville, CA 93257	Santa Ynez Tribe (via email) c/o Tribal Council FreddyRomero1959@yahoo.com Scohen@santaynezchumash.org

The notice shall state the emissions change, there is no increment consumption associated with this project. The notice will include the ability for the public to make a request for a public hearing.

Compliance with this Rule is expected.

Rule 2520 Federally Mandated Operating Permits

This facility is subject to this Rule, and has received their Title V Operating Permit. A significant permit modification is defined as a "permit amendment that does not qualify as a minor permit modification or administrative amendment."

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

Minor permit modifications are not Federal Major Modifications. As a result, the proposed project constitutes a Significant Modification to the Title V Permit.

Rule 4001 New Source Performance Standards (NSPS)

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).

The subject steam generators have a rating of 62.5 to 85 MMBtu/hr and are fired on natural/TEOR gas. Subpart Dc has no standards for gas-fired steam generators. Therefore the subject steam generators are not an affected facility and subpart Dc does not apply.

Rule 4101 Visible Emissions

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

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

Rule 4102 Nuisance

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

California Health & Safety Code 41700 (Health Risk Assessment)

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 D**), the total facility prioritization score including this project was greater than one. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project.

The cancer risk for this project is shown below:

Categories	NG Steam Generators Units 378-0, 379-0, 380-0 and 381-0 (each)	Project Totals	Facility Totals
Prioritization Score	**0.0**	0.0	>1
Acute Hazard Index	**0.00**	**0.00**	0.68
Chronic Hazard Index	**0.00**	**0.00**	0.04
Maximum Individual Cancer Risk (10^{-6})	**0.076**	**0.3**	8.92
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.

Rule 4201 Particulate Matter Concentration

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

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

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

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

$$GL = 0.00349\ grain/dscf < 0.1\ grain/dscf$$

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

Rule 4301 Fuel Burning Equipment

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

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

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

- 200 pound per hour of sulfur compounds, calculated as sulfur dioxide (SO_2)
- 140 pounds per hour of nitrogen oxides, calculated as nitrogen dioxide (NO_2)
- Ten pounds per hour of combustion contaminants as defined in Rule 1020 and derived from the fuel.

District Rule 4301 Limits			
Unit	NO_2	Total PM	SO_2
S-1246-19-33, '25-20, '253-19, '254-19, '269-18	0.0061 x 85 = 0.68	0.005 x 62.5 = 0.31	1.25*
S-1246-378-0, '379-0, '380-0 and '381-0	0.008 x 85 = 0.68	0.005 x 85 = 0.43	0.0043 x 85 = 0.37
Rule Limit (lb/hr)	140	10	200

*based on worst case SOx limit of S-1624-252

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

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

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

The unit is natural gas-fired with a maximum heat input of 20.0 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4305, the unit is subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters – Phase 2.*

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

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

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

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

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

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

Section 5.0 Requirements

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

Section 5.2 NOx and CO Emission Limits

C. Oilfield Steam Generators

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

S-1246-19-33, '25-20, '253-19, '254-19 and '269-18:

- The current NOx emission factor is 9 ppmv.
- The proposed NOx emission factor is 5 ppmv.

S-1246-378-0, '379-0, '380-0 and '381-0:

- The proposed NOx emission factor is 7 ppmv.

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

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

Section 5.3 Annual Fee Calculation

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

Section 5.4 Particulate Matter Control Requirements

Section 5.4 of the rule requires one of four options for control of particulate matter: 1) combustion of PUC-quality natural gas, commercial propane, butane, or liquefied petroleum

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

Units S-1246-19-33, '25-20, '253-19, '254-19 and '269-18 have a sulfur emission limit of 0.01 lb SO2/MMBtu (3.5 gr S/100scf) and are authorized to combust natural/TEOR gas.

Units S-1246-19-33, '25-20, '253-19, '254-19 and '269-18 have a sulfur emission limit of 0.0043 lb SO2/MMBtu (1.5 gr S/100scf) and are authorized to combust natural/TEOR gas.

Therefore the units are in compliance with the SOx/PM10 requirements of Section 5.4.1.2 of the rule which states the following:

5.4.1.2 On and after the applicable NOx 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

Compliance with the rule is expected.

Section 5.5 Low Use

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

The subject steam generators are not low use units and therefore the requirements of Section 5.5 do not apply.

Section 5.6, Startup and Shutdown Provisions

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

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

Maximum NOx emissions from the steam generator, including start-up and shutdown, shall not exceed 19.7 lb-NOx/day. [District Rule 2201]

Section 5.7, Monitoring Provisions

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

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

In order to satisfy the requirements of District Rule 4320, the applicant has proposed to use pre-approved alternate monitoring scheme A (pursuant to District Policy SSP-1105), which requires that monitoring of NO_X, CO, and O_2 exhaust concentrations shall be conducted at least once per month (in which a source test is not performed) using a portable analyzer. The following conditions will be incorporated into the permits in order to ensure compliance with the requirements of the proposed alternate monitoring plan:

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

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

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

- {4066} The permittee shall maintain records of: (1) the date and time of NO_X, CO, and O2 measurements, (2) the O2 concentration in percent by volume and the measured NOX and CO concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306, and 4320]

5.7.6 Monitoring SOx Emissions

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

Section 5.7.6.2 Operators complying with Section 5.4.1.3 by installing and operating a control device with 95% SOx reduction shall propose the key system operating parameters and frequency of the monitoring and recording. The monitoring option proposed shall be submitted for approval by the APCO.

Section 5.7.6.3 Operators complying with Section 5.4.1.3 shall perform an annual source test unless a more frequent sampling and reporting period is included in the Permit to Operate. Source tests shall be performed in accordance with the test methods in Section 6.2.

Sulfur Monitoring

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

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, 2201, and 4320]

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, 2201, and 4320]

Section 5.8, Compliance Determination

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

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

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

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

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

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

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

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

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

Section 6.1 Recordkeeping

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

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

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

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

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

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

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

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

Section 6.2, Test Methods

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

Pollutant	Units	Test Method Required
NO_X	ppmv	EPA Method 7E or ARB Method 100
NO_X	lb/MMBtu	EPA Method 19
CO	ppmv	EPA Method 10 or ARB Method 100
Stack Gas O_2	%	EPA Method 3 or 3A, or ARB Method 100
Stack Gas Velocities	ft/min	EPA Method 2
Stack Gas Moisture Content	%	EPA Method 4
Oxides of sulfur		EPA Method 6C, EPA Method 8, or ARB Method 100
Total Sulfur as Hydrogen Sulfide (H_2S) Content		EPA Method 11 or EPA Method 15, as appropriate.
Sulfur Content of Liquid Fuel		ASTM D 6920-03 or ASTM D 5453-99

The following test method conditions are included on the ATCs:

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

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

{2979} Stack gas oxygen (O_2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320]
Section 6.2.8.2. The SOx emission control system efficiency shall be determined using the following:

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

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

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

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

Section 6.3 Compliance Testing

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

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

Section 6.3.1.2 Tune-ups required by Sections 5.5.1 and 6.3.1 do not need to be performed for units that operate and maintain an APCO approved CEMS or an APCO approved Alternate Monitoring System where the applicable emission limits are periodically monitored. Applicant has proposed to monitor the emissions of NOx and CO Alternate Monitoring Scheme "A" and therefore tuning is not required.

Section 6.3.1.3 If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits specified in Section 5.2, the source testing frequency shall revert to at least once every 12 months.

The following conditions are included on the ATC:

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

{3467} Source testing to measure NOx and CO emissions from this unit while fired on natural gas shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
{3466} Source testing to measure NOx and CO emissions from this unit while fired on natural gas shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive

annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305, 4306, and 4320]

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

Sections 6.3.2.1 through 6.3.2.7 address the requirements of group testing which is not applicable for this project.

Section 6.4, Emission Control Plan (ECP)

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

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

Section 7.0, Compliance Schedule

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

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

Conclusion

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

Rule 4801 Sulfur Compounds

A person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: 0.2 % by volume calculated as SO_2, on a dry basis averaged over 15 consecutive minutes.
Using the ideal gas equation and the worst case SOx emission limit of S-1624-252, the sulfur compound emissions are calculated as follows:

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

With:

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

$$\frac{0.02\ lb-SOx}{MMBtu} \times \frac{MMBtu}{8{,}578\ dscf} \times \frac{1\,lb \cdot mol}{64\,lb} \times \frac{10.73\ psi \cdot ft^3}{lb \cdot mol \cdot °R} \times \frac{520°R}{14.7\,psi} \times \frac{1{,}000{,}000 \cdot parts}{million} = 13.8 \frac{parts}{million}$$

$$SulfurConcentration = 13.8 \frac{parts}{million} < 2{,}000 \text{ ppmv (or 0.2\%)}$$

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

California Health & Safety Code 42301.6 (School Notice)

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

California Environmental Quality Act (CEQA)

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

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

The California Division of Oil, Gas, and Geothermal Resources (DOGGR), is the public agency having principal responsibility for approving the project. As such, DOGGR serves as the lead agency for the project. Consistent with CEQA Guidelines §15070, a Mitigated Negative Declaration was prepared and certified by DOGGR.

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 complies with CEQA by considering the Mitigated Negative Declaration prepared by the Lead Agency, and by reaching its own conclusion on whether and how to approve the project (CEQA Guidelines §15096). The District has considered the Mitigated Negative Declaration certified by DOGGR.

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. Thus, the District concludes that through a specific combination of design elements and permit conditions, project specific stationary source emissions will be reduced and mitigated to less than significant levels. 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. Pending a successful NSR Public Noticing period, issue ATCs S-1246-19-33, '25-20, '253-19, '254-19, '269-18, '378-0, '379-0, '380-0 and '381-0 subject to the permit conditions on the attached draft ATC in **Appendix G**.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-1246-19-32	3020-02 H	62.5 MMBtu/hr	$1030
S-1246-252-19	3020-02 H	62.5 MMBtu/hr	$1030
S-1246-253-18	3020-02 H	62.5 MMBtu/hr	$1030
S-1246-254-18	3020-02 H	62.5 MMBtu/hr	$1030
S-1246-259-17	3020-02 H	62.5 MMBtu/hr	$1030
S-1246-378-0	3020-02 H	85 MMBtu/hr	$1030
S-1246-379-0	3020-02 H	85 MMBtu/hr	$1030
S-1246-380-0	3020-02 H	85 MMBtu/hr	$1030
S-1246-381-0	3020-02 H	85 MMBtu/hr	$1030

APPENDIX A
Quarterly Net Emissions Change (QNEC)

Application Emissions

Permit #: S-1246-19-33	Last Updated
Facility: BERRY PETROLEUM COMPANY	08/01/2013 TORID

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	3395.0	5475.0	4106.0	18068.0	1643.0
Daily Emis. Limit (lb/Day)	9.2	15.0	11.4	115.3	4.5
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	-671.0	0.0	0.0	0.0	0.0
Q2:	-671.0	0.0	0.0	0.0	0.0
Q3:	-671.0	0.0	0.0	0.0	0.0
Q4:	-671.0	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:					

Application Emissions

Permit #: S-1246-252-20	Last Updated
Facility: BERRY PETROLEUM COMPANY	08/02/2013 TORID

