



JUN 1 3 2012

Jerry Frost Vintage Production California, LLC 9600 Ming Ave Bakersfield, CA 93311

Re: Notice of Preliminary Decision - Authority to Construct

Project Number: S-1114465

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 three new steam generators, at Vintage's Western Kern County Fields Heavy Oil stationary source in Section 2 Township 26S, Range 20E.

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. David Torii of Permit Services at 661-392-5620.

Sincerely.

David Warner

Director of Permit Services

DW:DBT/cm

Enclosures





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

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Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of Vintage Production California, LLC's application for an Authority to Construct for three new steam generators, at Vintage's Western Kern County Fields Heavy Oil stationary source in Section 2 Township 26S, Range 20E.

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. David Torii of Permit Services at 661-392-5620.

Sincerely,

David Warner

Director of Permit Services

DW: DBT/cm

Enclosure

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 three new steam generators, at Vintage's Western Kern County Fields Heavy Oil stationary source in Section 2 Township 26S, Range 20E.

The analysis of the regulatory basis for this proposed action, Project #S-1114465, 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, 34946 FLYOVER COURT, BAKERSFIELD, CA 93308.

San Joaquin Valley Air Pollution Control District Authority to Construct Application Review

Steam Generators

Facility Name: Vintage Production California, LLC

Mailing Address: 9600 Ming Ave, Suite 300 Engineer: David Torii

Bakersfield, CA 93311 Lead Engineer: Allan Phillips

Contact Person: Jerry Frost, HES Advisor

Telephone: (661) 869-8000

Fax: (661) 869-8059

Application #(s): S-1327-162-0, '163-0, '164-0, '165-0, '166-0 and '167-0

Project #: 1114465

Deemed Complete: 12/1/11

Proposal

Vintage Production California, LLC (Vintage) requests Authorities to Construct (ATCs) for a total of three new 62.5 MMBtu/hr steam generators (SGs). The applicant requests that one set of ATCs authorize the three SGs to combust a total of 3000 Mscf/day of waste gas and another set of ATCs authorizing the three SGs to combust a total of 4500 Mscf/day of waste gas.

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (4/21/11)	
Rule 2520 Federally Mandated Operating Permits (6/21/01)	
Rule 4001 New Source Performance Standards (4/14/99)	
Rule 4101 Visible Emissions (2/17/05)	
Rule 4102 Nuisance (12/17/92)	
Rule 4201 Particulate Matter Concentration (12/17/92)	
Rule 4301 Fuel Burning Equipment (12/17/92)	
Rule 4305 Boilers, Steam Generators and Process Heaters – Phase II (8/2	1/03)
Rule 4306 Boilers, Steam Generators and Process Heaters – Phase III (3/1	7/05)
Rule 4320 Advanced Emission Reduction Options for Boilers, Steam General	rators,
and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)	
Rule 4351 Boilers, Steam Generators and Process Heaters – Phase 1 (8/2)	1/03)

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 equipment will be located in Vintage's Lost Hills facilities in their Heavy Oil Western stationary source. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

The SGs will fire on PUC quality natural gas and waste gas received from the casing gas collection system listed on TEOR operations S-1327-110 and '161 and the vapor control system listed on tank permit S-1327-126. When combusting any waste gas, exhaust from a SG will be directed to an exhaust SOx 2-stage scrubber followed by a wet electrostatic precipitator (WESP). The SG will not use FGR while fired on waste gas. While fired solely on PUC quality natural gas, exhaust from the SG will not be directed to the exhaust SOx scrubber and WESP and will utilize FGR. When switching to, or from, firing on the waste gas/PUC gas mixture to solely PUC quality gas the burners will be changed in order to maintain emission compliance. The waste gas and PUC quality gas will be mixed upstream of the burner.

The proposed SOx scrubbing system will consist of dual stage SO2 absorbers followed by a WESP. In the first stage, caustic is utilized to maintain a pH of 6.5 in the recycle fluid. The recycle fluid will be maintained at a specific gravity of 1.12 to prevent precipitation of salts in the absorber vessel. The recycle fluid is a soluble solution of sodium sulfite, sodium bisulfite and sodium sulfate. There will be a bleed or blow down from the first stage absorber for disposal. The first stage absorber will remove 95% of the SO2 in the generator flue gas.

The second stage absorber is required for 99.9% and 99.5% removal of SO2 when combusting 3000 Mscf/day and 4500 Mscf/day, respectively, of 55,000 ppmv H2S. The second stage absorber's design is identical to the first stage's and will operate with a recycle solution of 7.5 pH. Caustic is added to the absorber for control of pH. As the level in the first stage absorber's integral recycle tank drops due to evaporation loss and blow down, liquid from the second stage absorber is pumped to the first stage to maintain the scrubber recycle fluid level. Water is then added to the second stage absorber to maintain the proper level in its integral tank.

An induced draft fan will be located between the first and second stage scrubbers to overcome pressure loss in the absorbers and WESP.

During the SO2 removal process the SO3 will condense into submicron acid mist which will be controlled with a WESP prior to exhausting to atmosphere.

V. Equipment Listing

Proposed ATCs:

- S-1327-162-0: 62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR AND TWO-STAGE EXHAUST GAS SOX SCRUBBING SYSTEM FOLLOWED BY A WET ESP SHARED WITH S-1327-163 AND '164
- S-1327-163-0: 62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR SERVED BY SOX SCRUBBING SYSTEM LISTED ON S-1327-162
- S-1327-164-0: 62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR SERVED BY SOX SCRUBBING SYSTEM LISTED ON S-1327-162
- S-1327-165-0: 62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR AND TWO-STAGE EXHAUST GAS SOX SCRUBBING SYSTEM FOLLOWED BY A WET ESP SHARED WITH S-1327-166 AND '167
- S-1327-166-0: 62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR SERVED BY SOX SCRUBBING SYSTEM LISTED ON S-1327-165
- S-1327-167-0: 62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR SERVED BY SOX SCRUBBING SYSTEM LISTED ON S-1327-165

Post Project Equipment Description:

- S-1327-162-0: 62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR AND TWO-STAGE EXHAUST GAS SOX SCRUBBING SYSTEM FOLLOWED BY A WET ESP SHARED WITH S-1327-163 AND '164
- S-1327-163-0: 62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR SERVED BY SOX SCRUBBING SYSTEM LISTED ON S-1327-162

S-1327-164-0: 62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR SERVED BY SOX SCRUBBING SYSTEM LISTED ON S-1327-162

S-1327-165-0: 62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR AND TWO-STAGE EXHAUST GAS SOX SCRUBBING SYSTEM FOLLOWED BY A WET ESP SHARED WITH S-1327-166 AND '167

S-1327-166-0: 62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR SERVED BY SOX SCRUBBING SYSTEM LISTED ON S-1327-165

S-1327-167-0: 62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR SERVED BY SOX SCRUBBING SYSTEM LISTED ON S-1327-165

VI. Emission Control Technology Evaluation

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

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

SOx emissions will be controlled by either firing on PUC quality gas or with the SOx scrubbing system described above in section IV. The SOx removal efficiency of the SOx scrubber is expected to be 99.9% when burning 3000 MSCFD and 99.5% ehen burning 4500 MSCFD.

