San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

OCT 16 2014

Mr. Lance Ericksen
Chevron USA
PO Box 1392
Bakersfield, CA 93302

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # C-311
Project # C-1132740

Dear Mr. Ericksen:

Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. You requested that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. Modifications include the installation of 11 new steam generators.

After addressing all comments made during the 30-day public notice and the 45-day EPA comment periods, the District intends to issue the Authorities to Construct with Certificates of Conformity. Please submit your comments within the 30-day public comment period, as specified in the enclosed public notice. Prior to operating with modifications authorized by the Authorities to Construct, the facility must submit an application to modify the Title V permit as an administrative amendment, in accordance with District Rule 2520, Section 11.5.

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

Thank you for your cooperation in this matter.

Sincerely,

Arnaud Marjollet
Director of Permit Services

AM:sar/ya

Enclosures

cc: Mike Tollstrup, CARB (w/enclosure) via email
cc: Gerardo C. Rios, EPA (w/enclosure) via email

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San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Eleven 85 MMBtu/hr Steam Generators

Facility Name:	Chevron U.S.A., Inc.	Date:	9/30/14
Mailing Address:	P.O. Box 1392	Engineer:	Steve Roeder
	Bakersfield, CA 93302	Lead Engineer:	Allan Phillips

Contact Person:	Lance Ericksen	661-654-7145	Lance.Ericksen@chevron.com
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Applications:	C-311-242-0 through 252-0		
Project:	C-1132740		
Deemed Complete:	9/18/13		

I. Proposal

The primary business of Chevron USA, Inc. (Chevron) is oil and gas production. Chevron requests Authorities to Construct (ATCs) to install eleven natural gas-fired steam generators at their Coalinga stationary source (Facility C-311). Six (6) steam generators will be permitted to operate at the 13D steam plant and the other five (5) steam generators will be permitted to operate at various specified locations in the 13D and 25D steam plants.

The steam generators will be installed over a period of years depending on steam demand. The steam generators will be equipped with 85 MMBtu/hr North American GLE low-NO_x burners (or equivalent) capable of achieving NO_x emissions of 7 ppmvd @ 3% O_2. The "or equivalent" burner option consists of using the same GLE burner rated at 69 MMBtu/hr, which is required for steam generators with a smaller fire box.

Emissions from the steam generators will trigger BACT, Offsets, Public Notice, and the noticing requirements of the California Environmental Quality Act.

Chevron has a Title V permit. This project is a Federal Major Modification and a Title V Significant Modification pursuant to Rule 2520 *Federally Mandated Operating Permits*, 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 Authorities to Construct. Chevron must then 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 (6/16/11)
Rule 2520 Federally Mandated Operating Permits (6/21/01)
Rule 4001 New Source Performance Standards (4/14/99)
Rule 4101 Visible Emissions (2/17/05)
Rule 4102 Nuisance (12/17/92)
Rule 4201 Particulate Matter Concentration (12/17/92)
Rule 4301 Fuel Burning Equipment (12/17/92)
Rule 4305 Boilers, Steam Generators and Process Heaters – Phase II (8/21/03)
Rule 4306 Boilers, Steam Generators and Process Heaters – Phase III (10/16/08)
Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters greater than 5.0 MMBtu/hr (10/16/08)
Rule 4351 Boilers, Steam Generators, and Process Heaters - Phase 1 (8/21/03)
Not applicable, since the steam generators are located west of Highway 5.
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, Div 6, Chap 3, Sections 15000-15387: CEQA Guidelines

III. Project Location

Six (6) of the steam generators will be located at the 13D steam plant. Five (5) of the steam generators will be permitted for various specified locations (13D and 25D steam plants). The steam generators will be located within Chevron's Coalinga Oilfield in their Fresno County Heavy oil Production Stationary Source.

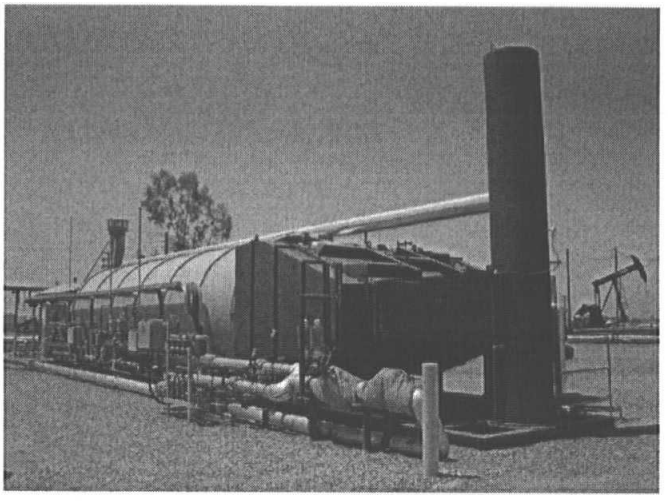
Permit Number	Location (MDB&M)
C-311-242-0	Sec 13 T20S R14E
C-311-243-0	
C-311-244-0	
C-311-245-0	
C-311-246-0	
C-311-247-0	
C-311-248-0	Sec 13 T20S R14E and Sec 25 T20S R14E
C-311-249-0	Sec 13 T20S R14E and Sec 25 T20S R14E
C-311-250-0	Sec 13 T20S R14E and Sec 25 T20S R14E
C-311-251-0	Sec 13 T20S R14E and Sec 25 T20S R14E
C-311-252-0	Sec 13 T20S R14E and Sec 25 T20S R14E

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

Chevron is a Heavy Oil Production facility in Fresno County. The steam generators are used to produce steam for injection into heavy crude oil bearing strata via injection wells to reduce the viscosity of the crude oil, thereby facilitating petroleum production.

Chevron is proposing to install 11 natural gas-fired steam generators. Six of the units will be permitted for the 13D steam plant (C-311-242 through '-247-0). The other five units (C-311-248-0 through C-311-252-0) will be permitted for various specified locations (13D and 25D steam plants). A representative steam generator is shown below.



V. Equipment Listing

Pre-Project Equipment Description:

The steam generators are new; therefore there are no pre-project equipment descriptions.

Proposed Equipment:

13D Steam Plant

ATC C-311-242-0: 85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13-1X WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

ATC C-311-243-0: 85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13-2X WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

ATC C-311-244-0: 85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13-3X WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

ATC C-311-245-0: 85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13-4X WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

ATC C-311-246-0: 85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13-5X WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

ATC C-311-247-0: 85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13-6X WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

Various specified location steam generators (13D or 25D steam plants)

ATC C-311-248-0: 85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13/25-XA WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

ATC C-311-249-0: 85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13/25-XB WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

ATC C-311-250-0: 85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13/25-XC WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

ATC C-311-251-0: 85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13/25-XD WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

ATC C-311-252-0: 85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13/25-XE WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

Pursuant to District Policy APR 1035 *Flexibility in Equipment Descriptions in ATCs*, some flexibility in the final specifications of the equipment will be allowed, as shown in the following proposed permit conditions:

- This Authority to Construct authorizes the installation of an 85 MMBtu/hr North American GLE burner or a 69 MMBtu/hr North American GLE burner, or equivalent. Approval of any other equivalent burner shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]
- The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and other relevant operational characteristics. [District Rule 2010]
- A burner is not equivalent if any of the emission factors or the maximum heat input rating is greater than those authorized in this Authority to Construct. [District Rule 2201]

VI. Emission Control Technology Evaluation

Emissions from gas-fired steam generators include NO_x, SO_x, $PM_{2.5}$, PM_{10}, CO, and VOC.

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

The steam generators will be equipped with ultra-low-NO_x burners and FGR, and be capable of achieving 7 ppmvd NO_x and 25 ppmvd CO @ 3% O2, and will be fired exclusively on gaseous fuel with a sulfur content no greater than 1.0 grain-S/100 dscf.

Low NO_x Burner Technology

Low-NO_x burners reduce NO_x formation by producing lower flame temperatures (and longer flames) than conventional burners. Low-NO_x burners delay the mixing of fuel and air by introducing the fuel (or sometimes air) in multiple stages. In the first stage, the air-fuel mixture is fuel-rich in which the oxygen is consumed in reactions with the fuel, thereby limiting excess oxygen available to react with nitrogen to produce thermal NO_x.

The combustion zones in the secondary and tertiary stages are maintained in a fuel-lean environment. The excess air in these stages helps to reduce the flame temperature, which in turn minimizes the reaction between excess oxygen and nitrogen. The North American burner incorporates patented internal mixing elements that premix the fuel and air prior to combustion in the reaction zone. By completing a majority of the combustion in the burner reaction chamber, the low emissions of the burner are protected from process influences.

Flue Gas Recirculation Technology

The use of FGR can reduce 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

- Operating schedule is 24 hours/day and 8,760 hour/year
- Maximum heat input rating = 85 MMBtu/hr
- Alternate burner maximum heat input = 69 MMBtu/hr
- Sulfur content of fuel = 1.0 grain-S/100 dscf or less
- Natural gas heating value: 1,000 Btu/scf
- F-Factor for natural gas @ 60°F = 8,578 dscf/MMBtu (40 CFR 60, Appendix B)
- Gas Vol @ 60 °F = [(10.73 psi-ft^3/lb-mole-R) x (520 R)]/(14.7 psi) = 379.6 ft^3/lb-mole
- During the 60 day "shakedown" period, the emissions from the steam generator will not exceed 30 ppmv NO_x @ 3% O_2 and 50 ppmv CO @ 3% O_2
- During startup and shutdown periods (not to exceed 2 hr each per occurrence) NO_x emissions $\leq$ 0.1 MMBtu and CO emissions $\leq$ 0.084 lb/MMBtu
- During shakedown period, or startup and shutdown periods, the proposed daily and annual emissions will not exceed steady state daily and annual limits. The DEL and annual emissions limits are based on steady state emission factors. Therefore startup and shakedown emissions calculations are not necessary.
- A separate BACT Analysis is included for the 60-day shakedown period in Appendix E.

B. Emission Factors

Emission Factors Natural gas-fired steam generators					
Pollutant	60 Day shakedown period* (lb/MMBtu)	Start-up and shutdown (lb/MMBtu)	Steady-state		Source
			lb/MMBtu	ppmv @ 3% O_2	
NO_x	0.018	0.1	0.0085	7 ppmv NO_x[(1)]	Applicant proposed, vendor guaranteed (Appendix B); meets Rule 4320, Table 1 Category C.2.a
SO_x	0.00285	0.00285	0.00285	1 grain-S/100 scf[(2)]	Proposed, District recognized EF for PUC quality gas.
PM_{10}	0.0032	0.0032	0.0032	-	Applicant proposed; based on representative source test (Appendix C)
CO	0.037	0.084	0.0185	25 ppmv[(3)]	Applicant proposed, vendor guaranteed (Appendix B)
VOC	0.0055	0.0055	0.0055	12 ppmv	AP-42 Table 1.4-2

*A separate BACT analysis is included for the 60-day shakedown period.

(1) 0.0085 lb-NOx/MMBtu = (7 ppmvd/10^6)(8,578 dscf/MMBtu)(lb-mole/379.6 ft^3)(46 lb/lb-mole)[20.9/(20.9-3)]

(2) 0.00285 lb-SOx/MMBtu = (0.01 gr-S/scf)(lb/7000 gr)(scf/1000 Btu)(2 lb-SO2/lb-S)(10^6)

(3) 0.0185 lb-CO/MMBtu = (25 ppmvd/10^6)(8,578 dscf/MMBtu)(lb-mole/379.6 ft^3)(28 lb/lb-mole)[20.9/(20.9-3)]

C. Calculations

1. Pre-Project Potential to Emit (PE1)

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

2. Post Project Potential to Emit (PE2)

The daily and annual PE2 for each steam generator is calculated in the following tables. First the emissions are calculated for the 85 MMBtu/hr burners and then the emissions are calculated for the 69 MMBtu/hr alternate burner.

85 MMBtu/hr GLE burner

Daily PE2				
Pollutant	Emission Factors (lb/MMBtu)	Rating (MMBtu/hr)	Daily Hours of Operation	PE2 Total (lb/day)
NO_X	0.0085	85	24	17.3
SO_X	0.00285	85	24	5.8
PM_{10}	0.0032	85	24	6.5
CO	0.0185	85	24	37.7
VOC	0.0055	85	24	11.2

Annual PE2				
Pollutant	Emission Factors (lb/MMBtu)	Rating (MMBtu/hr)	Annual Hours of Operation	PE2 Total (lb/year)
NO_X	0.0085	85	8,760	6,329
SO_X	0.00285	85	8,760	2,122
PM_{10}	0.0032	85	8,760	2,383
CO	0.0185	85	8,760	13,775
VOC	0.0055	85	8,760	4,095

69 MMBtu/hr GLE burner

Daily PE2				
Pollutant	Emission Factors (lb/MMBtu)	Rating (MMBtu/hr)	Daily Hours of Operation	PE2 Total (lb/day)
NO_X	0.0085	69	24	14.1
SO_X	0.00285	69	24	4.7
PM_{10}	0.0032	69	24	5.3
CO	0.0185	69	24	30.6
VOC	0.0055	69	24	9.1

Annual PE2				
Pollutant	Emission Factors (lb/MMBtu)	Rating (MMBtu/hr)	Annual Hours of Operation	PE2 Total (lb/year)
NO_X	0.0085	69	8,760	5,138
SO_X	0.00285	69	8,760	1,723
PM_{10}	0.0032	69	8,760	1,934
CO	0.0185	69	8,760	11,182
VOC	0.0055	69	8,760	3,324

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

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)

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

A Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the identified 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

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

Rule 2410 Major Source Determination

The facility or the equipment evaluated under this project is listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i).

Source Type Categories as specified in 40 CFR 52.21 (b)(1)(i)

Common Source types in the District are in **bold**:

a. Fossil fuel-fired steam electric plants > 250 MMBTU/hr,
b. coal cleaning plants (with thermal dryers),
c. ...
v. fossil-fuel boilers (or combinations thereof) totaling more than 250 MMBtu/hr,
w. petroleum storage and transfer units with a total storage capacity > 300,000 barrels,
x. taconite ore processing plants,
y. glass fiber processing plants, and
z. charcoal production plants;

Therefore the following PSD Major Source thresholds are applicable.

PSD Major Source Determination (tons/year)						
	NO_2	VOC	SO_2	CO	PM	PM_{10}
Estimated Facility PE before Project Increase (tpy)	318	247	267	802	215	215
PSD Major Source Thresholds (tpy)	100	100	100	100	100	100
PSD Major Source ? (Y/N)	Y	Y	Y	Y	Y	Y

As shown above, the facility is an existing major source for PSD for at least one pollutant. Therefore the facility is an existing major source for PSD.

6. Baseline Emissions (BE)

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

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

7. SB 288 Major Modification

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

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.

The Project PE2 is calculated in the following table based on eleven 85 MMBtu/hr steam generators and compared to the SB288 Major Modification Thresholds.

SB 288 Major Modification Thresholds (lb/year)					
Pollutant	PE2 per Steam Generator	Number of Steam Generators	Project PE2	Threshold	SB 288 Major Modification Calculation Required?
NO_x	6,329	11	69,619	50,000	Yes
SO_x	2,122	11	23,342	80,000	No
PM_{10}	2,383	11	26,213	30,000	No
VOC	4,095	11	45,045	50,000	No

Since the project's PE2 surpasses the SB 288 Major Modification Threshold for NO_x, the Net Emissions Increase (NEI) calculation would normally be required to determine if the project constitutes an SB 288 Major Modification. However, Chevron has requested that the project be processed as a 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

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 steam generators are new units, therefore PAE = PE2.

The project's combined maximum total emission increases are compared to the Federal Major Modification Thresholds in the following table.

Federal Major Modification Thresholds (lb/year)			
Pollutant	Total Emissions Increases	Thresholds	Federal Major Modification?
NO_x	69,619	0	Yes
SO_x	23,342	80,000	No
PM_{10}	26,213	30,000	No
$PM_{2.5}$	26,213	20,000	Yes
VOC	45,045	0	Yes

Step 2

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

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

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. Pollutants addressed in the PSD applicability determination are listed below.