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	5957.0	10950.0	2738.0	18068.0	1643.0
Daily Emis. Limit (lb/Day)	16.3	30.0	7.5	49.5	4.5
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	-671.0	0.0	0.0	0.0	0.0
Q2:	-671.0	0.0	0.0	0.0	0.0
Q3:	-671.0	0.0	0.0	0.0	0.0
Q4:	-671.0	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:					

Application Emissions

Permit #: S-1246-253-19	Last Updated
Facility: BERRY PETROLEUM COMPANY	08/02/2013 TORID

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	5957.0	10950.0	2738.0	18068.0	1643.0
Daily Emis. Limit (lb/Day)	16.3	30.0	7.5	49.5	4.5
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	-671.0	0.0	0.0	0.0	0.0
Q2:	-671.0	0.0	0.0	0.0	0.0
Q3:	-671.0	0.0	0.0	0.0	0.0
Q4:	-671.0	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:					

Application Emissions

Permit #: S-1246-254-19	**Last Updated**
Facility: BERRY PETROLEUM COMPANY	08/02/2013 TORID

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	4957.0	10950.0	2738.0	18068.0	1643.0
Daily Emis. Limit (lb/Day)	16.3	30.0	7.5	49.5	4.5
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	-671.0	0.0	0.0	0.0	0.0
Q2:	-671.0	0.0	0.0	0.0	0.0
Q3:	-671.0	0.0	0.0	0.0	0.0
Q4:	-671.0	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-1246-269-18	**Last Updated**
Facility: BERRY PETROLEUM COMPANY	08/02/2013 TORID

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	5957.0	3668.0	2738.0	18068.0	1643.0
Daily Emis. Limit (lb/Day)	16.3	10.1	7.5	49.5	4.5
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	-671.0	0.0	0.0	0.0	0.0
Q2:	-671.0	0.0	0.0	0.0	0.0
Q3:	-671.0	0.0	0.0	0.0	0.0
Q4:	-671.0	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:					

Application Emissions

Permit #: S-1246-378-0	**Last Updated**
Facility: BERRY PETROLEUM COMPANY	08/02/2013 TORID

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	5957.0	3202.0	3723.0	19360.0	4095.0
Daily Emis. Limit (lb/Day)	16.3	8.8	10.2	53.0	11.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1489.0	801.0	931.0	4840.0	1024.0
Q2:	1489.0	801.0	931.0	4840.0	1024.0
Q3:	1489.0	801.0	931.0	4840.0	1024.0
Q4:	1489.0	801.0	931.0	4810.0	1024.0
Check if offsets are triggered but exemption applies	N	N	N	Y	N
Offset Ratio	1.5	1.5	1.5		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	1002.0	1201.0	1396.0		1536.0
Q2:	1002.0	1201.0	1396.0		1536.0
Q3:	1002.0	1201.0	1396.0		1536.0
Q4:	1002.0	1201.0	1396.0		1536.0

Application Emissions

Permit #: S-1246-379-0	Last Updated
Facility: BERRY PETROLEUM COMPANY	08/02/2013 TORID

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	5957.0	3202.0	3723.0	19360.0	4095.0
Daily Emis. Limit (lb/Day)	16.3	8.8	10.2	53.0	11.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1489.0	801.0	931.0	4840.0	1024.0
Q2:	1489.0	801.0	931.0	4840.0	1024.0
Q3:	1489.0	801.0	931.0	4840.0	1024.0
Q4:	1489.0	801.0	931.0	4840.0	1024.0
Check if offsets are triggered but exemption applies	N	N	N	Y	N
Offset Ratio	1.5	1.5	1.5		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	1002.0	1201.0	1396.0		1536.0
Q2:	1002.0	1201.0	1396.0		1536.0
Q3:	1002.0	1201.0	1396.0		1536.0
Q4:	1002.0	1201.0	1396.0		1536.0

Application Emissions

Permit #: S-1246-380-0	Last Updated
Facility: BERRY PETROLEUM COMPANY	08/02/2013 TORID

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	5957.0	3202.0	3723.0	19360.0	4095.0
Daily Emis. Limit (lb/Day)	16.3	8.8	10.2	53.0	11.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1489.0	801.0	931.0	4840.0	1024.0
Q2:	1489.0	801.0	931.0	4840.0	1024.0
Q3:	1489.0	801.0	931.0	4840.0	1024.0
Q4:	1489.0	801.0	931.0	4840.0	1024.0
Check if offsets are triggered but exemption applies	N	N	N	Y	N
Offset Ratio	1.5	1.5	1.5		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	1002.0	1201.0	1396.0		1536.0
Q2:	1002.0	1201.0	1396.0		1536.0
Q3:	1002.0	1201.0	1396.0		1536.0
Q4:	1002.0	1201.0	1396.0		1536.0

Application Emissions

Permit #: S-1246-381-0	Last Updated
Facility: BERRY PETROLEUM COMPANY	08/02/2013 TORID

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	5957.0	3202.0	3723.0	19360.0	4095.0
Daily Emis. Limit (lb/Day)	16.3	8.8	10.2	53.0	11.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1489.0	801.0	931.0	4840.0	1024.0
Q2:	1489.0	801.0	931.0	4840.0	1024.0
Q3:	1489.0	801.0	931.0	4840.0	1024.0
Q4:	1489.0	801.0	931.0	4840.0	1024.0
Check if offsets are triggered but exemption applies	N	N	N	Y	N
Offset Ratio	1.5	1.5	1.5		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	1002.0	1201.0	1396.0		1536.0
Q2:	1002.0	1201.0	1396.0		1536.0
Q3:	1002.0	1201.0	1396.0		1536.0
Q4:	1002.0	1201.0	1396.0		1536.0

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:

$PE2_{quarterly}$ = $PE2_{annual}$ ÷ 4 quarters/year

$PE1_{quarterly}$= $PE1_{annual}$ ÷ 4 quarters/year

Quarterly NEC [QNEC]					
	PE2 (lb-NOx/yr)	PE2 (lb-NOx/qtr)	PE1 (lb-NOx/yr)	PE1 (lb-NOx/qtr)	QNEC (lb-NOx/qtr)
S-1246-19-33	3340	835	6023	1506	-671
S-1246-252-20	3340	835	6023	1506	-671
S-1246-253-19	3340	835	6023	1506	-671
S-1246-254-19	3340	835	6023	1506	-671
S-1246-269-18	3340	835	6023	1506	-671

Quarterly NEC [QNEC] S-1246-378-0, '379-0, '380-0 and '381-0					
	PE2 (lb/yr)	PE2 (lb/qtr)	PE1 (lb/yr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO_X	5,957	1489	0	0	1489
SO_X	3,202	801	0	0	801
PM_{10}	3,723	931	0	0	931
CO	19,360	4840	0	0	4840
VOC	4,095	1024	0	0	1024

APPENDIX B
Tank Emission Calculations

Tank Input Data	
permit number (S-xxxx-xx-xx)	1246.185
facility tank I.D.	
nearest city {1: Bakersfield, 2: Fresno, 3: Stockton}	1
tank ROC vapor pressure (psia)	0.5
liquid bulk storage temperature, Tb (°F)	180
is this a constant-level tank? {yes, no}	no
will flashing losses occur in this tank (only if first-line tank)? {yes, no}	no
breather vent pressure setting range (psi)	0.06
diameter of tank (feet)	21.5
capacity of tank (bbl)	1,035
conical or dome roof? {c, d}	c
shell height of tank (feet)	16
average liquid height (feet)	12
are the roof and shell the same color? {yes,no}	yes
For roof:	
color {1:Spec Al, 2:Diff Al, 3:Light, 4:Med, 5:Red, 6:White}	4
condition {1: Good, 2: Poor}	1
----This row only used if shell is different color from roof----	3
----This row only used if shell is different color from roof----	1

Throughput Data		
maximum daily fluid throughput (bbl)		1,035
maximum annual fluid throughput (bbl)		377,775
----This row only used if flashing losses occur in this tank----		
----This row only used if flashing losses occur in this tank----		-
molecular weight, Mw (lb/lb-mol)		100

Calculated Values	A	B
daily maximum ambient temperature, Tax (°F)		77.65
daily minimum ambient temperature, Tan (°F)		53.15
daily total solar insulation factor, I (Btu/ft^2-day)		1648.9
atmospheric pressure, Pa (psia)		14.47
water vapor pressure at daily maximum liquid surface temperature (Tlx), Pvx (ps	143.8	3.2094
water vapor pressure at daily minimum liquid surface temperature (Tln), Pvn (psi	133.0	2.4283
water vapor pressure at average liquid surface temperature (Tla), Pva (psia)	138.4	2.7876
roof outage, Hro (feet)		0.2240
vapor space volume, Vv (cubic feet)		1533.51
paint factor, alpha		0.68
vapor density, Wv (lb/cubic foot)		0.0078
daily vapor temperature range, delta Tv (degrees Rankine)		49.04
vapor space expansion factor, Ke		0.1437

Results	lb/year	lb/day
Standing Storage Loss	626	1.72
Working Loss	18,889	51.75
Flashing Loss	N/A	N/A
Total Uncontrolled Tank VOC Emissions	19,515	53.5

Tank Input Data	
permit number (S-xxxx-xx-xx)	1246-186
facility tank I.D.	
nearest city {1: Bakersfield, 2: Fresno, 3: Stockton}	1
tank ROC vapor pressure (psia)	0.5
liquid bulk storage temperature, Tb (°F)	180
is this a constant-level tank? {yes, no}	no
will flashing losses occur in this tank (only if first-line tank)? {yes, no}	no
breather vent pressure setting range (psi)	0.06
diameter of tank (feet)	21.2
capacity of tank (bbl)	500
conical or dome roof? {c, d}	c
shell height of tank (feet)	8
average liquid height (feet)	6
are the roof and shell the same color? {yes,no}	yes
For roof: color {1:Spec Al, 2:Diff Al, 3:Light, 4:Med, 5:Red, 6:White}	4
condition {1: Good, 2: Poor}	1
---This row only used if shell is different color from roof---	3
---This row only used if shell is different color from roof---	1

Liquid Input Data		
maximum daily fluid throughput (bbl)		500
maximum annual fluid throughput (bbl)		182,500
---This row only used if flashing losses occur in this tank---		
---This row only used if flashing losses occur in this tank---		-
molecular weight, Mw (lb/lb-mol)		100

Calculated Values	A	B
daily maximum ambient temperature, Tax (°F)		77.65
daily minimum ambient temperature, Tan (°F)		53.15
daily total solar insulation factor, I (Btu/ft^2-day)		1648.9
atmospheric pressure, Pa (psia)		14.47
water vapor pressure at daily maximum liquid surface temperature (Tlx), Pvx (ps	143.8	3.2094
water vapor pressure at daily minimum liquid surface temperature (Tln), Pvn (psi	133.0	2.4283
water vapor pressure at average liquid surface temperature (Tla), Pva (psia)	138.4	2.7876
roof outage, Hro (feet)		0.2208
vapor space volume, Vv (cubic feet)		783.93
paint factor, alpha		0.68
vapor density, Wv (lb/cubic foot)		0.0078
daily vapor temperature range, delta Tv (degrees Rankine)		49.04
vapor space expansion factor, Ke		0.1437

Results	Uncont.	Cont.
Standing Storage Loss	320	0.88
Working Loss	9,125	25.00
Flashing Loss	N/A	N/A
Total Uncontrolled Tank VOC Emissions	9,445	25.9

APPENDIX C
Top-Down BACT Analysis

BACT Analysis for Steam Generators (S-1246-378-0, '379-0, '380-0 and '381-0)

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% O_2. 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% O_2. Since this is an enhanced option in the rule, it will be considered the Technologically Feasible control technology for the BACT analysis.