VII. General Calculations

A. Assumptions

- The maximum operating schedule is 8760 hours per year
- The SGs are either fired solely on PUC quality natural gas or a mixture of PUC quality natural gas and waste gas
- SGs S-1327-162, '163 and '164 will be authorized to fire on a total of 3000 Mscf/day of waste gas for the three SGs
- SGs S-1327-165, '166 and '167 will be authorized to fire on a total of 4500 Mscf/day of waste gas for the three SGs
- Waste gas H2S concentration is 55,000 ppmv H2S
- Waste gas heating value: 452 MMbtu/scf
- PUC gas heating value: 1,000 Btu/scf (District Practice)
- Emissions calculated are based on full time waste gas firing (worst case NOx and SOx emissions)

B. Emission Factors

Pollutant	Em	ilssion Factors	Source
NO _x *	0.011 lb-NO _x /MMBtu	9 ppmvd NO _X (@ 3%O₂)	Applicant, BACT and Rule 4320
NO _x **	0.008 lb-NO _X /MMBtu	7 ppmvd NO _x (@ 3%O ₂)	Applicant, BACT and Rule 4320
SOx	0.00285 lb-SO _x /MMBtu		District Policy APR 1720
SOx	Waste gas	55,000 ppmv	Applicant
PM10	0.0076 lb-PM10/MMBtu		AP-42 (07/98) Table 1.4-2
со	0.018 lb-CO/MMBtu	25 ppmvd CO (@ 3%O₂)	Applicant
voc	0.0055 lb-VOC/MMBtu	13 ppmvd VOC (@ 3%O ₂)	AP-42 (07/98) Table 1.4-2

^{*}when firing on waste gas (BACT/Rule 4320 requirement)

C. Calculations

1. Pre-Project Potential to Emit (PE1)

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

2. Post Project Potential to Emit (PE2)

S-1327-162, '163 and '164

^{**}when firing on PUC quality natural gas (BACT/Rule 4320 requirement)

Daily SOx emissions from one SG firing on 3000 Mscf/day waste gas:

Daily SOx emissions from waste gas portion of fuel

(55,000 scf H2S/MMscf)(MMscf/452 MMBtu)(1 lb-mole/379 scf H2S)(34 lb-H2S/lb-mole) (64 lb-SOx/34 lb-H2S)(1 -- 0.999) = 0.0206 lb-SOx/MMBtu

(3000 Mscf/day)(452,000 Btu/Mscf)(0.0206 lb-SOx/MMBtu)(MM/1 E6) = 27.9 lb-SOx/day

Daily SOx emissions from PUC gas portion of fuel

[(62.5 MMBtu)(24 hr/day) - (3000 Mscf/day)(452,000 Btu/Mscf)(MM/1 E6)] (0.00285 lb-SOx/MMBtu) (1 -0.999) = 0.0 lb-SOx/day

Total daily SOx emissions from one SG firing on 3000 Mscf/day waste gas:

27.9 lb-SOx/day + 0 lb-SOx/day = 27.9 lb-SOx/day

Bubbled SOx emissions from S-1327-162, '163 and '164 when firing on 3000 Mscf/day H2S

Daily SOx emissions from waste gas portion of fuel

(3000 Mscf/day)(452,000 Btu/Mscf)(0.0206 lb-SOx/MMBtu)(MM/1 E6) = 27.9 lb-SOx/day

Bubbled daily SOx emissions from PUC gas portion of fuel

[(62.5 MMBtu)(24 hr/day)(3 SG) - (3000 Mscf/day)(452,000 Btu/Mscf)(MM/1 E6)](0.00285 lb-SOx/MMBtu)(1 - 0.999) = 0.0 lb-SOx/day

Total daily bubbled SOx emissions from S-1327-162, '163 and '164 when firing on 3000 Mscf/day waste gas:

27.9 + 0 = 27.9 lb-SOx/day

S-1327-162-0					
	EF	Rating		lb/day	
NO _X	0.011 lb-NO _x /MMBtu			16.5	
SOx	See above			27.9*	
SO _X	See above	62.5 MMBtu/hr	24 hr/day	27.9**	
PM10	0.0076 lb-PM10/MMBtu	OZ.O WINIDLAMI	Wibitahii 24 Hiliday	11.4	
CO	0.018 lb-CO/MMBtu			27.0	
VOC	0.0055 lb-VOC/MMBtu	1		8.25	

^{*}emissions from one SG when fired on waste gas

^{**}bubbled limit for S-1327-163, '164 and '165 when fired on waste gas

S-1327-163-0					
	EF	Rating		lb/day	
NO _X	0.011 lb-NO _x /MMBtu				16.5
SO _x	See above	1	24 hr/day	27.9*	
SO _X	See above	62.5 MMBtu/hr		27.9**	
PM10	0.0076 lb-PM10/MMBtu	OZ.O WIWIDIGATII		11.4	
CO	0.018 lb-CO/MMBtu		27.0		
VOC	0.0055 lb-VOC/MMBtu			8.25	

^{*}emissions from one SG when fired on waste gas

^{**}bubbled limit for S-1327-163, '164 and '165 when fired on waste gas

S-1327=164-0					
	EF	Rating		lb/day	
NO _X	0.011 lb-NO _x /MMBtu				16.5
SO _X	See above		2.5 MMBtu/hr 24 hr/day	27.9*	
SO _x	See above	62.5 MMRtu/hr		27.9**	
PM10	0.0076 lb-PM10/MMBtu	02.5 WIWIBIANII		11.4	
CO	0.018 lb-CO/MMBtu				27.0
VOC	0.0055 lb-VOC/MMBtu				8.25

^{*}emissions from one SG when fired on waste gas

Total annual SOx emissions from S-1327-162, '163 and '164 when fired on a total of 3000 Mscf/day H2S:

Annual SOx emissions from firing on total of 3000 Mscf-H2S/day:

(3000 Mscf/day)(452,000 Btu/Mscf)(MM/1 E6)(365 day/yr)(0.0206 lb-SOx/MMBtu) = 10,196 lb-SOx/yr

Annual SOx emissions from PUC gas portion of mixture:

[(62.5 MMbtu/hr)(8760 hr/yr)(3 SGs) - (3000 Mscf/day)(452,000 Btu/Mscf)(MM/1 E6)(365 day/yr)](0.00285 lb-SOx/MMBtu)(1 - 0.999) = 3 lb/yr

Total annual SOx emissions from S-1327-162, '163 and '164:

10,196 + 3 = 10,199 lbSOx/yr

S-1327-162-0				
	EF	Rating		lb/yr
NO _X	0.011 lb-NO _X /MMBtu			6023
SOx	See above	7	8760 hr/yr	10,199*
PM10	0.0076 lb-PM10/MMBtu	62.5 MMBtu/hr		4161
CO	0.018 lb-CO/MMBtu			9855
VOC	0.0055 lb-VOC/MMBtu			3011

^{*}bubbled limit for S-1327-163, '164 and '165 when fired on waste gas

^{**}bubbled limit for S-1327-163, '164 and '165 when fired on waste gas

	S-1327-163-0				
	EF	Rating		lb/yr	
NO _x	0.011 lb-NO _x /MMBtu			6023	
SO _x	See above		8760 hr/yr	10,199*	
PM10	0.0076 lb-PM10/MMBtu	62.5 MMBtu/hr		4161	
CO	0.018 lb-CO/MMBtu			9855	
VOC	0.0055 lb-VOC/MMBtu			3011	

^{*}bubbled limit for S-1327-163, '164 and '165 when fired on waste gas

	S-1327-164-0				
	EF	Rating		lb/yr	
NO _x	0.011 lb-NO _x /MMBtu			6023	
SO _X	See above		8760 hr/yr	10,199*	
PM10	0.0076 lb-PM10/MMBtu	62.5 MMBtu/hr		4161	
CO	0.018 lb-CO/MMBtu	· .		9855	
VOC	0.0055 lb-VOC/MMBtu			3011	

^{*}bubbled limit for S-1327-163, '164 and '165 when fired on waste gas

S-1327-165, '166 and '167

Daily SOx emissions from one SG when two SGs firing on 4500 Mscf/day waste gas:

(55,000 scf H2S/MMscf)(MMscf/452 MMBtu)(1 lb-mole/379 scf H2S)(34 lb-H2S/lb-mole) (64 lb-SOx/34 lb-H2S)(1 ~ 0.995) = 0.103 lb-SOx/MMBtu

(62.5 MMBtu/hr)(0.103 lb-SOx/MMBtu)(24 hr/day) = 154.5 lb-SOx/day

Worst case daily SOx emissions from two steam generators are firing on a total 4500 Mscf/day waste gas and one is firing on PUC-quality gas:

SOx emissions from firing on 4500 Mscf H2S

(4500 Mscf/day)(452,000 Btu/Mscf)(MM/1 E6)(0.103 lb-SOx/MMBtu) =209.5 lb-SOx/day

SOx emissions from firing one steam generator on PUC-quality gas:

(62.5 MMBtu/day)(24 hr/day)(0.00285 lb-SOx/MMBtu) = 4.3 lb-SOx/day

Total worst case SOx emissions from S-1327-165, '166 and '167:

209.5 + 4.3 = 213.8 lb-SOx/day

PE2 emissions are calculated assuming waste gas firing.

