



**JUL 23 2012**

Greg Youngblood  
E&B Natural Resources Mgmt  
1600 Norris Road  
Bakersfield, CA 93308

**Re: Notice of Preliminary Decision - Authority to Construct  
Project Number: S-1122045**

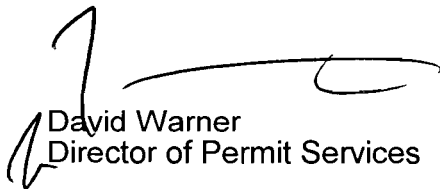
Dear Mr. Youngblood:

Enclosed for your review and comment is the District's analysis of E&B Natural Resources Mgmt's application for an Authority to Construct for modification of steam generators listed in permits S-1624-13 and '174 to lower the NOx emissions from 9 ppmv @ 3% O2 to 7 ppmv @ 3% O2 and increase CO emissions from 100 ppmv @ 3% O2 to 400 ppmv @ 3% O2 for Rule 4320 compliance, at various locations within the Heavy Oil Central Stationary Source.

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

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Stanley Tom of Permit Services at (559) 230-5900.

Sincerely,



David Warner  
Director of Permit Services

DW:st

Enclosures

**Seyed Sadredin**  
Executive Director/Air Pollution Control Officer

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

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

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



**JUL 23 2012**

Mike Tollstrup, Chief  
Project Assessment Branch  
Stationary Source Division  
California Air Resources Board  
PO Box 2815  
Sacramento, CA 95812-2815

**Re: Notice of Preliminary Decision - Authority to Construct**  
**Project Number: S-1122045**

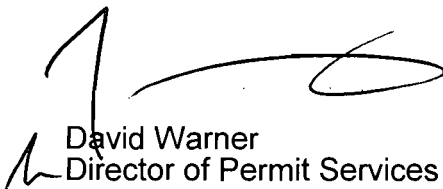
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Bakersfield Californian  
Bakersfield Californian

**NOTICE OF PRELIMINARY DECISION  
FOR THE PROPOSED ISSUANCE OF  
AN AUTHORITY TO CONSTRUCT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Authority to Construct to E&B Natural Resources Mgmt for modification of steam generators listed in permits S-1624-13 and '174 to lower the NOx emissions from 9 ppmv @ 3% O2 to 7 ppmv @ 3% O2 and increase CO emissions from 100 ppmv @ 3% O2 to 400 ppmv @ 3% O2 for Rule 4320 compliance, at various locations within the Heavy Oil Central Stationary Source.

The analysis of the regulatory basis for this proposed action, Project #S-1122045, is available for public inspection at [http://www.valleyair.org/notices/public\\_notices\\_idx.htm](http://www.valleyair.org/notices/public_notices_idx.htm) and the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 1990 EAST GETTYSBURG AVENUE, FRESNO, CA 93726.**

**San Joaquin Valley Air Pollution Control District**  
**Authority to Construct Application Review**  
**Modify Natural Gas-Fired Steam Generators for Rule 4320 Compliance**

Facility Name:	E&B Natural Resources Mgmt	Date:	July 19, 2012
Mailing Address:	1600 Norris Road Bakersfield, CA 93308	Engineer:	Stanley Tom
Contact Person:	Greg Youngblood	Lead Engineer:	Joven Refuerzo
Telephone:	(661) 766-2501		
Application #:	S-1624-13-10 and '174-2		
Project #:	S-1122045		
Complete:	June 28, 2012		

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**I. PROPOSAL**

E&B Natural Resources Mgmt requests Authority to Construct (ATC) permits for the modification of a 27.5 and 22.0 MMBtu/hr natural-gas-fired steam generator at its Heavy Oil Central facility. In order to comply with District Rule 4320 NOx emission requirements, the facility has submitted an application for ATC S-1624-13-9 and has received ATC S-1624-174-1 to lower the NOx emissions from 9 ppmv @ 3% O<sub>2</sub> (0.011 lb/MMBtu) to 7 ppmv @ 3% O<sub>2</sub> (0.0085 lb/MMBtu). The applicant proposes to modify the steam generators to increase the CO emissions from 100 ppmv @ 3% O<sub>2</sub> (0.074 lb-CO/MMBtu) to 400 ppmv @ 3% O<sub>2</sub> (0.296 lb-CO/MMBtu) so that the NOx emission limit of 7 ppmv @ 3% O<sub>2</sub> can be achieved. The operator has tested the exhaust stacks using a portable analyzer of steam generators with the same Gideon ultra low NOx burner which showed readings of approximately 250 ppmv-CO @ 3% O<sub>2</sub>. The proposed 400 ppmv-CO @ 3% O<sub>2</sub> will provide the facility a margin of compliance.

These modifications are proposed solely to comply with District Rule 4320 requirements.

ATCs S-1624-13-9 and '174-1 were issued in projects S-1121188 and S-1093869 respectively to lower the NOx emission limit from 9 ppmv @ 3% O<sub>2</sub> to 7 ppmv @ 3% O<sub>2</sub>. However, ATCs S-1624-13-9 and '174-1 were issued with a CO emission limit of 100 ppmv @ 3% O<sub>2</sub>. As the steam generators cannot meet this CO emission limit, ATCs S-1624-13-10 and '174-2 in this project will cancel and replace ATCs S-1624-13-9 and '174-1. All permitting actions performed in projects S-1121188 and S-1093869 involving permit units S-1624-13-9 and '174-1 will remain valid.

The following conditions will be listed on the permits to ensure compliance:

- This Authority to Construct (ATC) cancels and supersedes ATC S-1624-13-9. [District Rule 2201]
- This Authority to Construct (ATC) cancels and supersedes ATC S-1624-174-1. [District Rule 2201]

Current PTOs S-1624-13-8 and '174-0 are included in Attachment A.

## II. APPLICABLE RULES

- Rule 2201 New and Modified Stationary Source Review Rule (04/21/11)
- Rule 2520 Federally Mandated Operating Permits (06/21/01)
- Rule 2530 Federally Enforceable Potential To Emit (06/10/10)
- Rule 4001 New Source Performance Standards – Subpart Dc (04/14/99)
- Rule 4101 Visible Emissions (02/17/05)
- Rule 4102 Nuisance (12/17/92)
- Rule 4201 Particulate Matter Concentration (12/17/92)
- Rule 4301 Fuel Burning Equipment (12/17/92)
- Rule 4304 Equipment Tuning Procedure For Boilers, Steam Generators, And Process Heaters (10/19/95)
- Rule 4305 Boilers, Steam Generators, And Process Heaters – Phase 2 (08/21/03)
- Rule 4306 Boilers, Steam Generators, And Process Heaters – Phase 3 (10/16/08)
- Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)
- Rule 4351 Boilers, Steam Generators, And Process Heaters – Phase 1 (08/21/03)
- Rule 4405 Oxides Of Nitrogen Emissions From Existing Steam Generators Used In Thermally Enhanced Oil Recovery -Central And Western Kern County Fields (12/17/92)
- Rule 4406 Sulfur Compounds From Oil-Field Steam Generators – Kern County (12/17/92)
- Rule 4801 Sulfur Compounds (12/17/92)
- CH&SC 41700 Health Risk Assessment
- CH&SC 42301.6 School Notice
- Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
- California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

## III. PROJECT LOCATION

The subject steam generator is located in E&B Natural Resources Mgmt's Heavy Oil Central Stationary Source.

Permit	Section	Township	Range
S-1624-13-10	Various Unspecified Locations		
S-1624-174-2	Various Unspecified Locations		

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

#### IV. PROCESS DESCRIPTION

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

E&B operates permitted equipment in their Kern County Heavy Oil Central stationary source for the thermally enhanced production of crude oil and natural gas.

#### V. EQUIPMENT LISTING

##### Pre-Project Equipment Description

Permit #	Equipment Description
S-1624-13-8	27.5 MMBTU/HR STRUTHERS NATURAL GAS/LPG/CASING GAS-FIRED STEAM GENERATOR WITH A GIDEON ULTRA LOW NOX BURNER, O2 CONTROLLER AND VARIABLE FLUE GAS RECIRCULATION (FGR) OPERATING AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE E&B HEAVY OIL CENTRAL
S-1624-174-0	22.0 MMBTU/HR C.E. NATCO NATURAL GAS/LPG/PRODUCED GAS/TEOR GAS/WASTE GAS-FIRED STEAM GENERATOR WITH A GIDEON ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) OPERATING AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE E&B HEAVY OIL CENTRAL

Modification

Permit #	Equipment Description
S-1624-13-10	MODIFICATION OF 27.5 MMBTU/HR STRUTHERS NATURAL GAS/LPG/CASING GAS-FIRED STEAM GENERATOR WITH A GIDEON ULTRA LOW NOX BURNER, O2 CONTROLLER AND VARIABLE FLUE GAS RECIRCULATION (FGR) OPERATING AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE E&B HEAVY OIL CENTRAL: LOWER NOX EMISSIONS FROM 9 PPMV @ 3% O2 (0.011 LB/MMBTU) TO 7 PPMV @ 3% O2 (0.0085 LB/MMBTU) AND INCREASE CO EMISSIONS FROM 100 PPMV @ 3% O2 (0.074 LB/MMBTU) TO 400 PPMV @ 3% O2 (0.296 LB/MMBTU) FOR RULE 4320 COMPLIANCE
S-1624-174-2	MODIFICATION OF 22.0 MMBTU/HR C.E. NATCO NATURAL GAS/LPG/PRODUCED GAS/TEOR GAS/WASTE GAS-FIRED STEAM GENERATOR WITH A GIDEON ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) OPERATING AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE E&B HEAVY OIL CENTRAL: TUNE OR REPLACE BURNER WITH A GIDEON ULTRA LOW-NOX BURNER (OR EQUIVALENT), LOWER NOX EMISSIONS FROM 9 PPMV @ 3% O2 (0.011 LB/MMBTU) TO 7 PPMV @ 3% O2 (0.0085 LB/MMBTU), AND INCREASE CO EMISSIONS FROM 100 PPMV @ 3% O2 (0.074 LB/MMBTU) TO 400 PPMV @ 3% O2 (0.296 LB/MMBTU) FOR RULE 4320 COMPLIANCE

Post-Project Equipment Description

Permit #	Equipment Description
S-1624-13-10	27.5 MMBTU/HR STRUTHERS NATURAL GAS/LPG/CASING GAS-FIRED STEAM GENERATOR WITH A GIDEON ULTRA LOW NOX BURNER, O2 CONTROLLER AND VARIABLE FLUE GAS RECIRCULATION (FGR) OPERATING AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE E&B HEAVY OIL CENTRAL
S-1624-174-2	22.0 MMBTU/HR C.E. NATCO NATURAL GAS/LPG/PRODUCED GAS/TEOR GAS/WASTE GAS-FIRED STEAM GENERATOR WITH A GIDEON ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) OPERATING AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE E&B HEAVY OIL CENTRAL

**VI. EMISSION CONTROL TECHNOLOGY EVALUATION**

Emissions from natural gas-fired steam generators include NO<sub>x</sub>, CO, VOC, PM<sub>10</sub>, and SO<sub>x</sub>.

