



DEC 23 2011

Jerry Frost
Vintage Production California LLC
9000 Ming Avenue, Suite 300
Bakersfield, CA 93311

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: S-1114449

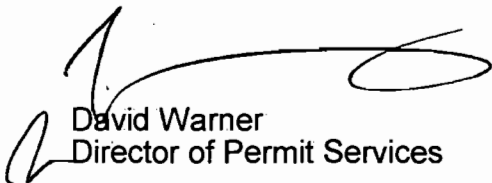
Dear Mr. Frost:

Enclosed for your review and comment is the District's analysis of Vintage Production California LLC's application for an Authority to Construct for 5 new 85 MMBtu/hr natural gas-fired steam generators, at the heavy oil production stationary source in the western Kern County fields.

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. Richard Edgehill of Permit Services at (661) 392-5617.

Sincerely,



David Warner
Director of Permit Services

DW: RUE/cm

Enclosures

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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

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

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



DEC 23 2011

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-1114449

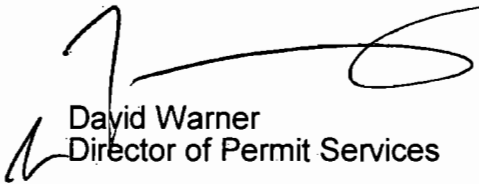
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DEC 23 2011

Gerardo C. Rios (AIR 3)
Chief, Permits Office
Air Division
U.S. E.P.A. - Region IX
75 Hawthorne Street
San Francisco, CA 94105

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: S-1114449

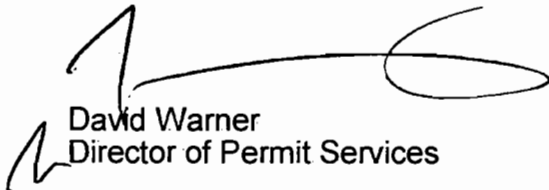
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Bakersfield Californian

**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 Vintage Production California LLC for 5 new 85 MMBtu/hr natural gas-fired steam generators, at the heavy oil production stationary source in the western Kern County fields.

The analysis of the regulatory basis for this proposed action, Project #S-1114449, is available for public inspection at 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, REGION'S ADDRESS.**

San Joaquin Valley Air Pollution Control District
Authorities to Construct
5 new 85 MMBtu/hr natural gas-fired steam generators

Facility Name: Vintage Production California, LLC Date: 12/15/11
Mailing Address: 9000 Ming Avenue, Suite 300 Engineer: Richard Edgehill
Bakersfield, CA 93311 Lead Engineer: Richard Karrs
Contact Person: Jerry Frost and Nick Diercks (Enviro Tech Consultants, Inc)
Telephone: 661 869-8000 (JF), 661 377-0073 x13 (ND)
Fax: 661 869-8059
E-Mail: Jerry_Frost@oxy.com and ndiercks@ix.netcom.com
Application #(s): S-1327-141-1 through '-145-1
Project #: S1114449
Deemed Complete: December 1, 2011

I. PROPOSAL

In project 1110750, Vintage Production California, LLC (VPC) recently received Authorities to Construct (ATCs) for the installation 5 new 85 MMBtu/hr steam generators equipped with North American model 4231-85-GLE Ultra Low NOx burners (or equivalent), flue gas recirculation (FGR) and oxygen controllers (ATCs S-1327-141-0 through '-145-0, project 1110750). To partially mitigate emissions for project 1110750, Rule 4320 NOx compliance ATCs S-1327-155-1 through '-158-1 were required to be implemented and tank and steam generator PTOs were required to be surrendered including those of 3 steam generators (S-1327-120, '-137, and 138). In this project applicant is proposing to reauthorize the 5 steam generators S-1327-141 through '-145 without cancelation of steam generators S-1327-120, '-137, and '-138. Additional ERCs will be withdrawn to offset the project emissions.

Disposition of Outstanding ATCs

ATCs S-1327-141-0 through '-145-0 and PTOs S-1327-107-0, '111-0, '-115-0 and '-116-0 are included in **Attachment I**.

The project requires BACT, offsets and is a Federal Major Modification. Therefore public notice is also required.

The facility does not have a Title V PTO and therefore is not subject to Rule 2520.

II. APPLICABLE RULES

District Rule 2201 New and Modified Stationary Source Review Rule (4/21/11)
District Rule 4001 New Source Performance Standards (4/14/99)
District Rule 4101 Visible Emissions (2/17/05)
District Rule 4102 Nuisance (12/17/92)
District Rule 4201 Particulate Matter Concentration (12/17/92)
District Rule 4301 Fuel Burning Equipment (12/17/92)

- District Rule 4304 Equipment Tuning Procedure for Boilers, Steam Generators and Process Heaters (10/19/95)
- District Rule 4305 Boilers, Steam Generators and Process Heaters – Phase 2 (8/21/03)
- District Rule 4306 Boilers, Steam Generators and Process Heaters – Phase 3 (10/16/08)
- District Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)
- District Rule 4351 Boilers, Steam Generators and Process Heaters – Phase 1 (8/21/03)--**not applicable** – facility is located west of Highway 5
- District 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 steam generators will be authorized at the following two locations within VPC's HOWSS:

PTO#	Location
S-1327-141 through '-145	SW1/4 of the SE1/4 of the NE1/4 of Section 11, T26S, R20E
	NW 1/4 of Section 2, T26S, R20E

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

A location map is included in **Attachment II**.

IV. PROCESS DESCRIPTION

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

Proposed Project

Five new steam generators equipped with ultra low NOx burners capable of achieving 7 ppmv NOx @ 3% O₂ and 25 ppmv @3% O₂ CO will also be installed. The new steam generators will utilize PUC-quality natural gas with a sulfur content no greater than 1.0 gr S/100scf.

V. EQUIPMENT LISTING

Pre-Project Equipment Description:

Permits to be Deleted

~~PTO S-1327-107-0: 1,500-BBL FIXED ROOF WASH TANK (WILLIAMSON LEASE)~~

~~PTO S-1327-111-0: 1,000 BBL FIXED ROOF CRUDE OIL STORAGE TANK (ENRON-UNITED LEASE)~~

~~PTO S-1327-115-0: 1,000 BBL FIXED ROOF CRUDE OIL STORAGE TANK WITH A PV RELIEF VALVE~~

~~PTO S-1327-116-0: NON-COMPLIANT DORMANT 25 MMBTU/HR NATURAL GAS/LPG FIRED STEAM GENERATOR, WITH MAXON KINEDIZER LOW NOX BURNER AND SMARTFIRE CONTROLLER~~

Post Project Equipment Description:

PTO S-1327-141-1 through '-145-1: 85 MMBTU/HR NATURAL/TEOR GAS-FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN MODEL 4231-85-GLE ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) AND OXYGEN CONTROLLER (OR EQUIVALENT)

As per District policy APR 1035 Flexibility in Equipment Descriptions in ATCs, some flexibility in the final specifications of the equipment is requested and will be allowed as stated in the following ATC conditions:

The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]

The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2010]

Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]

No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]

VI. EMISSION CONTROL TECHNOLOGY EVALUATION

Emissions from natural gas-fired steam generators include NO_x, CO, VOC, PM₁₀, and SO_x.

Low-NO_x burners reduce NO_x formation by producing lower flame temperatures (and longer flames) than conventional burners. Conventional burners thoroughly mix all the fuel and air in a single stage just prior to combustion, whereas low-NO_x burners delay the mixing of fuel and air by introducing the fuel (or sometimes the air) in multiple stages. Generally, in the first combustion stage, the air-fuel mixture is fuel rich. In a fuel rich environment, all the oxygen will be consumed in reactions with the fuel, leaving no excess oxygen available to react with

nitrogen to produce thermal NO_x . In the secondary and tertiary stages, the combustion zone is maintained in a fuel-lean environment. The excess air in these stages helps to reduce the flame temperature so that the reaction between the excess oxygen with nitrogen is minimized.

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

Manufacturer's information on the low NO_x burner were provided in project S4073, 1093857.

VII. GENERAL CALCULATIONS

A. Assumptions

- The maximum operating schedule is 24 hours per day (per applicant)
- New and existing steam generators are fired on natural, field, and TEOR (waste) gas.
- Maximum Heat Input: 85.0 MMBtu/hr (per applicant)
- Annual heat input for existing units S-1327-155 through '-158 is limited to 655,248 MMBtu each, equivalent to 88% utilization (throttle & use)
- Annual heat input for and new units S-1327-141 through '-145 is limited to 647,802 MMBtu each (public notice threshold), equivalent to 87% utilization (throttle & use)
- Daily heat input limited to 528 MMBtu for unit S-1327-116 (to be deleted)
- EPA F-factor for natural gas is 8,578 dscf/MMBtu (40 CFR 60, Appendix B)
- Molar Specific Volume of a gas @ 60 °F is 379.5 $\text{ft}^3/\text{lb-mol}$
- Natural Gas Heating Value: 1,000 Btu/scf (District Practice)
- VOC content of hydrocarbons in vapors from separators associated with tanks S-1327-107 and '-111 (to be deleted): 50% by wt (S-1339-4, project 1031414)

B. Emission Factors

Pre-Project Emission Factors (EF1)

Tanks S-1327-107 and '-111 (to be deleted)

Fugitive emission factors are taken from Table 2-4, Oil and Gas Production Operations Average Emission Factors, EPA Protocol for Equipment Leak Emission Estimates, November 1995 (EPA-453/R-95-017) – calculations for separators done for project S-1339-4, project 1031414

Tank Emissions are estimated using the District's "Tank Emissions - Fixed Roof Crude Oil less than 26 API" spreadsheet – **Attachment III**.

Tank S-1327-115 (to be deleted)

(Tank emissions calculations done for project S-4073, 1084278 **Attachment III**)

S-1327-116 (to be deleted)

Pollutant	Pre-Project Emission Factors (EF1)			Source
NO _x	36.0 lb-NO _x /MMscf	0.036 lb-NO _x /MMBtu	30 ppmvd NO _x (@ 3%O ₂)	Current PTO
SO _x		0.0164 lb SO ₂ /MMBtu*		Current Permit
PM ₁₀ **				
CO	81.3 lb-CO/MMscf	0.0813 lb-CO/MMBtu	110 ppmv CO @3% O ₂	Current Permit
VOC	5.5 lb-VOC/MMscf	0.0055 lb-VOC/MMBtu		Current Permit

* SO_x = 0.1(S), where S = sulfur content in gr/100 scf = 0.1 (15) = 1.5 lb/1000 gal => (1.5 lb/1000 gal ÷ 0.0915 MMBtu/gal) = 0.0164 lb/MMBtu where, maximum sulfur content of LPG is 15 gr/100 scf (CRC Handbook of Tables for Applied Engineering Science, 2nd Edition, page 390).

** 4 lb/day – listed in PTO S-4073-17-4 permit condition #6

S-1327-155-0 through '-158-0:

Pollutant	Pre-Project Emission Factors (EF1)			Source
NO _x	11.0 lb-NO _x /MMscf	0.011 lb-NO _x /MMBtu	9 ppmvd NO _x (@ 3%O ₂)	Current Permit
SO _x	2.85 SO ₂ /day	0.00285 lb SO ₂ /MMBtu		Current Permit
PM ₁₀	3.5 lb-PM ₁₀ /MMscf	0.0035 lb-PM ₁₀ /MMBtu		Current Permit
CO	18 lb-CO/MMscf	0.018 lb-CO/MMBtu	25 ppmv CO @3% O ₂	Current Permit
VOC	5.5 lb-VOC/MMscf	0.0055 lb-VOC/MMBtu	13 ppmv VOC @3% O ₂	Current Permit

Post-Project Emission Factors (EF2)

S-1327-141-1 through '-145-1 and S-1327-155-1 through '-158-1

Pollutant	Post-Project Emission Factors (EF2)			Source
NO _x	8.0 lb-NO _x /MMscf	0.008 lb-NO _x /MMBtu	7 ppmvd NO _x (@ 3%O ₂)	Rule 4320 limit
SO _x	2.85 lb-SO _x /MMscf	0.00285 lb SO ₂ /MMBtu		project S-4073, 1093857
PM ₁₀	3.5 lb-PM ₁₀ /MMscf	0.0035 lb- PM ₁₀ /MMBtu		'
CO	18 lb-CO/MMscf	0.018 lb-CO/MMBtu	25 ppmv CO @3% O ₂	'
VOC	5.5 lb-VOC/MMscf	0.0055 lb-VOC/MMBtu	13 ppmv VOC @3% O ₂	'

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Pre-project emissions for SSIPE calculation

Tank S-1327-107 (to be deleted)

Separator Vessel:

Equipment Type	Service	Components	Emission Factor (lb/hr) TOG	hr/day	VOC = 50%TOG	VOCs (lb/day)
Valve	Gas	34	9.92E-03	24	0.5	4.0
Flange	Gas	131	8.59E-04	24	0.5	1.4
Connectors	Gas	272	4.41E-04	24	0.5	1.4
Other	Gas	21	1.94E-02	24	0.5	4.9
Total						11.7

63,000 Gallon Wash Tank:

Tanks Emissions (See Appendix F)		
	Daily (lb/day)	Annual (lb/yr)
Standing Storage Loss	1.1	399
Working Loss	N/A	N/A
Flashing Loss	N/A	N/A

Total Emissions:

	Fugitive Components	Tank	PE2
Daily (lb/day)	11.7	1.1	12.8
Annual (lb/yr)	4,271	399	4,670

S-1327-111 (to be deleted)

Separator Vessel:

Equipment Type	Service	Components	Emission Factor (lb/hr) TOG	hr/day	VOC = 50%TOG	VOCs (lb/day)
Valve	Gas	34	9.92E-03	24	0.5	4.0
Flange	Gas	127	8.59E-04	24	0.5	1.3
Connectors	Gas	275	4.41E-04	24	0.5	1.5
Other	Gas	21	1.94E-02	24	0.5	4.8
Total						11.6

42,000 Gallon Wash Tank:

Tanks Emissions (See Appendix F)		
	Daily (lb/day)	Annual (lb/yr)
Standing Storage Loss	1.0	380
Working Loss	N/A	N/A
Flashing Loss	N/A	N/A

Total Emissions

	Fugitive Components	Tank	PE2
Daily (lb/day)	11.6	1.0	12.2
Annual (lb/yr)	4,234	380	4,614

S-1327-115 (to be deleted)

PE1 15.2 lb/day (5,556 lb/yr)

S-1327-116 (to be deleted)

Pollutant	Daily PE1		
	EF1 (lb/MMBtu)	Heat Input (MMBtu/day)	Daily PE1 (lb/day)
NO _x	0.036	528	19.0
SO _x	0.01640	528	8.7
PM ₁₀	see below	528	
CO	0.081	528	42.9
VOC	0.0055	528	2.9

Pollutant	Annual PE			
	EF1 (lb/MMBtu)	Heat Input (MMBtu/day)	Operating Schedule (day/year)	Annual PE1 (lb/year)
NO _x	0.036	528	365	6,938
SO _x	0.01640	528	365	3,161
PM ₁₀	see below			
CO	0.081	528	365	15,668
VOC	0.0055	528	365	1,060