S-1327-165-0					
	EF	Rating		lb/day	
NO _x	0.011 lb-NO _x /MMBtu				16.5
SO _X	See above	7	24 hr/day	209.5*	
SO _x	See above	62.5 MMBtu/hr		213.8**	
PM10	0.0076 lb-PM10/MMBtu	- 02.5 WINDLAM	2-4 111/day	11.4	
CO	0.018 lb-CO/MMBtu			27.0	
VOC	0.0055 lb-VOC/MMBtu	<u> </u>		8.25	

^{*}limit assuming unit is fired on solely waste gas

^{**}bubbled worst case limit for S-1327-165, '166 and '167 when fired on waste gas

S-1327-166-0				
	EF	Rating		lb/day
NO _X	0.011 lb-NO _x /MMBtu		16.5	
SO _X	See above		24 hr/day	209.5*
SO _x	See above	62.5 MMBtu/hr		213.8**
PM10	0.0076 lb-PM10/MMBtu	OZ.O WINDLO/III		11.4
CO	0.018 lb-CO/MMBtu		27.0	
VOC	0.0055 lb-VOC/MMBtu			8.25

^{*}limit assuming unit is fired on solely waste gas

^{**}bubbled limit for S-1327-165, '166 and '167 when fired on waste gas

S-1327-167-0				
	EF	Rating		lb/day
NO _X	0.011 lb-NO _x /MMBtu			16.5
SO _X	See above		5 MMBtu/hr 24 hr/day	209.5*
SO _X	See above	62.5 MMRtu/hr		213.8**
PM10	0.0076 lb-PM10/MMBtu	OZ.S WINDLAM		11.4
CO	0.018 lb-CO/MMBtu			27.0
VOC	0.0055 lb-VOC/MMBtu			8.25

^{*}Limit assuming unit is fired on solely waste gas

Total annual worst case SOx emissions from S-1327-165, '166 and '167:

(213.8 lb-SOx/day)(365 days/year) = 78,037 lbSOx/yr

S-1327-165-0					
	EF	Rating		lb/yr	
NOx	0.011 lb-NO _x /MMBtu				6023
SO _X	See above		8760 hr/yr	78,037*	
PM10	0.0076 lb-PM10/MMBtu	62.5 MMBtu/hr		4161	
CO	0.018 lb-CO/MMBtu			9855	
VOC	0.0055 lb-VOC/MMBtu			3011	

^{*}bubbled limit for S-1327-165, '166 and '167 when fired on waste gas

^{**}bubbled worst case limit for S-1327-165, '166 and '167 when fired on waste gas

	S-10	327-166-0		
	EF	Rating		lb/yr
NO _x	0.011 lb-NO _x /MMBtu			6023
SO _X	See above		8760	78,037*
PM10	0.0076 lb-PM10/MMBtu	62.5 MMBtu/hr	hr/yr	4161
CO	0.018 lb-CO/MMBtu		,, y i	9855
VOC	0.0055 lb-VOC/MMBtu			3011

^{*}bubbled limit for S-1327-165, '166 and '167 when fired on waste gas

AND S	S-1	327-167-0		
	EF	Rating		lb/yr
NO _x	0.011 lb-NO _x /MMBtu			6023
SO _x	See above		8760	78,037*
PM10	0.0076 lb-PM10/MMBtu	62.5 MMBtu/hr	hr/yr	4161
CO	0.018 lb-CO/MMBtu		1117 91	9855
VOC	0.0055 lb-VOC/MMBtu			3011

^{*}bubbled limit for S-1327-165, '166 and '167 when fired on waste gas

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

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

Pre	-Project Stationa	ry Source P	otential to E	mit [SSPE1] (lb	/year)
	NO _X	SO _X	PM ₁₀	CO	VOC
SSPE1	>20,000	44,428	58,198	>200,000	>20,000

See calculation in Appendix B

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 S	S-132 Stationary So	27-162, '163 ource Poter	and '164 Itial to Emit [SSPE2] (lb/	year)
Permit Unit	NO _X	SO _X	PM ₁₀	CO	VOC
SSPE1	>20,000	44,428	58,198	>200,000	>20,000
S-1327-162-0	6023		4161	9855	3011
S-1327-163-0	6023	10,199	4161	9855	3011
S-1327-164-0	6023		4161	9855	3011
Post Project SSPE (SSPE2)	>20,000+ 18,069	54,627	70,681	>200,000 + 29,565	>20,000+ 9033

Post Project S		27-165, '166 a ource Poten		SSPE2] (lb/y	year)
Permit Unit	NOx	SOx	PM ₁₀	CO	VOC
SSPE1	>20,000	44,428	58,398	>200,000	>20,000
S-1327-162-0	6023		4161	9855	3011
S-1327-163-0	6023	78,037	4161	9855	3011
S-1327-164-0	6023		4161	9855	3011
Post Project SSPE (SSPE2)	>20,000+ 18,069	122,465	70,881	>200,000 + 29,565	>20,000+ 9033

5. Major Source Determination

Pursuant to Section 3.23 of District Rule 2201, a Major Source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values. However, Section 3.23.2 states, "for the purposes of determining major source status, the SSPE2 shall not include the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site."

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

6. Baseline Emissions (BE)

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

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

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

otherwise,

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

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

7. SB 288 Major Modification

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

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

	SB 288 Majo	or Modification Thre	sholds
Pollutant	Project PE2 (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
NO _x	18,069	50,000	No
SO _x	78,037	80,000	. No
PM ₁₀	12,483	30,000	No
VOC	9033	50,000	No

Since none of the SB 288 Major Modification Thresholds are surpassed with this project, this project does not constitute a SB288 Major Modification.

8. Federal Major Modification

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

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

Step 1

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

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

Federa	Major Modification Th	resholds for Emiss	ion Increases
Pollutant	Total Emissions	Thresholds	Federal Major
	Increases (lb/yr)	(lb/yr)	Modification?
NO _x *	18,069	0	Yes
VOC*	9033	0	Yes
PM ₁₀	12,483	30,000	No
PM _{2.5}	12,483	20,000	No
SOx	78,037	80,000	No

^{*}If there is any emission increases in NO_x or VOC, this project is a Federal Major Modification and no further analysis is required.

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

9. Quarterly Net Emissions Change (QNEC)

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

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

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

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

^{*}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.

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

2. BACT Guideline

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

3. Top-Down BACT Analysis

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

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

NO_X: 7 ppmv @ 3% O2 and 9 ppmv when waste gas fired

SO_X: Natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating 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, 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: 35 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.

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

		162, '163 an ermination			
	NOx	SO _X	PM ₁₀	CO	VOC
Post Project SSPE (SSPE2)	>20,000	54,627	70,881	>200,000	>20,000
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	No	Yes	Yes	Yes

190 m		165, '166 an termination			
	NOx	SO _X	PM ₁₀	CO	VOC
Post Project SSPE (SSPE2)	>20,000	122,465	70,881	>200,000	>20,000
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	Yes	Yes	Yes	Yes

2. Quantity of Offsets Required

NOx:

 $PE2 (NO_X) = 18,069 lb/year$

BE $(NO_X) = 0 lb/year$

ICCE = 0 lb/year

The project is a Federal Major Modification and therefore the correct offset ratio for NOx and VOCs is 1.5:1.