Low-NO<sub>x</sub> burners reduce NO<sub>x</sub> formation by producing lower flame temperatures (and longer flames) than conventional burners. Conventional burners thoroughly mix all the fuel and air in a single stage just prior to combustion, whereas low-NO<sub>x</sub> burners delay the mixing of fuel and air by introducing the fuel (or sometimes the air) in multiple

stages. Generally, in the first combustion stage, the air-fuel mixture is fuel rich. In a fuel rich environment, all the oxygen will be consumed in reactions with the fuel, leaving no excess oxygen available to react with nitrogen to produce thermal NO<sub>x</sub>. In the secondary and tertiary stages, the combustion zone is maintained in a fuel-lean environment. The excess air in these stages helps to reduce the flame temperature so that the reaction between the excess oxygen with nitrogen is minimized.

The use of flue gas re-circulation (FGR) can reduce nitrogen oxides (NO<sub>x</sub>) 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<sub>x</sub> is formed by high flame temperatures, the lower flame temperatures produced by FGR serve to reduce thermal NO<sub>x</sub>.

## VII. GENERAL CALCULATIONS

### A. Assumptions

- The maximum operating schedule is 24 hours/day, 365 days/year (per applicant)
- EPA F-factor for natural gas is 8,710 dscf/MMBtu
- Molar Specific Volume of a gas @ 60 °F is 379.5 ft<sup>3</sup>/lb-mol
- Natural Gas Heating Value: 1,000 Btu/scf (District Practice)
- Gideon burners have demonstrated higher than typical CO emissions and therefore, the applicant has proposed a CO emission limit of 400 ppmv @ 3% O<sub>2</sub> to provide a margin of compliance

### B. Emission Factors

#### Pre-Project Emission Factors

S-1624-13-8

Pollutant	Natural Gas/Casing Gas Emission Factors		Source
NO <sub>x</sub>	0.011 lb/MMBtu	9 ppmvd (@ 3%O <sub>2</sub> )	Current Permit
SO <sub>x</sub>	0.002 lb/MMBtu		Current Permit
PM <sub>10</sub>	0.005 lb/MMBtu		Current Permit
CO	0.074 lb/MMBtu	100 ppmvd (@ 3%O <sub>2</sub> )	Current Permit
VOC	0.003 lb/MMBtu		Current Permit



Pollutant	LPG Emission Factors		Source
NO <sub>x</sub>	0.011 lb/MMBtu	9 ppmvd (@ 3%O <sub>2</sub> )	Current Permit
SO <sub>x</sub>	0.0143 lb/MMBtu		Current Permit
PM <sub>10</sub>	0.0066 lb/MMBtu		Current Permit
CO	0.074 lb/MMBtu	100 ppmvd (@ 3%O <sub>2</sub> )	Current Permit
VOC	0.003 lb/MMBtu		Current Permit

The start-up, shut down, and refractory curing emission rates are expected to be greater than the steady state NO<sub>x</sub> emission rates. The current permit lists the below emission rates for start-up, shut down, and refractory curing.

Pollutant	Start-up, Shut down, Refractory Curing Emission Factor	Source
NO <sub>x</sub>	7.3 lb/day and 2,650 lb/year	Current Permit

S-1624-174-0

Pollutant	Natural Gas/Produced Gas/TEOR Gas/Waste Gas Emission Factors		Source
NO <sub>x</sub>	0.011 lb/MMBtu	9 ppmvd (@ 3%O <sub>2</sub> )	Current Permit
SO <sub>x</sub>	0.002 lb/MMBtu		Current Permit
PM <sub>10</sub>	0.0076 lb/MMBtu		Current Permit
CO	0.074 lb/MMBtu	100 ppmvd (@ 3%O <sub>2</sub> )	Current Permit
VOC	0.003 lb/MMBtu		Current Permit

Pollutant	LPG Emission Factors		Source
NO <sub>x</sub>	0.011 lb/MMBtu	9 ppmvd (@ 3%O <sub>2</sub> )	Current Permit
SO <sub>x</sub>	0.0164 lb/MMBtu		Current Permit
PM <sub>10</sub>	0.0076 lb/MMBtu		Current Permit
CO	0.074 lb/MMBtu	100 ppmvd (@ 3%O <sub>2</sub> )	Current Permit
VOC	0.003 lb/MMBtu		Current Permit

The start-up, shut down, and refractory curing emission rates are expected to be greater than the steady state NO<sub>x</sub> emission rates. The current permit lists the below emission rates for start-up, shut down, and refractory curing.

Pollutant	Start-up, Shut down, Refractory Curing Emission Factor	Source
NO <sub>x</sub>	5.8 lb/day and 2,120 lb/year	Current Permit

Post-Project Emission Factors

S-1624-13-10

<b>Pollutant</b>	<b>Natural Gas/Casing Gas Emission Factors</b>		<b>Source</b>
NO <sub>x</sub>	0.0085 lb/MMBtu	7 ppmvd (@ 3%O <sub>2</sub> )	Current Permit
SO <sub>x</sub>	0.002 lb/MMBtu		Current Permit
PM <sub>10</sub>	0.005 lb/MMBtu		Current Permit
CO	0.296 lb/MMBtu	400 ppmvd (@ 3%O <sub>2</sub> )	Applicant Proposal
VOC	0.003 lb/MMBtu		Current Permit

<b>Pollutant</b>	<b>LPG Emission Factors</b>		<b>Source</b>
NO <sub>x</sub>	0.0085 lb/MMBtu	7 ppmvd (@ 3%O <sub>2</sub> )	Current Permit
SO <sub>x</sub>	0.0143 lb/MMBtu		Current Permit
PM <sub>10</sub>	0.0066 lb/MMBtu		Current Permit
CO	0.296 lb/MMBtu	400 ppmvd (@ 3%O <sub>2</sub> )	Applicant Proposal
VOC	0.003 lb/MMBtu		Current Permit

The start-up, shut down, and refractory curing emission rates are expected to be greater than the steady state NO<sub>x</sub> emission rates. The current permit lists the below emission rates for start-up, shut down, and refractory curing and there are no proposed changes to the current permitted limits.

<b>Pollutant</b>	<b>Start-up, Shut down, Refractory Curing Emission Factor</b>	<b>Source</b>
NO <sub>x</sub>	7.3 lb/day and 2,650 lb/year	Current Permit

S-1624-174-2

<b>Pollutant</b>	<b>Natural Gas/Produced Gas/TEOR Gas/Waste Gas Emission Factors</b>		<b>Source</b>
NO <sub>x</sub>	0.0085 lb/MMBtu	7 ppmvd (@ 3%O <sub>2</sub> )	Current Permit
SO <sub>x</sub>	0.002 lb/MMBtu		Current Permit
PM <sub>10</sub>	0.0076 lb/MMBtu		Current Permit
CO	0.296 lb/MMBtu	400 ppmvd (@ 3%O <sub>2</sub> )	Applicant Proposal
VOC	0.003 lb/MMBtu		Current Permit

<b>Pollutant</b>	<b>LPG Emission Factors</b>		<b>Source</b>
NO <sub>x</sub>	0.0085 lb/MMBtu	7 ppmvd (@ 3%O <sub>2</sub> )	Current Permit
SO <sub>x</sub>	0.0164 lb/MMBtu		Current Permit
PM <sub>10</sub>	0.0076 lb/MMBtu		Current Permit
CO	0.296 lb/MMBtu	400 ppmvd (@ 3%O <sub>2</sub> )	Applicant Proposal
VOC	0.003 lb/MMBtu		Current Permit

The start-up, shut down, and refractory curing emission rates are expected to be greater than the steady state NO<sub>x</sub> emission rates. The current permit lists the below emission rates for start-up, shut down, and refractory curing and there are no proposed changes to the current permitted limits.

Pollutant	Start-up, Shut down, Refractory Curing Emission Factor	Source
NO <sub>x</sub>	5.8 lb/day and 2,120 lb/year	Current Permit

### C. Calculations

#### 1. Pre-Project Potential to Emit (PE1)

The PE1 for each pollutant is calculated with the following equation:

- PE1 = EF (lb/MMBtu) × Heat Input (MMBtu/hr) × Op. Sched. (hr/day or hr/year)

S-1624-13-8

*Natural Gas/Casing Gas*

Pollutant	Daily PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE1 (lb/day)
NO <sub>x</sub>	0.011	27.5	24	7.3
SO <sub>x</sub>	0.002	27.5	24	1.3
PM <sub>10</sub>	0.005	27.5	24	3.3
CO	0.074	27.5	24	48.8
VOC	0.003	27.5	24	2.0

Pollutant	Annual PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE1 (lb/year)
NO <sub>x</sub>	0.011	27.5	8,760	2,650
SO <sub>x</sub>	0.002	27.5	8,760	482
PM <sub>10</sub>	0.005	27.5	8,760	1,205
CO	0.074	27.5	8,760	17,827
VOC	0.003	27.5	8,760	723

LPG

Pollutant	Daily PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE1 (lb/day)
NO <sub>x</sub>	0.011	27.5	24	7.3
SO <sub>x</sub>	0.0143	27.5	24	9.4
PM <sub>10</sub>	0.0066	27.5	24	4.4
CO	0.074	27.5	24	48.8
VOC	0.003	27.5	24	2.0

Pollutant	Annual PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE1 (lb/year)
NO <sub>x</sub>	0.011	27.5	8,760	2,650
SO <sub>x</sub>	0.0143	27.5	8,760	3,445
PM <sub>10</sub>	0.0066	27.5	8,760	1,590
CO	0.074	27.5	8,760	17,827
VOC	0.003	27.5	8,760	723

*Start-up, Shut down, Refractory Curing*

The start-up, shut down, and refractory curing emission rates are expected to be greater than the steady state NO<sub>x</sub> emission rates. The current permit lists the below emission rates for start-up, shut down, and refractory curing.