4 lb/day, 1460 lb/yr

S-1327-155-0 through '-158-0

Pollutant	Daily Pre-Project Potential to Emit (PE1)			
	Emission Factors	Heat input	Hours per day	Daily PE1
NO _x	0.0110 (lb-NO _x /MMBtu)	x 85 (MMBtu/hr)	x 24 (hr/day)	= 22.4 (lb-NO _x /day)
SO _x	0.00285 (lb-SO _x /MMBtu)	x 85 (MMBtu/hr)	x 24 (hr/day)	= 5.8 (lb-SO _x /day)
PM ₁₀	0.0035 (lb-PM ₁₀ /MMBtu)	x 85 (MMBtu/hr)	x 24 (hr/day)	= 7.1 (lb-PM ₁₀ /day)
CO	0.0180 (lb-CO/MMBtu)	x 85 (MMBtu/hr)	x 24 (hr/day)	= 36.7 (lb-CO/day)
VOC	0.0055 (lb-VOC/MMBtu)	x 85 (MMBtu/hr)	x 24 (hr/day)	= 11.2 (lb-VOC/day)

Pollutant	Annual Pre-Project Potential to Emit (PE1)		
	Emission Factors	Annual Max Heat input	Annual PE1
NO _x	0.0110 (lb-NO _x /MMBtu)	x 655.2 (billion Btu/year)	= 7,208 (lb-NO _x /year)
SO _x	0.00285 (lb-SO _x /MMBtu)	x 655.2 (billion Btu/year)	= 1,867 (lb-SO _x /year)
PM ₁₀	0.0035 (lb-PM ₁₀ /MMBtu)	x 655.2 (billion Btu/year)	= 2,293 (lb-PM ₁₀ /year)
CO	0.0180 (lb-CO/MMBtu)	x 655.2 (billion Btu/year)	= 11,794 (lb-CO/year)
VOC	0.0055 (lb-VOC/MMBtu)	x 655.2 (billion Btu/year)	= 3,604 (lb-VOC/year)

Annual Emissions (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
S-1327-107					4,670
S-1327-111					4,614
S-1327-115					5,556
S-1327-116	6,938	3,161	1,460	15,668	1,060
S-1326-155 through '-158	4 x 7208 = 28,832	4 x 1867 = 7468	4 x 2293 = 9172	4 x 11,794 = 47,176	4 x 3604 = 14,416
Total	35,770	10,629	10,632	62,844	30,316

New steam generators S-1327-141-0 through '-145-0

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

2. Post Project Potential to Emit (PE2)

The potential to emit for each steam generator is calculated as follows, and summarized in the table below:

New steam generators S-1327-141-0 through '-145-0

Pollutant	Daily Post-Project Potential to Emit (PE2)			
	Emission Factors	Heat input	Hours per day	Daily PE2
NO _x	0.0080 (lb-NO _x /MMBtu)	x 85 (MMBtu/hr)	x 24 (hr/day)	= 16.3 (lb-NO _x /day)
SO _x	0.00285 (lb-SO _x /MMBtu)	x 85 (MMBtu/hr)	x 24 (hr/day)	= 5.8 (lb-SO _x /day)
PM ₁₀	0.0035 (lb-PM ₁₀ /MMBtu)	x 85 (MMBtu/hr)	x 24 (hr/day)	= 7.1 (lb-PM ₁₀ /day)
CO	0.0180 (lb-CO/MMBtu)	x 85 (MMBtu/hr)	x 24 (hr/day)	= 36.7 (lb-CO/day)
VOC	0.0055 (lb-VOC/MMBtu)	x 85 (MMBtu/hr)	x 24 (hr/day)	= 11.2 (lb-VOC/day)

Pollutant	Annual Post-Project Potential to Emit (PE2)		
	Emission Factors	Annual Max Heat input	Annual PE2
NO _x	0.0080 (lb-NO _x /MMBtu)	x 647.8 (billion Btu/year)	= 5,182 (lb-NO _x /year)
SO _x	0.00285 (lb-SO _x /MMBtu)	x 647.8 (billion Btu/year)	= 1,846 (lb-SO _x /year)
PM ₁₀	0.0035 (lb-PM ₁₀ /MMBtu)	x 647.8 (billion Btu/year)	= 2,267 (lb-PM ₁₀ /year)
CO	0.0180 (lb-CO/MMBtu)	x 647.8 (billion Btu/year)	= 11,660 (lb-CO/year)
VOC	0.0055 (lb-VOC/MMBtu)	x 647.8 (billion Btu/year)	= 3,563 (lb-VOC/year)

Post project emissions for SSIPE calculation

S-1327-155-1 through '-158-1

Pollutant	Daily Post-Project Potential to Emit (PE2)				
	Emission Factors	Heat input	Hours per day	Daily PE2	
NO _x	0.0080 (lb-NO _x /MMBtu)	x 85 (MMBtu/hr)	x 24 (hr/day)	=	16.3 (lb-NO _x /day)
SO _x	0.00285 (lb-SO _x /MMBtu)	x 85 (MMBtu/hr)	x 24 (hr/day)	=	5.8 (lb-SO _x /day)
PM ₁₀	0.0035 (lb-PM ₁₀ /MMBtu)	x 85 (MMBtu/hr)	x 24 (hr/day)	=	7.1 (lb-PM ₁₀ /day)
CO	0.0180 (lb-CO/MMBtu)	x 85 (MMBtu/hr)	x 24 (hr/day)	=	36.7 (lb-CO/day)
VOC	0.0055 (lb-VOC/MMBtu)	x 85 (MMBtu/hr)	x 24 (hr/day)	=	11.2 (lb-VOC/day)

Pollutant	Annual Post-Project Potential to Emit (PE2)		
	Emission Factors	Annual Max Heat input	Annual PE2
NO _x	0.0080 (lb-NO _x /MMBtu)	x 655.2 (billion Btu/year)	= 5,242 (lb-NO _x /year)
SO _x	0.00285 (lb-SO _x /MMBtu)	x 655.2 (billion Btu/year)	= 1,867 (lb-SO _x /year)
PM ₁₀	0.0035 (lb-PM ₁₀ /MMBtu)	x 655.2 (billion Btu/year)	= 2,293 (lb-PM ₁₀ /year)
CO	0.0180 (lb-CO/MMBtu)	x 655.2 (billion Btu/year)	= 11,794 (lb-CO/year)
VOC	0.0055 (lb-VOC/MMBtu)	x 655.2 (billion Btu/year)	= 3,604 (lb-VOC/year)

Annual Emissions (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
ATCs S-1327-155-1 through '-158-1	4 x 5242 = 20,968	4 x 1867 = 7468	4 x 2293 = 9172	4 x 11,794 = 47,176	4 x 3604 = 14,416
5 proposed SGs S-1372-141-0 through '-145-0	5 x 5182 = 25,910	5 x 1846 = 9230	2267 x 5 = 11,335	11,660 x 5 = 58,300	3,563 x 5 = 17,815
Total	46,880	16,698	20,507	105,476	32,231

Stationary Source Increase in Potential to Emit (SSIPE)

The SSIPE is equal to PE2 – PE1 for the proposed project.

SSIPE(lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Post Project PE	46,880	16,698	20,507	105,476	32,231
Pre-Project PE	35,770	10,629	10,632	62,844	30,316
Post – Pre-Project PEs	11,110	6,069	9,875	42,632	1,915

Greenhouse Gas Emissions (District Policy APR 2015)

CO2 53.06 kg/MMBtu (HHV) natural gas (116.7 lb/MMBtu)

The net increase in heat input rating is calculated in the table below:

Permit Unit	MMBtu/hr
'-116	-25
'-141 through '-145	5 x 85 x 0.87
Total	345

Hourly Emissions

CO2 Emissions = 345 MMBtu/hr x 116.7 lb/MMBtu = 40,262 lb-CO2e/hour

40,262 lb-CO2e/hour x 8760 hr/year ÷ 2,000 lb/ton = 176,348 tons-CO2e/year

176,348 short tons-CO2e/year x 0.9072 metric tons/short ton = **159,983 metric tons**

Emissions profiles are included in **Attachment IV**.

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

Pursuant to Section 4.9 of District Rule 2201, the Pre-Project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site. The facility has no ERC s for onsite reductions.

Pre-Project Stationary Source Potential to Emit [SSPE1] (lb/year)					
PTOs except where indicated	NO _x	SO _x	PM ₁₀	CO	VOC
Tanks and TEOR operations					>20,000
S-1327-32	3469	899	2387	11,668	-
S-1327-34	3657	574	1531	6678	-
S-1327-35	4380	1560	5475	38,325	-
ATC S-1327-71-0	6329	2122	5619	14,147	-
ATC S-1327-72-0	6329	2122	5659	14,147	-
S-1327-83 (flare)	9898	438	1169	53,911	-
S-1327-116	6,938	3,161	1,460	15,668	-
S-1327-120	3,627	3,304	1,531	7,253	-
S-1327-130 through '136	5242 x 7 = 36,694	1867 x 7 = 13,069	2293 x 7 = 16,051	11794 x 7 = 82,558	-
S-1327-137	3,942	3,592	1,664	7,864	-
S-1327-138	3,942	3,592	1,664	7,864	-
ATCs S-1326-155-0 through '158-0	4 x 7208 = 28,832	4 x 1867 = 7468	4 x 2293 = 9172	4 x 11,794 = 47,176	-
Pre-Project SSPE (SSPE1)	>20,000	41,901	53,382	307,259	>20,000

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

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

Post-Project Stationary Source Potential to Emit [SSPE2] (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE1	>20,000	41,903	53,382	307,261	>20,000
SSIPE	11,110	6,069	9,875	42,632	1,915
SSPE2	>20,000	47,972	63,257	349,893	>20,000

5. Major Source Determination

Pursuant to Section 3.24 of District Rule 2201, a Major Source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values. However, Section 3.24.2 states, "for the purposes of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site."

Major Source Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Pre-Project SSPE (SSPE1)	>20,000	41,903	53,382	307,261	>20,000
Post Project SSPE (SSPE2)	>20,000	47,972	63,257	349,893	>20,000
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	Yes	No	No	Yes	Yes

This source is an existing Major Source for NO_x CO, and VOC emissions and will remain a Major Source for these air contaminants.

6. Baseline Emissions (BE)

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

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

otherwise,

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

As shown in Section VII.C.5 above, the facility is not a Major Source for SO_x, and PM₁₀. Therefore Baseline Emissions (BE) are equal to the Pre-Project Potential to Emit (PE1) for these air contaminants.

Clean Emissions Units, located at a Major Source

Pursuant to Rule 2201, Section 3.12, a Clean Emissions Unit is defined as an emissions unit that is "equipped with an emissions control technology with a minimum control efficiency of at least 95% or is equipped with emission control technology that meets the requirements for achieved-in-practice BACT as accepted by the APCO during the five years immediately prior to the submission of the complete application.

Steam generator S-1327-116 meets only the achieved-in-practice requirement for VOC of Current District BACT Guideline 1.2.1 (see **Attachment V**) but not the emissions limit requirement for NO_x or CO.

Tanks S-1327-107, '-111, and '-115 (to be surrendered)

Tanks '-107, '-111, and '-115 are equipped with pressure vacuum relief valves and therefore meet the requirement of current BACT Guideline 7.3.1, Petroleum and Petrochemical Production – Fixed Roof Organic Liquid Storage or Processing Tank, < 5,000 bbl tank capacity (see **Attachment V**).

Fully Offset Emissions Units, located at a Major Source

Offsets have previously been provided ATCs S-1327-155-0 through 158-0. Therefore, pursuant to District Rule 2201, Section 3.19, these permitted units are considered as a Fully Offset Emissions Units.

Therefore Baseline Emissions (BE) for NO_x, CO, and VOC are equal to the Pre-Project Potential to Emit (PE1) for S-1327-155 through '-158. Baseline emissions for unit S-1327-116 are PE1 for VOC and historical actual emissions (HAE) for NO_x and CO. However, unit '-116 is a dormant emissions unit and therefore HAE is assumed to be equal to zero for NO_x and CO.

BE (lb/year)					
Units	NO _x	SO _x	PM ₁₀	CO	VOC
S-1327-107	0	0	0	0	4670
'111	0	0	0	0	4614
'115	0	0	0	0	5556
'-116	0	3161	1460	0	1060
'-155 through '-158	28,832	7468	9172	47,176	28,832

S-1327-141 through '-145

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

7. SB 288 Major Modification

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

As discussed in Section VII.C.5 above, the facility is not a Major Source for SO_x and PM₁₀ emissions; therefore, the project does not constitute a SB 288 Major Modification for SO_x and PM₁₀.

As discussed in Section VII.C.5 above, the facility is an existing Major Source for NO_x, and VOC; however, the project by itself would need to be a significant increase in order to trigger a Major Modification. The emissions units within this project have a total potential to emit for NO_x and VOC which is less than SB 288 Major Modification thresholds (see table below). Therefore, the project is not a SB 288 Major Modification.

SB 288 Major Modification Thresholds (Existing Major Source)			
Pollutant	Project PE (lb/year)	Threshold (lb/year)	Major Modification?
NO _x	25,910	50,000	No
SO _x	Not applicable	80,000	No
PM ₁₀	Not applicable	30,000	No
VOC	17,815	50,000	No

8. Federal Major Modification

SOx and PM10

As discussed in Section VII.C.5 above, the facility is not a Major Source for SOx and PM10 emissions; therefore, the project does not constitute a Federal Major Modification for SOx and PM10.

NOx and VOCs

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.

Pollutant	Threshold (lb/year)
VOC	0
NOx	0
PM10	30,000
SOx	80,000

The Net Emissions Increases (NEIs) 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.

Net Emission Increase for New Unit (NEI)

Per 40 CFR 51.165 (a)(2)(ii)(D) for new emissions unit in this project,

$$NEI = PE2 - BAE$$

BAE = 0 for the new emissions unit; therefore,

$$NEI = PE2$$

Units S-1327-141 through 145 are new units, and baseline actual emissions are equal to zero, and therefore, pursuant to 40 CFR 51.165 (a)(2)(ii)(D), the Net Emissions Increases for NOx and VOCs are equal to the post-project potential to emit which exceeds the significance thresholds for NOx and VOC, 0 lb/yr, listed in the above table. Therefore the project is a Federal Major Modification.

9. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. The QNEC for the new emissions unit was calculated for each pollutant by dividing annual emissions by 4 quarters/year.

S-1327-141 through '-145

Pollutant	QNEC			
	For each steam generator			
	Annual emissions (lb/year)	divided by	4 quarters/yr =	Quarterly emissions (lb/qtr)
NO _x	5,182	/	4 qtr/year	1296
SO _x	1,846	/	4	462
PM ₁₀	2,267	/	4	567
CO	11,660	/	4	2915
VOC	3,563	/	4	891

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless exempted pursuant to Section 4.2, BACT shall be required for the following actions:*

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB288 Major Modification or a Federal Major Modification, as defined by the rule.

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

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

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

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

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

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

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

d. SB 288/Federal Major Modification

As discussed in Section VII.C.7 above, this project is a Federal Major Modification for NO_x and VOCs; therefore BACT is triggered for these air contaminants for SB 288/Federal Major Modification purposes.

2. BACT Guideline

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

3. Top-Down BACT Analysis

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

Pursuant to the attached Top-Down BACT Analysis (see **Attachment VI**), BACT has been satisfied with the following:

NO_x: 7 ppmvd @ 3% O₂

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

PM₁₀: Natural gas, LPG and waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a

continuously operating SO₂ scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO₂ at stack O₂.

CO: 25 ppmvd @ 3% O₂

VOC: Gaseous fuel

B. Offsets

1. Offset Applicability

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

Offset Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Post Project SSPE (SSPE2)	>20,000	47,972	63,257	349,893	>20,000
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets calculations required?	Yes	No	Yes	Yes	Yes

2. Quantity of Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for NO_x, PM₁₀, CO, and VOC emissions; therefore offset calculations will be required for this project.