Assuming an offset ratio of 1.5:1, the amount of NO_X ERCs that need to be withdrawn is:

Offsets Required (lb/year) =
$$([18,069 - 0] + 0) \times 1.5$$

= 27,104 lb NO_x/year

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

1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
6776	6776	6776	6776

The applicant has stated that the facility plans to use ERC certificates C-1087-2, N-831-2, N-948-2, S-3038-2, S-3054-2, S-3586-2, S-3587-2, S-3589-2, S-3590-2, S-3591-2 and S-3592-0 to offset the increases in NO_X emissions associated with this project. The above certificates have available quarterly NO_X credits as follows:

ERC	Quarter				
	1st	2 nd	3 rd	4th	
C-1087-2	753	0	0	310	
N-831-2	173	0	3	0	
N-948-2	1532	1530	1530	1530	
S-3038-2	417	345	508	572	
S-3054-2	22	0	0	0	
S-3586-2	0	1512	6228	0	
S-3587-2	758	694	618	1641	
S-3589-2	1837	0	0	598	
S-3590-2	. 0	434	0	0	
S-3591-2	508	498	408	379	
S-3592-2	1283	275	1967	1412	
Total:	7283	5288	11,262	6442	
Offsets	6776	6776	6776	6776	
Required:				·	
Remainder:	507	-1488	4486	-344	
Transferred		1488			
from 3 rd qtr				344	
Remainder:	507	0	4486-1488-		
		(<u>. 186 - 4.6 40.4</u>)	344=2654		

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

Proposed Rule 2201 (offset) Conditions:

- {GC# 4447 edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender NO_X emission reduction credits for the following quantity of emissions: 1st quarter 6776 lb, 2nd quarter 6776 lb, 3rd quarter 6776 lb, and fourth quarter 6776 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- ERC Certificate Numbers C-1087-2, N-831-2, N-948-2, S-3038-2, S-3054-2, S-3586-2, S-3587-2, S-3589-2, S-3590-2, S-3591-2 and S-3592-0 (or a certificate(s) split from this certificate(s)) 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]

VOC:

PE2 (NO_X) = 9033 lb/year BE (NO_X) = 0 lb/year ICCE = 0 lb/year

The project is a Federal Major Modification and therefore the correct offset ratio for NOx and VOCs is 1.5:1.

Assuming an offset ratio of 1.5:1, the amount of VOC ERCs that need to be withdrawn is:

Offsets Required (lb/year) =
$$([9033 - 0] + 0) \times 1.5$$

= 13.550 lb NO_x/year

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

1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
3388	3388	3388	3388

The applicant has stated that the facility plans to use ERC certificates N-832-1, N-833-1, S-730-1, S-734-1, S-735-1, S-736-1, S-737-1, S-738-1, S-1755-1, S-1756-1, S-1757-1, S-1758-1, S1759-1, S-3573-1, S-3575-1, S-3576-1, S-3577-1, S-3582-1 and S-3584-1 to offset the increases in VOC emissions associated with this project. The above certificate has available quarterly VOC credits as follows:

Vintage Production California, LLC 1114465, S-1327

ERC		Quarter			
	1st	2 nd	3 rd	4 th	
N-832-1	30	30	32	30	
N-833-1	16	16	14	14	
S-730-1	69	97	110	67	
S-734-1	4	8	8	4	
S-735-1	7	11	13	8	
S-736-1	80	157	165	81	
S-737-1	310	575	603	317	
S-738-1	192	375	395	198	
S-1755-1	53	109	120	52	
S-1756-1	360	778	883	372	
S-1757-1	2	7	9	4	
S-1758-1	88	193	195	93	
S-1759-1	137	267	382	193	
S-3573-1	45	45	45	45	
S-3575-1	0	0	10	0	
S-3576-1	96	221	234	98	
S-3577-1	203	463	491	214	
S-3582-1	123	1513	2068	162	
S-3584-1	362	290	454	518	
Total:	2177	5155	6231	2470	
Offsets	3388	3388	3388	3388	
Required:					
Remainder:	-1211	1767	2843	-918	
Transferred from 3 rd qtr	1211			918	
Remainder:	0	1766	2843-1211- 918=714	0	

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

Proposed Rule 2201 (offset) Conditions:

- {GC# 4447 edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter 3388 lb, 2nd quarter 3388 lb, 3rd quarter 3388 lb, and fourth quarter 3388 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- ERC Certificate Numbers N-832-1, N-833-1, S-730-1, S-734-1, S-735-1, S-736-1, S-737-1, S-738-1, S-1755-1, S-1756-1, S-1757-1, S-1758-1, S1759-1, S-3573-1, S-3575-1, S-3576-1, S-3577-1, S-3582-1 and S-3584-1 (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]

SOx (For S-1327-165-0, '166-0 and '167-0):

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

Per Sections 4.7.2 and 4.7.3, the quantity of offsets in pounds per year for SO_X is calculated as follows for sources with an SSPE1 less than the offset threshold levels before implementing the project being evaluated.

Offsets Required (lb/year) = [(SSPE2 - ROT + ICCE) x DOR]

Where,

SSPE2 = Post Project Stationary Source Potential to Emit

ROT = Respective Offset Threshold, for the respective pollutant indicated in

Section 4.5.3.

ICCE = Increase in Cargo Carrier Emissions

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

Offsets Required (lb/year) = [(SSPE2 – Offset threshold – ROT + ICCE) x DOR]

SSPE2 (SO_X) = 122,465 lb/year Offset threshold (SO_X) = 54,750 lb/year ICCE = 0 lb/year

Assuming an offset ratio of 1.5:1, the amount of SO_X ERCs that need to be withdrawn is:

Offsets Required (lb/year) = $[(122,465 - 54,750 + 0) \times 1.5]$ = $67,715 \times 1.5$ = 101,573 lb SO_x/year

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

 1st Quarter
 2nd Quarter
 3rd Quarter
 4th Quarter

 25,393
 25,393
 25,393
 25,393

The applicant has stated that the facility plans to use ERC certificates C-1086-5, N-935-5, N-1001-5, N-1004-5, S-3526-5 and S-3527-5 to offset the increases in SO_X emissions associated with this project. The above certificates have available quarterly SO_X credits as follows:

ERC	Quarter				
	1st	2 nd	3 rd	4th	
C-1086-5	1598	0	0	0	
N-935-5	0	. 0	0	936	
N-1001-5	. 0	0	9774	0	
N-1004-5	34014	32292	24951	35007	
S-3526-5	325	0	0	0	
S-3527-5	5	0	0	0	
Total:	35942	32292	34725	35943	
Offsets	25,393	25,393	25,393	25,393	
Required:					
Remainder					
from N-1004-5:	11,132	7,482	9,915	11,133	

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

Proposed Rule 2201 (offset) Conditions:

- {GC# 4447 edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender SO_X emission reduction credits for the following quantity of emissions: 1st quarter 25,393 lb, 2nd quarter 25,393 lb, 3rd quarter 25,393 lb, and fourth quarter 25,393 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- ERC Certificate Numbers C-1086-5, N-935-5, N-1001-5, N-1004-5, S-3526-5 and S-3527-5 (or a certificate(s) split from this certificate(s)) 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]

PM10:

PE2 (PM10) = 12,483 lb/year BE (PM10) = 0 lb/year ICCE = 0 lb/year

Assuming an offset ratio of 1.5:1, the amount of PM10 ERCs that need to be withdrawn is:

Offsets Required (lb/year) = ([12,483 - 0] + 0) x 1.5 = 18,725 lb PM10/year

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

 1st Quarter
 2nd Quarter
 3rd Quarter
 4th Quarter

 4681
 4681
 4681
 4681

Pursuant to draft District policy APR 1430, SOx ERCs may be used to offset PM10 at an interpollutant ratio of 1.0: 1.0. The applicant has stated that the facility plans to use the remainder of SOx ERC certificate N-1004-5 (see above SOx offset calculations) to offset the increases in PM10 emissions associated with this project. The certificate has available quarterly SOx credits as follows:

ERC #N-1004-5 11,129 2nd Quarter 3rd Quarter 4th Quarter 7,479 9,912 11,130

ERC	Quarter			
	1st	2 nd	3 rd	4th
N-1004-5	11,129	7,479	9,912	11,130
Offsets	4681	4681	4681	4681
Required:		İ		
Remainder:	6,448	2,798	5,231	6,449

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

Proposed Rule 2201 (offset) Conditions:

- {GC# 4447 edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender SO_X emission reduction credits for the following quantity of emissions: 1st quarter 4681 lb, 2nd quarter 4681 lb, 3rd quarter 4681 lb, and fourth quarter 4681 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- ERC Certificate Number N-1004-5 (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]

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

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

b. PE > 100 lb/day

The PE2 for this new unit is compared to the daily PE Public Notice thresholds in the following table:

PE > 100 lb/day Public Notice Thresholds					
Pollutant	PE2 (lb/day)	Public Notice Threshold	Public Notice Triggered?		
NO _X	16.5	100 lb/day	No		
SO _X	209.5	100 lb/day	Yes		
PM ₁₀	11.4	100 lb/day	No		
CO	27.0	100 lb/day	No		
VOC	8.3	100 lb/day	No		

Therefore, public noticing for PE > 100 lb/day purposes is required.