- NO_2 (as a primary pollutant)
- SO_2 (as a primary pollutant)
- CO
- PM
- PM_{10}

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 above).

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.

I. Project Location Relative to Class 1 Area

As demonstrated above, the facility is determined to be an existing major source for PSD. Since the project is not located within 10 km of a Class 1 area – modeling of the emission increase is not required to determine if project is subject to Rule 2410 requirements.

II. Significance of Project Emission Increase Determination

a. Potential to Emit of attainment/unclassified pollutant for New or Modified Emission Units vs PSD Significant Emission Increase Thresholds

The potential to emit from all new and modified units is compared to the PSD significant emission increase thresholds, and if total potential to emit from all new and modified units is below this threshold, no futher analysis will be needed.

PSD Significant Emission Increase Determination: Potential to Emit (tons/year)					
	NO_2	SO_2	CO	PM	PM_{10}
Total PE2	34.8	11.7	75.8	13.1	13.1
PSD Significant Emission Increase Thresholds	40	40	100	25	15
PSD Significant Emission Increase?	N	N	N	N	N

Since the total PE2 from all new units are below the PSD significant emission increase thresholds, this project is not subject to the requirements of Rule 2410.

10. Quarterly Net Emissions Change (QNEC)

The QNEC is used to complete the emission profile screen for the District's PAS database. The QNEC for each pollutant is calculated as follows.

$$QNEC = \frac{(PE_2 - PE_1)\frac{lb}{year}}{\frac{4\ Quarters}{year}}$$

QNEC				
Unit	Pollutant	PE1 (lb/yr)	PE2 (lb/yr)	QNEC (lb/qtr)
C-311-242-0	NO_x	0	6,329	1,582
thru	SO_x	0	2,122	531
C-311-252-0	PM_{10}	0	2,383	596
	CO	0	13,775	3,444
	VOC	0	4,095	1,024

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. 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.

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

As discussed in Section I above, this project authorizes 11 new steam generators, each with a PE greater than 2 lb/day of NO_x, SO_x, PM_{10}, CO and VOC. Therefore BACT is triggered for NO_x, SO_x, PM_{10}, CO and VOC.

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

There are no emissions units being relocated from one stationary source to another. Therefore BACT is not triggered for relocation of an emissions unit with a PE > 2 lb/day.

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

As discussed in Section I above, there are no modified emissions units associated with this project. Therefore BACT is not triggered for AIPE > 2 lb/day.

d. SB 288/Federal Major Modification

As discussed in Section VII.C.7 above, this project does constitute an SB 288 Major Modification for NO_x and a Federal Major Modification for NO_x, VOC and $PM_{2.5}$ emissions. Therefore BACT is triggered for NO_x for SB288 and is triggered for NO_x, VOC and $PM_{2.5}$ for Federal Major Modification purposes.

2. BACT Guideline

BACT Guideline 1.2.1 applies to Oilfield Steam Generators > 20 MMBtu/hr and is presented in Appendix D.

A BACT analysis for the shakedown period is presented in Appendix E.

3. BACT Analysis

Pursuant to the BACT Analyses in Appendixes D and E, BACT is satisfied with the following:

Steady State Operation

NO_X: 7 ppmv @ 3% O2
SO_X: The use of natural gas or LPG with a sulfur content that does not exceed 1 gr of sulfur (as S) per 100 scf
PM_{10}: The use of natural gas or LPG with a sulfur content that does not exceed 1 gr of sulfur (as S) per 100 scf
CO: 25 ppmvd @ 3% O_2.
VOC: Natural gas fuel

60-Day Shakedown Period Operation

NO_X: 0.018 lb/MMBtu, and
Operation of the low NOx burner with the maximum FGR that can be accommodated by the specific commissioning activity being undertaken, expeditious completion of commissioning activities and use of good work practice standard to minimize emissions
SO_X: The use of natural gas or LPG with a sulfur content that does not exceed 1 gr of sulfur (as S) per 100 scf
PM_{10}: The use of natural gas or LPG with a sulfur content that does not exceed 1 gr of sulfur (as S) per 100 scf
CO: 0.037 lb/MMBtu, and
Operation of the low NOx burner with the maximum FGR that can be accommodated by the specific commissioning activity being undertaken, expeditious completion of commissioning activities and use of good work practice standard to minimize emissions
VOC: Natural gas fuel

The following condition is listed on each permit to ensure compliance:

- During the 60-day shakedown period, the operator shall operate the burner with the maximum FGR setting that can be accommodated by the specific commissioning activity being undertaken, perform expeditious completion of commissioning activities, and shall use good work practice standards to minimize emissions. [District Rule 2201]

B. Offsets

1. Offset Applicability

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.

Chevron concedes the SSPE2 exceeds the offset threshold values for NO_x, SO_x, PM_{10}, CO and VOC emissions.

In addition, this project constitutes a Federal Major Modification for $PM_{2.5}$ emissions. Pursuant to Section 4.5.4, offsets shall be required for the $PM_{2.5}$ emission increases.

Rule 2201 states that emissions offsets are not required for increases in carbon monoxide in attainment areas - provided the applicant demonstrates to the satisfaction of the APCO that the Ambient Air Quality Standards are not violated in the areas to be affected, and such emissions will be consistent with Reasonable Further Progress, and will not cause, or contribute to, a violation of Ambient Air Quality Standards. The District has performed an Ambient Air Quality Analysis (AAQA) for the new steam generators to demonstrate this project will not result in or contribute to a violation an Ambient Air Quality Standard for CO (see Appendix F). Therefore, CO offsets are not required for this project.

Emissions offsets are required for NO_x, SO_x, PM_{10}, $PM_{2.5}$ and VOC emissions.

2. Quantity of Offsets Required

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 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 = 0 for these new emissions units, and
ICCE = 0

Offsets required (lb/year) = $(\Sigma[PE2 - BE] + ICCE) \times DOR$
= $(\Sigma[PE2 - 0] + 0) \times DOR$
= $PE2 \times DOR$

District Rule 2201, Section 4.8.1 sets the DOR for NO_x and VOC emissions for a project that is a Federal Major Modification to 1.5:1, Section 4.8.4 sets the DOR for SO_x and CO to 1.5:1 at a distance of 15 miles or more, and Section 4.8.2 specifies that the DOR for $PM_{2.5}$ for Federal Major Modification projects shall be set to 1.0:1.

The amount of offsets required for each steam generator is calculated in the following tables.

Offsets Required (pounds) per 85 MMBtu/hr Steam Generator				
Pollutant	Annual PE	DOR	Annual Offsets	Quarterly Offsets
NO_x	6,329	1.5	9,494	2,374
SO_x	2,122	1.5	3,183	796
PM_{10}	2,383	1.5	3,575	894
VOC	4,095	1.5	6,143	1,536
$PM_{2.5}$	2,383	1	2,383	596

Offsets Required (pounds) per 69 MMBtu/hr Steam Generator				
Pollutant	Annual PE	DOR	Annual Offsets	Quarterly Offsets
NO_x	5,138	1.5	7,707	1,927
SO_x	1,723	1.5	2,585	646
PM_{10}	1,934	1.5	2,901	725
VOC	3,324	1.5	4,986	1,247
$PM_{2.5}$	1,934	1	1,934	484

The grand total of offsets required for all 11 steam generators (85 MMBtu/hr) is posted in the following table.

Offsets Required (pounds) Entire Project		
Pollutant	Annual Total	Quarterly Total
NO_x	104,434	26,114
SO_x	35,013	8,756
PM_{10}	39,325	9,834
VOC	67,573	16,896
$PM_{2.5}$	26,213	6,553

Chevron has proposed to surrender the following ERC certificates as offsets for this project. The quarterly emission reduction credits available is compared to the quarterly offset requirements of the 85 MMBtu/hr steam generators to verify the facility has sufficient credits to fully offset the quarterly emission increases.

NO_x ERC Certificate S-3735-2				
	Q1	Q2	Q3	Q4
ERCs Available	34,531	35,072	35,614	35,614
ERCs Required	26,114	26,114	26,114	26,114
Sufficient ERCs?	Yes	Yes	Yes	Yes

SO_x ERC Certificate S-2934-5				
	Q1	Q2	Q3	Q4
ERCs Available	11,539	16,868	23,727	33,544
ERCs Required	8,756	8,756	8,756	8,756
Sufficient ERCs?	NO	Yes	Yes	Yes

PM_{10} ERC Certificate S-3598-4				
	Q1	Q2	Q3	Q4
ERCs Available	23,958	18,336	24,959	21,380
ERCs Required	9,834	9,834	9,834	9,834
ERCs Reserved	10,929	8,739	9,834	9,834
Sufficient ERCs?	Yes	Yes	Yes	Yes

*Pursuant to Rule 2201 Section 4.13.7, AER for PM that occurred from October through March (4th and 1st quarters), inclusive, may be used to offset increases in PM during any period of the year. Therefore, 1,095 lb from the 1st Quarter will be used to cover the 2nd Quarter.

NOTE on $PM_{2.5}$ Offsets

Chevron has provided ERC Certificate S-3598-4 to offset the PM_{10} and $PM_{2.5}$ emissions increases. The same ERCs may be used to simultaneously offset both PM_{10} and $PM_{2.5}$ emission increases, since $PM_{2.5}$ is a subset of PM_{10}. Therefore, in order to ensure that the proposed PM_{10} ERC contains sufficient $PM_{2.5}$, we must verify the percentage of the $PM_{2.5}$ (the $PM_{2.5}$ fraction) represented by the proposed ERC Certificate is sufficient to offset the $PM_{2.5}$ increase.

The original PM_{10} ERC Certificate (S-412-4, from which S-3598-4 was derived) resulted from the elimination of oil-fire capacity from oilfield steam generators.

According to EPA AP-42, Table 1.3-4, *Cumulative Particle Size Distribution And Size-Specific Emission Factors For Utility Boilers Firing Residual Oil*, 71% of the total PM emitted from oil-fired steam generators is PM_{10}. It further states that 52% of the total PM is $PM_{2.5}$.

Every pound of banked PM_{10} reductions represents 1/71% of total PM, or 1.41 lb of total PM. From the 1.41 lb of total PM, 52% of that is $PM_{2.5}$, which is 0.73 lb. Therefore, the $PM_{2.5}$ fraction of the PM_{10} is 73%.

The PM_{10} increase for this project is 26,217 lb/year. At the DOR of 1.5 the amount of offsets required is 39,325 lb/year. From the 39,325 pounds of PM_{10} being provided, 73% of that is $PM_{2.5}$, meaning that 28,707 pounds of $PM_{2.5}$ are being surrendered.

The $PM_{2.5}$ emissions increase from this project is also 26,217 lb/year. The DOR for $PM_{2.5}$ is 1:1, therefore the $PM_{2.5}$ offset requirement is 26,217 lb/year.

Since 28,707 lb $PM_{2.5}$ is being surrendered, and only 26,217 lb $PM_{2.5}$ is required, the proposed PM_{10} offsets will cover both the $PM_{2.5}$ and the PM_{10} offsetting requirements.

The following table shows that the amount of PM_{10} provided is also sufficient for the $PM_{2.5}$ offsetting requirement.

$PM_{2.5}$ from PM_{10} ERC Certificate S-3598-4				
	Q1	Q2	Q3	Q4
$PM_{2.5}$ Offsets Required	**6,553**	**6,553**	**6,553**	**6,553**
PM_{10} ERCs Reserved	10,929	10,929	10,929	10,929
$PM_{2.5}$ Fraction	0.73	0.73	0.73	0.73
ERCs Adjusted by the $PM_{2.5}$ Fraction	**7,978**	**7,978**	**7,978**	**7,978**
Sufficient ERCs?	Yes	Yes	Yes	Yes

VOC ERC Certificate S-3722-1				
	Q1	Q2	Q3	Q4
ERCs Available	127,895	129,399	130,902	130,902
ERCs Required	16,896	16,896	16,896	16,896
Sufficient ERCs?	Yes	Yes	Yes	Yes

As shown 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 with an 85 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 2,374 lb/qtr; SOx: 796 lb/qtr; PM10: 894 lb/qtr, PM2.5: 596 lb/qtr, and VOC: 1,536 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below (which is 1.5:1 and 1.0:1 for PM2.5). PM offsets required for the second quarter may be provided from the first quarter. The emission reduction credits for PM10 cover the requirement for PM2.5. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act]

- Prior to operating equipment under this Authority to Construct with a 69 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1,927 lb/qtr; SOx: 646 lb/qtr; PM10: 725 lb/qtr, PM2.5 484 lb/qtr, and VOC: 1,247 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified (which is 1.5:1 and 1.0:1 for PM2.5). PM offsets required for the second quarter may be provided from the first quarter. The emission reduction credits for PM10 cover the requirement for PM2.5. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act]

- ERC Certificate Numbers S-3735-2 (NOx), S-2934-5 (SOx), S-3598-4 (for PM10 and PM2.5) and S-3722-1 (VOC) (or 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 and Public Resources Code 21000-21177: California Environmental Quality Act]

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 PE 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 Mods, and SB 288 Major Mods

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 shown in Sections VII.C.7 and 8 above, this project constitutes both an SB 288 Major Modification and a Federal Major Modification. Therefore, public noticing is required for these purposes.

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 shown in Section VII.C.2 above, this project does not include any new emissions units that have daily emissions greater than 100 lb/day for any pollutant. Therefore public noticing is not required for this project for PE > 100 lb/day.

c. Offset Threshold

Public notification is required if the SSPE is increased from below the offset threshold to a level exceeding the emissions offset threshold, for any pollutant.

Since this facility's emissions are already above the offset thresholds, no thresholds were surpassed with this project, and public noticing for offset purposes is not required.

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 (lb/year)			
Pollutant	SSIPE	SSIPE Public Notice Threshold	Public Notice Required?
NO_x	69,619	20,000	Yes
SO_x	23,342	20,000	Yes
PM_{10}	26,213	20,000	Yes
CO	151,525	20,000	Yes
VOC	45,045	20,000	Yes

As shown above, the SSIPE for all pollutants were more than 20,000 lb/year each. Therefore public noticing for SSIPE purposes is required.

2. Public Notice Action

Public noticing is required for SB 288 Major Modification, Federal Major Modification, and SSIPE > 20,000 lb/year purposes. Therefore Public Notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATCs for this equipment.

D. Daily Emission Limits (DELs)

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.

The permit DELs are based on the maximum heat input rating (MMBtu/hr), the emission factors (in lb/MMBtu), and the maximum daily operating schedule of 24 hr/day.

The following conditions are listed on the permit to ensure compliance.

- This unit shall be fired on PUC quality natural gas. [District Rule 2201]
- Fuel gas shall not contain more than 1 grain of total sulfur per 100 standard cubic feet or 0.00285 lb/MMBtu. [District Rules 2201, 4320 and 4801]

- Except during startup and shutdown periods, and the 60 day shakedown period, emissions shall not exceed either of the following limits: 7 ppmvd NOx (as NO2) @ 3% O2 (0.0085 lb/MMBtu), 0.0032 lb PM10/MMBtu, 25 ppmvd CO @ 3% O2 (0.0185 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rules 2201, 4305, 4306, and 4320]
- During start-up and shutdown periods, emissions from the steam generator shall not exceed either of the following limits: 0.1 lb-NOx/MMBtu or 0.084 lb-CO/MMBtu. [District Rule 2201]
- During the 60-day shakedown period, emissions shall not exceed any of the following limits: 15 ppmvd NOx (as NO2) @ 3% O2 (0.018 lb/MMBtu), 0.0032 lb PM10/MMBtu, 50 ppmvd CO @ 3% O2 (0.037 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rule 2201]

E. Compliance Assurance

1. Source Testing

NO_x and CO

Periodic source testing for NO_x and CO is required by District Rules 4305, 4306 and 4320, *Boilers, Steam Generators and Process Heaters*. The source testing requirements are discussed in Section VIII of this evaluation (below).

2. Monitoring

NO_x and CO

Periodic monitoring for NO_x and CO is required by District Rules 4305, 4306 and 4320, *Boilers, Steam Generators and Process Heaters*. Monitoring requirements of District Rules 4305, 4306 and 4320 are discussed in Section VIII of this evaluation (below).