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

Offsets Required (lb/year) = (Σ[PE2 – BE] + ICCE) x DOR, for all new or modified emissions units in the project,

Where,

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

BE = Baseline Emissions, (lb/year)

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

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = Pre-project Potential to Emit for:

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

otherwise,

BE = Historic Actual Emissions (HAE)

The facility is proposing to install five new emissions units; therefore Baseline Emissions are equal to zero. There are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

NOx Offset Calculations:

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

NOx:

Unit	PE2 – BE (lb/yr)
'-116	- 0
'-155 through '-159	20,968 - 28,831 = -7863
'-141 through '-145	5182 x 5 = + 25,910
Total	18,047

The project is a Federal Major Modification for NOx. Therefore the NOx ERCs are required at a DOR = 1.5 (1.5 x 18,047 = 27,071 lb/yr, 6768 lb/qtr)

<u>Pollutant</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
NOx	6768	6,768	6,768	6,768

Each ATC will list $6768/5 = 1354$ lb NOx/qtr as the offset requirement.

The applicant has stated that the facility plans to use ERC certificates S-3585-2, S-3586-2, and S-3588-2 to offset the increases in NOx emissions associated with this project. The ERC certificates have available quarterly NOx credits as follows:

Certificate	1 st QTR	2 nd QTR	3 rd QTR	4 th QTR
ERC #S-3585-2	0	9294	4654	9859
ERC #S-3586-2	0	1512	6228	0
ERC #S-3588-2	1847	0	0	0

Reserved in PAS (bold type)*

Certificate	1 st QTR	2 nd QTR	3 rd QTR	4 th QTR
ERC #S-3585-2	4038 from Qtr #2 + 883 from Qtr #3 = 4921	9294 - 4038 to Qtr #1 = 5256 left	4654	6768
ERC #S-3586-2	0	1512	2114 + 883 to 1 st Qtr = 2997	0
ERC #S-3588-2	1847	0	0	0
Total	4038+883+1847=6768	5256+1512 = 6768	4654+2114=6768	6768

*Rule 2201 Section 4.13.8: AER for NOx and VOC that occurred from April through November may be used to offset increases in NOx and VOC during any period of the year.

PM10:

Unit	PE2 – BE (lb/yr)
'-116	- 1460
'-141 through '-145	2267 x 5 = + 11,335
Total	9,875

The applicant has stated that the facility plans to use ERC certificates N-949-5 and S-3593-5 to offset the increases in PM10 emissions associated with this project. PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10 (**District Policy APR 14XX**).

ERC S-3593-5 is applied at DOR = 1.5:1 as the site of the reductions is S-1637 (Frito Lay Stockdale Avenue) greater than 15 miles from S-1327. ERC N-949-5 is applied at DOR = 1.5:1 as the site of the reductions is greater than 15 miles from S-1327.

Therefore the offset requirement is $1.5 \times 9875 = 14,813$ lb/yr or 3703 lb/qtr

Each ATC will list $3703/5 = 741$ lb PM10/qtr as the offset requirement.

The ERC certificates N-949-5 and S-3593-5 have available quarterly SOx credits as follows:

Certificate	1 st QTR	2 nd QTR	3 rd QTR	4 th QTR
ERC #N-949-5	4000	4000	4000	4000
ERC #S-3593-5	494	494	492	492

Reserved in PAS (bold type)

Certificate	1 st QTR	2 nd QTR	3 rd QTR	4 th QTR
ERC #N-949-5	3703	3703	3703	3703

VOC:

Unit	PE2 – BE (lb/yr)
'-107	- 4,670
'-111	- 4,614
'-115	- 5,556
'-116	- 1060
'-141 through '-145	3563 x 5 = + 17,815
Total	1,915

The applicant has stated that the facility plans to use ERC certificate S-3579-1 to offset the increases in VOC emissions associated with this project. At an offset ratio of 1.5:1 the offset requirement is $1.5 \times 1915 = 2873$ lb/yr, or 718 lb/qtr. Each ATC will list $718/5 = 144$ lb VOC/qtr as the offset requirement.

Certificate	1 st QTR	2 nd QTR	3 rd QTR	4 th QTR
ERC #S-3579-1	1190	4465	5981	1360

Reserved in PAS (bold type)

Certificate	1 st QTR	2 nd QTR	3 rd QTR	4 th QTR
ERC # S-3579-1	718	718	718	718

The following offset conditions are included on the ATCs:

Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1354 lb/quarter; PM10: 741 lb/quarter, and VOC: 144 lb/qtr. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 9/21/06). PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10. [District Rule 2201]

ERC Certificate Numbers S-3585-2, S-3586-2, and S-3588-2 (NOx), S-3579-1 (VOC), and N-949-5 (PM10) (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

CO:

Unit	PE2 – BE (lb/yr)
'-116	- 0
'-141 through '-145	58,300
Total	58,300

Notwithstanding the above, Section 4.6.1 of Rule 2201 states that emissions offsets are not required for increases in carbon monoxide in attainment areas provided the applicant demonstrates to the satisfaction of the APCO that the Ambient Air Quality Standards are not violated in the areas to be affected, and such emissions will be consistent with Reasonable Further Progress, and will not cause or contribute to a violation of Ambient Air Quality Standards. The District performed an Ambient Air Quality Analysis (discussed later) and determined that this project will not result in or contribute to a violation of an Ambient Air Quality Standard for CO (see **Attachment VII**). Therefore, CO 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 SB288 Major Modifications

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

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

b. PE > 100 lb/day

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

c. Offset Threshold

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	>20,000	>20,000	20,000 lb/year	No
SO _x	41,903	47,972	54,750 lb/year	No
PM ₁₀	53,382	63,257	29,200 lb/year	No
CO	307,261	349,893	200,000 lb/year	No
VOC	>20,000	>20,000	20,000 lb/year	No

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

d. SSIPE > 20,000 lb/year

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

Stationary Source Increase in Permitted Emissions [SSIFE] – Public Notice					
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	SSIFE (lb/year)	SSIFE Public Notice Threshold	Public Notice Required?
NO _x	>20,000	>20,000	11,110	20,000 lb/year	No
SO _x	41,903	47,972	6,069	20,000 lb/year	No
PM ₁₀	53,382	63,257	9,875	20,000 lb/year	No
CO	307,261	349,893	42,632	20,000 lb/year	Yes
VOC	>20,000	>20,000	1,915	20,000 lb/year	No

As demonstrated above, the SSIFE for CO exceeds 20,000 lb/year; therefore public noticing for SSIFE purposes is required.

2. Public Notice Action

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

D. Daily Emission Limits (DELs)

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

The DELs for the unit is based on the use of natural gas as a fuel, the rate heat input of the steam generator, and the emission factors as shown:

Proposed Rule 2201 (DEL) Conditions:

S-1327-141 through '-146

The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, gas from thermally enhanced oil recovery (TEOR) operation, gas from tank vapor recovery system or a fuel mixture of any of these fuels. [District Rule 2201] N

Sulfur content in the gaseous fuel shall not exceed 1.0 grain per 100 dry standard cubic feet. [District Rule 2201] N

Heat input to this unit shall not exceed 647,802 MMBtu in any one calendar year. [District Rule 2201] N

Emission rates shall not exceed: PM10: 0.0035 lb/MMBtu, SO_x (as SO₂): 0.00285 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NO_x (as NO₂): 7 ppmvd NO_x @ 3% O₂, or CO: 25 ppmv @ 3% O₂. [District Rules 2201, 4305 and 4306] N

E. Compliance Assurance

1. Source Testing

NOx and CO

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

2. Monitoring

Sulfur Monitoring for Rule 4320 Compliance

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

When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rules 1070, 4305, 4306, and 4320] N

Sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD, double GC for H₂S and mercaptans, performed in the laboratory. Should the applicant decide to use different methodology, the methodology must be approved by the District prior to its use. [District Rules 1070, 4305, 4306, and 4320] N

If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 1070, 4305, 4306, and 4320] N

NOx and CO

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

3. Recordkeeping

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

Rules 4305, 4306, and 4320 will be discussed in Section VIII, *District Rules 4305, 4306, and 4320* of this evaluation.

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

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

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis

Section 4.14 of this Rule requires that an ambient air quality analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. Technical Services Division performed modeling for criteria pollutants CO, NO_x, SO_x and PM₁₀ for project 1110750. The results for project 1110750 are also valid for this project and are as follows:

Criteria Pollutant Modeling Results

The results from the Criteria Pollutant Modeling are as follows:

Values are in µg/m³

Pollutant	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass	X	Pass	X	X
NO _x	Pass	X	X	X	Pass
SO _x	Pass	Pass	X	Pass ¹	Pass
PM ₁₀	X	X	X	Pass ¹	Pass ¹

¹The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO_x, CO, PM₁₀, or SO_x. Refer to **Attachment VII** of this document for the full AAQA report from Technical Services.

G. Compliance Certification

The compliance certification is required for any project, which constitutes a New Major Source or a Federal Major Modification.

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Federal Major Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Sections VIII-Rule 2201-C.1.a and VIII-Rule 2201-C.1.b, this project does constitute a Federal, therefore this requirement is applicable. Included in **Attachment VIII** is the Compliance Certification Statement.

H. Alternate Siting Analysis

The current project occurs at an existing facility. The applicant proposes to install 5 new steam generators. Since the new steam generators will be used at the same location, the existing site will result in the least possible impact from the project. Alternative sites would involve the relocation and/or construction of various support structures on a much greater scale, and would therefore result in a much greater impact.

Rule 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, which, per Section 4.6 of Rule 2520, exempts it from the requirements of Rule 2520.

Rule 4001 New Source Performance Standards

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).

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

Rule 4101 Visible Emissions

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

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

Rule 4102 Nuisance

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

California Health & Safety Code 41700 – Health Risk Analysis

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

An HRA is not required for a project with a total facility prioritization score of less than or equal to one. According to the Technical Services Memo for this project (**Attachment VII**), the total facility prioritization score including this project was less than or equal to one. Therefore, no future analysis is required to determine the impact from this project and compliance with the District's Risk Management Policy is expected.

Therefore, 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 NG: 8,578 dscf/MMBtu at 60 °F

PM₁₀ Emission Factor: 0.0076 lb-PM₁₀/MMBtu

Percentage of PM as PM₁₀ in Exhaust: 100%

Exhaust Oxygen (O₂) Concentration: 3%

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

$$GL = \left(\frac{0.0035 \text{ lb-PM}}{\text{MMBtu}} \times \frac{7,000 \text{ grain}}{\text{lb-PM}} \right) / \left(\frac{8,578 \text{ ft}^3}{\text{MMBtu}} \times 1.17 \right)$$

$$GL = 0.0024 \text{ grain/dscf} < 0.1 \text{ grain/dscf}$$

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

Rule 4301 Fuel Burning Equipment

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

Section 5.0 gives the requirements of the rule.

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

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

- 200 pound per hour of sulfur compounds, calculated as sulfur dioxide (SO₂)
- 140 pounds per hour of nitrogen oxides, calculated as nitrogen dioxide (NO₂)

- Ten pounds per hour of combustion contaminants as defined in Rule 1020 and derived from the fuel.

District Rule 4301 Limits			
Unit	NO₂	Total PM	SO₂
S-1327-141 through '145	0.87 x 85 x 0.008 = 0.59	0.87 x 85 x 0.0035 = 0.26	0.87 x 85 x 0.00285 = 0.21
Rule Limit (lb/hr)	140	10	200

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

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

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

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

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

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

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

The units are natural gas-fired with a maximum heat input of 85 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4306, the unit is subject to District Rule 4306, *Boilers, Steam Generators and Process Heaters – Phase 3*.

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

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

Section 5.0 Requirements

Section 5.1 of the rule requires compliance with the NO_x and CO emissions limits listed in Table 1 of Section 5.2 or payment of an annual emissions fee to the District as specified in

Section 5.3 and compliance with the control requirements specified in Section 5.4; or as stated in Section 5.1.3, comply with the applicable Low-use Unit requirements of Section 5.5.

Section 5.2 NO_x and CO Emission Limits

C. Oilfield Steam Generators

VII. Rule 4320 Emissions Limits				
Category	Operated on gaseous fuel		Operated on liquid fuel	
	NO_x Limit	CO Limit	NO_x Limit	CO Limit
1. Units with a total rated heat input >20.0 MMBtu/hr	Standard Schedule 7 ppmv or 0.008 lb/MMBtu; or			
	Staged Enhanced Schedule Initial limit: 9 ppmv @ 3% O ₂ , 0.011 lb/MMBtu	400 ppmv @ 3% O ₂	40 ppmv or 0.052 lb/MMBtu	400 ppmv @ 3% O ₂
	Final limit: 5 ppmv @ 3% O ₂ , 0.0062 lb/MMBtu			

- the proposed NO_x emission factor is 7 ppmvd @ 3% O₂ (0.0108 lb/MMBtu), and
- the proposed CO emission factor for new and existing steam generators is 25 ppmvd @ 3% O₂ (0.018 lb/MMBtu).

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

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

Section 5.3 Annual Fee Calculation

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

Section 5.4 Particulate Matter Control Requirements

Section 5.4 of the rule requires one of four options for control of particulate matter: 1) combustion of PUC-quality natural gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases, 2) limit fuel sulfur content to no more than five (5) grains

of total sulfur per one hundred (100) standard cubic, 3) install and properly operate an emission control system that reduces SO₂ emissions by at least 95% by weight; or limit exhaust SO₂ to less than or equal to 9 ppmv corrected to 3.0% O₂ or 4) refinery units, which require modification of refinery equipment to reduce sulfur emissions, shall be in compliance with the applicable requirement in Section 5.4.1 no later than July 1, 2013.

Units S-1327-141 through -145 have a sulfur emission limit of 0.00285 lb SO₂/MMBtu (1.0 gr S/100scf). Therefore all of the units are in compliance with the SO_x/PM₁₀ requirements of Section 5.4.1.2 of the rule which states the following:

5.4.1.2 On and after the applicable NO_x Compliance Deadline specified in Section 5.2 Table 1, operators shall limit fuel sulfur content to no more than five (5) grains of total sulfur per one hundred (100) standard cubic feet

Section 5.5 Low Use

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

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

Section 5.6, Startup and Shutdown Provisions

Applicable emissions limits are not required during startup and shutdown provided the duration of each start-up or each shutdown shall not exceed two hours, the emission control system shall be in operation and emissions shall be minimized insofar as technologically feasible during start-up or shutdown or operator has submitted an application for a Permit to Operate condition to allow more than two hours for each start-up or each shutdown provided the operator meets all of the conditions specified in Sections 5.6.3.1 through 5.6.3.3. VPC has not requested that startup and shutdown provisions be added to the ATCs. Therefore this section is not applicable.

Section 5.7, Monitoring Provisions

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

- 5.7.1.1 Periodic NO_x and CO exhaust emission concentrations,
- 5.7.1.2 Periodic exhaust oxygen concentration,
- 5.7.1.3 Flow rate of reducing agent added to exhaust,

- 5.7.1.4 Catalyst inlet and exhaust temperature,
- 5.7.1.5 Catalyst inlet and exhaust oxygen concentration,
- 5.7.1.6 Periodic flue gas recirculation rate, or
- 5.7.1.7 Other operational characteristics.

In order to satisfy the requirements of District Rule 4320, the applicant has proposed to use pre-approved alternate monitoring scheme A (pursuant to District Policy SSP-1105), which requires that monitoring of NO_x, CO, and O₂ exhaust concentrations shall be conducted at least once per month (in which a source test is not performed) using a portable analyzer. The following conditions will be incorporated into the permit in order to ensure compliance with the requirements of the proposed alternate monitoring plan:

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

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

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

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

5.7.6 Monitoring SO_x Emissions

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

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

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

Sulfur Monitoring

The following conditions will be included on the ATCs:

When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 1070, 2201, 4305, 4306, and 4320] N

Sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD, double GC for H₂S and mercaptans, performed in the laboratory. Should the applicant decide to use different methodology, the methodology must be approved by the District prior to its use. [District Rule 1070, 2201, 4305, 4306, and 4320] N

Section 5.8, Compliance Determination

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

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

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

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

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

Section 5.8.4 For emissions monitoring pursuant to Sections 5.7.1, and 6.3.1 using a portable NO_x analyzer as part of an APCO approved Alternate Emissions Monitoring

System, emission readings shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15-consecutive-minute sample reading or by taking at least five readings evenly spaced out over the 15-consecutive-minute period.