The SJVAPCD 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% O_2 with SCR
2) 7 ppmvd @ 3% O_2

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

1) 5 ppmvd @ 3% O_2 with SCR
2) 7 ppmvd @ 3% O_2

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% O_2; therefore, a cost effective analysis is required for the 5 ppmvd @ 3% O_2 option (SCR).

SCR Cost Effectiveness Analysis

Assumptions:

Industry standard (IS) assumed to be a NO_X emission rate of 15 ppmv @ 3% O_2 in accordance with District Rule 4306.

A 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:

Industry Standard NO_X Emissions = 85 MMBtu/hr x 0.018 lb/MMBtu x 8,760 hrs/year
= 13,403 lb/year

Tech. Feasible NO_X Emissions = 85 MMBtu/hr x 0.006 lb/MMBtu x 8,760 hrs/year
= 4,468 lb/year

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

Capital Cost (provided by PCL Industrial Services, Inc. with in-progress project 1111978): **$745,000** (includes all purchased equipment, taxes, freight, and installation of SCR for an 85.0 MMBtu/hr unit).

Equivalent Annual Capital Cost (Capital Recovery):

$$A = P \frac{i(1+i)^n}{(1+i)^n - 1}$$ 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 = $745,000
i = 10%,
n = 10 years

A = $121,212

Operating costs are estimated by PCL Industrial Services to be $125,000/yr resulting in the following total annualized cost:

$121,212 + $125,000 = $246,212

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 = 4.47 ton NO_X per year

Cost effectiveness:

Cost effectiveness = $246,212/ 4.47 tpy

Cost effectiveness = $55,081/ 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 the new oil field steam generators is a NO_X limit of 7 ppmvd @ 3% O_2. The applicant has proposed to install oil field steam generators with a NO_X limit of 7 ppmvd @ 3% O_2; therefore BACT for NO_X emissions is satisfied.

2. BACT Analysis for SO_X Emissions

Step 1 - Identify All Possible Control Technologies

The District adopted District Rule 4320 on October 16, 2008. BACT Guideline 1.2.1 (Steam Generator ≥ 5 MMBtu/hr, Oilfield) has been rescinded. Therefore, a project specific BACT analysis will be performed to determine BACT for this project.
The SJVAPCD BACT Clearinghouse Guideline 1.2.1 (1st quarter, 2005) identifies the following technologies:

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

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. **Achieved-In-Practice:** 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

Step 4 - Cost Effectiveness Analysis

The applicant has proposed the use of PUC quality natural gas. Since the applicant has chosen the most effective control technology in step 3, a cost effectiveness analysis is not required.

Step 5 - Select BACT

BACT for SO_X is the most effective control option not eliminated in the steps above: natural gas. This BACT is selected and has been proposed by the applicant.

3. BACT Analysis for PM_{10} Emissions

Step 1 - Identify All Possible Control Technologies

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

The SJVAPCD BACT Clearinghouse Guideline 1.2.1 (1st quarter, 2005) identifies the following technologies:

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

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

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

Step 4 - Cost Effectiveness Analysis

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

Step 5 - Select BACT

BACT for PM_{10} is the most effective control option not eliminated in the steps above: natural gas. This BACT is selected and has been proposed by the applicant.

4. BACT Analysis for CO Emissions

Step 1 - Identify All Possible Control Technologies

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

The SJVAPCD BACT Clearinghouse Guideline 1.2.1 (1st quarter, 2005) identifies the following technologies:

1. 50 ppmvd @ 3% O2 - Achieved-In-Practice

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. 50 ppmvd @ 3% O2 - Achieved-In-Practice

Step 4 - Cost Effectiveness Analysis

Only Achieved-In-Practice technologies are identified; therefore, a cost effectiveness analysis is not performed.

Step 5 - Select BACT

Achieved-In-Practice BACT for CO emissions is 50 ppmv @ 3% O2; therefore, BACT for CO emissions is 50 ppmv @ 3% O2.

5. BACT Analysis for VOC Emissions

Step 1 - Identify All Possible Control Technologies

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

The SJVAPCD BACT Clearinghouse Guideline 1.2.1 (1st quarter, 2005) identifies the following technologies:

2. Gaseous fuel - Achieved-In-Practice

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. Gaseous fuel - Achieved-In-Practice

Step 4 - Cost Effectiveness Analysis

The applicant has proposed the used of natural gas. Since the applicant has chosen the most effective control technology in step 3, a cost effectiveness analysis is not required.

Step 5 - Select BACT

BACT for VOC is the most effective control option not eliminated in the steps above: gaseous fuel. This BACT is selected and has been proposed by the applicant.

APPENDIX D
HRA/AAQA

San Joaquin Valley Air Pollution Control District
Risk Management Review

To:	David Torii, AQE – Permit Services
From:	Trevor Joy, AQS – Technical Services
Date:	August 30, 2013
Facility Name:	Berry Petroleum Co
Location:	35 Degrees 14 Minutes 50 Seconds North -119 Degrees 34 Minutes 58 Seconds West
Application #(s):	S-1246-378-0, 379-0, 380-0 and 381-0
Project #:	1124502

A. RMR SUMMARY

Categories	NG Steam Generators Units 378-0, 379-0, 380-0 and 381-0 (each)	Project Totals	Facility Totals
Prioritization Score	**0.0**	0.0	>1
Acute Hazard Index	**0.00**	**0.00**	0.68
Chronic Hazard Index	**0.00**	**0.00**	0.04
Maximum Individual Cancer Risk (10^{-6})	**0.076**	**0.3**	8.92
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:

Units and 378-0, 379-0, 380-0, and 381-0

{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 July 31, 2013 to perform a Risk Management Review and AAQA for the proposed installation of four new 85 MMBtu/hr steam generators.

II. Analysis

Technical Services performed a prioritization using the District's HEARTs database. Emissions were calculated using "NG 10-100 MMBTU/Hr External Combustion". 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 and meteorological data for Fellows 2004 to 2008 to determine the maximum dispersion factors. These dispersion factors were input into the HARP model to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.*

III. *The following parameters were used for the review:*

Analysis Parameter Unit 378-0, 379-0, 380-0 and 381-0 (each)			
Closest Receptor (m)	**643**	**NG Gas Usage (MMBtu/hr)**	**85**
NG Gas Usage (MMBtu/yr)	**744,600**	**Source Type**	**Point**
Stack Ht (m)	**6.1**	**Stack Inside Diameter (m)**	**1.067**
Gas Exit Velocity (m/s)	**9.5**	**Gas Exit Temperature (K)**	**366**

Technical Services also performed modeling for criteria pollutants CO, NOx, Sox, PM_{10} and $PM_{2.5}$; as well as the RMR. The emissions rates (combined emissions for all 4 units) used for criteria pollutant modeling were:

	NOx	Sox	CO	PM10	PM2.5
Lbs/hr	2.72	1.46	8.84	1.7	1.7
Lbs/yr	23828	12808	77440	14892	14892

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Values are in $\mu g/m^3$

Steam Generator	1 Hour	3 Hours	8 Hours.	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO_x	Pass[1]	X	X	X	Pass
SO_x	Pass[2]	Pass	X	Pass	Pass
PM_{10}	X	X	X	Pass[3]	Pass[3]
$PM_{2.5}$	X	X	X	Fail[4]	Pass[4]

*Results were taken from the attached PSD spreadsheet.

[1]The project was compared to the 1-hour NO2 National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures. The criteria pollutant 1-hour value passed using TIER I NO_2 NAAQS modeling

[2]The 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.

[3]The 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).

[4] Facility is fully offsetting the project PM emissions as per District Rule 2201.

III. *Conclusion*

The acute and chronic hazard indices were below 1.0; and the cancer risk is less than 1 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.

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 E
Compliance Certification

Berry Petroleum Company

5201 Truxtun Ave.
Bakersfield, CA 93309-0421

(661) 616-3900
www.bry.com

RECEIVED
MAY 2 9 2013
SJVAPCD
Southern Region

May 24, 2013

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

RE: ATC Applications S-1246, 1124502 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. Bob Boston at (661) 616-3808 or by cell phone at (661) 900-4162.

Sincerely,

Tim Crawford
Sr. Vice President California

APPENDIX F
Top-Down BACT GHG Analysis

BACT Analysis for GHG Emissions

GHG emissions are emitted due to the combustion of fuel and may be emitted indirectly, as a result of electrical power usage.

The USEPA's PSD program issues permits to sources for attainment pollutants and includes GHG as a regulated pollutant. Since the USEPA has not established a national ambient air quality standard for GHG, it is not considered a nonattainment pollutant and is, therefore, considered an attainment pollutant and regulated under the PSD program. Since GHG is regulated under the PSD program the BACT process will follow the steps outlined in the Clean Air Act (CAA) discussed in this section.

The CAA § 169(3) defines BACT as:

> ...an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under the Clean Air Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant...

Pursuant to USEPA's "PSD and Title V Permitting Guidance for Greenhouse Gases" the "Top-Down BACT Process" consists of these five basic steps:

1. Identify all available control technologies;
2. Eliminate all technically infeasible options;
3. Rank remaining control technologies by control effectiveness;
4. Evaluate most effective controls and document results;
    a. The energy, environmental, and economic impacts are evaluated starting with the top ranked option.
5. Select BACT based on economic, environmental, and/or energy impacts.
    a. The highest ranked option not eliminated from step 4 is selected as BACT.

Since greenhouse gas is comprised of multiple gases, the objective of this analysis will be to identify control technologies with the lowest emission of a CO_2 equivalent (CO_2e) using the Global Warming Potentials (GWP) identified for the Intergovernmental Panel on Climate Change (IPCC) in the 1996 Second Assessment Report[1].

Though it is recognized that reductions in GHG from fossil fuel fired equipment will result in reductions of other criteria pollutants, as the products of combustion, evaluation of GHG control measures will not include the effect on other criteria pollutants except in cases where an increase in criteria pollutants may be expected as a consequence of the proposed measure (e.g. elimination of FGR which would reduce the fuel demand for a steam generator but with the consequence of increasing NO_X emissions, that is a precursor to ozone, which the SJVAPCD is in extreme non-attainment for).

[1] The Kyoto Protocol fixed the use of GWP values published by the IPCC in 1996 in its SAR, which remains the internationally recognized values today and are used to calculate GHG reductions in the SJVAPCD Best Performance Standards for oilfield steam generators.

Step 1 - Identify All Possible Control Technologies

When fired on >50% PUC-quality natural gas, commercial propane, and/or LPG:

- A convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by the manufacturer) or a manufacturer's overall thermal efficiency rating of 88% – Achieved in Practice
- Variable frequency drive high efficiency electrical motors driving the blower and water pump – Achieved in Practice
- Additional economizer – Technologically Feasible
- Reduced FGR rate and SCR – Technologically Feasible

When fired on <50% PUC-quality natural gas, commercial propane, and/or LPG:

- Split flow dual pass water feed configuration, a convection section having at least 128 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by the manufacturer) and at least six inches of castable refractory or a manufacturer's overall thermal efficiency rating of at least 85% – Achieved in Practice
- Variable frequency drive high efficiency electrical motors driving the blower and water pump – Achieved in Practice
- Additional economizer – Technologically Feasible
- Reduced FGR rate and SCR – Technologically Feasible

Step 2 - Eliminate Technologically Infeasible Options

- Additional economizer – Technologically Feasible

  Additional waste-heat can be transferred from the exhaust gasses to the steam by installing an extra economizer, further increasing the thermal efficiency of the steam generator.