No additional monitoring is required.

3. Recordkeeping

As required by Rules 4305, 4306 and 4320, *Boilers, Steam Generators and Process Heaters,* these units are subject to recordkeeping requirements. The requirements are discussed in Section VIII of this evaluation (below). Recordkeeping is also required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. Records of source testing and monitoring results will be required.

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

Section 4.14 of this Rule requires that an AAQA be conducted for the purpose of determining whether the project will cause or increase a violation of any ambient air quality standards. The District's Technical Services Division performed the required modeling for NO_x, SO_x, PM_{10}, and CO emissions. The results are as follows:

> Although the predicted air quality impact from the project's $PM_{2.5}$ emissions contribute significantly to an existing violation of the NAAQS, the project can be permitted because the facility is fully offsetting the project's $PM_{2.5}$ emissions to zero.

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

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, the proposed equipment will not cause a violation of an air quality standard for PM_{10} or $PM_{2.5}$.

See the AAQA Summary in Appendix F.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Federal Major 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. Since this project does constitute a Federal Major Modification, Chevron's Compliance Certification Statement is included in Appendix G.

H. Alternate Siting Analysis

Chevron proposes to install eleven steam generators at an existing oilfield steam plant, where oil wells, steam piping, roads, etc., are already in place. 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 shown in Section VII C.8 above, the project does not trigger PSD requirements for any pollutants. Rule 2410 is therefore not applicable.

Rule 2520 Federally Mandated Operating Permits

Chevron has received their Title V Operating Permit. Section 3.29 defines a significant permit modification as a "permit amendment that does not qualify as a minor permit modification or administrative amendment."

The project is Federal Major Modification and therefore is also a Title V Significant Modification. As discussed above, the facility has applied for a COC, therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Chevron's Title V Compliance Certification form is Included in **Appendix J**.

The following conditions are listed on the ATC to ensure compliance.

- 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]
- Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4]

Rule 4001 New Source Performance Standards (NSPS)

40 CFR Part 60, Subpart Dc 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 85 and 69 MMBtu/hr and are gas-fired. Subpart Dc has no standards for gas-fired steam generators. Therefore the subject steam generators are not affected facilities and subpart Dc does not apply.

Rule 4101 Visible Emissions

Rule 4101 states that 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). Visible emissions exceeding Ringelmann 1 or 20% opacity are not expected from these gas-fired steam generators. Also, based on past inspections of the facility, continued compliance is expected.

The following condition is listed on the permit to ensure compliance.

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

Continued compliance with District Rule 4101 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 Analysis

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

An HRA is not required for a project with a total facility prioritization score of less than one. According to the Risk Management Review summary in **Appendix J,** the total facility prioritization score including this project is greater than one. Therefore, an HRA is 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	11 Steam Generators (Units 242-0 thru 252-0)	Project Totals	Facility Totals
Prioritization Score	0.03	0.03	>1
Acute Hazard Index	0.00	0.00	0.00
Chronic Hazard Index	0.00	0.00	0.00
Maximum Individual Cancer Risk (10^{-6})	1.88E-09 (Each)	2.07E-08	6.15E-07
T-BACT Required?	No		
Special Permit Conditions?	Yes*		

The following conditions are listed on each permit to ensure compliance.

- 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]
- The unit shall always operate at least **604 meters** away from the nearest property boundary line. [District Rule 4102]

Rule 4201 Particulate Matter Concentration

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

F-Factor for NG: 8,578 dscf/MMBtu at 60 °F
PM_{10} Emission Factor: 0.0032 lb-PM_{10}/MMBtu
Percentage of PM as PM_{10} in Exhaust: 100%
Exhaust Oxygen (O_2) Concentration: 3%
Excess Air Correction Factor = $\frac{20.9}{20.9-3} = 1.17$

$$\frac{\left(\frac{0.0032\ lb \cdot PM}{MMBtu} x \frac{7{,}000\ grains}{lb}\right)}{\frac{8{,}578\ ft^3}{MMBtu} x 1.17} = 0.0022 \frac{grains \cdot PM}{ft^3}$$

Since the grain loading is 0.0022 grains/dscf, compliance with District Rule 4201 requirements is expected and the following condition is listed on the permit.

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

District Rule 4301 Fuel Burning Equipment

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

District Rule 4301 Limits			
Pollutant	NO_2	Total PM	SO_2
Steam generator (lb/hr)	0.6	0.2	0.2
Rule Limit (lb/hr)	140	10	200

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

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

The proposed steam generators are gas-fired with a maximum heat input of either 69 or 85 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4305; the units are subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters – Phase 2.*

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

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

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

The units are natural gas-fired, with a maximum heat input of either 69 or 85 MMBtu/hr. Therefore the steam generators are subject to this rule.

In addition, the units are also subject to District Rule 4320 *Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters greater than 5.0 MMBtu/hr.*

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

This rule limits NO_x, CO, SO_2 and PM_{10} emissions from boilers, steam generators and process heaters rated at greater than 5 MMBtu/hr. This rule also provides a compliance option of payment of fees in proportion to the actual amount of NO_x emitted over the previous year.

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

Section 5.1 NOx Emission Limits

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

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

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

Relevant Rule 4320 emissions limits and compliance dates are posted in the following table.

Rule 4320 Emissions Limits			
Category	Operated on gaseous fuel		
	NO_X Limit	Authority to Construct	Compliance Deadline
2. Units with a total rated heat input >20.0 MMBtu/hr	a) Standard Schedule 7 ppmv or 0.008 lb/MMBtu; or	July 1, 2009	July 1, 2010
	b) Staged Enhanced Schedule Initial Limit 9 ppmv or 0.011 lb/MMBtu; and	July 1, 2011	July 1, 2012
	Final Limit 5 ppmv or 0.0062 lb/MMBtu	January 1, 2013	January 1, 2014

The proposed NO_x limit for the gas-fired steam generators is 7 ppmv, therefore compliance with the emissions limits of Section 5.2 of District Rule 4320 is expected.

The following condition is listed on the permits to ensure compliance.

- Except during startup and shutdown periods, emissions shall not exceed either of the following limits: 7 ppmvd NOx (as NO2) @ 3% O2 (0.0085 lb/MMBtu), 0.0032 lb PM10/MMBtu, 25 ppmvd CO @ 3% O2 (0.0185 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rules 2201, 4305, 4306, and 4320]

Section 5.4 Particulate Matter Control Requirements

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

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

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

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

The steam generators will be fired on PUC quality natural gas containing no more than 1 gr S/100 scf. The following condition is listed on the permits to ensure compliance.

- Fuel gas shall not contain more than 1 grain of total sulfur per 100 standard cubic feet or 0.00285 lb/MMBtu. [District Rules 2201, 4320 and 4801]

Section 5.5 Low-Use Unit

This section discusses the requirements of low-use units. Chevron is not requesting low-use status; therefore, this section of the rule is not applicable to this project.

Section 5.6 Start-up and Shutdown Provisions

The applicable limits of Sections 5.2 Table 1 shall not apply during start-ups or shut-downs provided the duration of each start-up or each shutdown does not exceed 2 hours and the control system is in operation and emissions minimized (insofar as technologically feasible) . The following conditions are listed on the permits to ensure compliance with the requirements of the start-up and shutdown provisions of the rule:

- Except during startup and shutdown periods, emissions shall not exceed either of the following limits: 7 ppmvd NOx (as NO2) @ 3% O2 (0.0085 lb/MMBtu), 0.0032 lb PM10/MMBtu, 25 ppmvd CO @ 3% O2 (0.0185 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rules 2201, 4305, 4306, and 4320]

- During start-up and shutdown periods, emissions from the steam generator shall not exceed either of the following limits: 0.1 lb-NOx/MMBtu or 0.084 lb-CO/MMBtu. [District Rule 2201]
- 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, 5.5.6 and 4306, 5.3]
- Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4306, 3.25 and 3.22]

Section 5.7 Monitoring Provisions

Section 5.7.1 requires that permit units subject to District Rule 4320, Section 5.2 shall either install or maintain an operational APCO approved Continuous Emission Monitoring System (CEMS) for NO_X, CO and O_2, or implement an APCO-approved alternate monitoring.

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

- {2395} 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 analyzer that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306, and 4320]
- If either the NOx or CO concentrations corrected to 3%, 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]

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

Section 5.7.6.1 requires that 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. The following conditions will be placed in the ATCs for compliance with this rule requirement:

- Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320]
- If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201and 4320]

Section 5.7.6.3 requires that 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.

These units (fired on propane or PUC quality gas) are not subject to 5.7.6.3.

Section 5.8 Compliance Determination

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

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

Section 5.8.2 requires that all emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the PTO. Unless otherwise specified in the PTO, 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. The following condition is listed on the permits to ensure compliance.

- All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. Unless otherwise specified in the Permit to Operate, no determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4320. For the purposes of permittee-performed alternate monitoring, emissions measurements may be performed at any time after the unit reaches conditions representative of normal operation. [District Rules 4305, 4306 and 4320]

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

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

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

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

Section 6.1 Recordkeeping

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

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

Section 6.2 Test Methods

Section 6.2 identifies test methods to be used when determining compliance with the rule. The following conditions are listed on the permits to ensure compliance.

- Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]
- The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, NOx (lb/MMBtu) - EPA Method 19, CO (ppmv) - EPA Method 10 or 10B or ARB Method 100, Stack Gas Oxygen - EPA Method 3 or 3A or ARB Method 100, Stack Gas Velocity (ft/min) - EPA Method 2, Stack Gas Moisture Content (%) - EPA Method 4, SOx (lb/MMBtu) - ARB Method 100 or EPA Method 6, 6A, 6B, 6C or fuel gas sulfur content analysis and EPA Method 19, Fuel Gas Sulfur Content - EPA Method 11 or 15, ASTM D1072, D3031, D4084 D3246 or grab sample analysis by GC-FPD/TCD or double GC for H2S and mercaptans performed in a laboratory, fuel gas hhv - ASTM D1826 or D1945 in conjunction with ASTM D3588, PM10 - EPA Methods 5, 201A, and/or 202, CARB Method 5, or any combination of these PM10 methods with both filterable and condensable PM10 measured. [District Rules 1081, 4305, 4306 and 4320]

Section 6.3, Compliance Testing

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

- A source test to demonstrate compliance with NOx and CO emission limits shall be performed within 60 days of startup of this unit. [District Rules 2201 and 4320]
- Source testing to measure NOx and CO emissions from this unit shall be conducted at least once every twelve (12) months (no more than 30 days before or after the required annual source test date). After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months (no more than 30 days before or after the required 36-month source test date). If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306 and 4320]
- 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 proposed in this project. Therefore these sections are not applicable.

Conclusion

Compliance with District Rule 4320 is expected.

District Rule 4801 Sulfur Compounds

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

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

$$\text{Volume } SO_2 = \frac{N \cdot R \cdot T}{P}, \text{where}$$

N = Moles of SO_2
T = Standard Temperature = 60°F or 520°R
R = Universal Gas Constant = $\frac{10.73\ psi \cdot ft^3}{lb \cdot mole \cdot °R}$

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

The sulfur concentration is 2 ppmv which is less than 2,000 ppmv. Therefore, compliance with this rule is expected.

California Health & Safety Code 42301.6 (School Notice)

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 San Joaquin Valley Unified Air Pollution Control District (District) adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

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

The District determined that no other agency has broader discretionary approval power over the project and that the District is the first agency to act on the project, therefore establishing the District as the Lead Agency for the project (CEQA Guidelines §15051(b)).

The District prepared an Initial Study which demonstrates that through a combination of project design elements, permit conditions, and mitigation measures, project specific environmental impacts will be less than significant. A Mitigated Negative declaration and Notice of Intent to Adopt was prepared and is being circulated for public review from September 12, 2014 to October 13, 2014 and comment pursuant to CCR §15072 et seq. The issuance of the ATC constitutes the final decision to approve the project and the ATC will not be issued until the District has approved the final environmental document. Pursuant to CEQA Guidelines §15075 a Notice of Determination will be filed within five (5) days of the issuance of the ATC.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Issue ATCs C-311-242-0 through C-311-252-0 subject to the conditions listed on the attached draft ATCs.

X. Billing Information

The 69 and 85 MMBtu/hr steam generators are in the same fee schedule (> 15 KBtu/hr).

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
C-311-242-0	3020-10-H	> 15,000 kBtu/hr	$ 1030.00
C-311-243-0	3020-10-H	> 15,000 kBtu/hr	$ 1030.00
C-311-244-0	3020-10-H	> 15,000 kBtu/hr	$ 1030.00
C-311-245-0	3020-10-H	> 15,000 kBtu/hr	$ 1030.00
C-311-246-0	3020-10-H	> 15,000 kBtu/hr	$ 1030.00
C-311-247-0	3020-10-H	> 15,000 kBtu/hr	$ 1030.00
C-311-248-0	3020-10-H	> 15,000 kBtu/hr	$ 1030.00
C-311-249-0	3020-10-H	> 15,000 kBtu/hr	$ 1030.00
C-311-250-0	3020-10-H	> 15,000 kBtu/hr	$ 1030.00
C-311-251-0	3020-10-H	> 15,000 kBtu/hr	$ 1030.00
C-311-252-0	3020-10-H	> 15,000 kBtu/hr	$ 1030.00

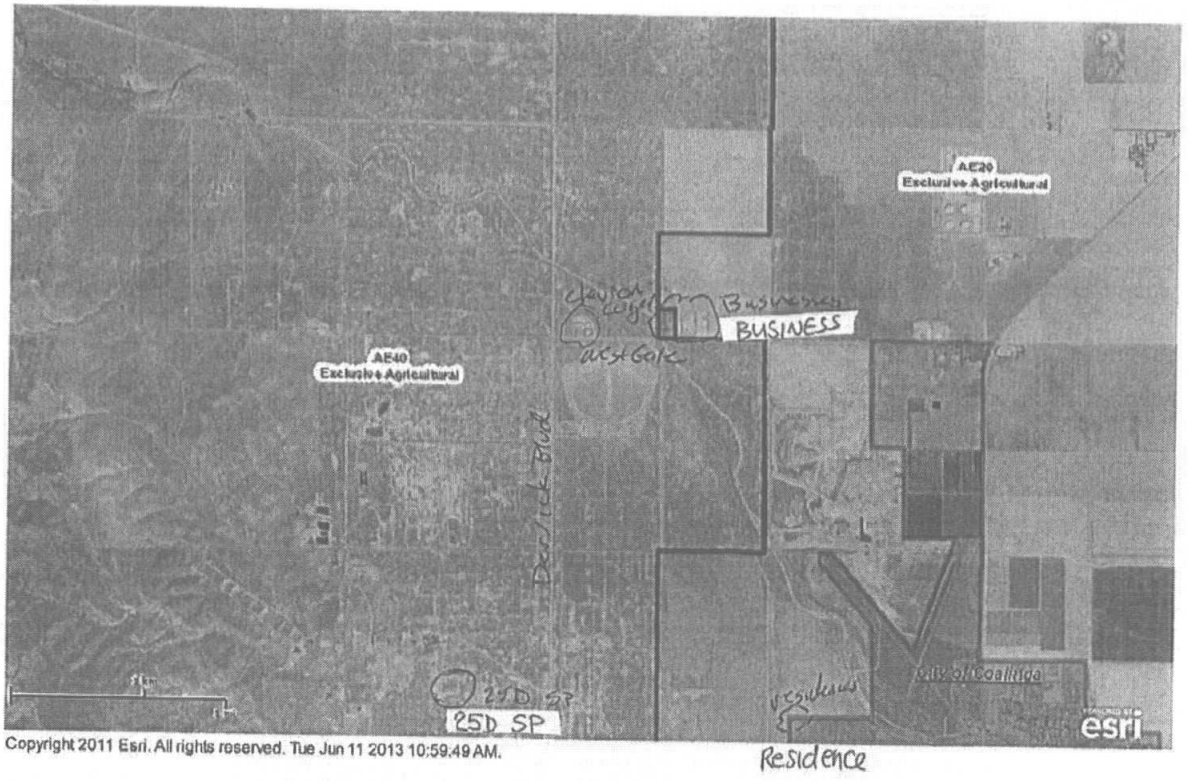
Appendixes

A: Location drawing
B. Burner Specifications
C. PM10 source test summary showing units capable of meeting 0.0032 lb-PM10/MMBtu
D. Top Down BACT Analysis
E. BACT Analysis for 60-Day Shakedown Period
F. Ambient Air Quality Analysis (AAQA) Summary
G. Certification of Compliance
H. Risk Management Review (RMR) Summary
I. Emission Profiles
J. Draft ATCs