c. Offset Threshold

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

		Offset Thresho	old	
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	37,484	120,909	54,750 lb/year	Yes
PM ₁₀	58,398	70,881	29,200 lb/year	No
CO	>200,000	>200,000	200,000 lb/year	No
VOC	>20,000	>20,000	20,000 lb/year	No

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

d. SSIPE > 20,000 lb/year

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

Stationar	Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?			
NO _x	18,069	20,000 lb/year	No			
SO _x	78,037	20,000 lb/year	Yes			
PM ₁₀	70,881	20,000 lb/year	Yes			
СО	356,477	20,000 lb/year	Yes			
VOC	9033	20,000 lb/year	No			

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

2. Public Notice Action

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

D. Daily Emission Limits (DELs)

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

Proposed Rule 2201 (DEL) Conditions:

S-1327-162-0, '163-0 and '164-0:

 Two stage scrubber, including wet electrostatic precipitator, control efficiency shall be maintained at least 99.9% by weight sulfur compounds or greater. [District Rule 2201] N

- Waste gas H2S concentration shall not exceed 55,000 ppmv. [District Rule 2201] N
- Units S-1327-162, '163 and '164 shall not consume greater than a combined total of 3000 Mscf/day of waste gas. [District Rule 2201] N
- When fired solely on PUC quality natural gas emission rates shall not exceed: PM10: 0.0076 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] N
- When fired mixture of waste gas and PUC quality natural gas emission rates shall not exceed: PM10: 0.0076 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 11 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320] N

S-1327-165-0, '166-0 and '167-0:

- Two stage scrubber, including wet electrostatic precipitator, control efficiency shall be maintained at least 99.5% by weight sulfur compounds or greater. [District Rule 2201] N
- Waste gas H2S concentration shall not exceed 55,000 ppmv. [District Rule 2201] N
- Units S-1327-165, '166 and '167 shall not consume greater than a combined total of 4500 Mscf/day of waste gas. [District Rule 2201] N
- When fired solely on PUC quality natural gas emission rates shall not exceed: PM10: 0.0076 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] N
- When fired mixture of waste gas and PUC quality natural gas emission rates shall not exceed: PM10: 0.0076 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 11 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320] N

E. Compliance Assurance

1. Source Testing

This unit is subject to District Rule 4305, Boilers, Steam Generators and Process Heaters, Phase 2, and District Rule 4306, Boilers, Steam Generators and Process Heaters, Phase 3. Source testing requirements, in accordance with District Rules 4305 and 4306, will be discussed in Section VIII, District Rules 4305 and 4306, of this evaluation.

 District policy APR 1705 requires that combustion equipment served by an electrostatic precipitator be tested for PM10 upon initial start-up and annually thereafter.

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

- When any unit is connected to scrubber/wet ESP and is burning TEOR/TVR gas, scrubber/wet ESP shall be operating and permittee shall demonstrate compliance with PM10 and sulfur oxide emissions limit by stack source testing within 60 days of initial scrubbing date and annually thereafter. Sulfur removal efficiency of scrubber/wet ESP shall be demonstrated during initial stack source test and calculated with subsequent tests. Ongoing compliance with sulfur oxide emissions limit shall be by calculation using the scrubber liquid pH, the demonstrated sulfur removal efficiency, and the fuel gas sulfur content. Fuel gas sulfur content shall be obtained by sample analysis at least quarterly. [District Rules 2201 and 4320] N
- When complying with PM10 and SOx emission limits by testing of stack emissions, testing shall be performed using EPA Methods 5 or 201A, 6, 6B, 8, or ARB 100 or ARB Methods 1-6. When operating unscrubbed, a grab sample analysis by double GC performed in the laboratory and EPA Method 19 may be used to calculate SOx emissions. [District Rules 2201 4320] N

2. Monitoring

As required by District Rule 4305, Boilers, Steam Generators and Process Heaters, Phase 2, and District Rule 4306, Boilers, Steam Generators and Process Heaters, Phase 3, this unit is subject to monitoring requirements. Monitoring requirements, in accordance with District Rules 4305 and 4306, will be discussed in Section VIII, District Rules 4305 and 4306, of this evaluation.

3. Recordkeeping

As required by District Rule 4305, Boilers, Steam Generators and Process Heaters, Phase 2, and District Rule 4306, Boilers, Steam Generators and Process Heaters, Phase 3, this unit is subject to recordkeeping requirements. Recordkeeping requirements, in accordance with District Rules 4305 and 4306, will be discussed in Section VIII, District Rules 4305 and 4306, of this evaluation.

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

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

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis

Section 4.14.1 of this Rule requires that an ambient air quality analysis (AAQA) be conducted for the purpose of determining whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard.

Technical Services performed modeling for criteria pollutants CO, NOx, SOx and PM₁₀; as well as a RMR. The emission rates used for criteria pollutant modeling were 1.13 lb/hr CO, 0.6875 lb/hr NOx, 2.9633 lb/hr SOx, and 0.477 lb/hr PM₁₀. The engineer supplied the maximum fuel rate for the IC engine used during the analysis. Refer to **Appendix E** of this document for the AAQA summary sheet.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Diesel ICE	1 Hour	3 Hours	8 Hours.	24 Hours	Annual
co	Pass	X	Pass	X	X
NO _x	Pass	X	X	X	Pass
SO _x	Pass	∴ Pass	X	Pass	Pass
PM ₁₀	X	X	Χ	Pass ²	· · · Pass²
PM _{2.5}	X	X	Х	· Pass²	Pass ²

^{*}Results were taken from the attached PSD spreadsheet.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Title I Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Sections VIII-Rule 2201-C.1.a and VIII-Rule 2201-C.1.b, this facility is a new major source and this project does constitute a Title I modification, therefore this requirement is applicable. Included in **Appendix D** is Vintage's compliance certification.

H. Alternate Siting Analysis

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

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

¹The project was compared to the 1-hour NO2 National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures. ²The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

Rule 2520 Federally Mandated Operating Permits

Pursuant to their current operating permit, this facility is an existing major source; however, the facility has not received their Title V permit. An application to comply with Rule 2520 - Federally Mandated Operating Permits has already been submitted to the District; therefore, no action is required at this time.

Rule 4001 New Source Performance Standards (NSPS)

40 CFR Part 60, Subpart Dc applies to affected Small Industrial-Commercial-Industrial Steam Generation Units between 10 MMBtu/hr and 100 MMBtu/hr (post-6/9/89 construction, modification or, reconstruction). Steam generation units only fired on gaseous fuel are not affected units since this subpart does not include any applicable standards for gaseous fired units. Therefore, Subpart Dc does not apply to these units.

Rule 4101 Visible Emissions

Per Section 5.0, no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity). As the SGs are fired on gas and equipped with SOx scrubbers, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity. Also, based on past inspections of the facility continued compliance 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 Assessment)

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

An HRA is not required for a project with a total facility prioritization score of less than or equal to one. According to the Technical Services Memo for this project (**Appendix E**), 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.

Discussion of T-BACT

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is not required for this project because

the HRA indicates that the risk is not above the District's thresholds for triggering T-BACT requirements; therefore, compliance with the District's Risk Management Policy is expected.

Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot. As natural gas-fired combustion equipment emits negligible amounts of particulate matter, compliance with this rule is expected.

District Rule 4301 Fuel Burning Equipment

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

The maximum emission rates in lb/hr for each of the steam generator in this project are as follows:

District Rule 4301 Limits (lb/hr)				
Pollutant	NO ₂	Total PM	SO ₂	
ATC S-1327-162-0	0.7	0.5	6.4	
ATC S-1327-163-0	0.7	0.5	6.4	
ATC S-1327-164-0	0.7	0.5	6.4	
ATC S-1327-165-0	0.7	0.5	8.7	
ATC S-1327-166-0	0.7	0.5	8.7	
ATC S-1327-167-0	0.7	0.5	8.7	
Rule Limit (lb/hr)	140	10	200	

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

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

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

Rule 4305 Boilers, Steam Generators and Process Heaters -- Phase 2

The proposed steam generator is natural gas-fired with a maximum heat input of 85.0 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4305, the unit is subject to District Rule 4305, Boilers, Steam Generators and Process Heaters – Phase 2.

In addition, the unit is also subject to District Rule 4306, Boilers, Steam Generators and Process Heaters – Phase 3 and Rule 4320, Advanced Emission Reduction Options for Boilers, Steam Generators and Process Heaters Greater than 5 MMBtu/hr.