  Economizers are useful in steam generators that produce a higher quality and lower volume steam. With purified, de-ionized highly filtered water, high quality steam is possible. In oilfield operations neither clean nor de-ionized water is available nor is high quality steam used or useful.

  An additional economizer will lower the exhaust gas temperature by transferring the heat energy from exhaust gas to produced steam to increase the quality. However, exhaust gas temperatures must be maintained sufficiently high enough to minimize condensation that can result in exhaust stack corrosion; therefore, adding an economizer to a steam generator is technologically infeasible for oilfield applications.

- Reduced FGR rate and SCR – Technologically Feasible

Flue gas recirculation mixes a portion of the exhaust gas with the oxygen-rich incoming air in the burner's combustion zone. The added exhaust gas absorbs heat from the combustion process, lowering the peak combustion temperature below the threshold where excessive NO_X is formed. Proven FGR technology has been used in steam generators for years to meet the District's standards for low NO_X emissions. While FGR clearly lowers NO_X levels, additional fuel is required to produce the same amount of steam, which reduces the overall thermal efficiency of the unit and creates more GHG emissions per unit of steam output. Therefore, limiting the FGR rate might be a means of reducing GHG emissions.

While reducing the FGR rate on a steam generator will decrease GHG emissions, it will also increase NO_X emissions. Since maintaining reductions in criteria pollutants, and specifically NO_X for which the SJVAPCD is in extreme non-attainment, the reduction of GHG will not be considered for an increase in NO_X emissions. Any increase in NO_X emissions must be mitigated.

The only alternative method for reducing NOx emissions might be SCR, which could make a reduction in the FGR rate feasible. SCR reduces NOx emissions without the need for such extensive FGR. However the SCR system itself results in higher exhaust stack resistance and electric power to operate ammonia or urea injection pumps that offset the energy efficiency gains attributed to the reduced FGR requirement. Therefore, this equipment is not technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Since an oilfield steam generator can operate simultaneously with a minimum convection section heat transfer area requirement (or thermal efficiency rating) and variable frequency drive, high efficiency, electric motors driving the blower and water pump, these options will be combined and listed as follows:

<u>When fired on >50% PUC-quality natural gas, commercial propane, and/or LPG:</u>

- Variable frequency drive high efficiency electrical motors driving the blower and water pump; **and,** a convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by manufacturer) or a manufacturer's overall thermal efficiency rating of 88%

<u>When fired on <50% PUC-quality natural gas, commercial propane, and/or LPG:</u>

- Variable frequency drive high efficiency electrical motors driving the blower and water pump; **and,** split flow dual pass water feed configuration, a convection section having at least 128 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by the manufacturer) and at least six inches of castable refractory or a manufacturer's overall thermal efficiency rating of at least 85%

Since there is only one option remaining for each type of fuel burned, ranking the control technologies isn't necessary.

Step 4 – Evaluate Controls

The only control technology in the ranking list from Step 3 has been achieved in practice. Therefore, an evaluation of controls is not required.

Step 5 - Select BACT

The following is a summary of the District's BACT determination for CO_2e control:

Pollutant	BACT
CO_2e	Variable frequency drive high efficiency electrical motors driving the blower and water pump; **and,** <u>When Firing On:</u> • PUC quality natural gas, commercial propane, and/or LPG: a convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by manufacturer) or a manufacturer's overall thermal efficiency rating of 88%;

APPENDIX G
Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1246-19-33 **ISSUANCE DATE:** DRAFT

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

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

SECTION: NE28 **TOWNSHIP:** 12N **RANGE:** 24W

EQUIPMENT DESCRIPTION:
MODIFICATION OF 62.5 MMBTU/HR C.E. NATCO NATURAL/TEOR GAS-FIRED STEAM GENERATOR WITH FLUE GAS RECIRCULATION, NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, AND O2 CONTROLLER: POSSIBLY REPLACE BURNER TIPS AND LOWER NOX LIMIT TO 5 PPM FOR RULE 4320 COMPLIANCE

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. Unit is approved for operation at the following locations: NE/4 Section 28, T12N, R24W and SE/4 Section 36, T12N, R24W. [District Rule 4102]
4. Particulate matter emissions shall not exceed 0.1 grain/dscf, calculated to 12% CO2, nor 10 lb/hr. [District Rules 4201, 3.1 and 4301, 5.1 and 5.2.3] Federally Enforceable Through Title V Permit
5. Nitrogen oxide (NOx) emissions shall not exceed 140 lb/hr, calculated as NO2. [District Rules 4301, 5.2.2, 5.3, and 5.5 and 2520, 9.3.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-1246-19-33 : Sep 13 2013 12:38PM -- TORIO : Joint Inspection NOT Required

6. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following requirements of SJVUAPCD Rules 4201 (Amended December 17, 1992), and 4301 (Amended December 17, 1992). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
7. The requirements of 40 CFR 72.6(b) and 40 CFR 60.40c do not apply to this source. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
8. All required source testing shall conform to the compliance testing procedures described in District Rule 1081 (Amended December 16, 1993). [District Rule 1081] Federally Enforceable Through Title V Permit
9. Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial startup and at least once every twelve (12) months thereafter. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
10. Source testing shall be by District witnessed, or authorized, sample collection by ARB certified testing laboratory. [District Rule 1081] Federally Enforceable Through Title V Permit
11. Emissions for this unit shall be calculated using the arithmetic mean, pursuant to District Rule 1081 (Amended December 16, 1993), of 3 thirty-minute test runs for NOx and CO. This mean shall be multiplied by the appropriate factor. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
12. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
13. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
14. 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
15. 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
16. 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
17. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, NOx (lb/MMBtu) - EPA Method 19, CO (ppmv) - EPA Method 10 or ARB Method 100, and stack gas oxygen - EPA Method 3 or 3A or ARB Method 100. [District Rules 1081, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
18. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

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

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

22. The operational conditions during compliance testing may be imposed as permit requirements. [District Rule 2080] Federally Enforceable Through Title V Permit

23. The duration of each startup and shutdown period shall not exceed 2.0 hours. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

24. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

25. Except during startup and shutdown, the emission rate for firing on natural gas shall not exceed any of the following: PM10 - 0.005 lb/MMBtu, NOx (as NO2) - 0.0062 lb/MMBtu or 5 ppmvd NOx @ 3% O2, VOC - 0.003 lb/MMBtu, or CO - 0.033 lb/MMBtu (46.6 ppmv @ 3% O2). [District Rules 2201, 4305, 4306, 4320 and 2520, 9.3.2] Federally Enforceable Through Title V Permit

26. Except during startup and shutdown, the emission rate for incineration of waste gas from TEOR S-1246-268 shall not exceed any of the following: PM10 - 0.0075 lb/MMBtu, NOx (as NO2) - 0.011 lb/MMBtu or 9 ppmvd NOx @ 3% O2, VOC - 0.003 lb/MMBtu, or CO - 0.033 lb/MMBtu. [District Rules 2201, 4305, 4306, 4320 and 2520, 9.3.2] Federally Enforceable Through Title V Permit

27. Daily SOx emissions shall not exceed 15 lbs/day. [District Rules 2201 and 4301] Federally Enforceable Through Title V Permit

28. Daily emissions shall not exceed any of the following: PM10 - 9.5 lb/day, NOx (as NO2) - 54.0 lb/day, VOC - 4.5 lb/day, CO - 49.5 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

29. The concentration of sulfur compounds in the exhaust from this unit shall not exceed 0.2% by volume as measured on a dry basis over a 15 minute period. To demonstrate compliance with this requirement the operator shall do one of the following: fire the unit only on PUC or FERC regulated natural gas; or test the sulfur content of each fuel source and demonstrate the sulfur content does not exceed 3.3% by weight for gaseous fuels; or determine that the concentration of sulfur compounds in the exhaust does not exceed the concentration limit by a combination of source testing and fuel analysis. [Kern County Rule 407, District Rule 4301, District Rule 4801, and District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

30. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each non-certified fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

31. When complying with SOx emission limits by testing of stack emissions, testing shall be performed not less than once every 12 months using EPA Method 6B; or Method 8; or, for units using gaseous fuel scrubbed for sulfur pre-combustion, a grab sample analysis by GC-FPD/TCD performed in the laboratory and EPA Method 19 to calculated emissions. Gaseous fuel fired units demonstrating compliance on two consecutive annual source tests shall be tested not less than once every thirty-six months; however, annual source testing shall resume if any test fails to show compliance. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

32. If the unit is fired on noncertified gaseous fuel and compliance with SOx emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D1072, D3246, D4084, D4468, D6667, or double GC for H2S and Mercaptans. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

33. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D3588 for gaseous fuels. [District Rule 2520, 9.3.2; 4305, 6.2.1; 4306, 6.2.1; 4351, 6.2.1, 2201] Federally Enforceable Through Title V Permit

34. Permittee shall measure and record the daily quantities of natural gas and waste gas burned in this generator. [District Rule 2201] Federally Enforceable Through Title V Permit

35. Permittee shall demonstrate compliance with the daily sulfur compound emissions limit by calculation using the quantities of natural gas and waste gas burned and the total sulfur content of these fuels, as most recently determined. Permittee shall keep an accurate daily record of the calculated sulfur compound emissions. [District Rule 2201] Federally Enforceable Through Title V Permit

36. Daily heat input from waste gas from TEOR operations shall not exceed 790 MMBtu/day. [District Rule 2201] Federally Enforceable Through Title V Permit

37. Daily heat input shall be determined as follows: [fuel HHV (MMBtu/MMscf)] x [daily fuel throughput (MMscf/day)]. [District Rule 2201] Federally Enforceable Through Title V Permit

38. The fuel higher heating value (HHV) of the non-certified gas shall be determined at least once every calendar year. [District Rule 2201] Federally Enforceable Through Title V Permit

39. Copies of all fuel invoices, gas purchase contracts, supplier certifications, and test results to determine compliance with the conditions of this permit shall be maintained. The operator shall record daily amount and type(s) of fuel(s) combusted. [District Rule 2520, 9.4.2 and District Rule 2201] Federally Enforceable Through Title V Permit

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

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1246-252-20 **ISSUANCE DATE:** DRAFT

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

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

SECTION: SW31 **TOWNSHIP:** 32S **RANGE:** 24E

EQUIPMENT DESCRIPTION:
MODIFICATION OF 62.5 MMBTU/HR NATURAL GAS/VAPOR RECOVERY GAS-FIRED STRUTHERS STEAM GENERATOR (UNIT #MSJ-414) WITH NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FGR, AND OXYGEN ANALYZER/CONTROLLER: POSSIBLY REPLACE BURNER TIPS AND LOWER NOX LIMIT TO 5 PPM FOR RULE 4320 COMPLIANCE

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. Particulate matter emissions shall not exceed 0.1 grain/dscf at operating conditions, nor 0.1 grain/dscf calculated to 12% CO2, nor 10 lb/hr. [District Rules 4201 and 4301, 5.1 and 5.2.3] Federally Enforceable Through Title V Permit
4. All wells producing from strata steamed by this unit shall be connected to a District-approved emissions control system, have District-approved closed casing vents or be District-approved uncontrolled cyclic wells. [District Rule 4401] Federally Enforceable Through Title V Permit
5. Only three of the following incineration devices shall be operated at any given time: S-1246-252, -253, -254, and flare listed in -268. [District NSR Rule] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-1246-252-20 : Sep 13 2013 12:39PM – TORIO : Joint Inspection NOT Required