Daily PE1 = 7.3 lb-NO<sub>x</sub>/day  
Annual PE1 = 2,650 lb-NO<sub>x</sub>/year

Worst Case Pre-Project Emissions S-1624-13-8		
Pollutant	Daily PE1 (lb/day)	Annual PE1 (lb/year)
NO <sub>x</sub>	7.3	2,650
SO <sub>x</sub>	9.4	3,445
PM <sub>10</sub>	4.4	1,590
CO	48.8	17,827
VOC	2.0	723

S-1624-174-0

*Natural Gas/Produced Gas/TEOR Gas/Waste Gas*

Pollutant	Daily PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE1 (lb/day)
<b>NO<sub>x</sub></b>	0.011	22	24	5.8
<b>SO<sub>x</sub></b>	0.002	22	24	1.1
<b>PM<sub>10</sub></b>	0.0076	22	24	4.0
<b>CO</b>	0.074	22	24	39.1
<b>VOC</b>	0.003	22	24	1.6

Pollutant	Annual PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE1 (lb/year)
<b>NO<sub>x</sub></b>	0.011	22	8,760	2,120
<b>SO<sub>x</sub></b>	0.002	22	8,760	385
<b>PM<sub>10</sub></b>	0.0076	22	8,760	1,465
<b>CO</b>	0.074	22	8,760	14,261
<b>VOC</b>	0.003	22	8,760	578

LPG

Pollutant	Daily PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE1 (lb/day)
NO <sub>x</sub>	0.011	22	24	5.8
SO <sub>x</sub>	0.0164	22	24	8.7
PM <sub>10</sub>	0.0076	22	24	4.0
CO	0.074	22	24	39.1
VOC	0.003	22	24	1.6

Pollutant	Annual PE1			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE1 (lb/year)
NO <sub>x</sub>	0.011	22	8,760	2,120
SO <sub>x</sub>	0.0164	22	8,760	3,161
PM <sub>10</sub>	0.0076	22	8,760	1,465
CO	0.074	22	8,760	14,261
VOC	0.003	22	8,760	578

*Start-up, Shut down, Refractory Curing*

The start-up, shut down, and refractory curing emission rates are expected to be greater than the steady state NO<sub>x</sub> emission rates. The current permit lists the below emission rates for start-up, shut down, and refractory curing.

Daily PE1 = 5.8 lb-NO<sub>x</sub>/day  
Annual PE1 = 2,120 lb-NO<sub>x</sub>/year

Worst Case Pre-Project Emissions S-1624-174-0		
Pollutant	Daily PE1 (lb/day)	Annual PE1 (lb/year)
NO <sub>x</sub>	5.8	2,120
SO <sub>x</sub>	8.7	3,161
PM <sub>10</sub>	4.0	1,465
CO	39.1	14,261
VOC	1.6	578

## 2. Post Project Potential to Emit (PE2)

The PE2 for each pollutant is calculated with the following equation:

- $PE2 = EF \text{ (lb/MMBtu)} \times \text{Heat Input (MMBtu/hr)} \times \text{Op. Sched. (hr/day or hr/year)}$

S-1624-13-10

*Natural Gas/Casing Gas*

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
<b>NO<sub>x</sub></b>	0.0085	27.5	24	5.6
<b>SO<sub>x</sub></b>	0.002	27.5	24	1.3
<b>PM<sub>10</sub></b>	0.005	27.5	24	3.3
<b>CO</b>	0.296	27.5	24	195.4
<b>VOC</b>	0.003	27.5	24	2.0

Pollutant	Annual PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
<b>NO<sub>x</sub></b>	0.0085	27.5	8,760	2,048
<b>SO<sub>x</sub></b>	0.002	27.5	8,760	482
<b>PM<sub>10</sub></b>	0.005	27.5	8,760	1,205
<b>CO</b>	0.296	27.5	8,760	71,306
<b>VOC</b>	0.003	27.5	8,760	723

LPG

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO <sub>x</sub>	0.0085	27.5	24	5.6
SO <sub>x</sub>	0.0143	27.5	24	9.4
PM <sub>10</sub>	0.0066	27.5	24	4.4
CO	0.296	27.5	24	195.4
VOC	0.003	27.5	24	2.0

Pollutant	Annual PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
NO <sub>x</sub>	0.0085	27.5	8,760	2,048
SO <sub>x</sub>	0.0143	27.5	8,760	3,445
PM <sub>10</sub>	0.0066	27.5	8,760	1,590
CO	0.296	27.5	8,760	71,306
VOC	0.003	27.5	8,760	723

*Start-up, Shut down, Refractory Curing*

The start-up, shut down, and refractory curing emission rates are expected to be greater than the steady state NO<sub>x</sub> emission rates. The current permit lists the below emission rates for start-up, shut down, and refractory curing and there are no proposed changes to the current permitted limits.

Daily PE2 = 7.3 lb-NO<sub>x</sub>/day  
Annual PE2 = 2,650 lb-NO<sub>x</sub>/year

Worst Case Post-Project Emissions S-1624-13-10		
Pollutant	Daily PE2 (lb/day)	Annual PE2 (lb/year)
NO <sub>x</sub>	7.3	2,650
SO <sub>x</sub>	9.4	3,445
PM <sub>10</sub>	4.4	1,590
CO	195.4	71,306
VOC	2.0	723



S-1624-174-2

*Natural Gas/Produced Gas/TEOR Gas/Waste Gas*

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
<b>NO<sub>x</sub></b>	0.0085	22	24	4.5
<b>SO<sub>x</sub></b>	0.002	22	24	1.1
<b>PM<sub>10</sub></b>	0.0076	22	24	4.0
<b>CO</b>	0.296	22	24	156.3
<b>VOC</b>	0.003	22	24	1.6

Pollutant	Annual PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
<b>NO<sub>x</sub></b>	0.0085	22	8,760	1,638
<b>SO<sub>x</sub></b>	0.002	22	8,760	385
<b>PM<sub>10</sub></b>	0.0076	22	8,760	1,465
<b>CO</b>	0.296	22	8,760	57,045
<b>VOC</b>	0.003	22	8,760	578

LPG

Pollutant	Daily PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/day)	Daily PE2 (lb/day)
NO <sub>x</sub>	0.0085	22	24	4.5
SO <sub>x</sub>	0.0164	22	24	8.7
PM <sub>10</sub>	0.0076	22	24	4.0
CO	0.296	22	24	156.3
VOC	0.003	22	24	1.6

Pollutant	Annual PE2			
	EF2 (lb/MMBtu)	Heat Input (MMBtu/hr)	Operating Schedule (hr/year)	Annual PE2 (lb/year)
NO <sub>x</sub>	0.0085	22	8,760	1,638
SO <sub>x</sub>	0.0164	22	8,760	3,161
PM <sub>10</sub>	0.0076	22	8,760	1,465
CO	0.296	22	8,760	57,045
VOC	0.003	22	8,760	578

*Start-up, Shut down, Refractory Curing*

The start-up, shut down, and refractory curing emission rates are expected to be greater than the steady state NO<sub>x</sub> emission rates. The current permit lists the below emission rates for start-up, shut down, and refractory curing and there are no proposed changes to the current permitted limits.

Daily PE2 = 5.8 lb-NO<sub>x</sub>/day  
Annual PE2 = 2,120 lb-NO<sub>x</sub>/year

Worst Case Post-Project Emissions S-1624-174-2		
Pollutant	Daily PE2 (lb/day)	Annual PE2 (lb/year)
NO <sub>x</sub>	5.8	2,120
SO <sub>x</sub>	8.7	3,161
PM <sub>10</sub>	4.0	1,465
CO	156.3	57,045
VOC	1.6	578

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

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

The facility is a major source for VOC emissions. Only the permit units that emit NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, and CO will be shown in the SSPE calculations for this project.

SSPE1 (lb/year)						
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC	
S-1624-13-8	2,650	3,445	1,590	17,827	N.C.	
S-1624-25-3	1,418	516	1,289	129		
S-1624-26-3	1,850	673	1,682	168		
S-1624-174-0	2,120	3,161	1,465	14,261		
S-1624-179-1	143	82	189	3,180		
S-1624-180-1	143	82	189	3,180		
S-1624-181-1	143	82	189	3,180		
S-1624-182-1	143	82	189	3,180		
S-1624-215-0	1,927	3,445	1,831	17,827		
S-1624-218-1	8,078	339	950	43,956		
S-1624-238-0	4,654*	1,560	4,161	45,990		
S-1624-239-0	2,409	3,635	1,664	16,206		
SSPE1	25,678	13,657	15,388	169,084		> 20,000

N.C. = not calculated

\* Assumes unit will meet Rule 4320 requirement of 7 ppmv @ 3% O<sub>2</sub>.

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

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

<b>SSPE2 (lb/year)</b>						
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC	
S-1624-13-10	2,650	3,445	1,590	71,306	N.C.	
S-1624-25-3	1,418	516	1,289	129		
S-1624-26-3	1,850	673	1,682	168		
S-1624-174-2	2,120	3,161	1,465	57,045		
S-1624-179-1	143	82	189	3,180		
S-1624-180-1	143	82	189	3,180		
S-1624-181-1	143	82	189	3,180		
S-1624-182-1	143	82	189	3,180		
S-1624-215-0	1,927	3,445	1,831	17,827		
S-1624-218-1	8,078	339	950	43,956		
S-1624-238-0	4,654	1,560	4,161	45,990		
S-1624-239-0	2,409	3,635	1,664	16,206		
<b>SSPE2</b>	<b>25,678</b>	<b>13,657</b>	<b>15,388</b>	<b>265,347</b>		<b>&gt; 20,000</b>

N.C. = not calculated

## 5. Major Source Determination

Pursuant to District Rule 2201, a Major Source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values. However, for the purposes of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

<b>Major Source Determination (lb/year)</b>					
	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	CO	VOC
Pre-Project SSPE (SSPE1)	25,678	13,657	15,388	169,084	> 20,000
Post Project SSPE (SSPE2)	25,678	13,657	15,388	265,347	> 20,000
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	Yes	No	No	Yes	Yes

## 6. Baseline Emissions (BE)

The BE calculation (in lb/year) is performed on a pollutant-by-pollutant basis to determine the amount of offsets required, where necessary, when the SSPE1 is greater than the offset threshold. This project is exempt from offsets pursuant to Rule 2201, Section 4.6.8. Therefore, BE calculations are not required.

## 7. SB 288 Major Modification

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

As discussed in Section VII.C.5 above, the facility is not a Major Source for SO<sub>x</sub> or PM<sub>10</sub> emissions; therefore, the project does not constitute a SB 288 Major Modification for SO<sub>x</sub> or PM<sub>10</sub> emissions.