APPENDIX A
Location drawing

Coalinga

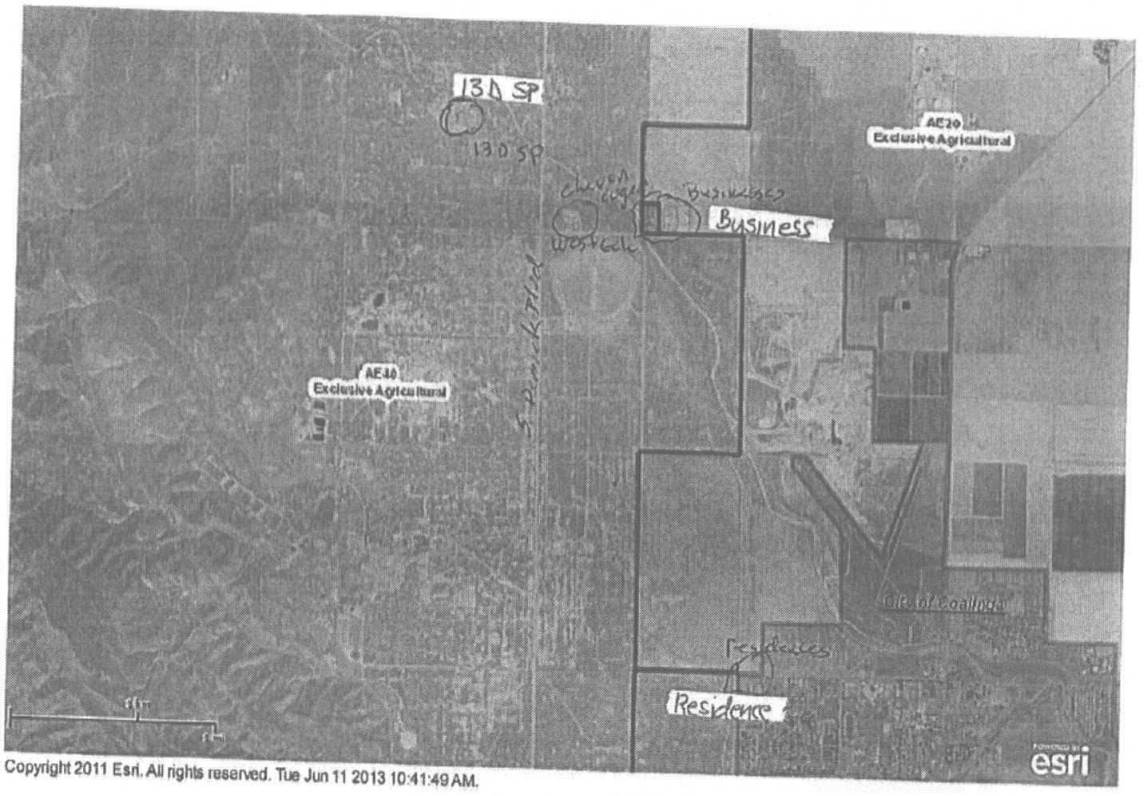
Receptors



25D SP to nearest business ≃ 1.75 miles
to nearest residence ≃ 1.5 miles

My Map

Overview



13D SP to nearest business ≃ 3/4 mile
to nearest residence ≃ 3 miles

APPENDIX B
Burner Specifications

North American
Manufacturing Company, Ltd.
4455 East 71st Street Cleveland, OH 44105-5600 USA
Tel 216.271.6000 Fax 216.641.7852 email: sales@namfg.com

August 6, 2008

Chevron North America
Exploration & Production Company
San Joaquin Valley Strategic Business Unit
9525 Camino Media
Bakersfield, CA 93311

Attention: Mr. John Gruber
Air Specialist Engineer

SUBJECT: Emission Guarantee for 62.5 and 85 MM Btu/hr GLE Combustion Systems

Dear Mr. Gruber,

We have reviewed the information that you have provided in the e-mails dated July 31, and August 4, 2008 on the fuels to be fired and the operational/dimensional parameters of the steam generators (both 62.5 and 85 MM Btu/hr units) to be covered in this guarantee of emission performance. Based on this information we can make the following emission guarantees for the two different size 4231-GLE Combustion Systems being considered.

The Guaranteed Emission Levels for these afore-mentioned 4231-GLE Combustion Systems installed on standard sized 50,000 lb/hr (62.5 MM Btu/hr HHV gross heat input) and the 70,000 lb/hr (85 MM Btu/hr HHV gross heat input) generators in new or as new condition and outfitted with fully operational Flue Gas Recirculation (FGR) Systems is described as follows:

Guaranteed Emissions

NOx

The burner generated NOx, for either size unit, is guaranteed not to exceed:
- 7 ppmvd corrected to 3% O_2 subject to the conditions and limitations identified below.

Note: We understand that you wish to target 5.5 ppmdv, dry volume basis corrected to 3% O_2, as the emission value desired during low NOx tuning in order to allow yourself a 1.5 ppmdv cushion below the required limit of 7 ppmdv to allow for some variability in daily emission performance and accuracy in portable emission monitors used to tune the burner.

CO

The burner generated CO, for either size unit, is guaranteed not to exceed:

- 25 ppmvd corrected to 3% O_2 subject to the conditions and limitations below.

VOC

The burner generated VOC, for either size unit, is guaranteed not to exceed:

- 0.0055 lb VOC/MMBtu at either 62.5 or 85 MMBtu/hr subject to the conditions and limitations below. These emission values are based on concentration of 13 ppmvd as methane equivalent corrected to 3% O2, in the flue gas.

The following conditions were also considered in identifying the above emissions guarantee:

1. The system will fire one of the specified Fuel Gases from your email of 7/31/08, having a heating value of between 916 and 1076 BTU/ft^3 HHV.
2. A fully functional & automatic FGR flow control system based on oxygen level in the vitiated combustion air providing up to 40% FGR by volume is required.
3. The final steam generator FGR and Excess Air rates will be set by North American in order to achieve the desired compliance targets.
4. The steam generators are to be of standard size with the 50,000 lb/hr (62.5 MM Btu/hr) units having a furnace dimension of 9'-6" ID X 38'-8" long and the 70,000 lb/hr (85 MM Btu/hr) units having a furnace dimension of 11'-3" ID X 38'-8" long (inside the tube bundle). These correspond to the dimensions supplied in your email of 8/04/08 with an additional 7" subtracted from the internal diameter to account for the tube bundle.
5. The above emissions are based on firing either the Model 4231-62.5-GLE or the 4231-85-GLE Combustion Systems controlled by the proprietary patented algorithms in the embedded 8379 CMS code provided with the burner by North American and a fully functional "mass flow control" fuel and air ratio system with Stack O2 trim.
6. We can meet this emission guarantee contingent upon proper installation in a 50,000 lb/hr or 70,000 lb/hr steam generator in good clean (as new) condition and properly operated
7. Combustion air will be between 32°F – 120°F inlet temperature and 20.9% oxygen for emissions testing purposes. Combustion system fuel/air ratio will be varied on a mass flow basis based on this inlet temperature to ensure emissions compliance across all operating conditions.
8. The combustion air fan must be sufficient to deliver the required combination of FGR and Excess Air at the maximum firing rate.
9. The guarantee is valid over a 3:1 turndown from the high fire rating.
10. The emissions data will be obtained from a sample port at a point downstream of the exit of the burner reaction chamber.
11. The test data will be extracted from a single point and time averaged.

12. North American will verify all emission levels noted above following start-up when the operating mode of the burner and system is at steady state and absent of any pressure spikes in either the field supply or duct systems. North American must participate in the start-up/final tuning and emissions test for the guarantees to be valid. Our standard service rates outlined in our Sheet M-9-P-US-NA will apply. If no further testing is conducted as outlined in the attached **CONDITION AND LIMITS OF NORTH AMERICAN MANUFACTURING COMPANY ("NAMCO") EMISSIONS LEVELS GUARANTEE, JULY 2005 (Form 195-GRM12)**, this test will be sufficient to satisfy the guarantee.
13. North American will provide its "best efforts" in meeting the 7 ppmvd NOx (corrected to 3% O_2) guarantee at the customer request of 10% excess air and approximately 30% FGR. Final operational settings will be made on the basis of environmental compliance. Additional excess air may be required to achieve compliance and will be the first course of remedial action following adjustments in the FGR rate. Other compliance options may present themselves in the particular installation and will be discussed on a case by case basis.

In addition, based on the composition of the fuel being fired we would Expect to see the following emissions for PM10 and SOx:

Expected Emissions

PM10

The burner generated PM10, for either size unit, is expected to be:
- 0.0032 #PM10/MMBtu at either 62.5 or 85 MMBtu/hr.

The 4231-GLE burner is not an appreciable source of combustion generated particulate matter during normal gas fired operation. Particulate can be introduced in to the system in several ways, such as poor inlet air filtering, particulate or condensable laden fuel gas, and/or from deterioration of surfaces within the process furnace. North American cannot guarantee a burner generated particulate load due to these and other factors that are outside of its control or influence..

SOx

The burner generated SOx, for either size unit, is expected to be:
- 0.00285 #SOx/MMBtu at either 62.5 or 85 MMBtu/hr.

North American does not provide SOx guarantees as SOx emissions are solely a function of the sulfur content of the fuel and/or air entering the system. There is no combustion technology that provides reduced SOx formation, and therefore this is outside North American's control or influence.

Thank you for providing this opportunity to demonstrate the low emission performance of this ultra low NOx partial lean burn GLE technology when applied to a heat recovery

steam generator. Please feel free to contact me if there are any questions concerning this letter or if we can be of any further assistance with your current combustion equipment needs.

Very truly yours,
NORTH AMERICAN MFG. CO.

John M. Quiel
Manager, Oil Field Sales

APPENDIX C
PM10 source test summary

Chevron U.S.A., Inc.
Cymric
Steam Generator 99

Project 104-6131Z
August 8, 2008

EPA Method 1-5
Field Data
@ 66° F & 29.92 "Hg

Data Input

Run number	1	2	3
Start time	10:43	12:16	13:46
Finish time	11:51	13:22	14:53
Sample time in minutes	60	60	60
Dry gas volume sampled in ft^3 (V_m)	40.54	40.95	41.27
Meter calibration factor (Y)	0.9825	0.9825	0.9825
Barometric pressure in "Hg (P_{bar})	29.14	29.14	29.14
Stack pressure in "H_2O (P_g)	-0.35	-0.35	-0.35
Differential meter pressure in "H_2O (ΔH)	1.04	1.05	1.06
Meter temperature in °F (T_m)	101	105	105
Meter temperature in °R (T_m)	561	565	565
Volume H_2O in grams, condensed	160.1	165.6	168.2
Percent CO_2 volume dry	11.0	11.0	11.0
Percent O_2 volume dry	1.5	1.5	1.5
Percent N_2 volume dry	87.5	87.5	87.5
Pitot tube coefficient (C_p)	0.84	0.84	0.84
Average ΔP in "H_2O	0.66	0.66	0.67
Average $\sqrt{\Delta P}$ in "H_2O	0.81	0.81	0.82
Stack temperature in °F	240	238	235
Stack temperature in °R	700	698	695
Stack diameter in inches	29.0	29.0	29.0
Stack area in ft^2	4.59	4.59	4.59
Nozzle diameter in inches	0.240	0.240	0.240
Nozzle area in ft^2	3.14E-04	3.14E-04	3.14E-04

Calculated Results

Run number	1	2	3	Average
Sample volume in DSCF ($V_{m(std)}$)	38.60	38.71	37.00	N/A
H_2O vapor as fractional % (B_{ws})	0.171	0.175	0.176	0.174
Moisture factor (MF) calculated as 1-B_{ws}	0.829	0.825	0.824	0.826
MW of stack gas, *dry*, in lb/lb-mole (M_d)	29.82	29.82	29.82	29.82
MW of stack gas, *wet*, in lb/lb-mole (M_s)	27.80	27.75	27.74	27.76
Absolute stack pressure (P_s) in "Hg	29.11	29.11	29.11	29.11
Stack gas velocity (V_s) in fps	54.21	54.15	54.45	54.27
Actual volume flow (Q-ACFM)	14920	14903	14985	14936
Dry standard volume flow (Q_{std}-DSCFM)	9081	9074	9126	9094
% isokinetic sample rate	98.1	98.5	98.7	N/A

Chevron U.S.A., Inc.
Cymric
Steam Generator 99

Project 104-6131Z
August 8, 2008

EPA Method 1-5
Particulate Gravimetric Results
@ 68° F & 29.92 "Hg

Run 1	Net mg	gr/dscf	gr/scf	gr/dscf @ 12% CO_2	lb/hr
Probe & nozzle wash	0.2	0.00008	0.00007	0.00009	0.007
Filter	0.1	0.00005	0.00004	0.00006	0.004
Total front half	0.3	0.00013	0.00011	0.00015	0.010
Condensables (back half)	0.6	0.00025	0.00021	0.00028	0.020
Total front & back half	0.9	0.00039	0.00032	0.00042	0.030

Run 2	Net mg	gr/dscf	gr/scf	gr/dscf @ 12% CO_2	lb/hr
Probe & nozzle wash	1.9	0.00080	0.00066	0.00087	0.062
Filter	0.0	0.00000	0.00000	0.00000	0.000
Total front half	1.9	0.00080	0.00066	0.00087	0.062
Condensables (back half)	1.5	0.00063	0.00052	0.00069	0.049
Total front & back half	3.4	0.00143	0.00118	0.00156	0.111

Run 3	Net mg	gr/dscf	gr/scf	gr/dscf @ 12% CO_2	lb/hr
Probe & nozzle wash	1.0	0.00042	0.00034	0.00045	0.033
Filter	0.1	0.00004	0.00003	0.00004	0.003
Total front half	1.1	0.00045	0.00037	0.00049	0.036
Condensables (back half)	0.5	0.00021	0.00017	0.00023	0.016
Total front & back half	1.6	0.00066	0.00055	0.00072	0.052

Supporting Data

Run	Time Start	Time Finish	$\%O_2$	$\%CO_2$	$\%H_2O$	$Vm_{(std)}$	DSCFM
1	10:43	11:51	1.5	11.0	17.07	36.60	9081
2	12:16	13:22	1.5	11.0	17.61	36.71	9074
3	13:46	14:53	1.5	11.0	17.63	37.00	9126

The highest run was run #2, where the grain loading is 0.00143 grains/dscf and the volumetric flow rate is 9,074 dscf/MMBtu. The emission factor is calculated as follows:

$$\frac{0.00143\ grains \cdot PM}{ft^3} x \frac{9{,}074\ ft^3}{MMBtu} x \frac{lb}{7{,}000\ grains} x 1.17 = 0.00217 \frac{lb \cdot PM}{MMBtu}$$

APPENDIX D
BACT Guideline and BACT Analysis

This project was deemed complete on 9/18/13. At that time, BACT Guideline 1.2.1 had been rescinded, and District Rule 4320 *Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters greater than 5.0 MMBtu/hr* was serving as the current BACT Guideline. This BACT analysis is therefore based on Rule 4320.

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.

1. BACT Analysis for NOx emissions:

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

a. Step 1 - Identify all control technologies

Rule 4320 identifies the following control technologies:

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

b. Step 2 - Eliminate technologically infeasible options

All of the above identified control options are technologically feasible.

c. Step 3 - Rank remaining options by control effectiveness

1. 5 ppmvd NOx @ 3% O2 with SCR
2. 7 ppmvd @ 3% O2

d. Step 4 - Cost Effectiveness Analysis

A cost effective analysis is required for technologically feasible control options that are not proposed. The applicant is proposing a NO_X limit of 7 ppmvd @ 3% O_2; therefore, a cost effective analysis is required for the 5 ppmvd option (SCR).