6. Sulfur content of gas burned shall not exceed 1.0 gr/100 scf. [District NSR Rule] Federally Enforceable Through Title V Permit
7. Sufficient reference gas shall be available to allow for calibration of oxygen analyzer unit at all times. [District NSR Rule] Federally Enforceable Through Title V Permit
8. In case of failure of oxygen analyzer/controller, inlet air damper shall automatically return to "neutral" position. [District NSR Rule] Federally Enforceable Through Title V Permit
9. If steam generator is inoperative, non-condensible vapors shall not vent to atmosphere. [District NSR Rule] Federally Enforceable Through Title V Permit
10. Sulfur Compound emission shall not exceed 30.0 lb/day of SO2. [District NSR Rule] Federally Enforceable Through Title V Permit
11. Permittee shall keep accurate daily records of fuel gas H2S concentration and daily fuel usage (scfd) and such records shall be made readily available to District staff upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
12. The duration of each startup and shutdown period shall not exceed 2.0 hours. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
13. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
14. Except during periods of startup and shutdown, emission rates shall not exceed any of the following: PM10: 0.005 lb/MMBtu, NOx (as NO2): 0.0062 lb/MMBtu or 5 ppmvd NOx @ 3% O2, VOC: 0.003 lb/MMBtu; or CO: 46.6 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
15. Daily emissions shall not exceed any of the following: PM10 - 7.5 lb/day, NOx (as NO2) - 54.0 lb/day, VOC - 4.5 lb/day, CO - 49.5 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
16. The concentration of sulfur compounds in the exhaust from this unit shall not exceed 0.2% by volume as measured on a dry basis over a 15 minute period. To demonstrate compliance with this requirement the operator shall do one of the following: fire the unit only on PUC or FERC regulated natural gas; or test the sulfur content of each fuel source and demonstrate the sulfur content does not exceed 3.3% by weight for gaseous fuels; or determine that the concentration of sulfur compounds in the exhaust does not exceed the concentration limit by a combination of source testing and fuel analysis. [Kern County Rule 407, District Rule 4301, District Rule 4801, and District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
17. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each non-certified fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
18. When complying with SOx emission limits by testing of stack emissions, testing shall be performed not less than once every 12 months using EPA Method 6B; or Method 8; or, for units using gaseous fuel scrubbed for sulfur pre-combustion, a grab sample analysis by GC-FPD/TCD performed in the laboratory and EPA Method 19 to calculated emissions. Gaseous fuel fired units demonstrating compliance on two consecutive annual source tests shall be tested not less than once every thirty-six months; however, annual source testing shall resume if any test fails to show compliance. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
19. If the unit is fired on noncertified gaseous fuel and compliance with SOx emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D1072, D3246, D4084, D4468, D6667, or double GC for H2S and Mercaptans. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

20. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D3588 for gaseous fuels. [District Rules 2520, 9.3.2; 4305, 6.2.1; 4306, 6.2.1; 4320; 4351, 6.2.1, 2201] Federally Enforceable Through Title V Permit

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

22. Source test results from an individual unit that is identical to this unit, in terms of rated capacity, operational conditions, fuel used, and control method, as approved by the APCO, will satisfy the NOx and CO source testing requirement. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

23. Compliance demonstration (source testing) shall be by District witnessed, or authorized, sample collection by ARB certified testing laboratory. [District Rule 1081] Federally Enforceable Through Title V Permit

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

25. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

26. 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

27. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, NOx (lb/MMBtu) - EPA Method 19, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, and fuel gas sulfur content - ASTM D3246 or double GC for H2S and mercaptans. [District Rules 1081, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

28. The sample collection shall be conducted under conditions (fuel quality, firing rate, waste gas incineration, air fuel ratio, etc.) expected to result in emissions representative of normal operation. [District Rule 1081] Federally Enforceable Through Title V Permit

29. The operational conditions during compliance testing may be imposed as permit requirements. [District Rule 2080] Federally Enforceable Through Title V Permit

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

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

CONDITIONS CONTINUE ON NEXT PAGE

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

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

34. Nitrogen oxide (NOx) emissions shall not exceed 140 lb/hr. [District Rule 4301, 5.2.2] Federally Enforceable Through Title V Permit

35. Copies of all fuel invoices, gas purchase contracts, supplier certifications, and test results to determine compliance with the conditions of this permit shall be maintained. The operator shall record daily amount and type(s) of fuel(s) combusted and all dates on which unit is fired on any noncertified fuel and record specific type of noncertified fuel used. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

36. Emissions for this unit shall be calculated using the arithmetic mean, pursuant to District Rule 1081 (amended December 16, 1993), of 3 thirty-minute test runs for NOx and CO. This mean shall be multiplied by the appropriate factor. [District Rules 1081 and 2520, 9.3.2] Federally Enforceable Through Title V Permit

37. The following conditions must be met for representative units to be used to test for NOx and CO emissions for a group of units: 1) all units are initially source tested and emissions from each unit in group are less than 90% of permitted value and vary 25% or less from the average of all runs, 2) all units in the group are similar in terms of heat input, make and series, operational conditions, fuel used, and control method, 3) the group is owned by a single owner and located at a single stationary source, and 4) the selection of the representative units is approved by the District prior to testing. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

38. All units in a group for which representative units are annually source tested for NOx and CO emissions shall have received the same maintenance and tune-up procedures as the representative units. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

39. An operating log shall be maintained for each unit of the group. The log shall include, on a monthly basis, the total hours of operation, type and quantity of fuel used, and preventative and corrective maintenance and modifications performed. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

40. The number of representative units source tested for NOx and CO emissions shall be at least 30% of the total number of units in the group. The units included in the 30% shall be rotated such that in three years, all units in the entire group will have been tested at least once. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

41. Should any of the representative units exceed the required emission limits of this permit, each of the unit in the group shall conduct emissions testing within 90 days of the failed test. (This requirement shall not supersede a more stringent NSR or PSD permit testing requirement.) [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

42. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following requirements: SJVAPCD Rule 4201 (Amended December 17, 1992), Rule 4801 (amended December 17, 1992), and Rule 4301 (Amended December 17, 1992). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

43. Compliance with permit conditions in the Title V permit shall be deemed compliance with the out dated Kern County Rules: 108.1, 404, and 407.2. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

44. This unit commenced construction, modification, or reconstruction prior to June 19, 1984. This unit has not been used to produce electricity for sale in 1985 or on or after November 15, 1990. Therefore, the requirements of 40 CFR 72.6(b) and 40 CFR 60.40c do not apply to this source. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1246-253-19 **ISSUANCE DATE:** DRAFT

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

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

SECTION: SE31 **TOWNSHIP:** 32S **RANGE:** 24E

EQUIPMENT DESCRIPTION:
MODIFICATION OF 62.5 MMBTU/HR NATURAL GAS/VAPOR RECOVERY GAS-FIRED STRUTHERS STEAM GENERATOR (UNIT #MSJ-415) WITH NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FGR, AND OXYGEN ANALYZER/CONTROLLER: POSSIBLY REPLACE BURNER TIPS AND LOWER NOX LIMIT TO 5 PPM FOR RULE 4320 COMPLIANCE

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. Particulate matter emissions shall not exceed 0.1 grain/dscf at operating conditions, nor 0.1 grain/dscf calculated to 12% CO2, nor 10 lb/hr. [District Rules 4201 and 4301, 5.1 and 5.2.3] Federally Enforceable Through Title V Permit
4. All wells producing from strata steamed by this unit shall be connected to a District-approved emissions control system, have District-approved closed casing vents or be District-approved uncontrolled cyclic wells. [District Rule 4401] Federally Enforceable Through Title V Permit
5. Only three of the following incineration devices shall be operated at any given time: S-1246-252, -253, -254, and flare listed in -268. [District NSR Rule] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-1246-253-19 : Sep 13 2013 12:39PM – TORID : Joint Inspection NOT Required

6. Sulfur content of gas burned shall not exceed 1.0 gr/100 scf. [District NSR Rule] Federally Enforceable Through Title V Permit
7. Sufficient reference gas shall be available to allow for calibration of oxygen analyzer unit at all times. [District NSR Rule] Federally Enforceable Through Title V Permit
8. In case of failure of oxygen analyzer/controller, inlet air damper shall automatically return to "neutral" position. [District NSR Rule] Federally Enforceable Through Title V Permit
9. If steam generator is inoperative, non-condensible vapors shall not vent to atmosphere. [District NSR Rule] Federally Enforceable Through Title V Permit
10. Sulfur Compound emission shall not exceed 30.0 lb/day of SO2. [District NSR Rule] Federally Enforceable Through Title V Permit
11. Permittee shall keep accurate daily records of fuel gas H2S concentration and daily fuel usage (scfd) and such records shall be made readily available to District staff upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
12. The duration of each startup and shutdown period shall not exceed 2.0 hours. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
13. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
14. Except during periods of startup and shutdown, emission rates shall not exceed any of the following: PM10: 0.005 lb/MMBtu, NOx (as NO2): 0.0062 lb/MMBtu or 5 ppmvd NOx @ 3% O2, VOC: 0.003 lb/MMBtu; or CO: 46.6 ppmv @ 3% O2. [District Rules 2201, 4305,4306, and 4320] Federally Enforceable Through Title V Permit
15. Daily emissions shall not exceed any of the following: PM10 - 7.5 lb/day, NOx (as NO2) - 54.0 lb/day, VOC - 4.5 lb/day, CO - 49.5 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
16. The concentration of sulfur compounds in the exhaust from this unit shall not exceed 0.2% by volume as measured on a dry basis over a 15 minute period. To demonstrate compliance with this requirement the operator shall do one of the following: fire the unit only on PUC or FERC regulated natural gas; or test the sulfur content of each fuel source and demonstrate the sulfur content does not exceed 3.3% by weight for gaseous fuels; or determine that the concentration of sulfur compounds in the exhaust does not exceed the concentration limit by a combination of source testing and fuel analysis. [Kern County Rule 407, District Rule 4301, District Rule 4801, and District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
17. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each non-certified fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
18. When complying with SOx emission limits by testing of stack emissions, testing shall be performed not less than once every 12 months using EPA Method 6B; or Method 8; or, for units using gaseous fuel scrubbed for sulfur pre-combustion, a grab sample analysis by GC-FPD/TCD performed in the laboratory and EPA Method 19 to calculated emissions. Gaseous fuel fired units demonstrating compliance on two consecutive annual source tests shall be tested not less than once every thirty-six months; however, annual source testing shall resume if any test fails to show compliance. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
19. If the unit is fired on noncertified gaseous fuel and compliance with SOx emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D1072, D3246, D4084, D4468, D6667, or double GC for H2S and Mercaptans. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

20. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D3588 for gaseous fuels. [District Rule 2520, 9.3.2; 4305, 6.2.1; 4306, 6.2.1; 4320; 4351, 6.2.1, 2201] Federally Enforceable Through Title V Permit

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

22. Source test results from an individual unit that is identical to this unit, in terms of rated capacity, operational conditions, fuel used, and control method, as approved by the APCO, will satisfy the NOx and CO source testing requirement. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