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

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

The proposed steam generator is natural gas-fired with a maximum heat input of 85.0 MMBtu/hr each. 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.

In addition, the unit is also subject to District Rule 4320, Advanced Emission Reduction Options for Boilers, Steam Generators and Process Heaters Greater than 5 MMBtu/hr

Since 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

This rule limits NOx, CO, SO2 and PM10 emissions from boilers, steam generators and process heaters rated greater than 5 MMBtu/hr. This rule also provides a compliance option of payment of fees in proportion to the actual amount of NOx emitted over the previous year.

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

Section 5.1 NOx Emission Limits

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

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

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

Rule 4320 Emissions Limits						
	Operati	Operated on gaseous fuel				
Category	NO _x Limit	Authority to Construct	Compliance Deadline			
	a) Standard Schedule 7 ppmv or 0.008 lb/MMBtu; or	July 1, 2009	July 1, 2010			
2. Units with a total rated heat input >20.0 MMBtu/hr	b) Staged Enhanced Schedule Initial Limit 9 ppmv or 0.011 lb/MMBtu; and	July 1, 2011	July 1, 2012			
	Final Limit 5 ppmv or 0.0062 lb/MMBtu	January 1, 2013	January 1, 2014			
3. Units firing on less than 50%, by volume, PUC quality gas.	Staged Enhanced Schedule Initial Limit 12 ppmv or 0.014 lb/MMBtu; and	July 1, 2010	July 1, 2011			
1 00 quality gas.	Final Limit 9 ppmv or 0.011 lb/MMBtu	January 1, 2013	January 1, 2014			

The proposed NOx limit when fired solely on PUC quality natural gas is 7 ppmv

The proposed NOx limit when fired on a mixture of waste gas and PUC quality natural gas is 9 ppmv

Therefore, compliance with Section 5.2 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 5.4 Particulate Matter Control Requirements

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

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

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

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

The steam generator will be fired on natural gas/TEOR gas/TVR gas. Vintage will will reduce SO2 emissions by at least 95% by weight. Therefore, compliance with this section of the rule is expected.

Section 5.5 Low-Use Unit

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

Section 5.7 Monitoring Provisions

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

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

- {2395} The permittee shall monitor and record the stack concentration of NOX, CO, and O2 at least once every month (in which a source test is not performed) using a portable analyzer that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306, and 4320]
- If either the NOx or CO concentrations corrected to 3%, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been reestablished, 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 4102, 4305, 4306 and 4320]

- All NOx, CO, and O2 emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The NOx, CO, and O2 analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute sample period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive minute period. [District Rules 4102, 4305, 4306 and 4320]
- The permittee shall maintain records of: (1) the date and time of NOx, CO and O2 measurements, (2) the O2 concentration in percent by volume and the measured NOx and CO concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306 and 4320]

Section 5.7.6.1 requires that operators complying with Sections 5.4.1.1 or 5.4.1.2 shall provide an annual fuel analysis to the District unless a more frequent sampling and reporting period is included in the Permit To Operate. Sulfur analysis shall be performed in accordance with the test methods in Section 6.2. The following conditions will be placed in the permits to be in compliance with this rule requirement:

- Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320] N
- If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201and 4320] N
- If the unit is not fired on PUC-regulated natural gas and compliance is achieved through fuel sulfur content limitations, then the sulfur content of the fuel shall be determined by testing sulfur content at a location after all fuel sources are combined prior to incineration, or by performing mass balance calculations based on monitoring the sulfur content and volume of each fuel source. The sulfur content of the fuel shall be determined using the test methods referenced in this permit. [District Rules 2201 and 4320] N

Section 5.7.6.2 requires that operators complying with Section 5.4.1.3 by installing and operating a control device with 95% SOx reduction shall propose the key system operating parameters and frequency of the monitoring and recording. The monitoring option proposed shall be submitted for approval by the APCO. The following conditions will be placed in the permits to be in compliance with this rule requirement:

- Scrubber recirculation liquid pH shall be maintained only by the addition of caustic unless prior approval for an alternative pH maintenance method is received from the District. [District Rules 2201 and 4320] N
- Daily average pH of scrubber liquor (calculated from hourly averages) shall be maintained between 6 and 7 in the first stage scrubber and 7 and 8 in the second stage scrubber, and shall be continuously monitored. [District Rules 2201 and 4320] N

Section 5.7.6.3 requires that operators complying with Section 5.4.1.3 shall perform an annual source test unless a more frequent sampling and reporting period is included in the Permit To Operate. Source tests shall be performed in accordance with the test methods in Section 6.2. The following conditions will be placed in the permits to be in compliance with this rule requirement:

- When any unit is connected to scrubber/wet ESP and is burning TEOR/TVR gas, scrubber/wet ESP shall be operating and permittee shall demonstrate compliance with PM10 and sulfur oxide emissions limit by stack source testing within 60 days of initial scrubbing date and annually thereafter. Sulfur removal efficiency of scrubber/wet ESP shall be demonstrated during initial stack source test and calculated with subsequent tests. Ongoing compliance with sulfur oxide emissions limit shall be by calculation using the scrubber liquid pH, the demonstrated sulfur removal efficiency, and the fuel gas sulfur content. Fuel gas sulfur content shall be obtained by sample analysis at least quarterly. [District Rules 2201 and 4320] N
- When complying with PM10 and SOx emission limits by testing of stack emissions, testing shall be performed using EPA Methods 5 or 201A, 6, 6B, 8, or ARB 100 or ARB Methods 1-6. When operating unscrubbed, a grab sample analysis by double GC performed in the laboratory and EPA Method 19 may be used to calculate SOx emissions. [District Rules 2201 4320] N

Section 5.8 Compliance Determination

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

• {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 shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. Unless otherwise specified in the Permit to Operate, no determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is

shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3.0. Therefore, the following permit condition will be listed on the permits as follows:

• {2972} All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. Unless otherwise specified in the Permit to Operate, no determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a reignition as defined in Section 3.0 of District Rule 4320. For the purposes of permittee-performed alternate monitoring, emissions measurements may be performed at any time after the unit reaches conditions representative of normal operation. [District Rules 4305, 4306 and 4320]

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

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

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

Section 6.1 Recordkeeping

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

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

Section 6.2, Test Methods

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

- {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]
- The following test methods shall be used: NOX (ppmv) EPA Method 7E or ARB Method 100, NOx (lb/MMBtu) EPA Method 19; CO (ppmv) EPA Method 10 or ARB Method 100; Stack gas oxygen (O2) EPA Method 3 or 3A or ARB Method 100; stack gas velocities EPA Method 2; Stack gas moisture content EPA Method 4; SOx EPA Method 6C or 8 or ARB Method 100; fuel gas sulfur as H2S content EPA Method 11 or 15; and fuel hhv (MMBtu) -ASTM D 1826 or D 1945 in conjunction with ASTM D 3588. [District Rules 4305, 4306 and 4320]

Section 6.3, Compliance Testing

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

- A source test to demonstrate compliance with NOx and CO emission limits shall be performed within 60 days of startup of this unit. [District Rules 2201 and 4320]
- Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted at least once every twelve (12) months (no more than 30 days before or after the required annual source test date). After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months (no more than 30 days before or after the required 36-month source test date). If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months. [District Rules 2201, 4305, 4306 and 4320]
- When any unit is connected to scrubber/wet ESP and is burning TEOR/TVR gas, scrubber/wet ESP shall be operating and permittee shall demonstrate compliance with PM10 and sulfur oxide emissions limit by stack source testing within 60 days of initial scrubbing date and annually thereafter. If compliance is demonstrated on two consecutive annual source tests, testing shall be required not less than once every 36 months unless testing is required by scrubber operational mode change as noted above. Annual source testing shall resume if any test fails to show compliance. Sulfur removal efficiency of

scrubber/wet ESP shall be demonstrated during initial stack source test and calculated with subsequent tests. Ongoing compliance with sulfur oxide emissions limit shall be by calculation using the scrubber liquid pH, the demonstrated sulfur removal efficiency, and the fuel gas sulfur content. Fuel gas sulfur content shall be obtained by sample analysis at least semi-annually. [District Rules 2201 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 proposed in this project. Therefore these sections are not applicable.