The SCR Cost Effectiveness Analysis data is from project S-1123645. For this analysis we can assume that there is an equal SCR costs for the 85 and 62.5 MMBtu/hr steam generators (this was also assumed for project S-1327, 1114465 (ATCs S-1327-162-0 through '-164-0).

Assumptions:

The District Standard Emissions for steam generators is 7 ppmv NO_x 3% O_2
The Cost-effectiveness Threshold for NO_x is $24,500 per ton.

Calculations:

Using most conservative burner size (85 MMBtu/hr)

District Standard NO_X Emissions = 85 MMBtu/hr x 0.0085 lb/MMBtu x 8,760 hr/year
= 6,329 lb/year

Tech. Feasible NO_X Emissions = 85 MMBtu/hr x 0.006 lb/MMBtu x 8,760 hr/year
= 4,463 lb/year

NO_x reduction due to SCR:

Total reduction = Emissions $_{(15\ ppmv)}$ – Emissions $_{(5\ ppmv)}$
Total reduction = 6,329 lb/yr – 4,463 lb/yr
Total reduction = 1,866 lb/yr = 0.93 ton/yr

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

Annualized Capital Cost

Capital Cost (PCL): (includes all purchased equipment, taxes, freight, and installation of SCR for an 85 MMBtu/hr unit) – detailed costs follow.

Total Estimated Capital Cost: **$785,000** (From District approved Project S-1123645)

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 = $785,000
i = 10%,
n = 10 years

A = $127,720/yr

Annual Operating Cost

Electrical Costs
75 HP ID Fan 55.8 kW
19% ammonia vaporizers 10.0 kW
Ammonia injection pump 3 HP 2.2 kW
68kW x 24 hours x 365 days x $ 0.10 /kW = $59,570.

Chemical Costs
19% aqueous ammonia delivered = $29,200.

Maintenance / Spare Parts
5 hr week / $ 60 / 52 weeks = $15,600
Spare parts / CEMS / cal gasses = $ 25,600

Total Operating Costs = $ 129,970.

Total annualized cost = $127,720/yr + $129,970/yr
= $257,690

Cost effectiveness (worst case 85 MMBtu/hr SG, most tons reduced):

Cost effectiveness = $257,690/ 0.93 tpy
Cost effectiveness = $277,086/ 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 these oil field steam generator is a NO_x limit of 7 ppmvd @ 3% O_2. The applicant has proposed to install an oil field steam generator 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:**

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

a. Step 1 - Identify all control technologies

Rule 4320 identifies Achieved-in-Practice BACT for SO_x emissions from oil field steam generators ≥ 20 MMBtu/hr as follows:

1. Fired on PUC quality natural gas, commercial propane, and/or commercial LPG;
2. Limit fuel sulfur content to no more than five (5) grains of total sulfur per one hundred (100) standard cubic feet,
3. Install and properly operate an emission control system that reduces SO_2 emissions by at least 95% by weight; or
4. limit exhaust SO_2 to less than or equal to 9 ppmv corrected to 3.0% O_2.

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

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

1. Fired on PUC quality natural gas, commercial propane, and/or commercial LPG;
2. Limit fuel sulfur content to no more than five (5) grains of total sulfur per one hundred (100) standard cubic feet,
3. Install and properly operate an emission control system that reduces SO_2 emissions by at least 95% by weight; or
4. limit exhaust SO_2 to less than or equal to 9 ppmv corrected to 3.0% O_2.

d. Step 4 - Cost Effectiveness Analysis

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

e. Step 5 - Select BACT

BACT for SO_x emissions from this oil field steam generator is natural gas fuel with a sulfur content ≤1 gr-S/100 scf.

The applicant has proposed to install an oil field steam generator fired on natural gas or LPG with ≤1 gr-S/100 scf; therefore BACT for SO_x emissions is satisfied.

3. BACT Analysis for PM_{10} Emissions:

Particulate matter (PM_{10}) emissions result from the incomplete combustion of various elements in the fuel.

a. Step 1 - Identify all control technologies

Rule 4320 identifies Achieved-in-Practice BACT for SO_x emissions from oil field steam generators ≥ 20 MMBtu/hr as follows:

1. Fired on PUC quality natural gas, commercial propane, and/or commercial LPG;
2. Limit fuel sulfur content to no more than five (5) grains of total sulfur per one hundred (100) standard cubic feet,
3. Install and properly operate an emission control system that reduces SO_2 emissions by at least 95% by weight; or
4. Limit exhaust SO_2 to less than or equal to 9 ppmv corrected to 3.0% O_2.

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

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

1. Fired on PUC quality natural gas, commercial propane, and/or commercial LPG;
2. Limit fuel sulfur content to no more than five (5) grains of total sulfur per one hundred (100) standard cubic feet,
3. Install and properly operate an emission control system that reduces SO_2 emissions by at least 95% by weight; or
4. Limit exhaust SO_2 to less than or equal to 9 ppmv corrected to 3.0% O_2.

d. Step 4 - Cost Effectiveness Analysis

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

e. Step 5 - Select BACT

BACT for PM_{10} emissions from these oil field steam generators is natural gas fuel with a sulfur content ≤1 gr-S/100 scf.

The applicant has proposed to install an oil field steam generators fired on natural gas or LPG with a sulfur content ≤1 gr-S/100 scf; therefore BACT for PM_{10} emissions is satisfied.

4. **BACT Analysis for CO Emissions:**

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

a. **Step 1 - Identify all control technologies**

Achieved in practice BACT for CO emissions from oil field steam generators ≥ 20 MMBtu/hr is as follows:

1) 25 ppmvd @ 3% O_2

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

b. **Step 2 - Eliminate technologically infeasible options**

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

c. **Step 3 - Rank remaining options by control effectiveness**

1) 25 ppmvd @ 3% O_2

d. **Step 4 - Cost Effectiveness Analysis**

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

e. **Step 5 - Select BACT**

BACT for CO emissions from this oil field steam generator is a CO limit of 25 ppmvd @ 3% O_2. The applicant has proposed to install an oil field steam generator with a CO limit of 25 ppmvd @ 3% O_2; therefore BACT for CO emissions is satisfied.

5. BACT Analysis for VOC Emissions:

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

a. Step 1 - Identify all control technologies

Achieved in practice BACT for VOC emissions from oil field steam generators is:

1) Gaseous fuel

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

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

1) Gaseous fuel

d. Step 4 - Cost effectiveness analysis

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

e. Step 5 - Select BACT

BACT for VOC emissions from this oil field steam generator is gaseous fuel. The applicant has proposed to install an oil field steam generator fired on gaseous fuel; therefore BACT for PM_{10} emissions is satisfied.

APPENDIX E
BACT Analysis for 60-Day Shakedown Period

Commissioning Process Description (Shakedown Period)

Steam generator initial commissioning activities are required to complete the installation of a new unit. Commissioning operations can be divided into three phases, consisting of: refractory brick curing, safety checking and emission performance tuning, as explained below.

Safety testing is required by the National Fire Prevention Association to ensure that safety systems will operate properly in the event of a system upset. Safety checks take up to 24 hours to complete and are done with the steam generator firing at approximately one third of rated capacity and without FGR operating.

New refractory material must be cured over an extended period of time before the affected unit can be utilized for normal steam generating activities. For the curing process, the refractory material is progressively exposed to higher and higher temperatures over a period that ranges from as little as 8 hours to 30 hours, depending on the type and amount of refractory material installed. This is accomplished by firing the steam generator on progressively higher fuel rates during the curing process.

After a steam generator is safety tested and its refractory material cured it must be tuned to meets its NOx and CO emission limits. This can take up to 80 hours.

During these periods of initial commissioning, NOx emissions may reach 15 ppmv and CO 50 ppmv at 3% O2. Other criteria pollutants (SOx, PM10 and VOC) are expected to be emitted at the same levels during initial commissioning as they are during steady state operation.

BACT Analysis for NOx Emissions:

Step 1 - Identify All Possible Control Technologies

For steam generators of this class and category of source, the District has required units in steady state operation to meet achieved in practice BACT emissions level of 7 ppmv. A NOx limit at 5 ppmv level in steady state operation has been identified as a technologically feasible option, but to date has not been found to be cost effective and has not been required as BACT. These emissions levels have been achieved using ultra low NOx burner designs and/or SCR exhaust gas treatment.

Given the operational flexibility required to complete initial commissioning activities, it is not practical or necessary to specify emissions limits. The following have been identified as possible controls or work practice standard that may be employed to reduce emissions of NO_x during initial commissioning:

1. SCR
2. Operation of the low NO_x burner with the maximum FGR that can be accommodated by the specific commissioning activity being undertaken, expeditious completion of commissioning activities and use of good work practice standard to minimize emissions

Step 2 - Eliminate Technologically Infeasible Options

There are no infeasible options to eliminate.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. SCR
2. Operation of the low NOx burner with the maximum FGR that can be accommodated by the specific commissioning activity being undertaken, expeditious completion of commissioning activities and use of good work practice standard to minimize emissions

Step 4 - Cost Effectiveness Analysis

In project S1120161, it was determined that the use of SCR was not cost effective in steady state operation. Based on the high cost effectiveness of > $70,000/ton of NO_x controlled, the short time frame allowed for initial commissioning activities and the small potential increases in NOx emissions that may occur during these activities, it can be concluded that the use of SCR for initial commissioning is likewise not cost effective.

Step 5 – Select BACT for NOx

1. Operation of the low NOx burner with the maximum FGR that can be accommodated by the specific commissioning activity being undertaken, expeditious completion of commissioning activities and use of good work practice standard to minimize emissions

BACT Analysis for VOC Emissions:

Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.2.1, 3rd quarter 2010, identifies achieved in practice and technologically feasible BACT for Steam Generator $\geq$ 5 MMbtu/hr, at an oil field as follows:

1. Gaseous fuel - achieved in practice

Step 2 - Eliminate Technologically Infeasible Options

There are no infeasible options to eliminate.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. Gaseous fuel - achieved in practice

Step 4 - Cost Effectiveness Analysis

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

Step 5 - Select BACT for VOC

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

BACT Analysis for PM_{10} and SOx Emissions:

Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse guideline 1.2.1, 3rd quarter 2010, identifies achieved in practice and technologically feasible BACT for Steam Generator $\geq$ 5 MMbtu/hr, at an oil field as follows:

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

Step 2 - Eliminate Technologically Infeasible Options

There are no infeasible options to eliminate.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

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

Step 4 - Cost Effectiveness Analysis

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

Step 5 - Select BACT for SOx and PM10

The use of natural gas as a primary fuel with a sulfur content not to exceed 0.75 gr-S/100 scf with no back up fuel is selected as BACT for SOx and PM_{10} emissions.

BACT Analysis for CO Emissions:

Step 1 - Identify all control technologies

For steam generators of this class and category of source, the District has required units in a steady state operation to meet an achieved in practice BACT emissions level of 50 ppmv. Units with low-NOx burners have consistently demonstrated CO emissions levels in steady state operation of low single digits.

CO emissions below 50 ppmv are expected, but cannot be absolutely assumed for all commissioning activities As has previously been explained, given the operational flexibility required to complete initial commissioning activities, it is not practical or necessary to specify emissions limits.

The following have been identified as possible controls or work practice standards that may be employed to reduce emissions of CO during initial commissioning:

1. Operation of the low-NOx burner with the maximum FGR that can be accommodated by the specific commissioning activity being undertaken, expeditious completion of commissioning activities and use of good work practice standard to minimize emissions

Step 2 - Eliminate Technologically Infeasible Options

The above listed technology is technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. Operation of the low NOx burner with the maximum FGR that can be accommodated by the specific commissioning activity being undertaken, expeditious completion of commissioning activities and use of good work practice standard to minimize emissions

Step 4 - Cost Effectiveness Analysis

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

Step 5 - Select BACT for CO

1. Operation of the low NOx burner with the maximum FGR that can be accommodated by the specific commissioning activity being undertaken, expeditious completion of commissioning activities and use of good work practice standards to minimize emissions.

Appendix F
Ambient Air Quality Analysis (AQAA) Summary

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 (per unit) used for criteria pollutant modeling were:

	NOx	Sox	CO	PM10	PM2.5
Lbs/hr	0.72	0.24	1.57	0.27	0.27
Lbs/yr	6929	2122	13775	2383	2383

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

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

Steam Generators	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]	Fail[4]

*Results were taken from the attached PSD spreadsheet.

[1]The project's air quality impact 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 predicted 1-hour nitrogen dioxide concentration using the ozone limiting method (OLM) which is a TIER 3 NO_2 NAAQS modeling procedure combined with a background concentration was less than the 1-hour National Ambient Air Quality Standard (NAAQS) for nitrogen dioxide.

[2]The project's air quality impact was compared to the 1-hour SO2 NAAQS that became effective on August 23, 2010 using the District's approved procedures.

[3]The maximum predicted PM10 concentrations from the proposed units' emissions are below EPA's Significant Impact Levels (SILs) as found in 40 CFR Part 51.165 (b)(2).

[4] The facility is fully offsetting the project's $PM_{2.5}$ emissions in accordance with District Rule 2201.

Although the predicted air quality impact from the project's $PM_{2.5}$ emissions contribute significantly to an existing violation of the NAAQS, the project can be permitted because the facility is fully offsetting the project's $PM_{2.5}$ emissions to zero.

APPENDIX G
Certification of Compliance

San Joaquin Valley
Unified Air Pollution Control District

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

I. TYPE OF PERMIT ACTION (Check appropriate box)

[X] SIGNIFICANT PERMIT MODIFICATION
[ ] MINOR PERMIT MODIFICATION
[ ] ADMINISTRATIVE AMENDMENT

COMPANY NAME: **CHEVRON U.S.A. INC.**	FACILITY ID: **C-311**
1. Type of Organization:[X] Corporation [ ] Sole Ownership [ ] Government [ ] Partnership [ ] Utility	
2. Owner's Name: **CHEVRON U.S.A. INC.**	
3. Agent to the Owner: **N/A**	

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

Based on information and belief formed after reasonable inquiry, the equipment identified in this application will continue to comply with the applicable federal requirement(s).

Based on information and belief formed after reasonable inquiry, the equipment identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.

Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.

Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true accurate and complete.

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

Signature of Responsible Official

9/10/13
Date

Troy Latham
Name of Responsible Official (please print)

Application for 11 new steam generators

Name of Responsible Official (please print)

Operations Supervisor
Title of Responsible Official (please print)

APPENDIX H
Risk Management Review

To:	Steven Roeder – Permit Services
From:	Kyle Melching – Technical Services
Date:	October 7, 2013
Facility Name:	Chevron USA
Location:	13D and 25D Plants, Coalinga
Application #(s):	C-311-242-0 thru 252-0
Project #:	C-1132740

A. RMR SUMMARY

Categories	11 NG Steam Generators (Units 242-0 thru 252-0)	Project Totals	Facility Totals
Prioritization Score	**0.03**	0.03	>1
Acute Hazard Index	**0.00**	**0.00**	0.00
Chronic Hazard Index	**0.00**	**0.00**	0.00
Maximum Individual Cancer Risk (10^{-6})	1.88E-09 (Each)	**2.07E-08**	6.15E-07
T-BACT Required?	**No**		
Special Permit Conditions?	**Yes***		

* The facility is fully offsetting the project's $PM_{2.5}$ emissions in accordance with District Rule 2201.

Proposed Permit Conditions

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

Units 242-0 thru 252-0

1. {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
2. The unit shall always operate at least **604 meters** away from the nearest property boundry line.

APPENDIX I
Emission Profiles

The following Emission Profile is representative of every emission Profile for this project.