23. Compliance demonstration (source testing) shall be by District witnessed, or authorized, sample collection by ARB certified testing laboratory. [District Rule 1081] Federally Enforceable Through Title V Permit

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

25. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

26. 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

27. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, NOx (lb/MMBtu) - EPA Method 19, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, and fuel gas sulfur content - ASTM D3246 or double GC for H2S and mercaptans. [District Rules 1081, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

28. The sample collection shall be conducted under conditions (fuel quality, firing rate, waste gas incineration, air fuel ratio, etc.) expected to result in emissions representative of normal operation. [District Rule 1081] Federally Enforceable Through Title V Permit

29. The operational conditions during compliance testing may be imposed as permit requirements. [District Rule 2080] Federally Enforceable Through Title V Permit

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

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

CONDITIONS CONTINUE ON NEXT PAGE

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

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

34. Nitrogen oxide (NOx) emissions shall not exceed 140 lb/hr. [District Rule 4301, 5.2.2] Federally Enforceable Through Title V Permit

35. Copies of all fuel invoices, gas purchase contracts, supplier certifications, and test results to determine compliance with the conditions of this permit shall be maintained. The operator shall record daily amount and type(s) of fuel(s) combusted and all dates on which unit is fired on any noncertified fuel and record specific type of noncertified fuel used. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

36. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

37. Emissions for this unit shall be calculated using the arithmetic mean, pursuant to District Rule 1081 (amended December 16, 1993), of 3 thirty-minute test runs for NOx and CO. This mean shall be multiplied by the appropriate factor. [District Rules 1081 and 2520, 9.3.2] Federally Enforceable Through Title V Permit

38. The following conditions must be met for representative units to be used to test for NOx and CO emissions for a group of units: 1) all units are initially source tested and emissions from each unit in group are less than 90% of permitted value and vary 25% or less from the average of all runs, 2) all units in the group are similar in terms of heat input, make and series, operational conditions, fuel used, and control method, 3) the group is owned by a single owner and located at a single stationary source, and 4) the selection of the representative units is approved by the District prior to testing. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

39. All units in a group for which representative units are annually source tested for NOx and CO emissions shall have received the same maintenance and tune-up procedures as the representative units. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

40. An operating log shall be maintained for each unit of the group. The log shall include, on a monthly basis, the total hours of operation, type and quantity of fuel used, and preventative and corrective maintenance and modifications performed. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

41. The number of representative units source tested for NOx and CO emissions shall be at least 30% of the total number of units in the group. The units included in the 30% shall be rotated such that in three years, all units in the entire group will have been tested at least once. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

42. Should any of the representative units exceed the required emission limits of this permit, each of the unit in the group shall conduct emissions testing within 90 days of the failed test. (This requirement shall not supersede a more stringent NSR or PSD permit testing requirement.) [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

43. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following requirements: SJVAPCD Rule 4201 (Amended December 17, 1992), Rule 4801 (amended December 17, 1992), and Rule 4301 (Amended December 17, 1992). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

44. Compliance with permit conditions in the Title V permit shall be deemed compliance with the out dated Kern County Rules: 108.1, 404, and 407.2. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

45. This unit commenced construction, modification, or reconstruction prior to June 19, 1984. This unit has not been used to produce electricity for sale in 1985 or on or after November 15, 1990. Therefore, the requirements of 40 CFR 72.6(b) and 40 CFR 60.40c do not apply to this source. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1246-254-19 **ISSUANCE DATE:** DRAFT

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

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

SECTION: SE31 **TOWNSHIP:** 32S **RANGE:** 24E

EQUIPMENT DESCRIPTION:
MODIFICATION OF 62.5 MMBTU/HR NATURAL GAS/VAPOR RECOVERY GAS-FIRED STRUTHERS STEAM GENERATOR (UNIT #MSJ-416) WITH NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FGR, AND OXYGEN ANALYZER/CONTROLLER: POSSIBLY REPLACE BURNER TIPS AND LOWER NOX LIMIT TO 5 PPM FOR RULE 4320 COMPLIANCE

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. Particulate matter emissions shall not exceed 0.1 grain/dscf at operating conditions, nor 0.1 grain/dscf calculated to 12% CO2, nor 10 lb/hr. [District Rules 4201 and 4301, 5.1 and 5.2.3] Federally Enforceable Through Title V Permit
4. All wells producing from strata steamed by this unit shall be connected to a District-approved emissions control system, have District-approved closed casing vents or be District-approved uncontrolled cyclic wells. [District Rule 4401] Federally Enforceable Through Title V Permit
5. Only three of the following incineration devices shall be operated at any given time: S-1246-252, -253, -254, and flare listed in -268. [District NSR Rule] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-1246-254-19 : Sep 13 2013 12:39PM – TORID : Joint Inspection NOT Required

6. Sulfur content of gas burned shall not exceed 1.0 gr/100 scf. [District NSR Rule] Federally Enforceable Through Title V Permit
7. Sufficient reference gas shall be available to allow for calibration of oxygen analyzer unit at all times. [District NSR Rule] Federally Enforceable Through Title V Permit
8. In case of failure of oxygen analyzer/controller, inlet air damper shall automatically return to "neutral" position. [District NSR Rule] Federally Enforceable Through Title V Permit
9. If steam generator is inoperative, non-condensible vapors shall not vent to atmosphere. [District NSR Rule] Federally Enforceable Through Title V Permit
10. Sulfur Compound emission shall not exceed 30.0 lb/day of SO2. [District NSR Rule] Federally Enforceable Through Title V Permit
11. Permittee shall keep accurate daily records of fuel gas H2S concentration and daily fuel usage (scfd) and such records shall be made readily available to District staff upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
12. The duration of each startup and shutdown period shall not exceed 2.0 hours. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
13. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
14. Except during periods of startup and shutdown, emission rates shall not exceed any of the following: PM10: 0.005 lb/MMBtu, NOx (as NO2): 0.0062 lb/MMBtu or 5 ppmvd NOx @ 3% O2, VOC: 0.003 lb/MMBtu; or CO: 46.6 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
15. Daily emissions shall not exceed any of the following: PM10 - 7.5 lb/day, NOx (as NO2) - 54.0 lb/day, VOC - 4.5 lb/day, CO - 49.5 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
16. The concentration of sulfur compounds in the exhaust from this unit shall not exceed 0.2% by volume as measured on a dry basis over a 15 minute period. To demonstrate compliance with this requirement the operator shall do one of the following: fire the unit only on PUC or FERC regulated natural gas; or test the sulfur content of each fuel source and demonstrate the sulfur content does not exceed 3.3% by weight for gaseous fuels; or determine that the concentration of sulfur compounds in the exhaust does not exceed the concentration limit by a combination of source testing and fuel analysis. [Kern County Rule 407, District Rule 4301, District Rule 4801, and District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
17. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each non-certified fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
18. When complying with SOx emission limits by testing of stack emissions, testing shall be performed not less than once every 12 months using EPA Method 6B; or Method 8; or, for units using gaseous fuel scrubbed for sulfur pre-combustion, a grab sample analysis by GC-FPD/TCD performed in the laboratory and EPA Method 19 to calculated emissions. Gaseous fuel fired units demonstrating compliance on two consecutive annual source tests shall be tested not less than once every thirty-six months; however, annual source testing shall resume if any test fails to show compliance. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
19. If the unit is fired on noncertified gaseous fuel and compliance with SOx emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D1072, D3246, D4084, D4468, D6667, or double GC for H2S and Mercaptans. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

20. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D3588 for gaseous fuels. [District Rule 2520, 9.3.2; 4305, 6.2.1; 4306, 6.2.1; 4320; 4351, 6.2.1, 2201] Federally Enforceable Through Title V Permit

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

22. Source test results from an individual unit that is identical to this unit, in terms of rated capacity, operational conditions, fuel used, and control method, as approved by the APCO, will satisfy the NOx and CO source testing requirement. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

23. Compliance demonstration (source testing) shall be by District witnessed, or authorized, sample collection by ARB certified testing laboratory. [District Rule 1081] Federally Enforceable Through Title V Permit

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

25. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

26. 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

27. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, NOx (lb/MMBtu) - EPA Method 19, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, and fuel gas sulfur content - ASTM D3246 or double GC for H2S and mercaptans. [District Rules 1081, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

28. The sample collection shall be conducted under conditions (fuel quality, firing rate, waste gas incineration, air fuel ratio, etc.) expected to result in emissions representative of normal operation. [District Rule 1081] Federally Enforceable Through Title V Permit

29. The operational conditions during compliance testing may be imposed as permit requirements. [District Rule 2080] Federally Enforceable Through Title V Permit

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

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

CONDITIONS CONTINUE ON NEXT PAGE

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

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

34. Nitrogen oxide (NOx) emissions shall not exceed 140 lb/hr. [District Rule 4301, 5.2.2] Federally Enforceable Through Title V Permit

35. Copies of all fuel invoices, gas purchase contracts, supplier certifications, and test results to determine compliance with the conditions of this permit shall be maintained. The operator shall record daily amount and type(s) of fuel(s) combusted and all dates on which unit is fired on any noncertified fuel and record specific type of noncertified fuel used. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

36. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

37. Emissions for this unit shall be calculated using the arithmetic mean, pursuant to District Rule 1081 (amended December 16, 1993), of 3 thirty-minute test runs for NOx and CO. This mean shall be multiplied by the appropriate factor. [District Rules 1081 and 2520, 9.3.2] Federally Enforceable Through Title V Permit

38. The following conditions must be met for representative units to be used to test for NOx and CO emissions for a group of units: 1) all units are initially source tested and emissions from each unit in group are less than 90% of permitted value and vary 25% or less from the average of all runs, 2) all units in the group are similar in terms of heat input, make and series, operational conditions, fuel used, and control method, 3) the group is owned by a single owner and located at a single stationary source, and 4) the selection of the representative units is approved by the District prior to testing. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

39. All units in a group for which representative units are annually source tested for NOx and CO emissions shall have received the same maintenance and tune-up procedures as the representative units. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

40. An operating log shall be maintained for each unit of the group. The log shall include, on a monthly basis, the total hours of operation, type and quantity of fuel used, and preventative and corrective maintenance and modifications performed. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

41. The number of representative units source tested for NOx and CO emissions shall be at least 30% of the total number of units in the group. The units included in the 30% shall be rotated such that in three years, all units in the entire group will have been tested at least once. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

42. Should any of the representative units exceed the required emission limits of this permit, each of the unit in the group shall conduct emissions testing within 90 days of the failed test. (This requirement shall not supersede a more stringent NSR or PSD permit testing requirement.) [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

43. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following requirements: SJVAPCD Rule 4201 (Amended December 17, 1992), Rule 4801 (amended December 17, 1992), and Rule 4301 (Amended December 17, 1992). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

44. Compliance with permit conditions in the Title V permit shall be deemed compliance with the out dated Kern County Rules: 108.1, 404, and 407.2. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

45. This unit commenced construction, modification, or reconstruction prior to June 19, 1984. This unit has not been used to produce electricity for sale in 1985 or on or after November 15, 1990. Therefore, the requirements of 40 CFR 72.6(b) and 40 CFR 60.40c do not apply to this source. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1246-269-18 **ISSUANCE DATE:** DRAFT

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

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

SECTION: SE36 **TOWNSHIP:** 12N **RANGE:** 24W

EQUIPMENT DESCRIPTION:
MODIFICATION OF 62.5 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MAGNA FLAME LE ULTRA LOW NOX BURNER, FGR AND O2 CONTROLLER: POSSIBLY REPLACE BURNER TIPS AND LOWER NOX LIMIT TO 5 PPM FOR RULE 4320 COMPLIANCE