As discussed in Section VII.C.5 above, the facility is an existing Major Source for NO<sub>x</sub> and VOC; however, the project by itself would need to be a significant increase in order to trigger a SB 288 Major Modification. The emission units within this project do not have a total potential to emit which is greater than the SB 288 Major Modification thresholds (see table below). Therefore, the project cannot be a significant increase and the project does not constitute a SB 288 Major Modification.

<b>SB 288 Major Modification Thresholds (Existing Major Source)</b>			
Pollutant	Project PE (lb/year)	Threshold (lb/year)	Major Modification?
NO <sub>x</sub>	2,650 + 2,120 = 4,770	50,000	No
VOC	723 + 578 = 1,301	50,000	No

## 8. Federal Major Modification

As discussed in Section VII.C.5 above, the facility is not a Major Source for SO<sub>x</sub> or PM<sub>10</sub> emissions; therefore, the project does not constitute a Federal Major Modification for SO<sub>x</sub> or PM<sub>10</sub> emissions.

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

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

- To determine the post-project projected actual emissions from existing units, the provisions of 40 CFR 51.165 (a)(1)(xxviii) shall be used.
- To determine the pre-project baseline actual emissions, the provisions of 40 CFR 51.165 (a)(1)(xxxv)(A) through (D) shall be used.

- If the project is determined not to be a federal major modification pursuant to the provisions of 40 CFR 51.165 (a)(2)(ii)(B), but there is a reasonable possibility that the project may result in a significant emissions increase, the owner or operator shall comply with all of the provisions of 40 CFR 51.165 (a)(6) and (a)(7).
- Emissions increases calculated pursuant to this section are significant if they exceed the significance thresholds specified in the table below.

<b>Significant Threshold (lb/year)</b>	
Pollutant	Threshold (lb/year)
NO <sub>x</sub>	0
VOC	0

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

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

### Step 1

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

$$\text{Net Emission Increase (NEI)} = \text{PAE} - \text{BAE} - \text{UBC}$$

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

If there is no increase in design capacity or potential to emit, the PAE is equal to the annual emission rate at which the unit is projected to emit in any one year, selected by the operator, within 5 years after the unit resumes normal operation (10 years for existing units with an increase in design capacity or potential to emit). If detailed PAE are not provided, the PAE is equal to the PE2 for each permit unit.

The BAE is calculated based on historical emissions and operating records for any 24 month period, selected by the operator, within the previous 10 year period (5 years for electric utility steam generating units). The BAE must be adjusted to exclude any non-compliant operation emissions and emissions that are no longer allowed due to lower applicable emission limits that were in effect when this application was deemed complete.

NOx and VOC

UBC: Since this project does not result in an increase in design capacity or potential to emit, and it does not impact the ability of the emission unit to operate at a higher utilization rate, the UBC is the portion of PAE that the emission units could have accommodated during the baseline period.

Net Emission Increase (NEI) = PAE – BAE – UBC = 0

The NEI for this project will be less than the federal Major Modification threshold for NOx and VOC. Therefore, this project does qualify for a “Less-Than-Significant Emissions Increase” exclusion and is thus determined not to be a Federal Major Modification for NOx or VOC.

**9. Quarterly Net Emissions Change (QNEC)**

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

QNEC = PE2 - PE1, where:

- QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.
- PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr.
- PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr.

<b>Quarterly NEC [QNEC] S-1624-13-10</b>			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO <sub>x</sub>	663	663	0
SO <sub>x</sub>	861	861	0
PM <sub>10</sub>	398	398	0
CO	17,827	4,457	13,370
VOC	181	181	0

<b>Quarterly NEC [QNEC] S-1624-174-2</b>			
	PE2 (lb/qtr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NO <sub>x</sub>	530	530	0
SO <sub>x</sub>	790	790	0
PM <sub>10</sub>	366	366	0
CO	14,261	3,365	10,896
VOC	145	145	0

## VIII. Compliance

### Rule 2201 New and Modified Stationary Source Review Rule

#### A. Best Available Control Technology (BACT)

##### 1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following\*:

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

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

However, BACT shall not be required for the following:

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

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

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

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

4.2.3.4 The project shall not result in an increase in permitted emissions or potential to emit of more than 25 tons per year of NO<sub>x</sub>, or 25 tons per year of VOC, or 15 tons per year of SO<sub>x</sub>, or 15 tons per year of PM<sub>10</sub>, or 50 tons per year of CO.



Since each of the above-listed criteria are met, BACT is not triggered for any pollutant.

The increase in CO emissions is less than 50 tons per year (48.1 tons per year). Therefore, each of the above-listed criteria are met, and BACT is not triggered for any pollutant.

## **B. Offsets**

### **1. Offset Applicability**

The proposed modifications are solely for compliance with Rule 4306, and are exempt from offsets if the following criteria are satisfied. Rule 2201, Section 4.6.8 provides the following exemption from offsets.

Emission offsets shall not be required for the following:

- 4.6.8 For existing facilities, the installation or modification of an emission control technique performed solely for the purpose of compliance with the requirements of District, State or Federal air pollution control laws, regulations, or orders, as approved by the APCO, shall be exempt from offset requirements for all air pollutants provided all of the following conditions are met:
  - 4.6.8.1 There shall be no increase in the physical or operational design of the existing facility, except for those changes to the design needed for the installation or modification of the emission control technique itself;
  - 4.6.8.2 There shall be no increase in the permitted rating or permitted operating schedule of the permitted unit;
  - 4.6.8.3 There shall be no increase in emissions from the stationary source that will cause or contribute to any violation of a National Ambient Air Quality Standard, Prevention of Significant Deterioration increment, or Air Quality Related Value in Class I areas; and
  - 4.6.8.4 The project shall not result in an increase in permitted emissions or potential to emit of more than 25 tons per year of NO<sub>x</sub>, or 25 tons per year of VOC, or 15 tons per year of SO<sub>x</sub>, or 15 tons per year of PM-10, or 50 tons per year of CO.

Since the above-listed criteria are met, offsets are not triggered for any pollutant.

The increase in CO emissions is less than 50 tons per year (48.1 tons per year). Therefore, each of the above-listed criteria are met, and offsets are not triggered for any pollutant.

## 2. Quantity of Offsets Required

The project meets the exemption requirements of section 4.6.8 of District Rule 2201; therefore offset calculations are not necessary and offsets are not required for this project.

### C. Public Notification

#### 1. Applicability

Public noticing is required for:

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

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

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

As demonstrated in VII.C.7, this project does not constitute an SB 288 or Federal Major Modification; therefore, public noticing for SB 288 or Federal Major Modification purposes is not required.

##### **b. PE > 100 lb/day**

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

##### **c. Offset Threshold**

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

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO <sub>x</sub>	25,678	25,678	20,000 lb/year	No
SO <sub>x</sub>	13,657	13,657	54,750 lb/year	No
PM <sub>10</sub>	15,388	15,388	29,200 lb/year	No
CO	169,084	265,347	200,000 lb/year	Yes
VOC	> 20,000	> 20,000	20,000 lb/year	No

As detailed above, offset thresholds were surpassed for CO with this project; therefore public noticing is required for offset purposes.

**d. SSIPE > 20,000 lb/year**

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

Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	Project PE2 (lb/year)	Project PE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO <sub>x</sub>	2,650 + 2,120 = 4,770	2,650 + 2,120 = 4,770	0	20,000 lb/year	No
SO <sub>x</sub>	3,445 + 3,161 = 6,606	3,445 + 3,161 = 6,606	0	20,000 lb/year	No
PM <sub>10</sub>	1,590 + 1,465 = 3,055	1,590 + 1,465 = 3,055	0	20,000 lb/year	No
CO	71,306 + 57,045 = 128,351	17,827 + 14,261 = 32,088	96,263	20,000 lb/year	Yes
VOC	723 + 578 = 1,301	723 + 578 = 1,301	0	20,000 lb/year	No

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

**2. Public Notice Action**

As discussed above, public noticing is required for this project for CO emissions surpassing the offset threshold and SSIPE greater than 20,000 lb/year for CO. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

#### D. Daily Emission Limits (DELs)

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

##### **Proposed Rule 2201 (DEL) Conditions:**

###### S-1624-13-10

- Emissions from the combustion of natural gas/casing gas, except during start-up, shut down, or refractory curing, shall not exceed any of the following limits: 7 ppmvd NOx @ 3% O2 or 0.0085 lb-NOx/MMBtu, 0.002 lb-SOx/MMBtu, 0.005 lb-PM10/MMBtu, 400 ppmvd CO @ 3% O2 or 0.296 lb-CO/MMBtu, or 0.003 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]
- Emissions from the combustion of liquefied petroleum gas (LPG), except during start up, shut down, or refractory curing, shall not exceed any of the following limits: 7 ppmvd NOx @ 3% O2 or 0.0085 lb-NOx/MMBtu, 0.0143 lb-SOx/MMBtu, 0.0066 lb-PM10/MMBtu, 400 ppmvd CO @ 3% O2 or 0.296 lb-CO/MMBtu, or 0.003 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]
- Emissions rates shall not exceed any of the following: 7.3 lb-NOx/day or 2,650 lb-NOx/year. [District Rule 2201]

###### S-1624-174-2

- Emissions from the combustion of natural gas/produced gas/TEOR gas/waste gas, except during start-up, shut down or refractory curing, shall not exceed any of the following limits: 7 ppmvd NOx @ 3% O2 or 0.0085 lb-NOx/MMBtu, 0.002 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 400 ppmvd CO @ 3% O2 or 0.296 lb-CO/MMBtu, or 0.003 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]
- Emissions from the combustion of liquefied petroleum gas (LPG), except during start-up, shut down or refractory curing, shall not exceed any of the following limits: 7 ppmvd NOx @ 3% O2 or 0.0085 lb-NOx/MMBtu, 0.0164 lb-SOx/MMBtu, 0.0076 lb-PM10/MMBtu, 400 ppmvd CO @ 3% O2 or 0.296 lb-CO/MMBtu, or 0.003 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]
- Emission rates shall not exceed any of the following: 5.8 lb-NOx/day or 2,120 lb-NOx/year. [District Rule 2201]

## **E. Compliance Assurance**

### **1. Source Testing**

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

### **2. Monitoring**

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

### **3. Recordkeeping**

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

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

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

### **4. Reporting**

No reporting is required to demonstrate compliance with Rule 2201.