SJVUAPCD CENTRAL | **Application Emissions** | 9/12/14 1:11 pm

Permit #: C-311-242-0	**Last Updated**
Facility: CHEVRON USA INC	09/04/2014 ROEDERS

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	6329.0	2122.0	2383.0	13775.0	4095.0
Daily Emis. Limit (lb/Day)	17.3	5.8	6.5	37.7	11.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1582.0	531.0	596.0	3444.0	1024.0
Q2:	1582.0	531.0	596.0	3444.0	1024.0
Q3:	1582.0	531.0	596.0	3444.0	1024.0
Q4:	1582.0	531.0	596.0	3444.0	1024.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Appendix J
Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-311-242-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: CHEVRON USA INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION
UTM 10S 734,027E 4,007,848N COALINGA
FRESNO COUNTY, CA 93210

SECTION: 13 **TOWNSHIP:** 20S **RANGE:** 14E

EQUIPMENT DESCRIPTION:
85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13-1X WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

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. This Authority to Construct authorizes the installation of an 85 MMBtu/hr North American GLE burner or a 69 MMBtu/hr North American GLE burner, or equivalent. Approval of any other equivalent burner shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and other relevant operational characteristics. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

Arnaud Marjollet, Director of Permit Services

C-311-242-0: Sep 30 2014, 2:20PM – ROEDERB : Joint Inspection NOT Required

5. A burner is not equivalent if any of the emission factors or the maximum heat input rating is greater than those authorized in this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
6. 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]
7. The unit shall always operate at least 604 meters away from the nearest property boundary line. [District Rule 4102]
8. This unit shall be fired on PUC quality natural gas. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Fuel gas shall not contain more than 1 grain of total sulfur per 100 standard cubic feet or 0.00285 lb/MMBtu. [District Rule 2201, 4320 and 4801] Federally Enforceable Through Title V Permit
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. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
13. During the 60-day shakedown period, the operator shall operate the burner with the maximum FGR setting that can be accommodated by the specific commissioning activity being undertaken, perform expeditious completion of commissioning activities, and shall use good work practice standards to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit
14. Except during startup and shutdown periods, and the 60-day shakedown period, emissions shall not exceed either of the following limits: 7 ppmvd NOx (as NO2) @ 3% O2 (0.0085 lb/MMBtu), 0.0032 lb PM10/MMBtu, 25 ppmvd CO @ 3% O2 (0.0185 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
15. During the 60-day shakedown period, emissions shall not exceed any of the following limits: 15 ppmvd NOx (as NO2) @ 3% O2 (0.018 lb/MMBtu), 0.0032 lb PM10/MMBtu, 50 ppmvd CO @ 3% O2 (0.037 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rule 2201] Federally Enforceable Through Title V Permit
16. During start-up and shutdown periods, emissions from the steam generator shall not exceed either of the following limits: 0.1 lb-NOx/MMBtu or 0.084 lb-CO/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit
17. 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, 5.5.6 and 4306, 5.3] Federally Enforceable Through Title V Permit
18. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4306, 3.25 and 3.22] Federally Enforceable Through Title V Permit
19. 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 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] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

20. If either the NOx or CO concentrations corrected to 3%, 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

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

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

23. A source test to demonstrate compliance with NOx and CO emission limits shall be performed within 60 days of startup of this unit. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

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

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

26. 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

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

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

CONDITIONS CONTINUE ON NEXT PAGE

29. 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 10B or ARB Method 100, Stack Gas Oxygen - EPA Method 3 or 3A or ARB Method 100, Stack Gas Velocity (ft/min) - EPA Method 2, Stack Gas Moisture Content (%) - EPA Method 4, SOx (lb/MMBtu) - ARB Method 100 or EPA Method 6, 6A, 6B, 6C or fuel gas sulfur content analysis and EPA Method 19, Fuel Gas Sulfur Content - EPA Method 11 or 15, ASTM D1072, D3031, D4084 D3246 or grab sample analysis by GC-FPD/TCD or double GC for H2S and mercaptans performed in a laboratory, fuel gas hhv - ASTM D1826 or D1945 in conjunction with ASTM D3588, PM10 - EPA Methods 5, 201A, and/or 202, CARB Method 5, or any combination of these PM10 methods with both filterable and condensable PM10 measured. [District Rules 1081, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

30. 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

31. Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

32. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

33. 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

34. Prior to operating equipment under this Authority to Construct with an 85 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 2,373 lb/qtr; SOx: 796 lb/qtr; PM10: 894 lb/qtr, and VOC: 1,536 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

35. Prior to operating equipment under this Authority to Construct with a 69 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1,927 lb/qtr; SOx: 646 lb/qtr; PM10: 725 lb/qtr, and VOC: 1,247 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

36. ERC Certificate Numbers S-3735-2 (NOx), S-2934-5 (SOx), S-3598-4 (PM10) and S-3722-1 (VOC) (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: C-311-243-0

ISSUANCE DATE: DRAFT

DRAFT

LEGAL OWNER OR OPERATOR: CHEVRON USA INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION
UTM 10S 734,027E 4,007,848N COALINGA
FRESNO COUNTY, CA 93210

SECTION: 13 **TOWNSHIP:** 20S **RANGE:** 14E

EQUIPMENT DESCRIPTION:
85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13-2X WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

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. This Authority to Construct authorizes the installation of an 85 MMBtu/hr North American GLE burner or a 69 MMBtu/hr North American GLE burner, or equivalent. Approval of any other equivalent burner shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and other relevant operational characteristics. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

Arnaud Marjollet, Director of Permit Services

C-311-243-0 : Sep 30 2014 2:29PM -- ROEDERS : Joint Inspection NOT Required

5. A burner is not equivalent if any of the emission factors or the maximum heat input rating is greater than those authorized in this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
6. 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]
7. The unit shall always operate at least 604 meters away from the nearest property boundary line. [District Rule 4102]
8. This unit shall be fired on PUC quality natural gas. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Fuel gas shall not contain more than 1 grain of total sulfur per 100 standard cubic feet or 0.00285 lb/MMBtu. [District Rule 2201, 4320 and 4801] Federally Enforceable Through Title V Permit
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. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
13. During the 60-day shakedown period, the operator shall operate the burner with the maximum FGR setting that can be accommodated by the specific commissioning activity being undertaken, perform expeditious completion of commissioning activities, and shall use good work practice standards to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit
14. Except during startup and shutdown periods, and the 60-day shakedown period, emissions shall not exceed either of the following limits: 7 ppmvd NOx (as NO2) @ 3% O2 (0.0085 lb/MMBtu), 0.0032 lb PM10/MMBtu, 25 ppmvd CO @ 3% O2 (0.0185 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
15. During the 60-day shakedown period, emissions shall not exceed any of the following limits: 15 ppmvd NOx (as NO2) @ 3% O2 (0.018 lb/MMBtu), 0.0032 lb PM10/MMBtu, 50 ppmvd CO @ 3% O2 (0.037 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rule 2201] Federally Enforceable Through Title V Permit
16. During start-up and shutdown periods, emissions from the steam generator shall not exceed either of the following limits: 0.1 lb-NOx/MMBtu or 0.084 lb-CO/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit
17. 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, 5.5.6 and 4306, 5.3] Federally Enforceable Through Title V Permit
18. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4306, 3.25 and 3.22] Federally Enforceable Through Title V Permit
19. 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 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] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

20. If either the NOx or CO concentrations corrected to 3%, 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

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

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

23. A source test to demonstrate compliance with NOx and CO emission limits shall be performed within 60 days of startup of this unit. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

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

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

26. 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

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

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

CONDITIONS CONTINUE ON NEXT PAGE

29. 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 10B or ARB Method 100, Stack Gas Oxygen - EPA Method 3 or 3A or ARB Method 100, Stack Gas Velocity (ft/min) - EPA Method 2, Stack Gas Moisture Content (%) - EPA Method 4, SOx (lb/MMBtu) - ARB Method 100 or EPA Method 6, 6A, 6B, 6C or fuel gas sulfur content analysis and EPA Method 19, Fuel Gas Sulfur Content - EPA Method 11 or 15, ASTM D1072, D3031, D4084 D3246 or grab sample analysis by GC-FPD/TCD or double GC for H2S and mercaptans performed in a laboratory, fuel gas hhv - ASTM D1826 or D1945 in conjunction with ASTM D3588, PM10 - EPA Methods 5, 201A, and/or 202, CARB Method 5, or any combination of these PM10 methods with both filterable and condensable PM10 measured. [District Rules 1081, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

30. 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

31. Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

32. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

33. 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

34. Prior to operating equipment under this Authority to Construct with an 85 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 2,373 lb/qtr; SOx: 796 lb/qtr; PM10: 894 lb/qtr, and VOC: 1,536 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

35. Prior to operating equipment under this Authority to Construct with a 69 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1,927 lb/qtr; SOx: 646 lb/qtr; PM10: 725 lb/qtr, and VOC: 1,247 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

36. ERC Certificate Numbers S-3735-2 (NOx), S-2934-5 (SOx), S-3598-4 (PM10) and S-3722-1 (VOC) (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-311-244-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: CHEVRON USA INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION
UTM 10S 734,027E 4,007,848N COALINGA
FRESNO COUNTY, CA 93210

SECTION: 13 **TOWNSHIP:** 20S **RANGE:** 14E

EQUIPMENT DESCRIPTION:
85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13-3X WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

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. This Authority to Construct authorizes the installation of an 85 MMBtu/hr North American GLE bumer or a 69 MMBtu/hr North American GLE bumer, or equivalent. Approval of any other equivalent bumer shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and other relevant operational characteristics. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHDRITY 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 aquipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced purauant 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

Arnaud Marjollet, Director of Permit Services

C-311-244-0: Sep 30 2014 2:20PM - ROEDERS : Joint Inspection NOT Required

5. A burner is not equivalent if any of the emission factors or the maximum heat input rating is greater than those authorized in this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

6. 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]

7. The unit shall always operate at least 604 meters away from the nearest property boundary line. [District Rule 4102]

8. This unit shall be fired on PUC quality natural gas. [District Rule 2201] Federally Enforceable Through Title V Permit

9. Fuel gas shall not contain more than 1 grain of total sulfur per 100 standard cubic feet or 0.00285 lb/MMBtu. [District Rule 2201, 4320 and 4801] Federally Enforceable Through Title V Permit

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. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit

12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

13. During the 60-day shakedown period, the operator shall operate the burner with the maximum FGR setting that can be accommodated by the specific commissioning activity being undertaken, perform expeditious completion of commissioning activities, and shall use good work practice standards to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit

14. Except during startup and shutdown periods, and the 60-day shakedown period, emissions shall not exceed either of the following limits: 7 ppmvd NOx (as NO2) @ 3% O2 (0.0085 lb/MMBtu), 0.0032 lb PM10/MMBtu, 25 ppmvd CO @ 3% O2 (0.0185 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

15. During the 60-day shakedown period, emissions shall not exceed any of the following limits: 15 ppmvd NOx (as NO2) @ 3% O2 (0.018 lb/MMBtu), 0.0032 lb PM10/MMBtu, 50 ppmvd CO @ 3% O2 (0.037 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rule 2201] Federally Enforceable Through Title V Permit

16. During start-up and shutdown periods, emissions from the steam generator shall not exceed either of the following limits: 0.1 lb-NOx/MMBtu or 0.084 lb-CO/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit

17. 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, 5.5.6 and 4306, 5.3] Federally Enforceable Through Title V Permit

18. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4306, 3.25 and 3.22] Federally Enforceable Through Title V Permit

19. 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 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] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

20. If either the NOx or CO concentrations corrected to 3%, 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

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

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

23. A source test to demonstrate compliance with NOx and CO emission limits shall be performed within 60 days of startup of this unit. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

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

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

26. 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

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

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

CONDITIONS CONTINUE ON NEXT PAGE

29. 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 10B or ARB Method 100, Stack Gas Oxygen - EPA Method 3 or 3A or ARB Method 100, Stack Gas Velocity (ft/min) - EPA Method 2, Stack Gas Moisture Content (%) - EPA Method 4, SOx (lb/MMBtu) - ARB Method 100 or EPA Method 6, 6A, 6B, 6C or fuel gas sulfur content analysis and EPA Method 19, Fuel Gas Sulfur Content - EPA Method 11 or 15, ASTM D1072, D3031, D4084 D3246 or grab sample analysis by GC-FPD/TCD or double GC for H2S and mercaptans performed in a laboratory, fuel gas hhv - ASTM D1826 or D1945 in conjunction with ASTM D3588, PM10 - EPA Methods 5, 201A, and/or 202, CARB Method 5, or any combination of these PM10 methods with both filterable and condensable PM10 measured. [District Rules 1081, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

30. 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

31. Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

32. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

33. 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

34. Prior to operating equipment under this Authority to Construct with an 85 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 2,373 lb/qtr; SOx: 796 lb/qtr; PM10: 894 lb/qtr, and VOC: 1,536 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

35. Prior to operating equipment under this Authority to Construct with a 69 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1,927 lb/qtr; SOx: 646 lb/qtr; PM10: 725 lb/qtr, and VOC: 1,247 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

36. ERC Certificate Numbers S-3735-2 (NOx), S-2934-5 (SOx), S-3598-4 (PM10) and S-3722-1 (VOC) (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-311-245-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: CHEVRON USA INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION
UTM 10S 734,027E 4,007,848N COALINGA
FRESNO COUNTY, CA 93210

SECTION: 13 **TOWNSHIP:** 20s **RANGE:** 14e

EQUIPMENT DESCRIPTION:
85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13-4X WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

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. This Authority to Construct authorizes the installation of an 85 MMBtu/hr North American GLE burner or a 69 MMBtu/hr North American GLE burner, or equivalent. Approval of any other equivalent burner shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and other relevant operational characteristics. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISIDN AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIDR 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

Arnaud Marjollet, Director of Permit Services
C-311-245-0 : Sep 30 2014 2:20PM - ROEDERS : Joint Inspection NOT Required

5. A burner is not equivalent if any of the emission factors or the maximum heat input rating is greater than those authorized in this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
6. 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]
7. The unit shall always operate at least 604 meters away from the nearest property boundary line. [District Rule 4102]
8. This unit shall be fired on PUC quality natural gas. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Fuel gas shall not contain more than 1 grain of total sulfur per 100 standard cubic feet or 0.00285 lb/MMBtu. [District Rule 2201, 4320 and 4801] Federally Enforceable Through Title V Permit
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. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
13. During the 60-day shakedown period, the operator shall operate the burner with the maximum FGR setting that can be accommodated by the specific commissioning activity being undertaken, perform expeditious completion of commissioning activities, and shall use good work practice standards to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit
14. Except during startup and shutdown periods, and the 60-day shakedown period, emissions shall not exceed either of the following limits: 7 ppmvd NOx (as NO2) @ 3% O2 (0.0085 lb/MMBtu), 0.0032 lb PM10/MMBtu, 25 ppmvd CO @ 3% O2 (0.0185 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
15. During the 60-day shakedown period, emissions shall not exceed any of the following limits: 15 ppmvd NOx (as NO2) @ 3% O2 (0.018 lb/MMBtu), 0.0032 lb PM10/MMBtu, 50 ppmvd CO @ 3% O2 (0.037 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rule 2201] Federally Enforceable Through Title V Permit
16. During start-up and shutdown periods, emissions from the steam generator shall not exceed either of the following limits: 0.1 lb-NOx/MMBtu or 0.084 lb-CO/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit
17. 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, 5.5.6 and 4306, 5.3] Federally Enforceable Through Title V Permit
18. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4306, 3.25 and 3.22] Federally Enforceable Through Title V Permit
19. 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 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] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

20. If either the NOx or CO concentrations corrected to 3%, 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

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

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

23. A source test to demonstrate compliance with NOx and CO emission limits shall be performed within 60 days of startup of this unit. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

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

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

26. 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

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

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

CONDITIONS CONTINUE ON NEXT PAGE

29. 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 10B or ARB Method 100, Stack Gas Oxygen - EPA Method 3 or 3A or ARB Method 100, Stack Gas Velocity (ft/min) - EPA Method 2, Stack Gas Moisture Content (%) - EPA Method 4, SOx (lb/MMBtu) - ARB Method 100 or EPA Method 6, 6A, 6B, 6C or fuel gas sulfur content analysis and EPA Method 19, Fuel Gas Sulfur Content - EPA Method 11 or 15, ASTM D1072, D3031, D4084 D3246 or grab sample analysis by GC-FPD/TCD or double GC for H2S and mercaptans performed in a laboratory, fuel gas hhv - ASTM D1826 or D1945 in conjunction with ASTM D3588, PM10 - EPA Methods 5, 201A, and/or 202, CARB Method 5, or any combination of these PM10 methods with both filterable and condensable PM10 measured. [District Rules 1081, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