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

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

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

Section 6.1 Recordkeeping

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

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

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

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

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

Section 6.1.3 The operator of any unit subject to Section 5.5.1 or Section 6.3.1 shall maintain records to verify that the required tune-up and the required monitoring of the operational characteristics of the unit have been performed. The units are not low use and therefore this section is not applicable.

Section 6.1.4 The operator performing start-up or shutdown of a unit shall keep records of the duration of start-up or shutdown. Startup and shutdown provisions are not included on the ATCs. Therefore this section is not applicable.

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

Section 6.2, Test Methods

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

Pollutant	Units	Test Method Required
NO _x	ppmv	EPA Method 7E or ARB Method 100
NO _x	lb/MMBtu	EPA Method 19
CO	ppmv	EPA Method 10 or ARB Method 100
Stack Gas O ₂	%	EPA Method 3 or 3A, or ARB Method 100
Stack Gas Velocities	ft/min	EPA Method 2
Stack Gas Moisture Content	%	EPA Method 4
Oxides of sulfur		EPA Method 6C, EPA Method 8, or ARB Method 100
Total Sulfur as Hydrogen Sulfide (H ₂ S) Content		EPA Method 11 or EPA Method 15, as appropriate.
Sulfur Content of Liquid Fuel		ASTM D 6920-03 or ASTM D 5453-99
PM10		EPA Method 201 or 201A, and 202; or CARB Method 5 in combination with 501

The following test method conditions are included on the ATCs:

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

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

{2979} Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306, and 4320]

Section 6.2.8.2. The SO_x emission control system efficiency shall be determined using the following:

$$\% \text{ Control Efficiency} = [(C_{\text{SO}_2, \text{inlet}} - C_{\text{SO}_2, \text{outlet}}) / C_{\text{SO}_2, \text{inlet}}] \times 100$$

where:

$C_{\text{SO}_2, \text{inlet}}$ = concentration of SOx (expressed as SO₂) at the inlet side of the SOx emission control system, in lb/dscf

$C_{\text{SO}_2, \text{outlet}}$ = concentration of SOx (expressed as SO₂) at the outlet side of the SOx emission control system, in lb/dscf

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

Section 6.3 Compliance Testing

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

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

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

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

The following conditions are included on the ATC:

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

{3467} Source testing to measure NOx and CO emissions from this unit while fired on natural gas shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]

{3466} Source testing to measure NOx and CO emissions from this unit while fired on natural gas shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the

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

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

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

Section 6.4, Emission Control Plan (ECP)

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

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

Section 7.0, Compliance Schedule

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

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

Conclusion

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

Rule 4801 Sulfur Compounds

A person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: 0.2 % by volume calculated as SO₂, 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 SO₂

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

P (Standard Pressure) = 14.7 psi

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

$$\frac{0.00285 \text{ lb} - \text{SO}_x}{\text{MMBtu}} \times \frac{\text{MMBtu}}{8,578 \text{ dscf}} \times \frac{1 \text{ lb} \cdot \text{mol}}{64 \text{ lb}} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot ^\circ\text{R}} \times \frac{520^\circ\text{R}}{14.7 \text{ psi}} \times \frac{1,000,000 \cdot \text{parts}}{\text{million}} = 2.0 \frac{\text{parts}}{\text{million}}$$

$$\text{Sulfur Concentration} = 2.0 \frac{\text{parts}}{\text{million}} < 2,000 \text{ ppmv (or 0.2\%)} < 2,000 \text{ ppmv (or 0.2\%)}$$

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

California Environmental Quality Act (CEQA)

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

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

Greenhouse Gas (GHG) Significance Determination

It is determined that no other agency has or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project. Project specific impacts on global climate change were evaluated consistent with the adopted District policy – *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. The District's engineering evaluation (this document – **Attachment IX**) demonstrates that the project includes Best Performance Standards (BPS) for each class and category of greenhouse gas emissions unit. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

District CEQA Findings

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will

occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15031 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

VIII. RECOMMENDATION

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue Authorities to Construct S-1327-141-1 through '-145-1 subject to the permit conditions on the attached draft Authorities to Construct in **Attachment X**.

IX. BILLING INFORMATION

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-1327-141 through '-145	3020-02-H	85 MMBtu/hr	\$1030.00

Attachments

- I: ATCs S- S-1327-141-0 through '-145-0 and PTOs S-1327-107-0, '111-0, '-115-0 and '-116-0
- II: Location Map
- III: Tank Emissions
- IV: Emissions Profiles
- V: BACT Guidelines 1.2.1 and 7.3.1
- VI: BACT Analysis
- VII: HRA and AAQA Analysis
- VIII: Statewide Compliance Statement
- IX: Best Performance Standard
- X: Draft ATCs

ATTACHMENT I
ATCs S-1327-141-0 through '-145-0 and PTOs S-1327-107-0, '-111-0, '-115-0 and '-116-0

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1327-107-0

EXPIRATION DATE: 02/28/2014

SECTION: SE02 TOWNSHIP: 26S RANGE: 20E

EQUIPMENT DESCRIPTION:

1,500 BBL FIXED ROOF WASH TANK (WILLIAMSON LEASE)

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.5 psia under all storage conditions. [District Rule 4623]
3. Permittee shall conduct true vapor pressure (TVP) testing of the organic liquid stored in this tank at least once every 24 months during summer (July - September), and/or whenever there is a change in the source or type of organic liquid stored in this tank in order to maintain exemption from the rule. [District Rule 4623]
4. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D 287 e1 "Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method). Sampling for API gravity shall be performed in accordance with ASTM Method D 4057 "Standard Practices for Manual Sampling of Petroleum and Petroleum Products." [District Rule 4623]
5. For crude oil with an API gravity of 26 degrees or less, the TVP shall be determined using the latest version of the Lawrence Berkeley National Laboratory "test Method for Vapor pressure of Reactive Organic Compounds in Heavy Crude Oil Using Gas Chromatograph", as approved by ARB and EPA. [District Rule 4623]
6. The TVP testing shall be conducted at actual storage temperature of the organic liquid in the tank. The permittee shall also conduct an API gravity testing. [District Rule 4623]
7. VOC fugitive emissions from components in gas service shall not exceed 11.7 lb/day. Fugitive component count and leak emissions are to be calculated using "Oil and Gas Production Operations Average Emission Factors, EPA Protocol for Equipment Leak Emission Factors, November 1995 (EPA-453/R-95-017). [District Rule 2201]
8. Maximum VOC content of total organic gases (TOG) shall not exceed 50% by weight. [District Rule 2201]
9. Permittee shall maintain with the permit accurate fugitive component counts for the tank and associated equipment. [District Rule 2201]
10. Permittee shall submit the records of TVP and API gravity testing to the APCO within 45 days after the date of testing. The records shall include the tank identification number, Permit to Operate number, type of stored organic liquid, TVP and API gravity of the organic liquid, test methods used, and a copy of the test results. [District Rule 4623]
11. The permittee shall keep accurate records of each organic liquid stored in the tank, including its storage temperature, TVP, and API gravity. [District Rule 4623]
12. All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rule 4623]

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1327-111-0

EXPIRATION DATE: 02/28/2014

SECTION: SW02 TOWNSHIP: 26S RANGE: 20E

EQUIPMENT DESCRIPTION:

1,000 BBL FIXED ROOF CRUDE OIL STORAGE TANK (ENRON-UNITED LEASE)

PERMIT UNIT REQUIREMENTS

1. The tank shall be equipped with a fixed roof with no holes or openings. [District Rule 2201]
2. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. Tank shall operate at constant level. [District Rule 2201]
4. Throughput shall not exceed 2500 barrels per day. [District Rule 2201]
5. VOC fugitive emissions from components in gas service shall not exceed 11.6 lb/day. Fugitive component count and leak emissions are to be calculated using "Oil and Gas Production Operations Average Emission Factors, EPA Protocol for Equipment Leak Emission Factors, November 1995 (EPA-453/R-95-017). [District Rule 2201]
6. Maximum VOC content of total organic gases (TOG) shall not exceed 50% by weight. [District Rule 2201]
7. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 0.5 psia under all storage conditions. [District Rule 4623]
8. Permittee shall conduct true vapor pressure (TVP) testing of the organic liquid stored in this tank at least once every 24 months during summer (July - September), and/or whenever there is a change in the source or type of organic liquid stored in this tank in order to maintain exemption from the rule. [District Rule 4623]
9. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D 287 e1 "Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method). Sampling for API gravity shall be performed in accordance with ASTM Method D 4057 "Standard Practices for Manual Sampling of Petroleum and Petroleum Products." [District Rule 4623]
10. For crude oil with an API gravity of 26 degrees or less, the TVP shall be determined using the latest version of the Lawrence Berkeley National Laboratory "test Method for Vapor pressure of Reactive Organic Compounds in Heavy Crude Oil Using Gas Chromatograph", as approved by ARB and EPA. [District Rule 4623]
11. The TVP testing shall be conducted at actual storage temperature of the organic liquid in the tank. The permittee shall also conduct an API gravity testing. [District Rule 4623]
12. Permittee shall maintain with the permit accurate fugitive component counts for the tank and associated equipment. [District Rule 2201]
13. Permittee shall submit the records of TVP and API gravity testing to the APCO within 45 days after the date of testing. The records shall include the tank identification number, Permit to Operate number, type of stored organic liquid, TVP and API gravity of the organic liquid, test methods used, and a copy of the test results. [District Rule 4623]
14. The permittee shall keep accurate records of each organic liquid stored in the tank, including its storage temperature, TVP, and API gravity. [District Rule 4623]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

15. All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rule 4623]

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1327-115-0

EXPIRATION DATE: 02/28/2014

SECTION: SE2 **TOWNSHIP:** 26S **RANGE:** 20E

EQUIPMENT DESCRIPTION:

1,000 BBL FIXED-ROOF CRUDE OIL STORAGE TANK WITH A P/V RELIEF VALVE

PERMIT UNIT REQUIREMENTS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. The tank shall be equipped with a fixed roof with no holes or openings. [District Rule 2201]
3. Tank shall be equipped with an accurate, operational stored liquid temperature indicator. [District Rule 2201]
4. Temperature of liquid stored shall not exceed 180 °F. [District Rule 2201]
5. This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of 0.31 psia or less under all storage conditions. [District Rule 2201]
6. Crude oil throughput shall not exceed 435 barrels per day based on a monthly average. [District Rule 2201]
7. VOC emission rate from the tank shall not exceed 15.2 lb/day. [District Rule 2201]
8. Permittee shall conduct true vapor pressure (TVP) testing of the organic liquid stored in this tank at least once every 24 months during summer (July - September), and/or whenever there is a change in the source or type of organic liquid stored in this tank in order to maintain exemption from the rule. [District Rules 2201 and 4623]
9. The TVP testing shall be conducted at actual storage temperature of the organic liquid in the tank. The permittee shall also conduct an API gravity testing. [District Rules 2201 and 4623]
10. For crude oil with an API gravity of 26 degrees or less, the TVP shall be determined using the latest version of the Lawrence Berkeley National Laboratory "test Method for Vapor pressure of Reactive Organic Compounds in Heavy Crude Oil Using Gas Chromatograph", as approved by ARB and EPA. [District Rules 2201 and 4623]
11. The API gravity of crude oil or petroleum distillate shall be determined by using ASTM Method D 287 e1 "Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method). Sampling for API gravity shall be performed in accordance with ASTM Method D 4057 "Standard Practices for Manual Sampling of Petroleum and Petroleum Products." [District Rules 2201 and 4623]
12. Permittee shall submit the records of TVP and API gravity testing to the APCO within 45 days after the date of testing. The records shall include the tank identification number, Permit to Operate number, type of stored organic liquid, TVP and API gravity of the organic liquid, test methods used, and a copy of the test results. [District Rules 2201 and 4623]
13. Permittee shall maintain monthly records of average daily crude oil throughput and shall keep accurate records of each organic liquid stored in the tank, including its storage temperature, TVP, and API gravity. Inspection log and all other records shall be retained on-site for a minimum of five (5) years and made available for APCO upon request, except for certain records that need to be submitted as specified in this permit. [District Rules 1070, 2201 and 4623, 6.3]

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

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1327-116-0

EXPIRATION DATE: 02/28/2014

SECTION: SE2 **TOWNSHIP:** 26S **RANGE:** 20E

EQUIPMENT DESCRIPTION:

NON-COMPLIANT DORMANT 25 MMBTU/HR NATURAL GAS/LPG FIRED STEAM GENERATOR, WITH MAXON KINEDIZER LOW NOX BURNER AND SMARTFIRE CONTROLLER

PERMIT UNIT REQUIREMENTS

1. No modification to this unit shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010]
2. The fuel supply line shall be physically disconnected from this unit. [District Rule 4306]
3. This equipment shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4306 and all other applicable District regulations. [District Rule 4306]
4. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. Daily heat input shall not exceed 528 MMBtu. Permittee shall maintain records of daily heat input and shall make such records available for District inspection. [District Rule 2201]
6. Emission rates shall not exceed the following: NOx (as NO₂): 0.036 lb/MMBtu or 30 ppmv @ 3% O₂, CO: 0.0813 lb/MMBtu or 110 ppmv @ 3% O₂, VOC: 0.0055 lb/MMBtu, and PM₁₀: 4.0 lb/day. [District Rules 2201 and 4305]
7. Source testing to demonstrate compliance with NOx and CO emission limits shall be conducted within 60 days of initial firing on natural gas. [District Rules 2201 and 4305]
8. Source testing to demonstrate compliance with NOx and CO emission limits shall be conducted within 60 days of initial firing on LPG. [District Rules 2201 and 4305]
9. Sulfur content of the natural gas and LPG shall not exceed 15 ppmv. [District Rule 2201]
10. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 1070]
11. If the unit is fired on noncertified gaseous fuel and compliance with SOx emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD, double GC for H₂S and mercaptans, performed in the laboratory. [District Rule 1070]
12. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 4305, 6.2.1]
13. Emissions from this unit shall be calculated using the arithmetic mean, pursuant to District Rule 1081 (12/16/93), of three 30-minute test runs for NOx and CO. [District Rule 4305, 6.3]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

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

14. Source testing to measure NO_x and CO emissions shall be conducted not less than once every 12 months, except as provided below. [District Rule 4305]
15. Source testing to measure NO_x and CO emissions shall be conducted not less than once every 36 months if compliance is demonstrated on two consecutive annual tests. [District Rule 4305]
16. If permittee fails any compliance demonstration for NO_x or CO emission limits when testing not less than once every 36 months, compliance with NO_x and CO emission limits shall be demonstrated not less than once every 12 months. [District Rule 4305]
17. Compliance demonstration (source testing) shall be by District witnessed, or authorized, sample collection by ARB certified testing laboratory. [District Rule 1081]
18. 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. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
19. The following test methods shall be used: NO_x (ppmv) - EPA Method 7E or ARB Method 100, NO_x (lb/MMBtu) - EPA Method 19, CO (ppmv) - EPA Method 10 or ARB Method 100, and stack gas oxygen - EPA Method 3 or 3A or ARB Method 100. [District Rules 1081 and 4305]
20. The permittee shall monitor and record the stack concentration of NO_x, CO, and O₂ at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rule 4305]
21. If either the NO_x or CO concentrations corrected to 3% O₂, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rule 4305]
22. 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 Rule 4305]
23. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x and CO concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rule 4305]
24. Permittee shall maintain records of fuel gas sulfur concentration. [District Rule 1070]
25. 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 and 4305]