## **F. CO Modeling**

The Technical Services Section of the San Joaquin Valley Unified Air Pollution Control District performed a CO modeling run, using the EPA AERMOD air dispersion model, to determine if the increase in CO emissions from steam generators S-1624-13-10 and '174-2 would exceed the State and Federal AAQS (Attachment B). Modeling of the worst case 1 hour and 8 hour CO impacts were performed. These values were added to the worst case ambient concentration (background) measured and compared to the ambient air quality standards. Results of the modeling are presented below:

<b>Ambient Modeling Results for CO</b>		
	<b>1 hr std</b>	<b>8 hr std</b>
Worst case ambient (background) (ug/m <sup>3</sup> )	18,640	4,078
Modeled impact (ug/m <sup>3</sup> )	116.68 + 93.23 = 209.91	96.94 + 78.43 = 175.37
Total (ug/m <sup>3</sup> )	18,849.91	4,253.37
AAQS (ug/m <sup>3</sup> )	23,000	10,000

This modeling demonstrates that the CO emissions will not cause a violation of the CO ambient air quality standards. Therefore, CO emissions are exempt from BACT and offsets pursuant to Rule 2201 Sections 4.2.3 and 4.6.8.

### **Rule 2520 Federally Mandated Operating Permits**

Since this facility's emissions exceed the major source thresholds of District Rule 2201, this facility is a major source. However, this facility has elected to comply with Rule 2530, exempts it from the requirements of Rule 2520.

### **Rule 2530 Federally Enforceable Potential to Emit**

The purpose of this rule is to restrict the emissions of a stationary source so that the source may elect to be exempt from the requirements of Rule 2520. Pursuant to Rule 2530, since this facility has elected exemption from the requirements of Rule 2520 by ensuring actual emissions from the stationary source in every 12-month periods to not exceed the following: ½ the major source thresholds for NO<sub>x</sub>, VOCs, CO, and PM<sub>10</sub>; 50 tons per year SO<sub>2</sub>; 5 tons per year of a single HAP; 12.5 tons per year of any combination of HAPs; 50 percent of any lesser threshold for a single HAP as the EPA may establish by rule; and 50 percent of the major source threshold for any other regulated air pollutant not listed in Rule 2530.

The facility will remain a Rule 2530 source after implementing this project based on the expected run time of the units during the first couple years. The facility will continue to monitor the rolling 12-month actual emissions and will submit a Title V permit application if the Rule 2530 levels are exceeded pursuant to the rule. Therefore, continued compliance with the requirements of this rule is expected.

### **Rule 4001 New Source Performance Standards**

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

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

40 CFR Part 60, Subpart A, section 14, defines the meaning of modification to which the standards are applicable. §60.14, paragraph (a) states that the following will not be considered as a modification: *“Except as provided under paragraphs (e) and (f) of this section, any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies shall be considered a modification within the meaning of section 111 of the Act. Upon modification, an existing facility shall become an affected facility for each pollutant to which a standard applies and for which there is an increase in the emission rate to the atmosphere.”*

No newly constructed or reconstructed units are proposed in this project, nor is the unit being modified (as defined above). Therefore, subpart Dc is not applicable to this project.

#### **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). The following condition will be placed 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]

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

#### **Rule 4102 Nuisance**

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

#### **California Health & Safety Code 41700 – Health Risk 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.

There is no increase in fuel use for the steam generators associated with this project, therefore a health risk assessment is not necessary and no further risk analysis is required.

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

### Rule 4201 Particulate Matter Concentration

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

F-Factor for LPG: 8,710 dscf/MMBtu

PM<sub>10</sub> Emission Factor: 0.0066 lb-PM<sub>10</sub>/MMBtu (project worst case)

Percentage of PM as PM<sub>10</sub> in Exhaust: 100%

Exhaust Oxygen (O<sub>2</sub>) Concentration: 3%

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

$$GL = \left( \frac{0.0066 \text{ lb-PM}}{\text{MMBtu}} \times \frac{7,000 \text{ grain}}{\text{lb-PM}} \right) / \left( \frac{8,710 \text{ ft}^3}{\text{MMBtu}} \times 1.17 \right)$$

$$GL = 0.0045 \text{ grain/dscf} < 0.1 \text{ grain/dscf}$$

Therefore, continued compliance with District Rule 4201 requirements is expected and the following condition will be listed on the permit to ensure compliance:

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

### Rule 4301 Fuel Burning Equipment

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

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

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

- 200 pound per hour of sulfur compounds, calculated as sulfur dioxide (SO<sub>2</sub>)
- 140 pounds per hour of nitrogen oxides, calculated as nitrogen dioxide (NO<sub>2</sub>)
- Ten pounds per hour of combustion contaminants as defined in Rule 1020 and derived from the fuel.



<b>District Rule 4301 Limits</b>			
<b>Permit</b>	<b>NO<sub>2</sub></b>	<b>Total PM</b>	<b>SO<sub>2</sub></b>
S-1624-13-10 (lb/hr)	0.30	0.18	0.39
S-1624-174-2 (lb/hr)	0.24	0.17	0.36
Rule Limit (lb/hr)	140	10	200

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

**Rule 4304 Equipment Tuning Procedure For Boilers, Steam Generators, And Process Heaters**

Pursuant to District Rules 4305, 4306 and 4320 Section 6.3.1, the steam generator is not required to tune since it follows a District approved Alternate Monitoring scheme where the applicable emission limits are periodically monitored. Therefore, the steam generators are not subject to this rule.

**Rule 4305 Boilers, Steam Generators, And Process Heaters – Phase 2**

The steam generators are subject to District Rule 4305, *Boilers, Steam Generators and Process Heaters – Phase 2*. In addition, the steam generator is also subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3* and District Rule 4320, *Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr*.

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

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

The steam generators are subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3*. In addition, the steam generator is also subject to *District Rule 4320, Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr*.

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

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

The steam generators are subject to District Rule 4320 requirements pursuant to Section 2.0 of District Rule 4320.

**Section 5.2, NO<sub>x</sub> and CO Emissions Limits**

Section 5.2.1 states that on and after the indicated Compliance Deadline, units shall not be operated in a manner which exceeds the applicable NO<sub>x</sub> limit specified in Table 1 of this rule, shown below. On and after October 1, 2008, units shall not be operated in a manner which exceeds a carbon dioxide (CO) emissions limit of 400 ppmv.

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

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

The steam generators will be limited to 7 ppmvd NO<sub>x</sub> and 400 ppmvd CO, all corrected to 3% O<sub>2</sub>. Thus, compliance with the District Rule 4320 NO<sub>x</sub> and CO emission limits is expected.

**Section 5.3, Annual Fee Calculation**

Annual Fees are required if an emissions unit will not be meeting the emission limits in Section 5.2 of this rule. Since steam generators S-1624-13 and '174 will each meet the emissions limits of Section 5.2, the annual fee requirements are not applicable.

**Section 5.4, Particulate Matter Control Requirements**

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

1. Fire the steam generator exclusively on PUC-quality natural gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases;
2. Limit fuel sulfur content to no more than five grains of total sulfur per one hundred (100) standard cubic feet;
3. Install and properly operate an emission control system that reduces SO<sub>2</sub> emissions by at least 95% by weight; or limit exhaust SO<sub>2</sub> to less than or equal to 9 ppmv corrected to 3.0% O<sub>2</sub>;

The steam generators will be fired on casing gas/produced gas/TEOR gas/waste gas/natural gas and/or LPG. The steam generators natural gas/casing gas/produced gas/TEOR gas/waste gas fuel will have a fuel sulfur content limit of no more than 1.0 gr-S/100 scf (0.002 lb/MMBtu). Therefore, compliance with Section 5.4 of District Rule 4320 is expected.

### **Section 5.5, Low Use**

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

### **Section 5.6, Startup and Shutdown Provisions**

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

- 5.6.1 The duration of each start-up or each shutdown shall not exceed two hours, except as provided in Section 5.6.3.
- 5.6.2 The emission control system shall be in operation and emissions shall be minimized insofar as technologically feasible during start-up or shutdown.
- 5.6.3 Notwithstanding the requirement of Section 5.6.1, an operator may submit an application for a Permit to Operate condition to allow more than two hours for each start-up or each shutdown provided the operator meets all of the conditions specified in Sections 5.6.3.1 through 5.6.3.3.
  - 5.6.3.1 The maximum allowable duration of start-up or shutdown will be determined by the APCO. The allowable duration of start-up shall not exceed twelve hours and the allowable duration of shutdown shall not exceed nine hours.
  - 5.6.3.2 The APCO will only approve start-up or shutdown duration longer than two hours when the application meets the following conditions:
    - 5.6.3.2.1 Clearly identifies the control technologies or strategies to be utilized; and
    - 5.6.3.2.2 Describes what physical conditions prevail during start-up or shutdown periods that prevent the controls from being effective; and
    - 5.6.3.2.3 Provides a reasonably precise estimate as to when the physical conditions will have reached a state that allows for the effective control of emissions.
  - 5.6.3.3 The operator shall submit to the APCO any information deemed necessary by the APCO to determine the appropriate length of start-up or shutdown. The information shall include, but is not limited to the following:

- 5.6.3.3.1 A detailed list of activities to be performed during start-up or shutdown and a reasonable explanation for the length of time needed to complete each activity; and
  - 5.6.3.3.2 A description of the material process flow rates and system operating parameters, etc., the operator plans to evaluate during the process optimization; and an explanation of how the activities and process flow affect the operation of the emissions control equipment; and
  - 5.6.3.3.3 The basis for the requested additional duration of start-up or shutdown.
- 5.6.4 Permit to Operate (PTO) modifications solely to conditions to comply with the provisions of this rule may be exempt from Best Available Control Technology (BACT) and emission offset requirements if the PTO modifications meet the requirements of Rule 2201 (New and Modified Stationary Source Review Rule) Section 4.2 (BACT Exemptions) and Rule 2201 Section 4.6 (Emission Offset Exemptions).
- 5.6.5 For existing facilities, a replacement unit installed for the sole purpose of complying with the requirements of this rule shall be considered to be an emission control technique and may be exempt from the Best Available Control Technology (BACT) and Offsets requirements of District Rule 2201 (New and Modified Stationary Source Review Rule) provided that all other requirements of Rule 2201 are met.

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

- The duration of each start-up or each shutdown shall not exceed two hours. [District Rule 4320]
- The emission control system shall be in operation and emissions shall be minimized insofar as technologically feasible during start-up or shutdown. [District Rule 4320]

Therefore, compliance with Section 5.6 of District Rule 4320 is expected.

### **Section 5.7, Monitoring Provisions**

Section 5.7.1 requires that permit units subject to District Rule 4320, Section 5.2 emissions limits shall either install and maintain Continuous Emission Monitoring (CEM) equipment for NO<sub>x</sub>, CO and O<sub>2</sub>, or install and maintain APCO-approved alternate monitoring.