Conclusion

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

District Rule 4351 Boilers, Steam Generators and Process Heaters - Phase 1

This rule applies to boilers, steam generators, and process heaters at NO_x Major Sources that are not located west of Interstate 5 in Fresno, Kings, or Kern counties. The facility is located west of Interstate 5 in Kern County. Therefore, this rule does not apply.

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.

As discussed in Section VIII, under District Rule 4201, the three fuel sources have identical F-Factors and since the SOx emissions factor is the same, the sulfur compounds calculations are similar for all fuel sources.

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

Volume
$$SO_2 = \frac{n RT}{P}$$

With:

N = moles SO₂
T (Standard Temperature) =
$$60^{\circ}F = 520^{\circ}R$$

P (Standard Pressure) = 14.7 psi
R (Universal Gas Constant) = $\frac{10.73 \text{ psi} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot {}^{\circ}R}$

$$\frac{0.103 \, lb - SOx}{MMB tu} \times \frac{MMB tu}{8,578 \, dscf} \times \frac{1 lb \cdot mol}{64 \, lb} \times \frac{10.73 \, psi \cdot ft^3}{lb \cdot mol \cdot {}^{\circ}R} \times \frac{520 \, {}^{\circ}R}{14.7 \, psi} \times \frac{1,000,000 \cdot parts}{million} = 71 \frac{parts}{million}$$

$$Sulfur Concentration = 71 \frac{parts}{million} < 2,000 \text{ ppmv (or 0.2\%)}$$

Therefore, compliance with District Rule 4801 requirements is expected.

California Health & Safety Code 42301.6 (School Notice)

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

California Environmental Quality Act (CEQA)

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

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

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

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 — Appendix F) demonstrates that the project includes draft 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)).

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue Authority to Construct S-1327-162-0, '163-0, '164-0, '165-0, '166-0 and '167-0 subject to the permit conditions on the attached draft Authority to Construct in **Appendix G**.

X. Billing Information

		Annual Permit Fees	
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-1327-162-0	3020-02-H	62.5 MMBtu/hr	\$1030
S-1327-163-0	3020-02-H	62.5 MMBtu/hr	\$1030
S-1327-164-0	3020-02-H	62.5 MMBtu/hr	\$1030
S-1327-165-0	3020-02-H	62.5 MMBtu/hr	\$1030
S-1327-166-0	3020-02-H	62.5 MMBtu/hr	\$1030
S-1327-167-0	3020-02-H	62.5 MMBtu/hr	\$1030

APPENDIX A Quarterly Net Emissions Change (QNEC)

Quarterly Net Emissions Change (QNEC)

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

QNEC = PE2 - PE1, where:

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

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

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

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

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

= $4,600 \text{ lb/year} \div 4 \text{ qtr/year}$

 $= 1,150 \text{ lb PM}_{10}/\text{qtr}$

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

= 4,600 lb/year \div 4 qtr/year

 $= 1,150 \text{ lb PM}_{10}/\text{qtr}$

S-1327-162, '163 and '164 Quarterly NEC [QNEC]											
	PE2 (lb/yr)	PE2 (lb/qtr)	PE1 (lb/yr)	PE1 (lb/qtr)	QNEC (lb/qtr)						
NO _X	6023	1506	0		1506						
SO _X	10,199*	2550*	0	0	2550*						
PM ₁₀	4161	1040	0	0	1040						
CO	9855	2464	0	0	2464						
VOC	3011	753	0	0	753						

^{*}bubble limit to be entered for S-1327-162-0 only

S-1327-165, '166 and '167 Quarterly NEC [QNEC]												
	PE2 (lb/yr)	PE2 (lb/qtr)	PE1 (lb/yr)	PE1 (lb/qtr)	QNEC (lb/qtr)							
NO _X	6023	1506	0		1506							
SO _X	76,481*	19,120*	0	0	19,123*							
PM ₁₀	4161	1040	0	0	1040							
СО	9855	2464	0	0	2464							
VOC	3011	753	0	0	753							

^{*}bubble limit to be entered for S-1327-165-0 only

Permit #: S-1327-162-0

Last Updated

03/07/2012 TORID

quipment Pre-Baselined: NO	NOX	sox	<u>PM10</u>	co	voc	
Potential to Emit (lb/Yr):	6023.0	10199.0	4161.0	9855.0	3011.0	
Daily Emis. Limit (lb/Day)	16.5	27.9	11.4	27.0	8.3	
Quarterly Net Emissions Change (lb/Qtr)			-			
Q1:	1506.0	2550.0	1040.0	2464.0	753.0	
Q2:	1506.0	2550.0	1040.0	2464.0	753.0	
Q3:	1506.0	2550.0	1040.0	2464.0	753.0	
Q4:	1506.0	2550.0	1040.0	2464.0	753.0	
Check if offsets are triggered but exemption applies	N	N	N	N	N	
Offset Ratio	1.5	1.5	1.5	1,.5_	1.5	
Quarterly Offset Amounts (lb/Qtr)						
Q1:	2259.0	3825.0	1560.0	3696.0	1130.0	
Q2:	2259.0	3825.0	1560.0	3696.0	1130.0	
Q3:	2259.0	3825.0	1560.0	3696.0	1130.0	
Q4:	2259.0	3825.0	1560.0	3696.0	1130.0	

Permit #: S-1327-163-0

Last Updated

03/07/2012 TORID

Equipment	Pre-Baselined:	NO
Equipment	Pre-Baselined:	NO

uipment Pre-Baselined: NO	<u>NOX</u>	<u>sox</u>	<u>PM10</u>	<u>co</u>	voc	
Potential to Emit (lb/Yr):	6023.0	0.0	4161.0	9855.0	3011.0	
Daily Emis. Limit (lb/Day)	16.5	27.9	11.4	27.0	8.3	
Quarterly Net Emissions Change (lb/Qtr)						
Q1:	1506.0		1040.0	2464.0	753.0	
Q2;	1506.0		1040.0	2464.0	753.0	
Q3:	1506.0		1040.0	2464.0	753.0	
Q4:	1506.0		1040.0	2464.0	753.0	
Check if offsets are triggered but exemption applies	N	N	N	N	N	
Offset Ratio	1.5		1.5	1.5	1.5	
Quarterly Offset Amounts (lb/Qtr)						
Q1:	2259.0		1560.0	3696.0	1130.0	
Q2:	2259.0		1560.0	3696.0	1130.0	
Q3:	2259.0		1560.0	3696.0	1130.0	
Q4:	2259.0		1560.0	3696.0	1131.0	

Permit #: S-1327-164-0

Last Updated

03/07/2012 TORID

uipment Pre-Baselined: NO	NOX	sox	<u>PM10</u>	CO	voc	
Potential to Emit (lb/Yr):	6023.0	0.0	4161.0	9855.0	3011.0	
Daily Emis. Limit (lb/Day)	16.5	27.9	11.4	27.0	8.3	
Quarterly Net Emissions Change (lb/Qtr)						
Q1:	1506.0	2550.0	1040.0	2464.0	753.0	
Q2:	1506.0	2550.0	1040.0	2464.0	753.0	
Q3:	1506.0	2550.0	1040.0	2464.0	753.0	
Q4:	1506.0	2550.0	1040.0	2464.0	753.0	
Check if offsets are triggered but exemption applies	N	N	N	N	N	
Offset Ratio	1.5		1.5	1.5	1.5	
Quarterly Offset Amounts (lb/Qtr)						
Q1:	2259.0		1560.0	3696.0	1130.0	
Q2:	2259.0		1560.0	3696.0	1130.0	
Q3:	2259.0		1560.0	3696.0	1130.0	
Q4:	22259.0		1560.0	3696.0	1130.0	

1.5

1130.0

1130.0

1130.0

1130.0

Permit #: S-1327-165-0

Last Updated

Offset Ratio

Q1: Q2:

Q3:

Q4:

Quarterly Offset Amounts (lb/Qtr)