30. 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

31. Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

32. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

33. 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

34. Prior to operating equipment under this Authority to Construct with an 85 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 2,373 lb/qtr; SOx: 796 lb/qtr; PM10: 894 lb/qtr, and VOC: 1,536 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

35. Prior to operating equipment under this Authority to Construct with a 69 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1,927 lb/qtr; SOx: 646 lb/qtr; PM10: 725 lb/qtr, and VOC: 1,247 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

36. ERC Certificate Numbers S-3735-2 (NOx), S-2934-5 (SOx), S-3598-4 (PM10) and S-3722-1 (VOC) (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-311-246-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: CHEVRON USA INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION
UTM 10S 734,027E 4,007,848N COALINGA
FRESNO COUNTY, CA 93210

SECTION: 13 **TOWNSHIP:** 20s **RANGE:** 14e

EQUIPMENT DESCRIPTION:
85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13-5X WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

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. This Authority to Construct authorizes the installation of an 85 MMBtu/hr North American GLE burner or a 69 MMBtu/hr North American GLE burner, or equivalent. Approval of any other equivalent burner shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and other relevant operational characteristics. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

Arnaud Marjollet, Director of Permit Services

C-311-246-0 : Sep 30 2014 2:29PM – ROEDERS : Joint Inspection NOT Required

5. A burner is not equivalent if any of the emission factors or the maximum heat input rating is greater than those authorized in this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
6. 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]
7. The unit shall always operate at least 604 meters away from the nearest property boundary line. [District Rule 4102]
8. This unit shall be fired on PUC quality natural gas. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Fuel gas shall not contain more than 1 grain of total sulfur per 100 standard cubic feet or 0.00285 lb/MMBtu. [District Rule 2201, 4320 and 4801] Federally Enforceable Through Title V Permit
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. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
13. During the 60-day shakedown period, the operator shall operate the burner with the maximum FGR setting that can be accommodated by the specific commissioning activity being undertaken, perform expeditious completion of commissioning activities, and shall use good work practice standards to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit
14. Except during startup and shutdown periods, and the 60-day shakedown period, emissions shall not exceed either of the following limits: 7 ppmvd NOx (as NO2) @ 3% O2 (0.0085 lb/MMBtu), 0.0032 lb PM10/MMBtu, 25 ppmvd CO @ 3% O2 (0.0185 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
15. During the 60-day shakedown period, emissions shall not exceed any of the following limits: 15 ppmvd NOx (as NO2) @ 3% O2 (0.018 lb/MMBtu), 0.0032 lb PM10/MMBtu, 50 ppmvd CO @ 3% O2 (0.037 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rule 2201] Federally Enforceable Through Title V Permit
16. During start-up and shutdown periods, emissions from the steam generator shall not exceed either of the following limits: 0.1 lb-NOx/MMBtu or 0.084 lb-CO/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit
17. 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, 5.5.6 and 4306, 5.3] Federally Enforceable Through Title V Permit
18. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4306, 3.25 and 3.22] Federally Enforceable Through Title V Permit
19. 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 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] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

20. If either the NOx or CO concentrations corrected to 3%, 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

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

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

23. A source test to demonstrate compliance with NOx and CO emission limits shall be performed within 60 days of startup of this unit. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

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

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

26. 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

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

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

CONDITIONS CONTINUE ON NEXT PAGE

29. 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 10B or ARB Method 100, Stack Gas Oxygen - EPA Method 3 or 3A or ARB Method 100, Stack Gas Velocity (ft/min) - EPA Method 2, Stack Gas Moisture Content (%) - EPA Method 4, SOx (lb/MMBtu) - ARB Method 100 or EPA Method 6, 6A, 6B, 6C or fuel gas sulfur content analysis and EPA Method 19, Fuel Gas Sulfur Content - EPA Method 11 or 15, ASTM D1072, D3031, D4084 D3246 or grab sample analysis by GC-FPD/TCD or double GC for H2S and mercaptans performed in a laboratory, fuel gas hhv - ASTM D1826 or D1945 in conjunction with ASTM D3588, PM10 - EPA Methods 5, 201A, and/or 202, CARB Method 5, or any combination of these PM10 methods with both filterable and condensable PM10 measured. [District Rules 1081, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

30. 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

31. Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

32. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

33. 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

34. Prior to operating equipment under this Authority to Construct with an 85 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 2,373 lb/qtr; SOx: 796 lb/qtr; PM10: 894 lb/qtr, and VOC: 1,536 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

35. Prior to operating equipment under this Authority to Construct with a 69 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1,927 lb/qtr; SOx: 646 lb/qtr; PM10: 725 lb/qtr, and VOC: 1,247 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

36. ERC Certificate Numbers S-3735-2 (NOx), S-2934-5 (SOx), S-3598-4 (PM10) and S-3722-1 (VOC) (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-311-247-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: CHEVRON USA INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION
UTM 10S 734,027E 4,007,848N COALINGA
FRESNO COUNTY, CA 93210

SECTION: 13 **TOWNSHIP:** 20s **RANGE:** 14e

EQUIPMENT DESCRIPTION:
85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13-6X WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

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. This Authority to Construct authorizes the installation of an 85 MMBtu/hr North American GLE burner or a 69 MMBtu/hr North American GLE burner, or equivalent. Approval of any other equivalent burner shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and other relevant operational characteristics. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

Arnaud Marjollet, Director of Permit Services
C-311-247-0: Sep 30 2014 2:20PM – ROEDERS : Joint Inspection NOT Required

5. A burner is not equivalent if any of the emission factors or the maximum heat input rating is greater than those authorized in this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
6. 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]
7. The unit shall always operate at least 604 meters away from the nearest property boundary line. [District Rule 4102]
8. This unit shall be fired on PUC quality natural gas. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Fuel gas shall not contain more than 1 grain of total sulfur per 100 standard cubic feet or 0.00285 lb/MMBtu. [District Rule 2201, 4320 and 4801] Federally Enforceable Through Title V Permit
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. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
13. During the 60-day shakedown period, the operator shall operate the burner with the maximum FGR setting that can be accommodated by the specific commissioning activity being undertaken, perform expeditious completion of commissioning activities, and shall use good work practice standards to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit
14. Except during startup and shutdown periods, and the 60-day shakedown period, emissions shall not exceed either of the following limits: 7 ppmvd NOx (as NO2) @ 3% O2 (0.0085 lb/MMBtu), 0.0032 lb PM10/MMBtu, 25 ppmvd CO @ 3% O2 (0.0185 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
15. During the 60-day shakedown period, emissions shall not exceed any of the following limits: 15 ppmvd NOx (as NO2) @ 3% O2 (0.018 lb/MMBtu), 0.0032 lb PM10/MMBtu, 50 ppmvd CO @ 3% O2 (0.037 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rule 2201] Federally Enforceable Through Title V Permit
16. During start-up and shutdown periods, emissions from the steam generator shall not exceed either of the following limits: 0.1 lb-NOx/MMBtu or 0.084 lb-CO/MMBtu. [District Rule 2201] Federally Enforceable Through Title V Permit
17. 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, 5.5.6 and 4306, 5.3] Federally Enforceable Through Title V Permit
18. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4306, 3.25 and 3.22] Federally Enforceable Through Title V Permit
19. 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 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] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

20. If either the NOx or CO concentrations corrected to 3%, 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

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

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

23. A source test to demonstrate compliance with NOx and CO emission limits shall be performed within 60 days of startup of this unit. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

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

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

26. 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

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

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

CONDITIONS CONTINUE ON NEXT PAGE

29. 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 10B or ARB Method 100, Stack Gas Oxygen - EPA Method 3 or 3A or ARB Method 100, Stack Gas Velocity (ft/min) - EPA Method 2, Stack Gas Moisture Content (%) - EPA Method 4, SOx (lb/MMBtu) - ARB Method 100 or EPA Method 6, 6A, 6B, 6C or fuel gas sulfur content analysis and EPA Method 19, Fuel Gas Sulfur Content - EPA Method 11 or 15, ASTM D1072, D3031, D4084 D3246 or grab sample analysis by GC-FPD/TCD or double GC for H2S and mercaptans performed in a laboratory, fuel gas hhv - ASTM D1826 or D1945 in conjunction with ASTM D3588, PM10 - EPA Methods 5, 201A, and/or 202, CARB Method 5, or any combination of these PM10 methods with both filterable and condensable PM10 measured. [District Rules 1081, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

30. 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

31. Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

32. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

33. 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

34. Prior to operating equipment under this Authority to Construct with an 85 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 2,373 lb/qtr; SOx: 796 lb/qtr; PM10: 894 lb/qtr, and VOC: 1,536 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

35. Prior to operating equipment under this Authority to Construct with a 69 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1,927 lb/qtr; SOx: 646 lb/qtr; PM10: 725 lb/qtr, and VOC: 1,247 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

36. ERC Certificate Numbers S-3735-2 (NOx), S-2934-5 (SOx), S-3598-4 (PM10) and S-3722-1 (VOC) (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-311-248-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: CHEVRON USA INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION
UTM 10S 734,027E 4,007,848N COALINGA
FRESNO COUNTY, CA 93210

SECTION: 13 **TOWNSHIP:** 20S **RANGE:** 14E

EQUIPMENT DESCRIPTION:
85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13/25-XA WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

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. This steam generator may be operated at the 13D or 25D steam plants. [District Rule 2201] Federally Enforceable Through Title V Permit
4. This Authority to Construct authorizes the installation of an 85 MMBtu/hr North American GLE burner or a 69 MMBtu/hr North American GLE burner, or equivalent. Approval of any other equivalent burner shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

Arnaud Marjollet, Director of Permit Services
C-311-248-0: Sep 30 2014 2:21PM – ROEDERS : Joint Inspection NOT Required

5. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and other relevant operational characteristics. [District Rule 2201] Federally Enforceable Through Title V Permit

6. A burner is not equivalent if any of the emission factors or the maximum heat input rating is greater than those authorized in this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

7. 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]

8. The unit shall always operate at least 604 meters away from the nearest property boundary line. [District Rule 4102]

9. This unit shall be fired on PUC quality natural gas. [District Rule 2201] Federally Enforceable Through Title V Permit

10. Fuel gas shall not contain more than 1 grain of total sulfur per 100 standard cubic feet or 0.00285 lb/MMBtu. [District Rule 2201, 4320 and 4801] Federally Enforceable Through Title V Permit

11. 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

12. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit

13. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

14. During the 60-day shakedown period, the operator shall operate the burner with the maximum FGR setting that can be accommodated by the specific commissioning activity being undertaken, perform expeditious completion of commissioning activities, and shall use good work practice standards to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit

15. Except during startup and shutdown periods, and the 60-day shakedown period, emissions shall not exceed either of the following limits: 7 ppmvd NOx (as NO2) @ 3% O2 (0.0085 lb/MMBtu), 0.0032 lb PM10/MMBtu, 25 ppmvd CO @ 3% O2 (0.0185 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

16. During the 60-day shakedown period, emissions shall not exceed any of the following limits: 15 ppmvd NOx (as NO2) @ 3% O2 (0.018 lb/MMBtu), 0.0032 lb PM10/MMBtu, 50 ppmvd CO @ 3% O2 (0.037 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rule 2201] Federally Enforceable Through Title V Permit

17. During start-up and shutdown periods, emissions from the steam generator shall not exceed either of the following limits: 0.1 lb-NOx/MMBtu or 0.084 lb-CO/MMBtu. [District Rule 2201] 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, 5.5.6 and 4306, 5.3] Federally Enforceable Through Title V Permit

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 Rule 4306, 3.25 and 3.22] Federally Enforceable Through Title V Permit

20. 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 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] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

21. If either the NOx or CO concentrations corrected to 3%, 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

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

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

24. A source test to demonstrate compliance with NOx and CO emission limits shall be performed within 60 days of startup of this unit. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

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

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

27. 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

28. 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

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

CONDITIONS CONTINUE ON NEXT PAGE

30. 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 10B or ARB Method 100, Stack Gas Oxygen - EPA Method 3 or 3A or ARB Method 100, Stack Gas Velocity (ft/min) - EPA Method 2, Stack Gas Moisture Content (%) - EPA Method 4, SOx (lb/MMBtu) - ARB Method 100 or EPA Method 6, 6A, 6B, 6C or fuel gas sulfur content analysis and EPA Method 19, Fuel Gas Sulfur Content - EPA Method 11 or 15, ASTM D1072, D3031, D4084 D3246 or grab sample analysis by GC-FPD/TCD or double GC for H2S and mercaptans performed in a laboratory, fuel gas hhv - ASTM D1826 or D1945 in conjunction with ASTM D3588, PM10 - EPA Methods 5, 201A, and/or 202, CARB Method 5, or any combination of these PM10 methods with both filterable and condensable PM10 measured. [District Rules 1081, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

31. 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

32. Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

33. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

34. 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

35. Prior to operating equipment under this Authority to Construct with an 85 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 2,373 lb/qtr; SOx: 796 lb/qtr; PM10: 894 lb/qtr, and VOC: 1,536 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

36. Prior to operating equipment under this Authority to Construct with a 69 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1,927 lb/qtr; SOx: 646 lb/qtr; PM10: 725 lb/qtr, and VOC: 1,247 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

37. ERC Certificate Numbers S-3735-2 (NOx), S-2934-5 (SOx), S-3598-4 (PM10) and S-3722-1 (VOC) (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: C-311-249-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: CHEVRON USA INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION
UTM 10S 734,027E 4,007,848N COALINGA
FRESNO COUNTY, CA 93210

SECTION: 13 **TOWNSHIP:** 20s **RANGE:** 14e

EQUIPMENT DESCRIPTION:
85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13/25-XB WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

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. This steam generator may be operated at the 13D or 25D steam plants. [District Rule 2201] Federally Enforceable Through Title V Permit
4. This Authority to Construct authorizes the installation of an 85 MMBtu/hr North American GLE burner or a 69 MMBtu/hr North American GLE burner, or equivalent. Approval of any other equivalent burner shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

Arnaud Marjollet, Director of Permit Services
C-311-249-0: Sep 30 2014 2:21PM – ROEDERG : Joint Inspection NOT Required

5. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and other relevant operational characteristics. [District Rule 2201] Federally Enforceable Through Title V Permit
6. A burner is not equivalent if any of the emission factors or the maximum heat input rating is greater than those authorized in this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
7. 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]
8. The unit shall always operate at least 604 meters away from the nearest property boundary line. [District Rule 4102]
9. This unit shall be fired on PUC quality natural gas. [District Rule 2201] Federally Enforceable Through Title V Permit
10. Fuel gas shall not contain more than 1 grain of total sulfur per 100 standard cubic feet or 0.00285 lb/MMBtu. [District Rule 2201, 4320 and 4801] Federally Enforceable Through Title V Permit
11. 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
12. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
13. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
14. During the 60-day shakedown period, the operator shall operate the burner with the maximum FGR setting that can be accommodated by the specific commissioning activity being undertaken, perform expeditious completion of commissioning activities, and shall use good work practice standards to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit
15. Except during startup and shutdown periods, and the 60-day shakedown period, emissions shall not exceed either of the following limits: 7 ppmvd NOx (as NO2) @ 3% O2 (0.0085 lb/MMBtu), 0.0032 lb PM10/MMBtu, 25 ppmvd CO @ 3% O2 (0.0185 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
16. During the 60-day shakedown period, emissions shall not exceed any of the following limits: 15 ppmvd NOx (as NO2) @ 3% O2 (0.018 lb/MMBtu), 0.0032 lb PM10/MMBtu, 50 ppmvd CO @ 3% O2 (0.037 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rule 2201] Federally Enforceable Through Title V Permit
17. During start-up and shutdown periods, emissions from the steam generator shall not exceed either of the following limits: 0.1 lb-NOx/MMBtu or 0.084 lb-CO/MMBtu. [District Rule 2201] 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, 5.5.6 and 4306, 5.3] Federally Enforceable Through Title V Permit
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 Rule 4306, 3.25 and 3.22] Federally Enforceable Through Title V Permit
20. 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 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] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