For the steam generators in this project, the facility will use pre-approved alternate monitoring scheme A (pursuant to District Policy SSP-1105), which requires that monitoring of NO<sub>x</sub>, CO, and O<sub>2</sub> exhaust concentrations shall be conducted at least once per month (in which a source test is not performed) using a portable analyzer. The following conditions will be incorporated into the permit in order to ensure compliance with the requirements of the proposed alternate monitoring plan:

- The permittee shall monitor and record the stack concentration of NO<sub>x</sub>, CO, and O<sub>2</sub> at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within five days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306, and 4320]
- If the NO<sub>x</sub> or CO concentrations, as measured by the portable analyzer, exceed the permitted levels, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than one hour of operation after detection. If the portable analyzer continues to show emission limit violations after 1 hour of operation following detection, the permittee shall notify the District within the following one hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305, 4306, and 4320]
- All NO<sub>x</sub>, CO, and O<sub>2</sub> emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The NO<sub>x</sub>, CO and O<sub>2</sub> 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 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 NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent by volume and the measured NO<sub>x</sub> and CO concentrations corrected to 3% O<sub>2</sub>, (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 at or below the acceptable levels. [District Rules 4305, 4306, and 4320]

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

The units are fired on casing gas/produced gas/TEOR gas/waste gas/natural gas and/or LPG. Therefore, the following requirement will be included on the permit to comply with the SO<sub>x</sub> emissions monitoring requirement:

- If the unit is fired on natural gas/casing gas and compliance with the 0.002 lb-SO<sub>x</sub>/MMBtu emission limit is achieved through fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rules 1070 and 4320]
- The permittee shall submit an analysis showing the fuel's sulfur content at least once every year. Valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy this requirement, provided they establish the fuel parameters mentioned above. [District Rule 4320]

### **Section 5.8 Compliance Determination**

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

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

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

- 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<sub>x</sub> analyzer as part of an APCO approved Alternate Emissions Monitoring System, emission readings shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15-consecutive-minute sample reading or by taking

at least five (5) readings evenly spaced out over the 15-consecutive-minute period. Therefore, the following condition will be listed on the permit as follows:

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

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

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

### **Section 6.1, Recordkeeping**

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

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

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

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

Section 6.1.3 requires that the operator of a unit subject to Section 5.5.1 or 6.3.1 shall maintain records to verify that the required tune-up and the required monitoring of the operational characteristics have been performed. The steam generators in this project

are not subject to Sections 5.5.1 or 6.3.1. Therefore, the requirements of this section do not apply.

Section 6.1.4 requires that the operator of a unit with startup or shutdown provisions keep records of the duration of the startup or shutdowns. The following condition will be listed on the permit to ensure compliance:

- The operator performing start-up or shutdown of a unit shall keep records of the duration of start-up or shutdown. [District Rule 4320]

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

### Section 6.2, Test Methods

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

Pollutant	Units	Test Method Required
NO <sub>x</sub>	ppmv	EPA Method 7E or ARB Method 100
NO <sub>x</sub>	lb/MMBtu	EPA Method 19
CO	ppmv	EPA Method 10 or ARB Method 100
Stack Gas O <sub>2</sub>	%	EPA Method 3 or 3A, or ARB Method 100
Stack Gas Velocities	ft/min	EPA Method 2 or 19
Stack Gas Moisture Content	%	EPA Method 4

The following permit conditions will be listed on the permit:

- NO<sub>x</sub> emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320]
- CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320]
- Stack gas oxygen (O<sub>2</sub>) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320]

### Section 6.3, Compliance Testing

Section 6.3.1 requires that this unit be tested to determine compliance with the applicable requirements of section 5.2 not less than once every 12 months. Upon demonstrating compliance on two consecutive compliance source tests, the source test may be deferred for up to thirty-six months.



Initial source testing within 60 days of startup under the ATC in this project will also be required. The following conditions will be listed on the permit to ensure compliance:

- Source testing to measure NO<sub>x</sub> and CO emissions from this unit shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
- Source testing to measure NO<sub>x</sub> and CO emissions from this unit shall be conducted at least once every twelve months. After demonstrating compliance on two consecutive annual source tests, the unit shall be tested not less than once every 36 months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve months. [District Rules 2201, 4305, 4306, and 4320]

### Conclusion

Compliance with District Rule 4320 requirements is expected.

#### **Rule 4351 Boilers, Steam Generators, And Process Heaters - Phase 1**

This rule applies to boilers, steam generators, and process heaters at NO<sub>x</sub> Major Sources that are not located west of Interstate 5 in Fresno, Kings, or Kern counties. If applicable, the emission limits, monitoring provisions, and testing requirements of this rule are satisfied when the unit is operated in compliance with Rule 4320.

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

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

This rule limits NO<sub>x</sub> emissions from existing steam generators used in thermally enhanced oil recovery operations prior to August 22, 1986. The NO<sub>x</sub> emissions limits of the steam generators in this project are well below the NO<sub>x</sub> limit of 0.14 lb/MMBtu allowed by this rule for natural gas-fired units.

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

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

This rule limits sulfur compound emissions from existing steam generators used in oil field operations prior to September 12, 1979. The limit imposed by the rule is 0.11 lb S/MMBtu, either individually or on average basis for all of an operating steam generators subject to the rule requirements. The proposed SO<sub>2</sub> emissions factor, 0.0164 lb-SO<sub>x</sub>/MMBtu (0.0082 lb-S/MMBtu), is in compliance with the rule.

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

**Rule 4801 Sulfur Compounds**

A person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: 0.2 % by volume calculated as SO<sub>2</sub>, on a dry basis averaged over 15 consecutive minutes.

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

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

With:

N = moles SO<sub>2</sub>

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

P (Standard Pressure) = 14.7 psi

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

$$\frac{0.0164 \text{ lb} - \text{SO}_x}{\text{MMBtu}} \times \frac{\text{MMBtu}}{8,710 \text{ dscf}} \times \frac{1 \text{ lb} \cdot \text{mol}}{64 \text{ lb}} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot \text{°R}} \times \frac{520 \text{°R}}{14.7 \text{ psi}} \times \frac{1,000,000 \cdot \text{parts}}{\text{million}} = 11.2 \frac{\text{parts}}{\text{million}}$$

$$\text{Sulfur Concentration} = 11.2 \frac{\text{parts}}{\text{million}} < 2,000 \text{ ppmv (or 0.2\%)}$$

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

**California Environmental Quality Act (CEQA)**

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

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities;
- Identify the ways that environmental damage can be avoided or significantly reduced;
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and

- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

The District performed an Engineering Evaluation (this document) for the proposed project and determined that all project specific emission unit(s) are exempt from Best Available Control Technology (BACT) requirements. Furthermore, the District conducted a carbon monoxide modeling assessment Review and concludes that potential health impacts are less than significant. The project does not result in an increase in fuel use for the steam generators.

Issuance of permits for emissions units not subject to BACT requirements and with health impact less than significant is a matter of ensuring conformity with applicable District rules and regulations and does not require discretionary judgment or deliberation. Thus, the District concludes that this permitting action constitutes a ministerial approval. Section 21080 of the Public Resources Code exempts from the application of CEQA those projects over which a public agency exercises only ministerial approval. Therefore, the District finds that this project is exempt from the provisions of CEQA.

## VII. RECOMMENDATION

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue Authority to Construct permits S-1624-13-10 and '174-2 subject to the permit conditions on the attached draft Authority to Construct permits in Attachment C.

## VIII. BILLING INFORMATION

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-1624-13-10	3020-02-H	27.5 MMBtu/hr	\$1030.00
S-1624-174-2	999-99	Also permitted as S-1807-53	\$0.00

### Attachments

- A Current Permits To Operate
- B CO Modeling Results
- C Draft Authority to Construct Permits

**ATTACHMENT A**

**Current Permits to Operate**

# San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1624-13-8

EXPIRATION DATE: 06/30/2013

SECTION: 05 TOWNSHIP: 28S RANGE: 27E

## EQUIPMENT DESCRIPTION:

27.5 MMBTU/HR STRUTHERS NATURAL GAS/LPG/CASING GAS-FIRED STEAM GENERATOR WITH A GIDEON ULTRA LOW NOX BURNER, O2 CONTROLLER AND VARIABLE FLUE GAS RECIRCULATION (FGR) OPERATING AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE E&B HEAVY OIL CENTRAL

## PERMIT UNIT REQUIREMENTS

---

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. 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]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
5. This steam generator is permitted to operate at various unspecified locations within the E&B Heavy Oil Central Stationary Source. [District Rule 2201]
6. Permittee shall notify the District Compliance Division of each location at which the operation is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 2201]
7. This equipment shall not be located within 1,000 feet of any K-12 school. [District Rule 2201 and CHSC 42301.6]
8. The unit shall only be fired on PUC quality natural gas, LPG or casing gas. [District Rule 2201]
9. The sulfur content of fuel combusted shall not exceed 5 grains-S per 100 scf. [District Rule 4320]
10. Emissions from the combustion of natural gas/casing gas, except during start up, shut down, or refractory curing, shall not exceed any of the following limits: 9 ppmvd NOx @ 3% O2 or 0.011 lb-NOx/MMBtu, 0.002 lb-SOx/MMBtu, 0.005 lb-PM10/MMBtu, 100 ppmvd CO @ 3% O2 or 0.074 lb-CO/MMBtu, or 0.003 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]
11. Emissions from the combustion of liquefied petroleum gas (LPG), except during start up, shut down, or refractory curing, shall not exceed any of the following limits: 9 ppmvd NOx @ 3% O2 or 0.011 lb-NOx/MMBtu, 0.0143 lb-SOx/MMBtu, 0.0066 lb-PM10/MMBtu, 100 ppmvd CO @ 3% O2 or 0.074 lb-CO/MMBtu, or 0.003 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]
12. Emissions rates shall not exceed any of the following: NOx (as NO2) 7.3 lb/day and 2650 lb/year. [District Rule 2201]
13. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305, 4306, and 4320]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