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



AUTHORITY TO CONSTRUCT

PERMIT NO: S-1327-141-0

ISSUANCE DATE: 06/22/2011

LEGAL OWNER OR OPERATOR: VINTAGE PRODUCTION CALIFORNIA LLC

MAILING ADDRESS: 9600 MING AVE, SUITE 300
BAKERSFIELD, CA 93311

LOCATION: HEAVY OIL WESTERN, KERN COUNTY
CA

SECTION: 2&11 **TOWNSHIP:** 26S **RANGE:** 20E

EQUIPMENT DESCRIPTION:

85 MMBTU/HR STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN MODEL 4231-85-GLE ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) AND OXYGEN CONTROLLER (OR EQUIVALENT)

CONDITIONS

1. Steam generator shall be equipped with variable frequency drive electrical motors driving the blower and water pump and a convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by manufacturer) or a manufacturer's overall thermal efficiency rating of 88%. [Public Resources Code 21000-21177: California Environmental Quality Act]
2. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]
3. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2010]
4. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]
5. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [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 canceled 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 / APDO

6. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
7. 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]
8. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
9. This steam generator shall be located at the NE1/4 of Section 11, T26S, R20E, or the NW 1/4 of Section 2, T26S, R20E. [District Rule 2201]
10. 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]
11. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of gas combusted in the unit shall be installed, utilized and maintained. [District Rules 2201, 4305, 4306, and 4320]
12. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, tank vapor recovery gas, and gas produced during thermally enhanced oil recovery (TEOR) operation or a mixture of any of these fuels. [District Rule 2201]
13. Sulfur content in the gaseous fuel shall not exceed 1.0 grain per 100 dry standard cubic feet. [District Rule 2201]
14. Heat input to this unit shall not exceed 647,802 MMBtu in any one calendar year. [District Rule 2201]
15. Emission rates shall not exceed: PM10: 0.0035 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 7 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
16. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 1070, 2201, 4305, 4306, and 4320]
17. Sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD, double GC for H2S and mercaptans, performed in the laboratory. Should the applicant decide to use different methodology, the methodology must be approved by the District prior to its use. [District Rule 1070, 2201, 4305, 4306, and 4320]
18. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2201, 4305, 4306, and 4320]
19. Source testing to measure fuel combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
20. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable 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 2201, 4305, 4306, and 4320]
21. If either the NOx or CO concentrations corrected to 3% O2, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 2201, 4305, 4306, and 4320]

CONDITIONS CONTINUE ON NEXT PAGE

22. 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 2201, 4305, 4306, and 4320]
23. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x and CO concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201, 4305, 4306, and 4320]
24. 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 2201, 4305, 4306, and 4320]
25. Source testing to measure NO_x and CO emissions from this unit shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320]
26. 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_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis. [District Rules 2201, 4305, 4306, and 4320]
28. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
29. Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 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 2201, 4305, 4306, and 4320]
31. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
32. The permittee shall maintain cumulative monthly records of heat input in MMBtu to demonstrate compliance with the permitted annual heat input rate. [District Rules 2201, 4305, 4306, and 4320]
33. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 2201, 4305, 4306, and 4320]
34. Prior to operating under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NO_x: 327 lb/quarter; and PM₁₀: 251/quarter. Offset shall be provided at the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 12/18/08). PM₁₀ may be offset using SO_x at an interpollutant offset ratio of 1.0 tons SO_x/ton PM₁₀. [District Rule 2201]
35. ERC Certificate Numbers (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
36. ATC shall be implemented concurrently with or subsequent to ATCs S-1327-155-1 through 1-158-1. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

37. PTOs S-1327-107-0, '-111-0, '-115-0, '-116-0, '-120-0, '-137-0, and '-138-0 shall be canceled upon implementation of this ATC. [District Rule 2201]



AUTHORITY TO CONSTRUCT

PERMIT NO: S-1327-142-0

ISSUANCE DATE: 06/22/2011

LEGAL OWNER OR OPERATOR: VINTAGE PRODUCTION CALIFORNIA LLC
MAILING ADDRESS: 9600 MING AVE, SUITE 300
BAKERSFIELD, CA 93311

LOCATION: HEAVY OIL WESTERN, KERN COUNTY
CA

SECTION: 2&11 **TOWNSHIP:** 26S **RANGE:** 20E

EQUIPMENT DESCRIPTION:

85 MMBTU/HR STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN MODEL 4231-85-GLE ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) AND OXYGEN CONTROLLER (OR EQUIVALENT)

CONDITIONS

1. Steam generator shall be equipped with variable frequency drive electrical motors driving the blower and water pump and a convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by manufacturer) or a manufacturer's overall thermal efficiency rating of 88%. [Public Resources Code 21000-21177; California Environmental Quality Act]
2. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]
3. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2019]
4. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]
5. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [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.

Sayed Sadreidin, Executive Director / APCD

DAVID WARNER, Director of Permit Services

S-1327-142-0 Dec 10 2011 12:09PM - FCGE/RLK Joint Inspection NOT Required

6. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
7. 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]
8. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
9. This steam generator shall be located at the NE 1/4 of Section 11, T26S, R20E, or the NW 1/4 of Section 2, T26S, R20E. [District Rule 2201]
10. 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]
11. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of gas combusted in the unit shall be installed, utilized and maintained. [District Rules 2201, 4305, 4306, and 4320]
12. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, tank vapor recovery gas, and gas produced during thermally enhanced oil recovery (TEOR) operation or a mixture of any of these fuels. [District Rule 2201]
13. Sulfur content in the gaseous fuel shall not exceed 1.0 grain per 100 dry standard cubic feet. [District Rule 2201]
14. Heat input to this unit shall not exceed 647,802 MMBtu in any one calendar year. [District Rule 2201]
15. Emission rates shall not exceed: PM10: 0.0035 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 7 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
16. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 1070, 2201, 4305, 4306, and 4320]
17. Sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD, double GC for H2S and mercaptans, performed in the laboratory. Should the applicant decide to use different methodology, the methodology must be approved by the District prior to its use. [District Rule 1070, 2201, 4305, 4306, and 4320]
18. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2201, 4305, 4306, and 4320]
19. Source testing to measure fuel combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
20. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable 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 2201, 4305, 4306, and 4320]
21. If either the NOx or CO concentrations corrected to 3% O2, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 2201, 4305, 4306, and 4320]

CONDITIONS CONTINUE ON NEXT PAGE

22. 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 2201, 4305, 4306, and 4320]
23. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x and CO concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201, 4305, 4306, and 4320]
24. 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 2201, 4305, 4306, and 4320]
25. Source testing to measure NO_x and CO emissions from this unit shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320]
26. 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_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis. [District Rules 2201, 4305, 4306, and 4320]
28. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
29. Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 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 2201, 4305, 4306, and 4320]
31. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
32. The permittee shall maintain cumulative monthly records of heat input in MMBtu to demonstrate compliance with the permitted annual heat input rate. [District Rules 2201, 4305, 4306, and 4320]
33. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 2201, 4305, 4306, and 4320]
34. Prior to operating under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NO_x: 327 lb/quarter; and PM₁₀: 251/quarter. Offset shall be provided at the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 12/18/08). PM₁₀ may be offset using SO_x at an interpollutant offset ratio of 1.0 tons SO_x/ton PM₁₀. [District Rule 2201]
35. ERC Certificate Numbers S-3585-2, S-3588-2, N-949-5 and S-3593-5 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
36. ATC shall be implemented concurrently with or subsequent to ATCs S-1327-155-1 through S-158-1. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

37. PTOs S-1327-107-0, '-111-0, '-115-0, '-116-0, '-120-0, '-137-0, and '-138-0 shall be canceled upon implementation of this ATC. [District Rule 2201]



AUTHORITY TO CONSTRUCT

PERMIT NO: S-1327-143-0

ISSUANCE DATE: 06/22/2011

LEGAL OWNER OR OPERATOR: VINTAGE PRODUCTION CALIFORNIA LLC

MAILING ADDRESS: 9600 MING AVE, SUITE 300
BAKERSFIELD, CA 93311

LOCATION: HEAVY OIL WESTERN, KERN COUNTY
CA

SECTION: 2&11 TOWNSHIP: 26S RANGE: 20E

EQUIPMENT DESCRIPTION:

85 MMBTU/HR STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN MODEL 4231-S5-GLE ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) AND OXYGEN CONTROLLER (OR EQUIVALENT)

CONDITIONS

1. Steam generator shall be equipped with variable frequency drive electrical motors driving the blower and water pump and a convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by manufacturer) or a manufacturer's overall thermal efficiency rating of 88%. [Public Resources Code 21000-21177: California Environmental Quality Act]
2. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]
3. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2010]
4. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]
5. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [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

SJ-1327-143-0 Date: 10/23/11 12:43PM - EDGEMIL - JOINT INSPECTION NOT REQUIRED

6. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
7. 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]
8. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
9. This steam generator shall be located at the NE1/4 of Section 11, T26S, R20E, or the NW 1/4 of Section 2, T26S, R20E. [District Rule 2201]
10. 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]
11. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of gas combusted in the unit shall be installed, utilized and maintained. [District Rules 2201, 4305, 4306, and 4320]
12. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, tank vapor recovery gas, and gas produced during thermally enhanced oil recovery (TEOR) operation or a mixture of any of these fuels. [District Rule 2201]
13. Sulfur content in the gaseous fuel shall not exceed 1.0 grain per 100 dry standard cubic feet. [District Rule 2201]
14. Heat input to this unit shall not exceed 647,802 MMBtu in any one calendar year. [District Rule 2201]
15. Emission rates shall not exceed: PM10: 0.0035 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 7 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
16. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 1070, 2201, 4305, 4306, and 4320]
17. Sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD, double GC for H2S and mercaptans, performed in the laboratory. Should the applicant decide to use different methodology, the methodology must be approved by the District prior to its use. [District Rule 1070, 2201, 4305, 4306, and 4320]
18. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2201, 4305, 4306, and 4320]
19. Source testing to measure fuel combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
20. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable 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 2201, 4305, 4306, and 4320]
21. If either the NOx or CO concentrations corrected to 3% O2, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 2201, 4305, 4306, and 4320]

CONDITIONS CONTINUE ON NEXT PAGE

22. 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 2201, 4305, 4306, and 4320]
23. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x and CO concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201, 4305, 4306, and 4320]
24. 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 2201, 4305, 4306, and 4320]
25. Source testing to measure NO_x and CO emissions from this unit shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320]
26. 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_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis. [District Rules 2201, 4305, 4306, and 4320]
28. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
29. Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 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 2201, 4305, 4306, and 4320]
31. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
32. The permittee shall maintain cumulative monthly records of heat input in MMBtu to demonstrate compliance with the permitted annual heat input rate. [District Rules 2201, 4305, 4306, and 4320]
33. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 2201, 4305, 4306, and 4320]
34. Prior to operating under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NO_x: 327 lb/quarter; and PM₁₀: 251/quarter. Offset shall be provided at the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 12/18/08). PM₁₀ may be offset using SO_x at an interpollutant offset ratio of 1.0 tons SO_x/ton PM₁₀. [District Rule 2201]
35. ERC Certificate Numbers S-3535-2, S-3588-2, N-949-5 and S-3593-5 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
36. ATC shall be implemented concurrently with or subsequent to ATCs S-1327-155-1 through -158-1. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

37. PTOs S-1327-107-0, '-111-0, '-115-0, '-116-0, '-120-0, '-137-0, and '-138-0 shall be canceled upon implementation of this ATC. [District Rule 2201]



AUTHORITY TO CONSTRUCT

PERMIT NO: S-1327-144-0.

ISSUANCE DATE: 06/22/2011

LEGAL OWNER OR OPERATOR: VINTAGE PRODUCTION CALIFORNIA LLC

MAILING ADDRESS: 9600 MING AVE, SUITE 300
BAKERSFIELD, CA 93311

LOCATION: HEAVY OIL WESTERN, KERN COUNTY
CA

SECTION: 2&11 TOWNSHIP: 26S RANGE: 20E

EQUIPMENT DESCRIPTION:

65 MMBTU/HR STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN MODEL 4231-65-GLE ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) AND OXYGEN CONTROLLER (OR EQUIVALENT)

CONDITIONS

1. Steam generator shall be equipped with variable frequency drive electrical motors driving the blower and water pump and a convection section with at least 235 square feet of heat transfer surface area per 14MMBtu/hr of maximum rated heat input (verified by manufacturer) or a manufacturer's overall thermal efficiency rating of 88%. [Public Resources Code 21600-21177; California Environmental Quality Act]
2. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]
3. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2010]
4. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]
5. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [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 / APCC

6. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
7. 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]
8. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
9. This steam generator shall be located at the NE 1/4 of Section 11, T26S, R20E, or the NW 1/4 of Section 2, T26S, R20E. [District Rule 2201]
10. 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]
11. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of gas combusted in the unit shall be installed, utilized and maintained. [District Rules 2201, 4305, 4306, and 4320]
12. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, tank vapor recovery gas, and gas produced during thermally enhanced oil recovery (TEOR) operation or a mixture of any of these fuels. [District Rule 2201]
13. Sulfur content in the gaseous fuel shall not exceed 1.0 grain per 100 dry standard cubic feet. [District Rule 2201]
14. Heat input to this unit shall not exceed 647,802 MMBtu in any one calendar year. [District Rule 2201]
15. Emission rates shall not exceed: PM10: 0.0035 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 7 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
16. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 1070, 2201, 4305, 4306, and 4320]
17. Sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD, double GC for H2S and mercaptans, performed in the laboratory. Should the applicant decide to use different methodology, the methodology must be approved by the District prior to its use. [District Rule 1070, 2201, 4305, 4306, and 4320]
18. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2201, 4305, 4306, and 4320]
19. Source testing to measure fuel combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
20. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable 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 2201, 4305, 4306, and 4320]
21. If either the NOx or CO concentrations corrected to 3% O2, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 2201, 4305, 4306, and 4320]

CONDITIONS CONTINUE ON NEXT PAGE

22. 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 2201, 4305, 4306, and 4320]
23. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x and CO concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201, 4305, 4306, and 4320]
24. 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 2201, 4305, 4306, and 4320]
25. Source testing to measure NO_x and CO emissions from this unit shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320]
26. 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_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis. [District Rules 2201, 4305, 4306, and 4320]
28. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
29. Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 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 2201, 4305, 4306, and 4320]
31. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
32. The permittee shall maintain cumulative monthly records of heat input in MMBtu to demonstrate compliance with the permitted annual heat input rate. [District Rules 2201, 4305, 4306, and 4320]
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 1370, 2201, 4305, 4306, and 4320]
34. Prior to operating under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NO_x: 327 lb/quarter; and PM₁₀: 251/quarter. Offset shall be provided at the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 12/18/08). PM₁₀ may be offset using SO_x at an interpollutant offset ratio of 1.0 tons SO_x/ton PM₁₀. [District Rule 2201]
35. ERC Certificate Numbers S-3585-2, S-3588-2, N-949-5 and S-3593-5 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
36. ATC shall be implemented concurrently with or subsequent to ATCs S-1327-155-1 through S-158-1. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

37. PTOs S-1327-107-0, '-111-0, '-115-0, '-116-0, '-120-0, '-137-0, and '-138-0 shall be canceled upon implementation of this ATC. [District Rule 220]