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. Particulate matter emissions shall not exceed 0.1 grain/dscf at operating conditions, nor 0.1 grain/dscf calculated to 12% CO2, nor 10 lb/hr. [District Rules 4201 and 4301, 5.1 and 5.2.3] Federally Enforceable Through Title V Permit
4. This generator is permitted to operate at the following locations: SE 1/4 Section 36 of Township 12N, Range 24W and SE 1/4 Section 36 of Township 32S, Range 23E. [District NSR Rule] Federally Enforceable Through Title V Permit
5. The permittee shall notify the District Compliance Division of each location at which the operation is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District NSR Rule] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-1246-269-18 : Sep 13 2013 12:39PM – TORID : Joint Inspection NOT Required

6. Only sulfur-scrubbed gas from the Ethel-D casing vent vapor collection system (S-1246-290)(TEOR gas) and/or natural gas shall be used as a fuel. [District NSR Rule] Federally Enforceable Through Title V Permit

7. Steam generator shall be equipped with the following operational instrumentation: fuel gas volume flowmeter and TEOR gas volume flowmeter. [District NSR Rule and District Rules 4305, 5.4 and 4306, 5.4, and 4320] Federally Enforceable Through Title V Permit

8. Exhaust gas stack shall be equipped with adequate provisions facilitating the collection of gas samples consistent with EPA test methods. [District NSR Rule and District Rule 1081] Federally Enforceable Through Title V Permit

9. 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]

10. Operator shall ensure that all required source testing conforms to the compliance testing procedures described in District Rule 1081. [District Rule 1081] Federally Enforceable Through Title V Permit

11. Operator shall maintain copies of fuel invoices and supplier certifications. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

12. Steam generator firebox convection section and all flue gas ductwork shall be maintained with no detectable leaks. [District NSR Rule] Federally Enforceable Through Title V Permit

13. Sufficient calibration gas for O2 analyzer shall be available at all times. [District NSR Rule] Federally Enforceable Through Title V Permit

14. Emission rates shall not exceed any of the following: 0.0067 lb SOx/MMBtu (as SO2), 0.005 lb PM10/MMBtu, or 0.003 lb VOC/MMBtu. [District NSR Rule] Federally Enforceable Through Title V Permit

15. Except during periods of startup and shutdown, emission rates shall not exceed any of the following: 0.0062 lb NOx/MMBtu (as NO2) or 5 ppmv NOx @ 3% O2, or 46.6 ppmv CO @ 3% O2. [District NSR Rule and Rules 4305, 4306, 5.1, and 4320] Federally Enforceable Through Title V Permit

16. Daily emissions shall not exceed any of the following: PM10 - 7.5 lb/day, NOx (as NO2) - 36.0 lb/day, VOC - 4.5 lb/day, CO - 49.5 lb/day. [District NSR Rule] Federally Enforceable Through Title V Permit

17. The concentration of sulfur compounds in the exhaust from this unit shall not exceed 0.2% by volume as measured on a dry basis over a 15 minute period. To demonstrate compliance with this requirement the operator shall do one of the following: fire the unit only on PUC or FERC regulated natural gas; or test the sulfur content of each fuel source and demonstrate the sulfur content does not exceed 3.3% by weight for gaseous fuels; or determine that the concentration of sulfur compounds in the exhaust does not exceed the concentration limit by a combination of source testing and fuel analysis. [Kern County Rule 407, District Rule 4301, District Rule 4801, and District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

18. Permittee shall measure and record the fuel gas sulfur content and BTU content at the time of NOx testing, except for natural gas purchased from a PUC regulated utility. [District Rules 2201and 4406] Federally Enforceable Through Title V Permit

19. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each non-certified fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

20. When complying with SOx emission limits by testing of stack emissions, testing shall be performed not less than once every 12 months using EPA Method 6B; or Method 8; or, for units using gaseous fuel scrubbed for sulfur pre-combustion, a grab sample analysis by GC-FPD/TCD performed in the laboratory and EPA Method 19 to calculated emissions. Gaseous fuel fired units demonstrating compliance on two consecutive annual source tests shall be tested not less than once every thirty-six months; however, annual source testing shall resume if any test fails to show compliance. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

21. If the unit is fired on noncertified gaseous fuel and compliance with SOx emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D1072, D3246, D4084, D4468, D6667, or double GC for H2S and Mercaptans. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

22. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D3588 for gaseous fuels. [District Rule 2520, 9.3.2; 4305, 6.2.1; 4306, 6.2.1; 4320; 4351, 6.2.1, 2201] Federally Enforceable Through Title V Permit

23. Nitrogen oxide (NOx) emissions shall not exceed 140 lb/hr. [District Rule 4301, 5.2.2] Federally Enforceable Through Title V Permit

24. The duration of each startup and shutdown period shall not exceed 2.0 hours. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

25. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

26. Copies of all fuel invoices, gas purchase contracts, supplier certifications, and test results to determine compliance with the conditions of this permit shall be maintained. The operator shall record daily amount and type(s) of fuel(s) combusted and all dates on which unit is fired on any noncertified fuel and record specific type of noncertified fuel used. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

27. Permittee shall measure and record, at least monthly, the sulfur content and BTU content of the TEOR gas incinerated in this unit. [District NSR Rule] Federally Enforceable Through Title V Permit

28. Emissions of sulfur compounds from this unit shall not exceed 200 lb per hour, calculated as SO2. Compliance with this requirement may be demonstrated by firing the unit only on PUC or FERC regulated natural gas or by testing the sulfur content of each fuel and determining the maximum hourly emissions of sulfur compounds by multiplying the sulfur content of each fuel in lb/MMBtu by the maximum heat rating of the unit; or by source testing in combination with fuel analysis. [District Rules 2520, 9.3.2 and 4301, 5.2.1] Federally Enforceable Through Title V Permit

29. Sulfur emissions shall not exceed 0.11 lb of sulfur per million BTU of heat input, averaged over 3 - one hour periods. Compliance with this requirement may be demonstrated by firing the unit only on PUC or FERC regulated natural gas; multiplying the reported sulfur content of each fuel in lb/MMBtu by the maximum heat input rating of the unit; or by a combination of source testing for sulfur compounds and fuel analysis. Compliance may be demonstrated for this unit individually, or by showing that the total emissions of sulfur compounds from all steam generators located at the stationary source with ATC or PTO issued prior to September 12, 1979 does not exceed the emissions that would result if each was operating in compliance with the specified limit. [Kern County Rule 424 and District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

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

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

32. Source test results from an individual unit that is identical to this unit, in terms of rated capacity, operational conditions, fuel used, and control method, as approved by the APCO, will satisfy the NOx and CO source testing requirement. [District Rules 2520, 9.4.2, 4305, 4306, 4320, and 4351] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

33. Compliance demonstration (source testing) shall be conducted by independent testing laboratory and shall be witnessed, or authorized by District. Sample collection shall be done by ARB certified testing laboratory. [District Rule 1081] Federally Enforceable Through Title V Permit

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

35. 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

36. 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

37. The sample collection shall be conducted under conditions (fuel quality, firing rate, waste gas incineration, air fuel ratio, etc.) expected to result in emissions representative of normal operation. [District Rule 1081] Federally Enforceable Through Title V Permit

38. The operational conditions during compliance testing may be imposed as permit requirements. [District Rule 2080] Federally Enforceable Through Title V Permit

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

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

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

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

43. Emissions for this unit shall be calculated using the arithmetic mean, pursuant to District Rule 1081 (amended December 16, 1993), of 3 thirty-minute test runs for NOx and CO. This mean shall be multiplied by the appropriate factor. [District Rules 1081 and 2520, 9.4.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

44. The following conditions must be met for representative units to be used to test for NOx and CO emissions for a group of units: 1) all units are initially source tested and emissions from each unit in group are less than 90% of permitted value and vary 25% or less from the average of all runs, 2) all units in the group are similar in terms of heat input, make and series, operational conditions, fuel used, and control method, 3) the group is owned by a single owner and located at a single stationary source, and 4) the selection of the representative units is approved by the District prior to testing. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

45. All units in a group for which representative units are annually source tested for NOx and CO emissions shall have received the same maintenance and tune-up procedures as the representative units. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

46. An operating log shall be maintained for each unit of the group. The log shall include, on a monthly basis, the total hours of operation, type and quantity of fuel used, and preventative and corrective maintenance and modifications performed. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

47. The number of representative units source tested for NOx and CO emissions shall be at least 30% of the total number of units in the group. The units included in the 30% shall be rotated such that in three years, all units in the entire group will have been tested at least once. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

48. Should any of the representative units exceed the required emission limits of this permit, each of the unit in the group shall conduct emissions testing within 90 days of the failed test. (This requirement shall not supersede a more stringent NSR or PSD permit testing requirement.) [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

49. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, NOx (lb/MMBtu) - EPA Method 19, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, SOx (lb/MMBtu) - ARB Method 100 and EPA Method 19. [District Rules 1081, 4305, 4306, 6.2, and 4320] Federally Enforceable Through Title V Permit

50. Records of the daily amount of natural gas and TEOR gas combusted shall be maintained and shall be made readily available for District inspection upon request. [District NSR Rule] Federally Enforceable Through Title V Permit

51. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following requirements of SJVUAPCD Rules 1081 (Amended December 16, 1993), 4201 (Amended December 17, 1992), and 4301 (Amended December 17, 1992). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

52. {1670} This unit has not been used to produce electricity for sale in 1985 or on or after November 15, 1990. Therefore, the requirements of 40 CFR 72.6(b) do not apply to this source. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

53. {1678} This unit is located west of interstate 5 in Kern county. Therefore, the requirements of District Rule 4351(Amended October 19, 1995) do not apply to this source. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1246-378-0 **ISSUANCE DATE:** DRAFT

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

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

EQUIPMENT DESCRIPTION:
85.0 MMBTU/HR NATURAL GAS, ETHANE-RICH NATURAL GAS AND OR TEOR GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MODEL LE ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (MNDI-J431)

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOX emission reduction credits for the following quantity of emissions: 1st quarter - 1002 lb, 2nd quarter - 1002 lb, 3rd quarter - 1002 lb, and fourth quarter - 1002 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
4. NOx ERC Certificate Numbers N-980-2, N981-2, S-3256-2, S-3962-2, S-3656-2, S-3970-2, S-4015-2, S-3913-2 and S-3915-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-1246-378-0 : Sep 13 2013 12:39PM – TORID : Joint Inspection NOT Required

5. Prior to operating equipment under this Authority to Construct, permittee shall surrender SOX emission reduction credits for the following quantity of emissions: 1st quarter - 1201 lb, 2nd quarter - 1201 lb, 3rd quarter - 1201 lb, and fourth quarter - 1201 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
6. SOx ERC Certificate Number S-3980-5 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct [District Rule 2201] Federally Enforceable Through Title V Permit
7. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 1396 lb, 2nd quarter - 1396 lb, 3rd quarter - 1396 lb, and fourth quarter - 1396 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
8. PM10 ERC Certificate Numbers C-1166-4, N-961-4, N-962-4, N-963-4, S-2480-4 and S-3624-4 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct [District Rule 2201] Federally Enforceable Through Title V Permit
9. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
10. 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
11. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
12. This unit shall be equipped with horizontal convection section with at least 235 square feet of bare tube surface area (or thermodynamically equivalent number of square feet of finned tube) per MMBtu/hr of heat input. [District Rule 2410] Federally Enforceable Through Title V Permit
13. This unit shall be equipped with variable frequency drive high efficiency electrical motors driving the blower and water pump. [District Rule 2410] Federally Enforceable Through Title V Permit
14. The unit shall only be fired on natural/TEOR/ethane-rich gas with a maximum sulfur content of 1.5 gr S/100scf. [District Rules 2201, 4301, and 4320] Federally Enforceable Through Title V Permit
15. 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
16. The higher heating value of each non-certified fuel shall be certified by a third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D 3588. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
17. Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmvd NOx @ 3% O2 or 0.008 lb-NOx/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
18. 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