Facility Name: E&B NATURAL RESOURCES MGMT

Location: HEAVY OIL CENTRAL, CA

S-1624-13-8: Jul 19 2012 5:44PM - TOMS

14. If the unit is fired on natural gas/casing gas and compliance with the 0.002 lb-SO<sub>x</sub>/MMBtu emission limit is achieved through fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 1070]
15. Source testing to measure NO<sub>x</sub> and CO emissions from this unit while fired on natural gas/casing gas shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305, 4306, and 4320]
16. Source testing shall be required to measure NO<sub>x</sub>, and CO emissions when firing on LPG for a duration of over 100 hours during the 12-month period previous to the source test anniversary date. After demonstrating compliance on two (2) consecutive annual source tests when unit is fired on LPG, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320]
17. The permittee shall notify the District at least seven calendar days prior to the designation of this permit unit as a dormant emissions unit or an active emissions unit. [District Rule 1070]
18. When designated as a dormant emissions unit the fuel supply line shall be physically disconnected from the emissions unit. [District Rules 4306 and 4320]
19. When designated as a dormant emissions unit, the permittee shall not be required to perform source testing or monitoring requirements otherwise required by this permit. [District Rule 4306 and 4320]
20. A source test to demonstrate compliance with the NO<sub>x</sub> and CO emission limits shall be performed within 60 days of recommencing operation of the dormant emissions unit. [District Rule 4306 and 4320]
21. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320]
22. 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]
23. NO<sub>x</sub> emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320]
24. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320]
25. Stack gas oxygen (O<sub>2</sub>) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320]
26. 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]
27. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
28. The permittee shall monitor and record the stack concentration of NO<sub>x</sub>, CO, and O<sub>2</sub> at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306, and 4320]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

29. If either the NO<sub>x</sub> or CO concentrations corrected to 3% O<sub>2</sub>, 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]
30. 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]
31. The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent and the measured NO<sub>x</sub> and CO concentrations corrected to 3% O<sub>2</sub>, (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]
32. Permittee shall maintain accurate records of each location the steam generator operates, the dates of operation at each location, and the quantity of fuel consumed at each location. [District Rule 2201]
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 4305, 4306, and 4320]
34. Pursuant to Rule 4320, beginning in 2010 the operator shall pay an annual emission fee to the District for NO<sub>x</sub> emissions from this unit for the previous calendar year. Payments are due by July 1 of each year. Payments shall continue annually until either the unit is permanently removed from service in the District or the operator demonstrates compliance with the applicable NO<sub>x</sub> emission limit listed in Rule 4320. [District Rule 4320]
35. Permittee shall maintain records of annual heat input (MMBtu) for this unit on a calendar year basis. Such 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 and Rule 4320]
36. The permittee shall submit an analysis showing the fuel's sulfur content at least once every year. Valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy this requirement, provided they establish the fuel parameters mentioned above. [District Rule 4320]

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

# San Joaquin Valley Air Pollution Control District

**PERMIT UNIT:** S-1624-174-0

**EXPIRATION DATE:** 06/30/2013

**EQUIPMENT DESCRIPTION:**

22.0 MMBTU/HR C.E. NATCO NATURAL GAS/LPG/PRODUCED GAS/TEOR GAS/WASTE GAS-FIRED STEAM GENERATOR WITH A GIDEON ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) OPERATING AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE E&B HEAVY OIL CENTRAL

## PERMIT UNIT REQUIREMENTS

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1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. 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]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
5. This steam generator is permitted to operate at various unspecified locations within the E&B Heavy Oil Central Stationary Source. [District Rule 2201]
6. Permittee shall notify the District Compliance Division of each location at which the operation is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 2201]
7. This equipment shall not be located within 1,000 feet of any K-12 school. [District Rule 2201 and CHSC 42301.6]
8. The unit shall only be fired on PUC quality natural gas, LPG or casing gas. [District Rule 2201]
9. Emissions from the combustion of natural gas/casing gas shall not exceed any of the following limits: 9 ppmvd NO<sub>x</sub> @ 3% O<sub>2</sub> or 0.011 lb-NO<sub>x</sub>/MMBtu, 0.002 lb-SO<sub>x</sub>/MMBtu, 0.0076 lb-PM<sub>10</sub>/MMBtu, 100 ppmvd CO @ 3% O<sub>2</sub> or 0.074 lb-CO/MMBtu, or 0.003 lb-VOC/MMBtu. [District Rules 2201, 4305, and 4306]
10. Emissions from the liquefied petroleum gas (LPG)-fired unit shall not exceed any of the following limits: 9 ppmvd NO<sub>x</sub> @ 3% O<sub>2</sub> or 0.011 lb-NO<sub>x</sub>/MMBtu, 0.0164 lb-SO<sub>x</sub>/MMBtu, 0.0076 lb-PM<sub>10</sub>/MMBtu, 100 ppmvd CO @ 3% O<sub>2</sub> or 0.074 lb-CO/MMBtu, or 0.003 lb-VOC/MMBtu. [District Rules 2201, 4305, and 4306]
11. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305 and 4306]
12. If the unit is fired on natural gas/casing gas and compliance with the 0.002 lb-SO<sub>x</sub>/MMBtu emission limit is achieved through fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 1070]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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



13. Source testing to measure NO<sub>x</sub> and CO emissions from this unit while fired on natural gas/casing gas shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 4305 and 4306]
14. Source testing shall be required to measure NO<sub>x</sub>, and CO emissions when firing on LPG for a duration of over 100 hours during the 12-month period previous to the source test anniversary date. After demonstrating compliance on two (2) consecutive annual source tests when unit is fired on LPG, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305 and 4306]
15. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305 and 4306]
16. 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]
17. NO<sub>x</sub> emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305 and 4306]
18. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305 and 4306]
19. Stack gas oxygen (O<sub>2</sub>) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305 and 4306]
20. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305 and 4306]
21. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
22. The permittee shall monitor and record the stack concentration of NO<sub>x</sub>, CO, and O<sub>2</sub> at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305 and 4306]
23. If either the NO<sub>x</sub> or CO concentrations corrected to 3% O<sub>2</sub>, 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 and 4306]
24. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4305 and 4306]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE  
These terms and conditions are part of the Facility-wide Permit to Operate.

25. The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent and the measured NO<sub>x</sub> and CO concentrations corrected to 3% O<sub>2</sub>, (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 and 4306]
26. Permittee shall maintain accurate records of each location the steam generator operates, the dates of operation at each location, and the quantity of fuel consumed at each location. [District Rule 2201]
27. 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, and 4306]
28. Pursuant to Rule 4320, beginning in 2010 the operator shall pay an annual emission fee to the District for NO<sub>x</sub> emissions from this unit for the previous calendar year. Payments are due by July 1 of each year. Payments shall continue annually until either the unit is permanently removed from service in the District or the operator demonstrates compliance with the applicable NO<sub>x</sub> emission limit listed in Rule 4320. [District Rule 4320]
29. Permittee shall maintain records of annual heat input (MMBtu) for this unit on a calendar year basis. Such 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 and Rule 4320]

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

**ATTACHMENT B**  
**CO Modeling Results**

# San Joaquin Valley Unified Air Pollution Control District

## MEMORANDUM

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**DATE:** July 3, 2012

**TO:** Steve Davidson, AQE - Permit Services

**FROM:** Ester Davila, SAQS - Technical Services

**SUBJECT:** CO Modeling E & B Natural Resources (S-1624; Project# 1122045).

---

Technical Service performed CO modeling for E & B Natural Resources (S-1624-10-13 & 174-2; Project# 1122045). The applicant is proposing to raise their CO emissions limit from 100 PPM to 400 PPM for both units. This will trigger a NSR public notice (>20,000 lb-CO/yr). This Project does not result in an increase in fuel consumption for either of the two steam generators.

### CO Modeling Results

Steam Generators		CO (ug/m <sup>3</sup> )	Background CO (ug/m <sup>3</sup> )	Total CO (ug/m <sup>3</sup> )	State & National AAQS (ug/m <sup>3</sup> )	Passes Standards?
Unit 13-10	1 Hour Avg.	116.68	18640	18757	23,000	<b>Pass</b>
	8 Hour Avg.	96.94	4078	4175	10,000	<b>Pass</b>
Unit 174-2	1 Hour Avg.	93.23	18640	18733	23,000	<b>Pass</b>
	8 Hour Avg.	78.43	4078	4156	10,000	<b>Pass</b>

**Conclusion:**

The CO modeling results table indicates that the emissions from the proposed equipment will not have an adverse impact on the State nor the National AAQS. Therefore, no further modeling will be required to demonstrate that the AAQS or EPA's level of significance would be exceeded.

**Attachments:**

1. CO Modeling Request
2. AERMOD Concentrations

## **ATTACHMENT C**

### **Draft Authorities to Construct Permits**

San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

**ISSUANCE DATE: DRAFT**

**PERMIT NO:** S-1624-13-10

**LEGAL OWNER OR OPERATOR:** E&B NATURAL RESOURCES MGMT  
**MAILING ADDRESS:** ATTN: GREG YOUNGBLOOD  
1600 NORRIS ROAD  
BAKERSFIELD, CA 93308

**LOCATION:** HEAVY OIL CENTRAL  
CA

**SECTION:** Var **TOWNSHIP:** Var **RANGE:** Var

**EQUIPMENT DESCRIPTION:**

MODIFICATION OF 27.5 MMBTU/HR STRUTHERS NATURAL GAS/LPG/CASING GAS-FIRED STEAM GENERATOR WITH A GIDEON ULTRA LOW NOX BURNER, O2 CONTROLLER AND VARIABLE FLUE GAS RECIRCULATION (FGR) OPERATING AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE E&B HEAVY OIL CENTRAL: LOWER NOX EMISSIONS FROM 9 PPMV @ 3% O2 (0.011 LB/MMBTU) TO 7 PPMV @ 3% O2 (0.0085 LB/MMBTU) AND INCREASE CO EMISSIONS FROM 100 PPMV @ 3% O2 (0.074 LB/MMBTU) TO 400 PPMV @ 3% O2 (0.296 LB/MMBTU) FOR RULE 4320 COMPLIANCE

**CONDITIONS**

1. This Authority to Construct (ATC) cancels and supersedes ATC S-1624-13-9. [District Rule 2201]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {15} 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]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. {1407} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
6. This steam generator is permitted to operate at various unspecified locations within the E&B Heavy Oil Central Stationary Source. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director APCO