AUTHORITY TO CONSTRUCT

PERMIT NO: S-1327-145-0

ISSUANCE DATE: 06/22/2011

LEGAL OWNER OR OPERATOR: VINTAGE PRODUCTION CALIFORNIA LLC

MAILING ADDRESS: 9600 MING AVE, SUITE 300
BAKERSFIELD, CA 93311

LOCATION: HEAVY OIL WESTERN, KERN COUNTY
CA

SECTION: 2&11 **TOWNSHIP:** 26S **RANGE:** 20E

EQUIPMENT DESCRIPTION:

85 MMBTU/HR STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN MODEL 4231-85-GLE ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) AND OXYGEN CONTROLLER (OR EQUIVALENT)

CONDITIONS

1. Steam generator shall be equipped with variable frequency drive electrical motors driving the blower and water pump and a convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by manufacturer) or a manufacturer's overall thermal efficiency rating of 88%. [Public Resources Code 21000-21177; California Environmental Quality Act]
2. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]
3. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2010]
4. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]
5. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [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 / APCC

DAVID WARNER, Director of Permit Services

S-1327-145-0 Dec 10 2011 12:43PM - 5028HLP Joint Inspection: (661) 392-5500

6. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
7. 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]
8. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
9. This steam generator shall be located at the NE 1/4 of Section 11, T26S, R20E; or the NW 1/4 of Section 2, T26S, R20E. [District Rule 2201]
10. 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]
11. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of gas combusted in the unit shall be installed, utilized and maintained. [District Rules 2201, 4305, 4306, and 4320]
12. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, tank vapor recovery gas, and gas produced during thermally enhanced oil recovery (TEOR) operation or a mixture of any of these fuels. [District Rule 2201]
13. Sulfur content in the gaseous fuel shall not exceed 1.0 grain per 100 dry standard cubic feet. [District Rule 2201]
14. Heat input to this unit shall not exceed 647,802 MMBtu in any one calendar year. [District Rule 2201]
15. Emission rates shall not exceed: PM10: 0.0035 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 7 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
16. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 1070, 2201, 4305, 4306, and 4320]
17. Sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD, double GC for H2S and mercaptans, performed in the laboratory. Should the applicant decide to use different methodology, the methodology must be approved by the District prior to its use. [District Rule 1070, 2201, 4305, 4306, and 4320]
18. If fuel analysis is used to demonstrate compliance with the conditions of this permit, the fuel higher heating value for each fuel shall be certified by third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2201, 4305, 4306, and 4320]
19. Source testing to measure fuel combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
20. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable 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 2201, 4305, 4306, and 4320]
21. If either the NOx or CO concentrations corrected to 3% O2, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 2201, 4305, 4306, and 4320]

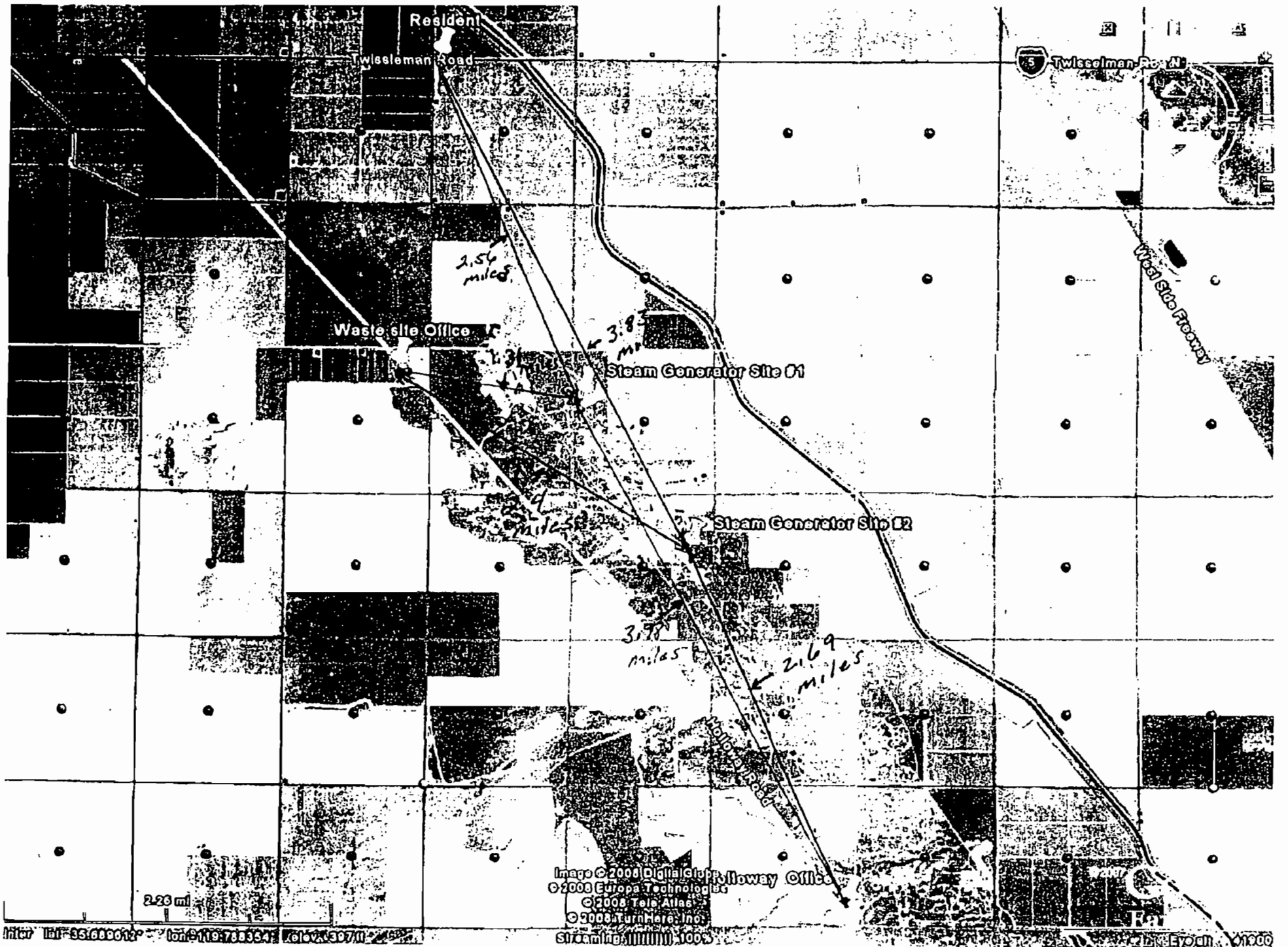
CONDITIONS CONTINUE ON NEXT PAGE

22. 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 2201, 4305, 4306, and 4320]
23. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x and CO concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201, 4305, 4306, and 4320]
24. 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 2201, 4305, 4306, and 4320]
25. Source testing to measure NO_x and CO emissions from this unit shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306, and 4320]
26. 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_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis. [District Rules 2201, 4305, 4306, and 4320]
28. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
29. Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 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 2201, 4305, 4306, and 4320]
31. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
32. The permittee shall maintain cumulative monthly records of heat input in MMBtu to demonstrate compliance with the permitted annual heat input rate. [District Rules 2201, 4305, 4306, and 4320]
33. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 2201, 4305, 4306, and 4320]
34. Prior to operating under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NO_x: 327 lb/quarter; and PM₁₀: 251/quarter. Offset shall be provided at the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 12/18/08). PM₁₀ may be offset using SO_x at an interpollutant offset ratio of 1.0 tons SO_x/ton PM₁₀. [District Rule 2201]
35. ERC Certificate Numbers S-3585-2, S-3588-2, N-949-5 and S-3593-5 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
36. ATC shall be implemented concurrently with or subsequent to ATCs S-1327-155-1 through '-158-1. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

37. PTOs S-1327-107-0, '-111-0, '-115-0, '-116-0, '-120-0, '-137-0, and '-138-0 shall be canceled upon implementation of this ATC. [District Rule 2201]

ATTACHMENT II
Location Map



ATTACHMENT III
Tank Emissions

From project EE
 4073, 1084278

Tank Input Data	
permit number (S-xxxx-xx-xx)	S-4073-16-1
facility tank I.D.	--
nearest city (1: Bakerfield, 2: Fresno, 3: Stockton)	1
tank ROC vapor pressure (psia)	0.31
liquid bulk storage temperature, T _b (°F)	200
is this a constant-level tank? (yes, no)	no
will flashing losses occur in this tank (only if first-line tank)? (yes, no)	no
breather vent pressure setting range (psi)	0.06
diameter of tank (feet)	21.2
capacity of tank (bbt)	1,000
conical or dome roof? (c, d)	c
shell height of tank (feet)	16
average liquid height (feet)	10
are the roof and shell the same color? (yes, no)	yes
For roof:	
color (1: Spec Al, 2: Diff Al, 3: Light, 4: Med, 5: Red, 6: White)	4
condition (1: Good, 2: Poor)	1
-----This row only used if shell is different color from roof-----	3
-----This row only used if shell is different color from roof-----	1

1
-115

Liquid Input Data	A	B
maximum daily fluid throughput (bbt)		435
maximum annual fluid throughput (bbt)		158,775
-----This row only used if flashing losses occur in this tank-----		435
-----This row only used if flashing losses occur in this tank-----		158,775
molecular weight, Mw (lb/lb-mol)		100

Calculated Values	A	B
daily maximum ambient temperature, T _{ax} (°F)		77.65
daily minimum ambient temperature, T _{an} (°F)		53.15
daily total solar insolation factor, I (Btu/ft ² -day)		1648.9
atmospheric pressure, P _a (psia)		14.47
water vapor pressure at daily maximum liquid surface temperature (T _{lx}), P _{v_x} (psia)	155.0	4.2359
water vapor pressure at daily minimum liquid surface temperature (T _{ln}), P _{v_n} (psia)	144.2	3.2442
water vapor pressure at average liquid surface temperature (T _{la}), P _{v_a} (psia)	149.6	3.6916
roof outage, H _{ro} (feet)		0.2208
vapor space volume, V _v (cubic feet)		2195.89
paint factor, alpha		0.68
vapor density, W _v (lb/cubic foot)		0.0047
daily vapor temperature range, delta T _v (degrees Rankine)		49.04
vapor space expansion factor, K _e		0.1669

Results	lb/year	lb/day
Standing Storage Loss	634	1.74
Working Loss	4,922	13.49
Flashing Loss	N/A	N/A
Total Uncontrolled Tank VOC Emissions	5,556	15.2

Post Project

Tank Input Data	
permit number (S-xxxx-xx-xx)	S-4073-8-0
facility tank I.D.	Williamson
nearest city (1: Bakersfield, 2: Fresno, 3: Stockton)	1
tank ROC vapor pressure (psia)	0.5
liquid bulk storage temperature, T _b (°F)	180
is this a constant-level tank? (yes, no)	Yes
will flashing losses occur in this tank (only if first-line tank)? (yes, no)	No
breather vent pressure setting range (psi)	0.08
diameter of tank (feet)	21.6
capacity of tank (bbbl)	1,500
conical or dome roof? (c, d)	c
shell height of tank (feet)	24
average liquid height (feet)	22
are the roof and shell the same color? (yes, no)	Yes
For roof:	
color (1: Spec Al, 2: Diff Al, 3: Light, 4: Med, 5: Red, 6: White)	6
condition (1: Good, 2: Poor)	1
-----This row only used if shell is different color from roof-----	3
-----This row only used if shell is different color from roof-----	1

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Liquid Input Data	A	B
maximum daily fluid throughput (bbbl)		150
maximum annual fluid throughput (bbbl)		54,750
-----This row only used if flashing losses occur in this tank-----		100
-----This row only used if flashing losses occur in this tank-----		38,500
molecular weight, M _w (lb/lb-mol)		100

Calculated Values	A	B
daily maximum ambient temperature, T _{ax} (°F)		77.65
daily minimum ambient temperature, T _{an} (°F)		53.15
daily total solar insulation factor, I (Btu/ft ² -day)		1648.9
atmospheric pressure, P _a (psia)		14.47
(psia)	152.2	3.9429
(psia)	141.4	3.0066
water vapor pressure at average liquid surface temperature (T _{la}), P _{va} (psia)	146.8	3.4539
roof outage, H _{ro} (feet)		0.2240
vapor space volume, V _v (cubic feet)		807.41
paint factor, alpha		0.89
vapor density, W _v (lb/cubic foot)		0.0077
daily vapor temperature range, delta T _v (degrees Rankine)		58.73
vapor space expansion factor, K _e		0.1783

Results	lb/year	lb/day
Standing Storage Loss	399	1.09
Working Loss	N/A	N/A
Flashing Loss	N/A	N/A
Total Uncontrolled Tank VOC Emissions	399	1.1

Summary Table	
Permit Number	S-4073-8-0
Facility Tank I.D.	Williamson
Tank capacity (bbl)	1,500
Tank diameter (ft)	21.5
Tank shell height (ft)	24
Conical or Dome Roof	Conical
Maximum Daily Fluid Throughput (bbl/day)	150
Maximum Annual Fluid Throughput (bbl/year)	54,750
Maximum Daily Oil Throughput (bbl/day)	100
Maximum Annual Oil Throughput (bbl/year)	---
Total Uncontrolled Daily Tank VOC Emissions (lb/day)	1.1
Total Uncontrolled Annual Tank VOC Emissions (lb/year)	399

Post Project

Tank Input Data	
permit number (S-xxxx-xx-xx)	8-4073-12
facility tank I.D.	
nearest city (1: Bakersfield, 2: Fresno, 3: Stockton)	1
tank ROC vapor pressure (psia)	0.5
liquid bulk storage temperature, T_b (°F)	180
is this a constant-level tank? (yes, no)	yes
will flashing losses occur in this tank (only if first-line tank)? (yes, no)	no
breather vent pressure setting range (psi)	0.08
diameter of tank (feet)	21
capacity of tank (bbl)	1,000
conical or dome roof? (c, d)	c
shell height of tank (feet)	18
average liquid height (feet)	14
are the roof and shell the same color? (yes, no)	yes
For roof:	
color {1: Spec Al, 2: Diff Al, 3: Light, 4: Med, 5: Red, 6: White}	5
condition {1: Good, 2: Poor}	1
-----This row only used if shell is different color from roof-----	3
-----This row only used if shell is different color from roof-----	1



Liquid Input Data	A	B
maximum daily fluid throughput (bbl)		2,500
maximum annual fluid throughput (bbl)		912,500
-----This row only used if flashing losses occur in this tank-----		100
-----This row only used if flashing losses occur in this tank-----		36,600
molecular weight, M_w (lb/lb-mol)		100

Calculated Values	A	B
daily maximum ambient temperature, T_{ax} (°F)		77.65
daily minimum ambient temperature, T_{an} (°F)		53.15
daily total solar insulation factor, I (Btu/ft ² -day)		1848.9
atmospheric pressure, P_a (psia)		14.47
(psia)	152.2	3.9429
(psia)	141.4	3.0085
water vapor pressure at average liquid surface temperature (T_{la}), P_{va} (psia)	146.8	3.4539
roof outage, H_{ro} (feet)		0.2188
vapor space volume, V_v (cubic feet)		788.49
paint factor, α_p		0.89
vapor density, W_v (lb/cubic foot)		0.0077
daily vapor temperature range, ΔT_v (degrees Rankine)		58.73
vapor space expansion factor, K_e		0.1763

Results	lb/year	lb/day
Standing Storage Loss	380	1.04
Working Loss	N/A	N/A
Flashing Loss	N/A	N/A
Total Uncontrolled Tank VOC Emissions	380	1.0