21. If either the NOx or CO concentrations corrected to 3%, 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

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

23. The permittee shall maintain records of: (1) the date and time of NOx, CO and O2 measurements, (2) the O2 concentration in percent by volume and the measured NOx and CO concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer callbration 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

24. A source test to demonstrate compliance with NOx and CO emission limits shall be performed within 60 days of startup of this unit. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

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

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

27. 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

28. 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

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

CONDITIONS CONTINUE ON NEXT PAGE

30. 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 10B or ARB Method 100, Stack Gas Oxygen - EPA Method 3 or 3A or ARB Method 100, Stack Gas Velocity (ft/min) - EPA Method 2, Stack Gas Moisture Content (%) - EPA Method 4, SOx (lb/MMBtu) - ARB Method 100 or EPA Method 6, 6A, 6B, 6C or fuel gas sulfur content analysis and EPA Method 19, Fuel Gas Sulfur Content - EPA Method 11 or 15, ASTM D1072, D3031, D4084 D3246 or grab sample analysis by GC-FPD/TCD or double GC for H2S and mercaptans performed in a laboratory, fuel gas hhv - ASTM D1826 or D1945 in conjunction with ASTM D3588, PM10 - EPA Methods 5, 201A, and/or 202, CARB Method 5, or any combination of these PM10 methods with both filterable and condensable PM10 measured. [District Rules 1081, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

31. 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

32. Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

33. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

34. 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

35. Prior to operating equipment under this Authority to Construct with an 85 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 2,373 lb/qtr; SOx: 796 lb/qtr; PM10: 894 lb/qtr, and VOC: 1,536 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

36. Prior to operating equipment under this Authority to Construct with a 69 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1,927 lb/qtr; SOx: 646 lb/qtr; PM10: 725 lb/qtr, and VOC: 1,247 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

37. ERC Certificate Numbers S-3735-2 (NOx), S-2934-5 (SOx), S-3598-4 (PM10) and S-3722-1 (VOC) (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-311-250-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: CHEVRON USA INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION
UTM 10S 734,027E 4,007,848N COALINGA
FRESNO COUNTY, CA 93210

SECTION: 13 **TOWNSHIP:** 20s **RANGE:** 14e

EQUIPMENT DESCRIPTION:
85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13/25-XC WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

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. This steam generator may be operated at the 13D or 25D steam plants. [District Rule 2201] Federally Enforceable Through Title V Permit
4. This Authority to Construct authorizes the installation of an 85 MMBtu/hr North American GLE burner or a 69 MMBtu/hr North American GLE burner, or equivalent. Approval of any other equivalent burner shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

Arnaud Marjollet, Director of Permit Services
C-311-250-0: Sep 30 2014 2:21PM -- ROEDERB : Joint Inspection NOT Required

5. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and other relevant operational characteristics. [District Rule 2201] Federally Enforceable Through Title V Permit
6. A burner is not equivalent if any of the emission factors or the maximum heat input rating is greater than those authorized in this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
7. 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]
8. The unit shall always operate at least 604 meters away from the nearest property boundary line. [District Rule 4102]
9. This unit shall be fired on PUC quality natural gas. [District Rule 2201] Federally Enforceable Through Title V Permit
10. Fuel gas shall not contain more than 1 grain of total sulfur per 100 standard cubic feet or 0.00285 lb/MMBtu. [District Rule 2201, 4320 and 4801] Federally Enforceable Through Title V Permit
11. 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
12. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
13. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
14. During the 60-day shakedown period, the operator shall operate the burner with the maximum FGR setting that can be accommodated by the specific commissioning activity being undertaken, perform expeditious completion of commissioning activities, and shall use good work practice standards to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit
15. Except during startup and shutdown periods, and the 60-day shakedown period, emissions shall not exceed either of the following limits: 7 ppmvd NOx (as NO2) @ 3% O2 (0.0085 lb/MMBtu), 0.0032 lb PM10/MMBtu, 25 ppmvd CO @ 3% O2 (0.0185 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
16. During the 60-day shakedown period, emissions shall not exceed any of the following limits: 15 ppmvd NOx (as NO2) @ 3% O2 (0.018 lb/MMBtu), 0.0032 lb PM10/MMBtu, 50 ppmvd CO @ 3% O2 (0.037 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rule 2201] Federally Enforceable Through Title V Permit
17. During start-up and shutdown periods, emissions from the steam generator shall not exceed either of the following limits: 0.1 lb-NOx/MMBtu or 0.084 lb-CO/MMBtu. [District Rule 2201] 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, 5.5.6 and 4306, 5.3] Federally Enforceable Through Title V Permit
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 Rule 4306, 3.25 and 3.22] Federally Enforceable Through Title V Permit
20. 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 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] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

21. If either the NOx or CO concentrations corrected to 3%, 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

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

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

24. A source test to demonstrate compliance with NOx and CO emission limits shall be performed within 60 days of startup of this unit. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

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

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

27. 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

28. 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

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

CONDITIONS CONTINUE ON NEXT PAGE

30. 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 10B or ARB Method 100, Stack Gas Oxygen - EPA Method 3 or 3A or ARB Method 100, Stack Gas Velocity (ft/min) - EPA Method 2, Stack Gas Moisture Content (%) - EPA Method 4, SOx (lb/MMBtu) - ARB Method 100 or EPA Method 6, 6A, 6B, 6C or fuel gas sulfur content analysis and EPA Method 19, Fuel Gas Sulfur Content - EPA Method 11 or 15, ASTM D1072, D3031, D4084 D3246 or grab sample analysis by GC-FPD/TCD or double GC for H2S and mercaptans performed in a laboratory, fuel gas hhv - ASTM D1826 or D1945 in conjunction with ASTM D3588, PM10 - EPA Methods 5, 201A, and/or 202, CARB Method 5, or any combination of these PM10 methods with both filterable and condensable PM10 measured. [District Rules 1081, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

31. 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

32. Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

33. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

34. 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

35. Prior to operating equipment under this Authority to Construct with an 85 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 2,373 lb/qtr; SOx: 796 lb/qtr; PM10: 894 lb/qtr, and VOC: 1,536 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

36. Prior to operating equipment under this Authority to Construct with a 69 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1,927 lb/qtr; SOx: 646 lb/qtr; PM10: 725 lb/qtr, and VOC: 1,247 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

37. ERC Certificate Numbers S-3735-2 (NOx), S-2934-5 (SOx), S-3598-4 (PM10) and S-3722-1 (VOC) (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-311-251-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: CHEVRON USA INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION
UTM 10S 734,027E 4,007,848N COALINGA
FRESNO COUNTY, CA 93210

SECTION: 13 **TOWNSHIP:** 20S **RANGE:** 14E

EQUIPMENT DESCRIPTION:
85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13/25-XD WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

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. This steam generator may be operated at the 13D or 25D steam plants. [District Rule 2201] Federally Enforceable Through Title V Permit
4. This Authority to Construct authorizes the installation of an 85 MMBtu/hr North American GLE burner or a 69 MMBtu/hr North American GLE burner, or equivalent. Approval of any other equivalent burner shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 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

Arnaud Marjollet, Director of Permit Services
C-311-251-0: Sep 30 2014 2:21PM - ROEDERS : Joint Inspection NOT Required

5. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and other relevant operational characteristics. [District Rule 2201] Federally Enforceable Through Title V Permit
6. A burner is not equivalent if any of the emission factors or the maximum heat input rating is greater than those authorized in this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
7. 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]
8. The unit shall always operate at least 604 meters away from the nearest property boundary line. [District Rule 4102]
9. This unit shall be fired on PUC quality natural gas. [District Rule 2201] Federally Enforceable Through Title V Permit
10. Fuel gas shall not contain more than 1 grain of total sulfur per 100 standard cubic feet or 0.00285 lb/MMBtu. [District Rule 2201, 4320 and 4801] Federally Enforceable Through Title V Permit
11. 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
12. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
13. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
14. During the 60-day shakedown period, the operator shall operate the burner with the maximum FGR setting that can be accommodated by the specific commissioning activity being undertaken, perform expeditious completion of commissioning activities, and shall use good work practice standards to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit
15. Except during startup and shutdown periods, and the 60-day shakedown period, emissions shall not exceed either of the following limits: 7 ppmvd NOx (as NO2) @ 3% O2 (0.0085 lb/MMBtu), 0.0032 lb PM10/MMBtu, 25 ppmvd CO @ 3% O2 (0.0185 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit
16. During the 60-day shakedown period, emissions shall not exceed any of the following limits: 15 ppmvd NOx (as NO2) @ 3% O2 (0.018 lb/MMBtu), 0.0032 lb PM10/MMBtu, 50 ppmvd CO @ 3% O2 (0.037 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rule 2201] Federally Enforceable Through Title V Permit
17. During start-up and shutdown periods, emissions from the steam generator shall not exceed either of the following limits: 0.1 lb-NOx/MMBtu or 0.084 lb-CO/MMBtu. [District Rule 2201] 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, 5.5.6 and 4306, 5.3] Federally Enforceable Through Title V Permit
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 Rule 4306, 3.25 and 3.22] Federally Enforceable Through Title V Permit
20. 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 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] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

21. If either the NOx or CO concentrations corrected to 3%, 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

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

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

24. A source test to demonstrate compliance with NOx and CO emission limits shall be performed within 60 days of startup of this unit. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

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

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

27. 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

28. 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

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

CONDITIONS CONTINUE ON NEXT PAGE

30. 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 10B or ARB Method 100, Stack Gas Oxygen - EPA Method 3 or 3A or ARB Method 100, Stack Gas Velocity (ft/min) - EPA Method 2, Stack Gas Moisture Content (%) - EPA Method 4, SOx (lb/MMBtu) - ARB Method 100 or EPA Method 6, 6A, 6B, 6C or fuel gas sulfur content analysis and EPA Method 19, Fuel Gas Sulfur Content - EPA Method 11 or 15, ASTM D1072, D3031, D4084 D3246 or grab sample analysis by GC-FPD/TCD or double GC for H2S and mercaptans performed in a laboratory, fuel gas hhv - ASTM D1826 or D1945 in conjunction with ASTM D3588; PM10 - EPA Methods 5, 201A, and/or 202, CARB Method 5, or any combination of these PM10 methods with both filterable and condensable PM10 measured. [District Rules 1081, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

31. 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

32. Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

33. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

34. 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

35. Prior to operating equipment under this Authority to Construct with an 85 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 2,373 lb/qtr; SOx: 796 lb/qtr; PM10: 894 lb/qtr, and VOC: 1,536 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

36. Prior to operating equipment under this Authority to Construct with a 69 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1,927 lb/qtr; SOx: 646 lb/qtr; PM10: 725 lb/qtr, and VOC: 1,247 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

37. ERC Certificate Numbers S-3735-2 (NOx), S-2934-5 (SOx), S-3598-4 (PM10) and S-3722-1 (VOC) (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: C-311-252-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: CHEVRON USA INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL PRODUCTION
UTM 10S 734,027E 4,007,848N COALINGA
FRESNO COUNTY, CA 93210

SECTION: 13 **TOWNSHIP:** 20s **RANGE:** 14e

EQUIPMENT DESCRIPTION:
85 MMBTU/HR NATURAL GAS-FIRED STEAM GENERATOR SG-13/25-XE WITH NORTH AMERICAN MODEL 4231-85 GLE LOW-NOX BURNER, OR EQUIVALENT, AND FLUE GAS RECIRCULATION

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. This steam generator may be operated at the 13D or 25D steam plants. [District Rule 2201] Federally Enforceable Through Title V Permit
4. This Authority to Construct authorizes the installation of an 85 MMBtu/hr North American GLE burner or a 69 MMBtu/hr North American GLE burner, or equivalent. Approval of any other equivalent burner shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5960 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

Arnaud Marjollet, Director of Permit Services
C-311-252-0: Sep 30 2014 2:21PM – ROEDERS : Joint Inspection NOT Required

5. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and other relevant operational characteristics. [District Rule 2201] Federally Enforceable Through Title V Permit

6. A burner is not equivalent if any of the emission factors or the maximum heat input rating is greater than those authorized in this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

7. 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]

8. The unit shall always operate at least 604 meters away from the nearest property boundary line. [District Rule 4102]

9. This unit shall be fired on PUC quality natural gas. [District Rule 2201] Federally Enforceable Through Title V Permit

10. Fuel gas shall not contain more than 1 grain of total sulfur per 100 standard cubic feet or 0.00285 lb/MMBtu. [District Rule 2201, 4320 and 4801] Federally Enforceable Through Title V Permit

11. 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

12. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit

13. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

14. During the 60-day shakedown period, the operator shall operate the burner with the maximum FGR setting that can be accommodated by the specific commissioning activity being undertaken, perform expeditious completion of commissioning activities, and shall use good work practice standards to minimize emissions. [District Rule 2201] Federally Enforceable Through Title V Permit

15. Except during startup and shutdown periods, and the 60-day shakedown period, emissions shall not exceed either of the following limits: 7 ppmvd NOx (as NO2) @ 3% O2 (0.0085 lb/MMBtu), 0.0032 lb PM10/MMBtu, 25 ppmvd CO @ 3% O2 (0.0185 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rules 2201, 4305, 4306, and 4320] Federally Enforceable Through Title V Permit

16. During the 60-day shakedown period, emissions shall not exceed any of the following limits: 15 ppmvd NOx (as NO2) @ 3% O2 (0.018 lb/MMBtu), 0.0032 lb PM10/MMBtu, 50 ppmvd CO @ 3% O2 (0.037 lb/MMBtu) or 12 ppmvd VOC @ 3% O2 (0.0055 lb VOC/MMBtu). [District Rule 2201] Federally Enforceable Through Title V Permit

17. During start-up and shutdown periods, emissions from the steam generator shall not exceed either of the following limits: 0.1 lb-NOx/MMBtu or 0.084 lb-CO/MMBtu. [District Rule 2201] 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, 5.5.6 and 4306, 5.3] Federally Enforceable Through Title V Permit

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 Rule 4306, 3.25 and 3.22] Federally Enforceable Through Title V Permit

20. 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 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] Federally Enforceable Through Title V Permit

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21. If either the NOx or CO concentrations corrected to 3%, 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

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

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

24. A source test to demonstrate compliance with NOx and CO emission limits shall be performed within 60 days of startup of this unit. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

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

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

27. 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

28. 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

29. 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

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30. 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 10B or ARB Method 100, Stack Gas Oxygen - EPA Method 3 or 3A or ARB Method 100, Stack Gas Velocity (ft/min) - EPA Method 2, Stack Gas Moisture Content (%) - EPA Method 4, SOx (lb/MMBtu) - ARB Method 100 or EPA Method 6, 6A, 6B, 6C or fuel gas sulfur content analysis and EPA Method 19, Fuel Gas Sulfur Content - EPA Method 11 or 15, ASTM D1072, D3031, D4084 D3246 or grab sample analysis by GC-FPD/TCD or double GC for H2S and mercaptans performed in a laboratory, fuel gas hhv - ASTM D1826 or D1945 in conjunction with ASTM D3588, PM10 - EPA Methods 5, 201A, and/or 202, CARB Method 5, or any combination of these PM10 methods with both filterable and condensable PM10 measured. [District Rules 1081, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

31. 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

32. Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

33. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit

34. 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

35. Prior to operating equipment under this Authority to Construct with an 85 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 2,373 lb/qtr; SOx: 796 lb/qtr; PM10: 894 lb/qtr, and VOC: 1,536 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

36. Prior to operating equipment under this Authority to Construct with a 69 MMBtu/hr burner, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1,927 lb/qtr; SOx: 646 lb/qtr; PM10: 725 lb/qtr, and VOC: 1,247 lb/qtr. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERCs specified below. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit

37. ERC Certificate Numbers S-3735-2 (NOx), S-2934-5 (SOx), S-3598-4 (PM10) and S-3722-1 (VOC) (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201 and Public Resources Code 21000-21177: California Environmental Quality Act] Federally Enforceable Through Title V Permit