DAVID WARNER, Director of Permit Services

S-1624-13-10 Jul 19 2012 5:56PM - TOMS : Joint Inspection NOT Required

7. Permittee shall notify the District Compliance Division of each location at which the operation is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 2201]
8. This equipment shall not be located within 1,000 feet of any K-12 school. [District Rule 2201 and CH&SC 42301.6]
9. The unit shall only be fired on PUC quality natural gas, LPG or casing gas. [District Rule 2201]
10. Emissions from the combustion of natural gas/casing gas, except during start-up, shut down, or refractory curing, shall not exceed any of the following limits: 7 ppmvd NO<sub>x</sub> @ 3% O<sub>2</sub> or 0.0085 lb-NO<sub>x</sub>/MMBtu, 0.002 lb-SO<sub>x</sub>/MMBtu, 0.005 lb-PM<sub>10</sub>/MMBtu, 400 ppmvd CO @ 3% O<sub>2</sub> or 0.296 lb-CO/MMBtu, or 0.003 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]
11. Emissions from the combustion of liquefied petroleum gas (LPG), except during start-up, shut down, or refractory curing, shall not exceed any of the following limits: 7 ppmvd NO<sub>x</sub> @ 3% O<sub>2</sub> or 0.0085 lb-NO<sub>x</sub>/MMBtu, 0.0143 lb-SO<sub>x</sub>/MMBtu, 0.0066 lb-PM<sub>10</sub>/MMBtu, 400 ppmvd CO @ 3% O<sub>2</sub> or 0.296 lb-CO/MMBtu, or 0.003 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]
12. Emissions rates shall not exceed any of the following: 7.3 lb-NO<sub>x</sub>/day or 2,650 lb-NO<sub>x</sub>/year. [District Rule 2201]
13. The duration of each start-up or each shutdown shall not exceed two hours. [District Rule 4320]
14. The emission control system shall be in operation and emissions shall be minimized insofar as technologically feasible during start-up or shutdown. [District Rule 4320]
15. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305, 4306, and 4320]
16. If the unit is fired on natural gas/casing gas and compliance with the 0.002 lb-SO<sub>x</sub>/MMBtu emission limit is achieved through fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rules 1070 and 4320]
17. The permittee shall submit an analysis showing the fuel's sulfur content at least once every year. Valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy this requirement, provided they establish the fuel parameters mentioned above. [District Rule 4320]
18. Source testing to measure NO<sub>x</sub> and CO emissions from this unit shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
19. Source testing to measure NO<sub>x</sub> and CO emissions from this unit while fired on natural gas/casing gas shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320]
20. Source testing shall be required to measure NO<sub>x</sub>, and CO emissions when firing on LPG for a duration of over 100 hours during the 12-month period previous to the source test anniversary date. After demonstrating compliance on two (2) consecutive annual source tests when unit is fired on LPG, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320]
21. The permittee shall notify the District at least seven calendar days prior to the designation of this permit unit as a dormant emissions unit or an active emissions unit. [District Rule 1070]
22. When designated as a dormant emissions unit the fuel supply line shall be physically disconnected from the emissions unit. [District Rules 4306 and 4320]

23. When designated as a dormant emissions unit, the permittee shall not be required to perform source testing or monitoring requirements otherwise required by this permit. [District Rule 4306 and 4320]
24. A source test to demonstrate compliance with the NO<sub>x</sub> and CO emission limits shall be performed within 60 days of recommencing operation of the dormant emissions unit. [District Rule 2201, 4306 and 4320]
25. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320]
26. {109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]
27. NO<sub>x</sub> emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320]
28. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320]
29. Stack gas oxygen (O<sub>2</sub>) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320]
30. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306, and 4320]
31. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
32. The permittee shall monitor and record the stack concentration of NO<sub>x</sub>, CO, and O<sub>2</sub> at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306, and 4320]
33. If either the NO<sub>x</sub> or CO concentrations corrected to 3% O<sub>2</sub>, 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]
34. 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]
35. The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent and the measured NO<sub>x</sub> and CO concentrations corrected to 3% O<sub>2</sub>, (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]
36. The operator performing start-up or shutdown of a unit shall keep records of the duration of start-up or shutdown. [District Rule 4320]
37. Permittee shall maintain accurate records of each location the steam generator operates, the dates of operation at each location, and the quantity of fuel consumed at each location. [District Rule 2201]

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

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San Joaquin Valley  
Air Pollution Control District

**AUTHORITY TO CONSTRUCT**

ISSUANCE DATE: DRAFT  
**DRAFT**

PERMIT NO: S-1624-174-2

LEGAL OWNER OR OPERATOR: E&B NATURAL RESOURCES MGMT  
MAILING ADDRESS: ATTN: GREG YOUNGBLOOD  
1600 NORRIS ROAD  
BAKERSFIELD, CA 93308

LOCATION: HEAVY OIL CENTRAL  
CA

SECTION: Var TOWNSHIP: Var RANGE: Var

**EQUIPMENT DESCRIPTION:**

MODIFICATION OF 22.0 MMBTU/HR C.E. NATCO NATURAL GAS/LPG/PRODUCED GAS/TEOR GAS/WASTE GAS-FIRED STEAM GENERATOR WITH A GIDEON ULTRA LOW NOX BURNER AND INDUCED FLUE GAS RECIRCULATION (FGR) OPERATING AT VARIOUS UNSPECIFIED LOCATIONS WITHIN THE E&B HEAVY OIL CENTRAL: TUNE OR REPLACE BURNER WITH A GIDEON ULTRA LOW-NOX BURNER (OR EQUIVALENT), LOWER NOX EMISSIONS FROM 9 PPMV @ 3% O<sub>2</sub> (0.011 LB/MMBTU) TO 7 PPMV @ 3% O<sub>2</sub> (0.0085 LB/MMBTU), AND INCREASE CO EMISSIONS FROM 100 PPMV @ 3% O<sub>2</sub> (0.074 LB/MMBTU) TO 400 PPMV @ 3% O<sub>2</sub> (0.296 LB/MMBTU) FOR RULE 4320 COMPLIANCE

**CONDITIONS**

1. This Authority to Construct (ATC) cancels and supersedes ATC S-1624-174-1. [District Rule 2201]
2. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. {15} 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]
4. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
5. {1407} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201]
6. This steam generator is permitted to operate at various unspecified locations within the E&B Heavy Oil Central Stationary Source. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin, Executive Director APCO

**DAVID WARNER**, Director of Permit Services  
S-1624-174-2 : Jul 20 2012 1:31PM - TOMS : Joint Inspection NOT Required

7. Permittee shall notify the District Compliance Division of each location at which the operation is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 2201]
8. This equipment shall not be located within 1,000 feet of any K-12 school. [District Rule 2201 and CH&SC 42301.6]
9. The unit shall only be fired on natural gas, LPG, produced gas, TEOR gas, and/or waste gas. [District Rule 2201]
10. Emissions from the combustion of natural gas/produced gas/TEOR gas/waste gas, except during start-up, shut down or refractory curing, shall not exceed any of the following limits: 7 ppmvd NO<sub>x</sub> @ 3% O<sub>2</sub> or 0.0085 lb-NO<sub>x</sub>/MMBtu, 0.002 lb-SO<sub>x</sub>/MMBtu, 0.0076 lb-PM<sub>10</sub>/MMBtu, 400 ppmvd CO @ 3% O<sub>2</sub> or 0.296 lb-CO/MMBtu, or 0.003 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]
11. Emissions from the combustion of liquefied petroleum gas (LPG), except during start-up, shut down or refractory curing, shall not exceed any of the following limits: 7 ppmvd NO<sub>x</sub> @ 3% O<sub>2</sub> or 0.0085 lb-NO<sub>x</sub>/MMBtu, 0.0143 lb-SO<sub>x</sub>/MMBtu, 0.0076 lb-PM<sub>10</sub>/MMBtu, 400 ppmvd CO @ 3% O<sub>2</sub> or 0.296 lb-CO/MMBtu, or 0.003 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306, and 4320]
12. Emission rates shall not exceed any of the following: 5.8 lb-NO<sub>x</sub>/day or 2,120 lb-NO<sub>x</sub>/year. [District Rule 2201]
13. The duration of each start-up or each shutdown shall not exceed two hours. [District Rule 4320]
14. The emission control system shall be in operation and emissions shall be minimized insofar as technologically feasible during start-up or shutdown. [District Rule 4320]
15. All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0 of District Rule 4306. [District Rules 4305, 4306, and 4320]
16. If the unit is fired on natural gas/produced gas/TEOR gas/waste gas and compliance with the 0.002 lb-SO<sub>x</sub>/MMBtu emission limit is achieved through fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rules 1070 and 4320]
17. The permittee shall submit an analysis showing the fuel's sulfur content at least once every year. Valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy this requirement, provided they establish the fuel parameters mentioned above. [District Rule 4320]
18. Source testing to measure NO<sub>x</sub> and CO emissions from this unit shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
19. Source testing to measure NO<sub>x</sub> and CO emissions from this unit while fired on natural gas/produced gas/TEOR gas/waste gas shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320]
20. After the initial source test for Rule 4320, the permittee shall notify the District at least seven calendar days prior to the designation of this permit unit as a dormant emissions unit or an active emissions unit. [District Rule 1070]
21. After the initial source test for Rule 4320, when designated as a dormant emissions unit the fuel supply line shall be physically disconnected from the emissions unit. [District Rule 4306 and 4320]
22. After the initial source test for Rule 4320, when designated as a dormant emissions unit, the permittee shall not be required to perform source testing or monitoring requirements otherwise required by this permit. [District Rule 4306 and 4320]
23. After the initial source test for Rule 4320, a source test to demonstrate compliance with the NO<sub>x</sub> and CO emission limits shall be performed within 60 days of recommencing operation of the dormant emissions unit. [District Rules 4306 and 4320]

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CONDITIONS CONTINUE ON NEXT PAGE

24. Source testing shall be required to measure NO<sub>x</sub>, and CO emissions when firing on LPG for a duration of over 100 hours during the 12-month period previous to the source test anniversary date. After demonstrating compliance on two (2) consecutive annual source tests when unit is fired on LPG, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320]
25. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306, and 4320]
26. {109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]
27. NO<sub>x</sub> emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306, and 4320]
28. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306, and 4320]
29. Stack gas oxygen (O<sub>2</sub>) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320]
30. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rules 4305, 4306, and 4320]
31. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
32. The permittee shall monitor and record the stack concentration of NO<sub>x</sub>, CO, and O<sub>2</sub> at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306, and 4320]
33. If either the NO<sub>x</sub> or CO concentrations corrected to 3% O<sub>2</sub>, 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]
34. 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]
35. The permittee shall maintain records of: (1) the date and time of NO<sub>x</sub>, CO, and O<sub>2</sub> measurements, (2) the O<sub>2</sub> concentration in percent and the measured NO<sub>x</sub> and CO concentrations corrected to 3% O<sub>2</sub>, (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]
36. The operator performing start-up or shutdown of a unit shall keep records of the duration of start-up or shutdown. [District Rule 4320]

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37. Permittee shall maintain accurate records of each location the steam generator operates, the dates of operation at each location, and the quantity of fuel consumed at each location. [District Rule 2201]
38. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 4305, 4306, and 4320]

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