Summary Table	
Permit Number	S-4073-12
Facility Tank I.D.	---
Tank capacity (bbl)	1,000
Tank diameter (ft)	21
Tank shell height (ft)	16
Conical or Dome Roof	Conical
Maximum Daily Fluid Throughput (bbl/day)	2,500
Maximum Annual Fluid Throughput (bbl/year)	912,500
Maximum Daily Oil Throughput (bbl/day)	100
Maximum Annual Oil Throughput (bbl/year)	---
Total Uncontrolled Daily Tank VOC Emissions (lb/day)	1.0
Total Uncontrolled Annual Tank VOC Emissions (lb/year)	380

ATTACHMENT IV
Emissions Profiles

Permit #: S-1327-141-1	Last Updated
Facility: VINTAGE PRODUCTION CALIFORNIA	12/10/2011 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	5182.0	1846.0	2267.0	11660.0	3563.0
Daily Emis. Limit (lb/Day)	16.3	5.8	7.1	36.7	11.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1295.0	461.0	566.0	2915.0	890.0
Q2:	1295.0	461.0	567.0	2915.0	891.0
Q3:	1296.0	462.0	567.0	2915.0	891.0
Q4:	1296.0	462.0	567.0	2915.0	891.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5		1.5		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	1354.0		741.0		144.0
Q2:	1354.0		741.0		144.0
Q3:	1354.0		741.0		144.0
Q4:	1354.0		741.0		144.0

Permit #: S-1327-142-1	Last Updated
Facility: VINTAGE PRODUCTION CALIFORNIA	12/10/2011 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	5182.0	1846.0	2267.0	11660.0	3563.0
Daily Emis. Limit (lb/Day)	16.3	5.8	7.1	36.7	11.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1295.0	461.0	566.0	2915.0	890.0
Q2:	1295.0	461.0	567.0	2915.0	891.0
Q3:	1296.0	462.0	567.0	2915.0	891.0
Q4:	1296.0	462.0	567.0	2915.0	891.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5		1.5		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	1354.0		741.0		144.0
Q2:	1354.0		741.0		144.0
Q3:	1354.0		741.0		144.0
Q4:	1354.0		741.0		144.0

Permit #: S-1327-143-1	Last Updated
Facility: VINTAGE PRODUCTION CALIFORNIA	12/10/2011 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	5182.0	1846.0	2267.0	11660.0	3563.0
Daily Emis. Limit (lb/Day)	16.3	5.8	7.1	36.7	11.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1295.0	461.0	566.0	2915.0	890.0
Q2:	1295.0	461.0	567.0	2915.0	891.0
Q3:	1296.0	462.0	567.0	2915.0	891.0
Q4:	1296.0	462.0	567.0	2915.0	891.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5		1.5		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	1354.0		741.0		144.0
Q2:	1354.0		741.0		144.0
Q3:	1354.0		741.0		144.0
Q4:	1354.0		741.0		144.0

Permit #: S-1327-144-1	Last Updated
Facility: VINTAGE PRODUCTION CALIFORNIA	12/10/2011 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	5182.0	1846.0	2267.0	11660.0	3563.0
Daily Emis. Limit (lb/Day)	16.3	5.8	7.1	36.7	11.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1295.0	461.0	566.0	2915.0	890.0
Q2:	1295.0	461.0	567.0	2915.0	891.0
Q3:	1296.0	462.0	567.0	2915.0	891.0
Q4:	1296.0	462.0	567.0	2915.0	891.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5		1.5		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	1354.0		741.0		144.0
Q2:	1354.0		741.0		144.0
Q3:	1354.0		741.0		144.0
Q4:	1354.0		741.0		144.0

Permit #: S-1327-145-1	Last Updated
Facility: VINTAGE PRODUCTION CALIFORNIA	12/10/2011 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	5182.0	1846.0	2267.0	11660.0	3563.0
Daily Emis. Limit (lb/Day)	16.3	5.8	7.1	36.7	11.2
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1295.0	461.0	566.0	2915.0	890.0
Q2:	1295.0	461.0	567.0	2915.0	891.0
Q3:	1296.0	462.0	567.0	2915.0	891.0
Q4:	1296.0	462.0	567.0	2915.0	891.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5		1.5		1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	1354.0		741.0		144.0
Q2:	1354.0		741.0		144.0
Q3:	1354.0		741.0		144.0
Q4:	1354.0		741.0		144.0

ATTACHMENT V
BACT Guidelines 1.2.1 and 7.3.1

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 1.2.1*

Last Update: 3/11/2005

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

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
CO	50 ppmvd @ 3% O2		
NOx	14 ppmvd @ 3% O2	7 ppmvd @ 3% O2 with SCR 9 ppmvd @ 3% O2	
PM10	Natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO2 scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO2 at stack O2		
SOx	Natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO2 scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO2 at stack O2		
VOC	Gaseous fuel		

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

***This is a Summary Page for this Class of Source - Permit Specific BACT Determinations on Next Page(s)**

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 7.3.1*

Last Update: 10/1/2002

**Petroleum and Petrochemical Production - Fixed Roof Organic
Liquid Storage or Processing Tank, < 5,000 bbl Tank capacity ****

Pollutant	Achieved In Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment **
VOC	PV-vent set to within 10% of maximum allowable pressure	99% control (Waste gas incinerated in steam generator, heater treater, or other fired equipment and inspection and maintenance program; transfer of noncondensable vapors to gas pipeline; reinjection to formation (if appropriate wells are available); or equal).	

** Converted from Determinations 7.1.11 (10/01/02).

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

***This is a Summary Page for this Class of Source - Permit Specific BACT Determinations on Next Page(s)**

ATTACHMENT VI
BACT Analysis

Top Down BACT Analysis for NO_x Emissions:

Step 1 - Identify All Possible Control Technologies

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

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

- 7 ppmvd @ 3% O₂ - Achieved in Practice.
- 5 ppmvd @ 3% O₂ with SCR – Technologically Feasible

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. 7 ppmvd @ 3% O₂ - Achieved in Practice.
2. 5 ppmvd @ 3% O₂ with SCR – Technologically Feasible

Step 4 - Cost Effectiveness Analysis

A cost effective analysis is required for technologically feasible control options that are not proposed. The applicant has proposed 7 ppmvd NO_x @ 3% O₂; therefore, a cost effective analysis is required for the 5 ppmvd NO_x @ 3% O₂ with Selective Catalytic Reduction option.

Cost Analysis for 5 ppmv NO_x @ 3% O₂:

Capital Equipment Costs:

Applicant has provided the following cost estimate to purchase and install an SCR system for the 85 MMBtu/hr steam generators from PCL Construction Leader dated March 30, 2011. A detailed summary sheet follows.

Purchase and installations costs: \$756, 000

Capital Recovery (interest rate period 10 years): $0.1627 \times 756,000 = \$123,001$

Emission Reductions from Industry Standard:

The NOx emissions reductions, from the uncontrolled rate, will be calculated utilizing an industry standard of 0.018 lb/MMBtu or 15 ppmvd NOx @ 3% O₂ (Low-NOx Burner).

Industry Standard NOx Emissions = 85 MMBtu/hr x 8760 hr/year x 0.018 lb/MMBtu
Industry Standard NOx Emissions = 13,403 lb/year

Controlled NOx emissions are based on 5 ppmvd NOx @ 3% O₂ (Equivalent to 0.0061 lb-NOx/MMBtu).

Controlled NOx emissions = 85 MMBtu/hr x 8760 hr/year x 0.0061 lb/MMBtu
Controlled NOx emissions = 4,542 lb/year
Reduced NOx Emissions = Industry Standard NOx – Controlled NOx
Reduced NOx Emissions = (13,403 lb/year – 4,542 lb/year) x 1 ton/2000 lb
Reduced NOx Emissions = 4.4 tons/year

Cost of emission reductions for 5 ppmvd NOx SCR System:

Annualized Cost/ton: $(\$123,001/\text{yr}) \div (4.4 \text{ tons}/\text{yr}) = \$27,954/\text{ton}$

The annualized capital cost alone with operational costs of an SCR system exceeds the \$24,500/ton threshold for NOx; therefore, the control technology is *not* cost effective per the District BACT policy.

Step 5: Select BACT:

As shown in the previous section, the use of an SCR system capable of 5 ppmvd NOx @ 3% O₂ is not cost effective. The applicant has proposed the next best control listed in the step 3, 7 ppmvd NOx @ 3% O₂. Therefore, the applicant's proposal meets BACT requirements for NOx emissions.

BACT is satisfied by the applicant's proposal to meet a NOx limit of 7 ppmvd @ 3% O₂ to be achieved with a Low NO_x burner and flue gas recirculation (FGR).

Top Down BACT Analysis for VOC Emissions:

Step 1 - Identify all control technologies

1. Gaseous fuel - achieved in practice

Step 2 - Eliminate Technologically Infeasible Options

The above listed technology is technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. Gaseous fuel - achieved in practice

Step 4 - Cost Effectiveness Analysis

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

Step 5 - Select BACT for VOC

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

Top Down BACT Analysis for PM₁₀ and SO_x Emissions:

Step 1 - Identify all control technologies

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

Step 2 - Eliminate Technologically Infeasible Options

The above listed technology is technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

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

Step 4 - Cost Effectiveness Analysis

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

Step 5 - Select BACT for SO_x and PM₁₀

The new steam generators are authorized to combust natural gas with a sulfur content not exceeding 1.0 gr S/100 scf. Therefore BACT is satisfied.

Top Down BACT Analysis for CO Emissions:

Step 1 - Identify all control technologies

50 ppmv @ 3%O₂ - achieved in practice

Step 2 - Eliminate Technologically Infeasible Options

The above listed technology is technologically feasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

50 ppmv @ 3%O₂ - achieved in practice

Step 4 - Cost Effectiveness Analysis

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

Step 5 - Select BACT for CO

Applicant has proposed 25 ppmv CO @ 3% O₂. Therefore BACT is satisfied for the new steam generators.

ATTACHMENT VII
HRA and AAQA Analysis

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Ashley Dahlstrom – Permit Services
 From: Yu Vu – Technical Services
 Date: November 28, 2011
 Facility Name: Vintage Production
 Location: NW/4 S2 T26S R20E
 Application #(s): S-1327-141-1, -142-1, -143-1, -144-1, and -145-1
 Project #: S-1114449

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 SJVAPCD
 Southern Region

A. RMR SUMMARY

RMR Summary			
Categories	Steam Generators (Unit 141-1 through 145-1)	Project Totals	Facility Totals
Prioritization Score	0.00 ¹	0.00	0.91
Acute Hazard Index	N/A	N/A	N/A
Chronic Hazard Index	N/A	N/A	N/A
Maximum Individual Cancer Risk (10 ⁻⁶)	N/A	N/A	N/A
T-BACT Required?	No		
Special Permit Conditions?	No		

¹The effective prioritization score for this project is zero since there is no increase in emissions involved with the project. No further analysis was required.

Proposed Permit Conditions

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

Unit # 141-1 through 145-1

No special conditions are required.

B. RMR REPORT

I. Project Description

Technical Services received a request on November 22, 2011, to perform a Risk Management Review and Ambient Air Quality Analysis (AAQA) for a proposed modification to an oil & gas operation. The applicant is proposing to remove the references to units S-1327-120-0, S-1327-137-0, and S-1327-138-0 from permit condition 37 on the Authorities to Construct (ATCs) for units S-1327-141-0 through 145-0. The applicant is proposing to require offsets instead of removing those units.

II. Analysis

Technical Services has determined that the modifications proposed by this project have no effect on the risk or ambient air quality analyses already performed/determined for this facility. No prioritization was required or performed for this project. Therefore, no further analysis was necessary.

III. Conclusion

The prioritization score is less than 1.0. **In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

IV. Attachments

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Toxic emissions summary
- D. Prioritization score
- E. Facility Summary

ATTACHMENT VIII
Statewide Compliance Statement

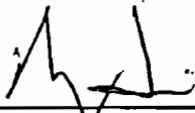
November 1, 2011

Mr. Leonard Scandura
Permit Services Manager
San Joaquin Valley Unified
Air Pollution Control District
34946 Flyover Ct.
Bakersfield, CA 93308

**Subject: Project Number 1000XXX
Compliance Certification**

Dear Mr. Scandura:

I hereby certify that all major Stationary Sources owned or operated by such person (or by any entity controlling, controlled by, or under common control with such person) in California, which are subject to emission limitations, are in compliance or on a schedule for compliance with all applicable emission limitations and standards.



Signature

Operations Manager
Title

ATTACHMENT IX
Best Performance Standard

**San Joaquin Valley
Unified Air Pollution Control District**

Best Performance Standard (BPS) x.x.xx

Date: 6/24/10

Class	Steam Generators
Category	Oilfield
Best Performance Standard	<p>Very High Efficiency Steam Generator Design With:</p> <ol style="list-style-type: none"> 1. A convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by manufacturer) or a manufacturer's overall thermal efficiency rating of 88%. <p>And</p> <ol style="list-style-type: none"> 2. Variable frequency drive high efficiency electrical motors driving the blower and water pump.
Percentage Achieved GHG Emission Reduction Relative to Baseline Emissions	13.0%

District Project Number	C-1100391
Evaluating Engineer	Steve Roeder
Lead Engineer	Arnaud Marjollet
Initial Public Notice Date	April 28, 2010
Final Public Notice Date	May 28, 2010
Determination Effective Date	June 24, 2010

ATTACHMENT X
Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-1327-141-1

LEGAL OWNER OR OPERATOR: VINTAGE PRODUCTION CALIFORNIA LLC
MAILING ADDRESS: 9600 MING AVE, SUITE 300
BAKERSFIELD, CA 93311

LOCATION: HEAVY OIL WESTERN, KERN COUNTY
CA

SECTION: 2&11 **TOWNSHIP:** 26S **RANGE:** 20E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 85 MMBTU/HR STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN MODEL 4231-85-GLE ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) AND OXYGEN CONTROLLER (OR EQUIVALENT); REMOVE REFERENCE TO UNITS '-120, '-137, AND '-138 IN PERMIT CONDITION 37 AND REQUIRE OFFSETS INSTEAD

CONDITIONS

1. Steam generator shall be equipped with variable frequency drive electrical motors driving the blower and water pump and a convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by manufacturer) or a manufacturer's overall thermal efficiency rating of 88%. [Public Resources Code 21000-21177: California Environmental Quality Act]
2. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]
3. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2010]
4. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [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

DRAFT

DAVID WARNER, Director of Permit Services

S-1327-141-1 - Dec 15 2011 9:23AM - EDGEHLR - Joint Inspection NOT Required

5. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]
6. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
7. {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]
8. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
9. This steam generator shall be located at the NE1/4 of Section 11, T26S, R20E, or the NW 1/4 of Section 2, T26S, R20E. [District Rule 2201]
10. 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]
11. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of gas combusted in the unit shall be installed, utilized and maintained. [District Rules 2201, 4305, 4306, and 4320]
12. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, tank vapor recovery gas, and gas produced during thermally enhanced oil recovery (TEOR) operation or a mixture of any of these fuels. [District Rule 2201]
13. Sulfur content in the gaseous fuel shall not exceed 1.0 grain per 100 dry standard cubic feet. [District Rule 2201]
14. Heat input to this unit shall not exceed 647,802 MMBtu in any one calendar year. [District Rule 2201]
15. Emission rates shall not exceed: PM10: 0.0035 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 7 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
16. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 1070, 2201, 4305, 4306, and 4320]
17. Sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD, double GC for H2S and mercaptans, performed in the laboratory. Should the applicant decide to use different methodology, the methodology must be approved by the District prior to its use. [District Rule 1070, 2201, 4305, 4306, and 4320]
18. The fuel higher heating value for each fuel shall be certified annually by third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2201, 4305, 4306, and 4320]
19. Source testing to measure fuel combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
20. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable 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 2201, 4305, 4306, and 4320]