CONDITIONS CONTINUE ON NEXT PAGE

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

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

21. Permittee shall determine sulfur content of combusted gas annually or shall demonstrate that the combusted gas is provided from a PUC or FERC regulated source. [District Rules 1081 and 4320] Federally Enforceable Through Title V Permit

22. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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

24. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit

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

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

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

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

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

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

31. 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

32. 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

CONDITIONS CONTINUE ON NEXT PAGE

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

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

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

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

37. 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

38. ATCs S-1246-19-33, '25-20, '253-19, '254-19 and '269-18 shall be implemented prior to or concurrently with this ATC. [District Rule 2201] Federally Enforceable Through Title V Permit

39. PTOs S-1246-185 and '186 shall be surrendered upon implementation of this ATC. [District Rule 2201] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1246-379-0 **ISSUANCE DATE:** DRAFT

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

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

EQUIPMENT DESCRIPTION:
85.0 MMBTU/HR NATURAL GAS, ETHANE-RICH NATURAL GAS AND OR TEOR GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MODEL LE ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (MNDI-J432)

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOX emission reduction credits for the following quantity of emissions: 1st quarter - 1002 lb, 2nd quarter - 1002 lb, 3rd quarter - 1002 lb, and fourth quarter - 1002 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
4. NOx ERC Certificate Numbers N-980-2, N981-2, S-3256-2, S-3962-2, S-3656-2, S-3970-2, S-4015-2, S-3913-2 and S-3915-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director / APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-1246-379-0 : Sep 13 2013 12:39PM – TORID : Joint Inspection NOT Required

5. Prior to operating equipment under this Authority to Construct, permittee shall surrender SOX emission reduction credits for the following quantity of emissions: 1st quarter - 1201 lb, 2nd quarter - 1201 lb, 3rd quarter - 1201 lb, and fourth quarter - 1201 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
6. SOx ERC Certificate Number S-3980-5 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct [District Rule 2201] Federally Enforceable Through Title V Permit
7. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 1396 lb, 2nd quarter - 1396 lb, 3rd quarter - 1396 lb, and fourth quarter - 1396 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
8. PM10 ERC Certificate Numbers C-1166-4, N-961-4, N-962-4, N-963-4, S-2480-4 and S-3624-4 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct [District Rule 2201] Federally Enforceable Through Title V Permit
9. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
10. 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
11. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
12. This unit shall be equipped with horizontal convection section with at least 235 square feet of bare tube surface area (or thermodynamically equivalent number of square feet of finned tube) per MMBtu/hr of heat input. [District Rule 2410] Federally Enforceable Through Title V Permit
13. This unit shall be equipped with variable frequency drive high efficiency electrical motors driving the blower and water pump. [District Rule 2410] Federally Enforceable Through Title V Permit
14. The unit shall only be fired on natural/TEOR/ethane-rich gas with a maximum sulfur content of 1.5 gr S/100scf. [District Rules 2201, 4301, and 4320] Federally Enforceable Through Title V Permit
15. 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
16. The higher heating value of each non-certified fuel shall be certified by a third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D 3588. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
17. Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmvd NOx @ 3% O2 or 0.008 lb-NOx/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
18. 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

CONDITIONS CONTINUE ON NEXT PAGE

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

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

21. Permittee shall determine sulfur content of combusted gas annually or shall demonstrate that the combusted gas is provided from a PUC or FERC regulated source. [District Rules 1081 and 4320] Federally Enforceable Through Title V Permit

22. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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

24. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit

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

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

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

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

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

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

31. 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

32. 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

CONDITIONS CONTINUE ON NEXT PAGE

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

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

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

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

37. 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

38. ATCs S-1246-19-33, '25-20, '253-19, '254-19 and '269-18 shall be implemented prior to or concurrently with this ATC. [District Rule 2201] Federally Enforceable Through Title V Permit

39. PTOs S-1246-185 and '186 shall be surrendered upon implementation of this ATC. [District Rule 2201] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1246-380-0 **ISSUANCE DATE:** DRAFT

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

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

EQUIPMENT DESCRIPTION:
85.0 MMBTU/HR PCL NATURAL GAS, ETHANE-RICH NATURAL GAS AND OR TEOR GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MODEL LE ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (MNDI-J433)

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOX emission reduction credits for the following quantity of emissions: 1st quarter - 1002 lb, 2nd quarter - 1002 lb, 3rd quarter - 1002 lb, and fourth quarter - 1002 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
4. NOx ERC Certificate Numbers N-980-2, N981-2, S-3256-2, S-3962-2, S-3656-2, S-3970-2, S-4015-2, S-3913-2 and S-3915-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director/APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-1246-380-0 : Sep 13 2013 12:38PM – TORID : Joint Inspection NOT Required

5. Prior to operating equipment under this Authority to Construct, permittee shall surrender SOX emission reduction credits for the following quantity of emissions: 1st quarter - 1201 lb, 2nd quarter - 1201 lb, 3rd quarter - 1201 lb, and fourth quarter - 1201 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
6. SOx ERC Certificate Number S-3980-5 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct [District Rule 2201] Federally Enforceable Through Title V Permit
7. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 1396 lb, 2nd quarter - 1396 lb, 3rd quarter - 1396 lb, and fourth quarter - 1396 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
8. PM10 ERC Certificate Numbers C-1166-4, N-961-4, N-962-4, N-963-4, S-2480-4 and S-3624-4 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct [District Rule 2201] Federally Enforceable Through Title V Permit
9. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
10. 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
11. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
12. This unit shall be equipped with horizontal convection section with at least 235 square feet of bare tube surface area (or thermodynamically equivalent number of square feet of finned tube) per MMBtu/hr of heat input. [District Rule 2410] Federally Enforceable Through Title V Permit
13. This unit shall be equipped with variable frequency drive high efficiency electrical motors driving the blower and water pump. [District Rule 2410] Federally Enforceable Through Title V Permit
14. The unit shall only be fired on natural/TEOR/ethane-rich gas with a maximum sulfur content of 1.5 gr S/100scf. [District Rules 2201, 4301, and 4320] Federally Enforceable Through Title V Permit
15. 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
16. The higher heating value of each non-certified fuel shall be certified by a third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D 3588. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
17. Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmvd NOx @ 3% O2 or 0.008 lb-NOx/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
18. 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

CONDITIONS CONTINUE ON NEXT PAGE

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

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

21. Permittee shall determine sulfur content of combusted gas annually or shall demonstrate that the combusted gas is provided from a PUC or FERC regulated source. [District Rules 1081 and 4320] Federally Enforceable Through Title V Permit

22. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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

24. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit

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

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

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

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

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

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

31. 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

32. 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

CONDITIONS CONTINUE ON NEXT PAGE

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

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

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

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

37. 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

38. ATCs S-1246-19-33, '25-20, '253-19, '254-19 and '269-18 shall be implemented prior to or concurrently with this ATC. [District Rule 2201] Federally Enforceable Through Title V Permit

39. PTOs S-1246-185 and '186 shall be surrendered upon implementation of this ATC. [District Rule 2201] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1246-381-0 **ISSUANCE DATE:** DRAFT

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

LOCATION: HEAVY OIL WESTERN STATIONARY SOURCE
KERN COUNTY, CA

EQUIPMENT DESCRIPTION:
85.0 MMBTU/HR PCL NATURAL GAS, ETHANE-RICH NATURAL GAS AND OR TEOR GAS-FIRED STEAM GENERATOR WITH NORTH AMERICAN MODEL LE ULTRA LOW-NOX BURNER, FLUE GAS RECIRCULATION (FGR) SYSTEM, AND O2 CONTROLLER (MNDI-J434)

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOX emission reduction credits for the following quantity of emissions: 1st quarter - 1002 lb, 2nd quarter - 1002 lb, 3rd quarter - 1002 lb, and fourth quarter - 1002 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
4. NOx ERC Certificate Numbers N-980-2, N981-2, S-3256-2, S-3962-2, S-3656-2, S-3970-2, S-4015-2, S-3913-2 and S-3915-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct [District Rule 2201] 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

DRAFT

DAVID WARNER, Director of Permit Services
S-1246-381-0 : Sep 13 2013 12:39PM – TORID : Joint Inspection NOT Required

5. Prior to operating equipment under this Authority to Construct, permittee shall surrender SOX emission reduction credits for the following quantity of emissions: 1st quarter - 1201 lb, 2nd quarter - 1201 lb, 3rd quarter - 1201 lb, and fourth quarter - 1201 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
6. SOx ERC Certificate Number S-3980-5 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct [District Rule 2201] Federally Enforceable Through Title V Permit
7. Prior to operating equipment under this Authority to Construct, permittee shall surrender PM10 emission reduction credits for the following quantity of emissions: 1st quarter - 1396 lb, 2nd quarter - 1396 lb, 3rd quarter - 1396 lb, and fourth quarter - 1396 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
8. PM10 ERC Certificate Numbers C-1166-4, N-961-4, N-962-4, N-963-4, S-2480-4 and S-3624-4 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct [District Rule 2201] Federally Enforceable Through Title V Permit
9. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
10. 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
11. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
12. This unit shall be equipped with horizontal convection section with at least 235 square feet of bare tube surface area (or thermodynamically equivalent number of square feet of finned tube) per MMBtu/hr of heat input. [District Rule 2410] Federally Enforceable Through Title V Permit
13. This unit shall be equipped with variable frequency drive high efficiency electrical motors driving the blower and water pump. [District Rule 2410] Federally Enforceable Through Title V Permit
14. The unit shall only be fired on natural/TEOR/ethane-rich gas with a maximum sulfur content of 1.5 gr S/100scf. [District Rules 2201, 4301, and 4320] Federally Enforceable Through Title V Permit
15. 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
16. The higher heating value of each non-certified fuel shall be certified by a third party fuel supplier or determined by ASTM D1826 or D1945 in conjunction with ASTM D 3588. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
17. Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmvd NOx @ 3% O2 or 0.008 lb-NOx/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
18. Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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

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

21. Permittee shall determine sulfur content of combusted gas annually or shall demonstrate that the combusted gas is provided from a PUC or FERC regulated source. [District Rules 1081 and 4320] Federally Enforceable Through Title V Permit

22. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

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

24. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit

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

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

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

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

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

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

31. 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

32. 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

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

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

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

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

37. 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

38. ATCs S-1246-19-33, '25-20, '253-19, '254-19 and '269-18 shall be implemented prior to or concurrently with this ATC. [District Rule 2201] Federally Enforceable Through Title V Permit

39. PTOs S-1246-185 and '186 shall be surrendered upon implementation of this ATC. [District Rule 2201] Federally Enforceable Through Title V Permit