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CONDITIONS CONTINUE ON NEXT PAGE

21. If either the NO_x or CO concentrations corrected to 3% O₂, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 2201, 4305, 4306, and 4320]
22. 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 2201, 4305, 4306, and 4320]
23. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x and CO concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201, 4305, 4306, and 4320]
24. 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 2201, 4305, 4306, and 4320]
25. Source testing to measure NO_x and CO emissions from this unit shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 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_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis. [District Rules 2201, 4305, 4306, and 4320]
28. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
29. Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 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 2201, 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 maintain cumulative monthly records of heat input in MMBtu to demonstrate compliance with the permitted annual heat input rate. [District Rules 2201, 4305, 4306, and 4320]
33. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 2201, 4305, 4306, and 4320]

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CONDITIONS CONTINUE ON NEXT PAGE

34. Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1354 lb/quarter; PM10: 741 lb/quarter, and VOC: 144 lb/qtr. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 9/21/06). PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10. [District Rule 2201]
35. ERC Certificate Numbers S-3585-2, S-3586-2, and S-3588-2 (NOx), S-3579-1 (VOC), and N-949-5 (PM10) (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
36. ATC shall be implemented concurrently with or subsequent to ATCs S-1327-155-1 through '-158-1. [District Rule 2201]
37. PTOs S-1327-107-0, '-111-0, '-115-0, and '-116-0 shall be canceled upon implementation of this ATC. [District Rule 2201]
38. ATC S-1326-141-0 is hereby canceled. [District Rule 2201]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-1327-142-1

LEGAL OWNER OR OPERATOR: VINTAGE PRODUCTION CALIFORNIA LLC
MAILING ADDRESS: 9600 MING AVE, SUITE 300
BAKERSFIELD, CA 93311

LOCATION: HEAVY OIL WESTERN, KERN COUNTY
CA

SECTION: 2&11 TOWNSHIP: 26S RANGE: 20E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 85 MMBTU/HR STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN MODEL 4231-85-GLE ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) AND OXYGEN CONTROLLER (OR EQUIVALENT); REMOVE REFERENCE TO UNITS '-120, '-137, AND '-138 IN PERMIT CONDITION 37 AND REQUIRE OFFSETS INSTEAD

CONDITIONS

1. Steam generator shall be equipped with variable frequency drive electrical motors driving the blower and water pump and a convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by manufacturer) or a manufacturer's overall thermal efficiency rating of 88%. [Public Resources Code 21000-21177: California Environmental Quality Act]
2. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]
3. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2010]
4. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [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-1327-142-1 : Dec 15 2011 9 23AM - EDGEHILR : Joint Inspection NOT Required

5. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]
6. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
7. {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]
8. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
9. This steam generator shall be located at the NE1/4 of Section 11, T26S, R20E, or the NW 1/4 of Section 2, T26S, R20E. [District Rule 2201]
10. 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]
11. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of gas combusted in the unit shall be installed, utilized and maintained. [District Rules 2201, 4305, 4306, and 4320]
12. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, tank vapor recovery gas, and gas produced during thermally enhanced oil recovery (TEOR) operation or a mixture of any of these fuels. [District Rule 2201]
13. Sulfur content in the gaseous fuel shall not exceed 1.0 grain per 100 dry standard cubic feet. [District Rule 2201]
14. Heat input to this unit shall not exceed 647,802 MMBtu in any one calendar year. [District Rule 2201]
15. Emission rates shall not exceed: PM10: 0.0035 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 7 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
16. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 1070, 2201, 4305, 4306, and 4320]
17. Sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD, double GC for H2S and mercaptans, performed in the laboratory. Should the applicant decide to use different methodology, the methodology must be approved by the District prior to its use. [District Rule 1070, 2201, 4305, 4306, and 4320]
18. The fuel higher heating value for each fuel shall be certified annually by third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2201, 4305, 4306, and 4320]
19. Source testing to measure fuel combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
20. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable 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 2201, 4305, 4306, and 4320]

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CONDITIONS CONTINUE ON NEXT PAGE

21. If either the NO_x or CO concentrations corrected to 3% O₂, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 2201, 4305, 4306, and 4320]
22. 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 2201, 4305, 4306, and 4320]
23. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x and CO concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201, 4305, 4306, and 4320]
24. 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 2201, 4305, 4306, and 4320]
25. Source testing to measure NO_x and CO emissions from this unit shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 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_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis. [District Rules 2201, 4305, 4306, and 4320]
28. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
29. Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 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 2201, 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 maintain cumulative monthly records of heat input in MMBtu to demonstrate compliance with the permitted annual heat input rate. [District Rules 2201, 4305, 4306, and 4320]
33. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 2201, 4305, 4306, and 4320]

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CONDITIONS CONTINUE ON NEXT PAGE

34. Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1354 lb/quarter; PM10: 741 lb/quarter, and VOC: 144 lb/qtr. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 9/21/06). PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10. [District Rule 2201]
35. ERC Certificate Numbers S-3585-2, S-3586-2, and S-3588-2 (NOx), S-3579-1 (VOC), and N-949-5 (PM10) (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
36. ATC shall be implemented concurrently with or subsequent to ATCs S-1327-155-1 through '-158-1. [District Rule 2201]
37. PTOs S-1327-107-0, '-111-0, '-115-0, and '-116-0 shall be canceled upon implementation of this ATC. [District Rule 2201]
38. ATC S-1326-142-0 is hereby canceled. [District Rule 2201]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
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PERMIT NO: S-1327-143-1

LEGAL OWNER OR OPERATOR: VINTAGE PRODUCTION CALIFORNIA LLC
MAILING ADDRESS: 9600 MING AVE, SUITE 300
BAKERSFIELD, CA 93311

LOCATION: HEAVY OIL WESTERN, KERN COUNTY
CA

SECTION: 2&11 **TOWNSHIP:** 26S **RANGE:** 20E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 85 MMBTU/HR STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN MODEL 4231-85-GLE ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) AND OXYGEN CONTROLLER (OR EQUIVALENT): REMOVE REFERENCE TO UNITS '-120, '-137, AND '-138 IN PERMIT CONDITION 37 AND REQUIRE OFFSETS INSTEAD

CONDITIONS

1. Steam generator shall be equipped with variable frequency drive electrical motors driving the blower and water pump and a convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by manufacturer) or a manufacturer's overall thermal efficiency rating of 88%. [Public Resources Code 21000-21177: California Environmental Quality Act]
2. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]
3. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2010]
4. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [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

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DAVID WARNER, Director of Permit Services

S-1327-143-1 Dec 15 2011 9:23AM - EDGEHILL - Joint Inspection NOT Required

5. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]
6. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
7. {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]
8. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
9. This steam generator shall be located at the NE1/4 of Section 11, T26S, R20E, or the NW 1/4 of Section 2, T26S, R20E. [District Rule 2201]
10. 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]
11. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of gas combusted in the unit shall be installed, utilized and maintained. [District Rules 2201, 4305, 4306, and 4320]
12. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, tank vapor recovery gas, and gas produced during thermally enhanced oil recovery (TEOR) operation or a mixture of any of these fuels. [District Rule 2201]
13. Sulfur content in the gaseous fuel shall not exceed 1.0 grain per 100 dry standard cubic feet. [District Rule 2201]
14. Heat input to this unit shall not exceed 647,802 MMBtu in any one calendar year. [District Rule 2201]
15. Emission rates shall not exceed: PM10: 0.0035 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 7 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
16. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 1070, 2201, 4305, 4306, and 4320]
17. Sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD, double GC for H2S and mercaptans, performed in the laboratory. Should the applicant decide to use different methodology, the methodology must be approved by the District prior to its use. [District Rule 1070, 2201, 4305, 4306, and 4320]
18. The fuel higher heating value for each fuel shall be certified annually by third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2201, 4305, 4306, and 4320]
19. Source testing to measure fuel combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
20. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable 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 2201, 4305, 4306, and 4320]

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CONDITIONS CONTINUE ON NEXT PAGE

21. If either the NO_x or CO concentrations corrected to 3% O₂, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 2201, 4305, 4306, and 4320]
22. 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 2201, 4305, 4306, and 4320]
23. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x and CO concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201, 4305, 4306, and 4320]
24. 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 2201, 4305, 4306, and 4320]
25. Source testing to measure NO_x and CO emissions from this unit shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 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_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis. [District Rules 2201, 4305, 4306, and 4320]
28. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
29. Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 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 2201, 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 maintain cumulative monthly records of heat input in MMBtu to demonstrate compliance with the permitted annual heat input rate. [District Rules 2201, 4305, 4306, and 4320]
33. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 2201, 4305, 4306, and 4320]

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CONDITIONS CONTINUE ON NEXT PAGE

34. Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1354 lb/quarter; PM10: 741 lb/quarter, and VOC: 144 lb/qtr. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 9/21/06). PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10. [District Rule 2201]
35. ERC Certificate Numbers S-3585-2, S-3586-2, and S-3588-2 (NOx), S-3579-1 (VOC), and N-949-5 (PM10) (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
36. ATC shall be implemented concurrently with or subsequent to ATCs S-1327-155-1 through '-158-1. [District Rule 2201]
37. PTOs S-1327-107-0, '-111-0, '-115-0, and '-116-0 shall be canceled upon implementation of this ATC. [District Rule 2201]
38. ATC S-1326-143-0 is hereby canceled. [District Rule 2201]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

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PERMIT NO: S-1327-144-1

LEGAL OWNER OR OPERATOR: VINTAGE PRODUCTION CALIFORNIA LLC
MAILING ADDRESS: 9600 MING AVE, SUITE 300
BAKERSFIELD, CA 93311

LOCATION: HEAVY OIL WESTERN, KERN COUNTY
CA

SECTION: 2&11 TOWNSHIP: 26S RANGE: 20E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 85 MMBTU/HR STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN MODEL 4231-85-GLE ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) AND OXYGEN CONTROLLER (OR EQUIVALENT); REMOVE REFERENCE TO UNITS '-120, '-137, AND '-138 IN PERMIT CONDITION 37 AND REQUIRE OFFSETS INSTEAD

CONDITIONS

1. Steam generator shall be equipped with variable frequency drive electrical motors driving the blower and water pump and a convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by manufacturer) or a manufacturer's overall thermal efficiency rating of 88%. [Public Resources Code 21000-21177: California Environmental Quality Act]
2. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]
3. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2010]
4. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

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Seyed Sadredin, Executive Director APCO

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DAVID WARNER, Director of Permit Services

S-1327-144-1 Dec 15 2011 9:23AM - EDGEMILR Joint Inspection NOT Required

5. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]
6. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
7. {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]
8. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
9. This steam generator shall be located at the NE1/4 of Section 11, T26S, R20E, or the NW 1/4 of Section 2, T26S, R20E. [District Rule 2201]
10. 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]
11. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of gas combusted in the unit shall be installed, utilized and maintained. [District Rules 2201, 4305, 4306, and 4320]
12. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, tank vapor recovery gas, and gas produced during thermally enhanced oil recovery (TEOR) operation or a mixture of any of these fuels. [District Rule 2201]
13. Sulfur content in the gaseous fuel shall not exceed 1.0 grain per 100 dry standard cubic feet. [District Rule 2201]
14. Heat input to this unit shall not exceed 647,802 MMBtu in any one calendar year. [District Rule 2201]
15. Emission rates shall not exceed: PM10: 0.0035 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 7 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
16. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be quarterly. If a quarterly fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 1070, 2201, 4305, 4306, and 4320]
17. Sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 4084, D 3246 or grab sample analysis by GC-FPD/TCD, double GC for H2S and mercaptans, performed in the laboratory. Should the applicant decide to use different methodology, the methodology must be approved by the District prior to its use. [District Rule 1070, 2201, 4305, 4306, and 4320]
18. The fuel higher heating value for each fuel shall be certified annually by third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rule 2201, 4305, 4306, and 4320]
19. Source testing to measure fuel combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial start-up. [District Rules 2201, 4305, 4306, and 4320]
20. The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every month (in which a source test is not performed) using a portable 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 2201, 4305, 4306, and 4320]

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CONDITIONS CONTINUE ON NEXT PAGE

21. If either the NO_x or CO concentrations corrected to 3% O₂, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 2201, 4305, 4306, and 4320]
22. 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 2201, 4305, 4306, and 4320]
23. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x and CO concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201, 4305, 4306, and 4320]
24. 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 2201, 4305, 4306, and 4320]
25. Source testing to measure NO_x and CO emissions from this unit shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 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_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis. [District Rules 2201, 4305, 4306, and 4320]
28. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
29. Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 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 2201, 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 maintain cumulative monthly records of heat input in MMBtu to demonstrate compliance with the permitted annual heat input rate. [District Rules 2201, 4305, 4306, and 4320]
33. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 1070, 2201, 4305, 4306, and 4320]

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CONDITIONS CONTINUE ON NEXT PAGE

34. Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1354 lb/quarter; PM10: 741 lb/quarter, and VOC: 144 lb/qtr. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 9/21/06). PM10 may be offset using SOx at an interpollutant offset ratio of 1.0 tons SOx/ton PM10. [District Rule 2201]
35. ERC Certificate Numbers S-3585-2, S-3586-2, and S-3588-2 (NOx), S-3579-1 (VOC), and N-949-5 (PM10) (or certificates split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]
36. ATC shall be implemented concurrently with or subsequent to ATCs S-1327-155-1 through '-158-1. [District Rule 2201]
37. PTOs S-1327-107-0, '-111-0, '-115-0, and '-116-0 shall be canceled upon implementation of this ATC. [District Rule 2201]
38. ATC S-1326-144-0 is hereby canceled. [District Rule 2201]

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San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-1327-145-1

LEGAL OWNER OR OPERATOR: VINTAGE PRODUCTION CALIFORNIA LLC

MAILING ADDRESS: 9600 MING AVE, SUITE 300
BAKERSFIELD, CA 93311

LOCATION: HEAVY OIL WESTERN, KERN COUNTY
CA

SECTION: 2&11 TOWNSHIP: 26S RANGE: 20E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 85 MMBTU/HR STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN MODEL 4231-85-GLE ULTRA LOW NOX BURNER, FLUE GAS RECIRCULATION (FGR) AND OXYGEN CONTROLLER (OR EQUIVALENT): REMOVE REFERENCE TO UNITS '-120, '-137, AND '-138 IN PERMIT CONDITION 37 AND REQUIRE OFFSETS INSTEAD

CONDITIONS

1. Steam generator shall be equipped with variable frequency drive electrical motors driving the blower and water pump and a convection section with at least 235 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by manufacturer) or a manufacturer's overall thermal efficiency rating of 88%. [Public Resources Code 21000-21177: California Environmental Quality Act]
2. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]
3. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2010]
4. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [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-1327-145-1 Dec 15 2011 9:23AM - EDGEHILL Joint Inspection NOT Required

5. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]
6. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
7. {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]
8. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
9. This steam generator shall be located at the NE1/4 of Section 11, T26S, R20E, or the NW 1/4 of Section 2, T26S, R20E. [District Rule 2201]
10. 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]
11. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of gas combusted in the unit shall be installed, utilized and maintained. [District Rules 2201, 4305, 4306, and 4320]
12. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, tank vapor recovery gas, and gas produced during thermally enhanced oil recovery (TEOR) operation or a mixture of any of these fuels. [District Rule 2201]
13. Sulfur content in the gaseous fuel shall not exceed 1.0 grain per 100 dry standard cubic feet. [District Rule 2201]
14. Heat input to this unit shall not exceed 647,802 MMBtu in any one calendar year. [District Rule 2201]
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