Facility: VINTAGE

03/07/2012 TORID

1.5

2259.0

2259.0

2259.0

2259.0

PRODUCTION CALIFORNIA

Equipment Pre-Baselined: NO <u>sox</u> PM10 CO **VOC NOX** Potential to Emit (lb/Yr): 6023.0 76481.0 4161.0 9855.0 3011.0 209.5 11.4 27.0 8.3 Daily Emis. Limit (lb/Day) 16.5 Quarterly Net Emissions Change (lb/Qtr) 2464.0 Q1: 1506.0 19120.0 1040.0 753.0 Q2: 1506.0 19120.0 1040.0 2464.0 753.0 1040.0 2464.0 753.0 Q3: 1506.0 19120.0 1040.0 Q4: 1506.0 19120.0 2464.0 753.0 Check if offsets are triggered but Ν Ν Ν Ν Ν exemption applies

1.5

4780.0

4780.0

4780.0

4780.0

1.5

1560.0

1560.0

1560.0

1560.0

1.5

3696.0

3696.0

3696.0

3696.0

<u>voc</u>

<u>co</u>

Permit #: S-1327-166-0

Last Updated

03/07/2012 TORID

Equipment Pre-Baselined: NO	NOX	<u>sox</u>	<u>PM10</u>
Potential to Emit (lb/Yr):	6023.0	0.0	4161.0

Potential to Emit (lb/Yr):	6023.0	0.0	4161.0	9855.0	3011.0
Daily Emis. Limit (lb/Day)	16.5	209.5	11.4	27.0	8.3
Quarterly Net Emissions Change					
(lb/Qtr)					
Q1:	1506.0		1040.0	2464.0	753.0
Q2:	1506.0		1040.0	2464.0	753.0
Q3:	1506.0		1040.0	2464.0	753.0
Q4:	1506.0		1040.0	2464.0	753.0
,					
Check if offsets are triggered but exemption applies	N	N	· N	N	N
Offset Ratio	1.5		1.5	1.5	1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	2259.0		1560.0	3696.0	1130.0
Q2:	2259.0		1560.0	3696.0	1130.0
Q3:	2259.0	_	1560.0	3696.0	1130.0
Q4:	2259.0		1560.0	3696.0	1130.0

Permit #: S-1327-167-0

Last Updated

Facility: VINTAGE PRODUCTION CALIFORNIA

03/07/2012 TORID

uipment Pre-Baselined: NO	NOX	<u>sox</u>	PM10	co	voc
Potential to Emit (lb/Yr):	6023.0	0.0	4161.0	9855.0	3011.0
Daily Emis. Limit (lb/Day)	16.5	209.5	11.4	27.0	8.3
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	1506.0	19123.0	1040.0	2464.0	753.0
. Q2:	1506.0	19123.0	1040.0	2464.0	753.0
Q3:	1506.0	19123.0	1040.0	2464.0	753.0
Q4:	1506.0	19123.0	1040.0	2464.0	753.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5		1.5	1.5	1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	2259.0		1560.0	3696.0	1130.0
Q2:	2259.0		1560.0	3696.0	1130.0
Q3:	2259.0		1560.0	3696.0	1130.0
Q4:	2259.0		1560.0	3696.0	1130.0

APPENDIX B SSPE1 Calculation

Detailed SSPE Report

									Number of
Region	Facility	Unit	Mod	NOx	SOx	PM10	CO	VOC	Outstanding ATC
S	1327	0	0					,	0
s	1327	31	0	0	0	0	0	37	0
S	1327	32	3	3469	899	2397	11668	1734	4
ຣ	1327	34	4	3657	574	1531	6678	604	1
S	1327	35	2	4380	1560	5475	38325	1643	0
S	1327	36	0						1
\$	1327	37	0		· \				1
s	1327	38	0		100	243		Manager and the same	1
S	1327	41	1	0	0.4	8.8	0	0	0
S	1327	42	5	2110	42	248	11479	1955	2
S	1327	55	0	0	0	0	0	60	0
S	1327	56	0	0	0	0	0	87	0
S	1327	57	. 0	0	0	0	0	183	0
S	1327	58	0	0 .	0	0	0	329	0
S	1327	59	0 /	. 0	0	0	0	694	0
S	1327	60	0	0	0	0	0	694	0
S	1327	70	0	4344	86	511	23634	5152	0
S	1327	79	0	0	0	0	0	373 .	0
S	1327	- 80	0	0	0	. 0	0	1993	0 .
S	1327	81	0	0	0	0	0	1993	0
S	1327	82	0	0	0	0	0	150	0
S	1327	83	0	9898	438	1169	53911	9168	0
S	1327	84	0	0	0	0	0	169	Ŏ
S	1327	85	0	0	0	0	0	170	. 0
S	1327	86	0	0	0	j j	0	170	0
S	1327	87	0	0	0		0	434	0

Tuesday, December 13, 2011

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Notes:

Blank values for a particular permit unit do not necessarily relfect zero emissions. For units with blank values, the PE must still be determined based on physical PE or as limited by permit condition.

For permits that show outstanding ATCs, consult PAS ATC Emission Profile records to determine what the highest PE is for each pollutant.

ATCs for new units (e.g. S-XXXX-X-0) must be added in separately.

ERC's for onsite reductions must be added in separately per Rule 2201 as well.

Region	Facility	Unit	Mod	NOx	SOx	PM10	со	voc	Number of Outstanding ATCs
s	1327	88	0	0	0	0	0	1328	0
S	1327	89	0	0	0	0	. 0	1561	0
S	1327	90	0	0	Ć.	0	0	0	0
S	1327	91	0	0	G	0	0	1052	0
S	1327	92	0	0	G	0	0	1240	0
S	1327	102	0	0	0	0	0	2476	0
S	1327	103	0	0	0	0	0 .	922	0 .
S	1327	104	0	0	0 -	. 0	0	1419	0
S	1327	105	0	0	0	0	0	22616	0
S	1327	106	0	0	0	0	. 0	1419	. 0
S	1327	107	0	0	0	0	0	4507	0
s	1327	108	0	0	0	0	0	1732	0
S	1327	109	0					***************************************	0
s	1327	110	0	0	0	5	0	0	1
S	1327	111	0	0	0	ง	0	4470	0
S	1327	112	0	0	0	0	0	4798	0
S	1327	113	0	0	0	0	0	1362	0
S	1327	114	0	0	0	0	0	220	0
S	1327	115	. 0	0	. 0	0	0	5556	. 0
S	1327	116	0	7884	624	1460	17805	1205	0
S	1327	117	0	0	0	0 .	0	1583	0
S	1327	118	0	0	0	0	0	1583	0
S	1327	119	Ò	0	0.	0	0	724	0
S	1327	120	0	3627	1038	1531	7253	604	0
S	1327	121	0					344	0
S	1327	122	0					603	. 0 .
S	1327	123	. 0					603	0
S	1327	124	. 0	0	0	0	0	1522	. 0
S	1327	. 125	0	. 0	0	. 0	0	724	0 .

Tuesday, December 13, 2011

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Notes:

Blank values for a particular permit unit do not necessarily relfect zero emissions. For units with blank values, the PE must still be determined based on physical PE or as limited by permit condition.

For permits that show outstanding ATCs, consult PAS ATC Emission Profile records to determine what the highest PE is for each pollutant.

ATCs for new units (e.g. S-XXXX-X-0) must be added in separately.

ERC's for onsite reductions must be added in separately per Rule 2201 as well.

Region	Facility	Unit	Mod	NOx	SOx	PM.10	co	VOC	Number of Outstanding ATCs
S	1327	126	0	0	0	0	0	0	1
S	1327	127	0	0	. 0	0	. 0.	. 0	0
S	1327	128	0	0	0	0	0	0	0
S	1327	129	0	0	0	0	0	. 0	A 0
S	1327	130	0	5242	1867	2293	11794	3604	0
S	1327	131	0	5242	1867	2293	11794	3604	0
S	1327	132	0	5242	1867	2293	11794	3604	0
S	1327	133	0	5242	1867	2293	11794	3604	0
S	1327	134	0	5242	1867	2293	11794	3604	0
S	1327	135	0	5242	1867	2293	11794	3604	0
S	1327	136	0	5242	1867	2293	11794	3604	0
S	1327	137	0	3942	3592	1664	7884	657	. 0
S	1327	138	0	3942	3592	1664	7884	657	0
S	1327	139	0						0
S	1327	140	0						0
S	6848	0	0			, . ,			0
S	6848	7	0	0	0	0	0	0	.0
S	6848	8	1	. 0	0	0	0	73	0
S	6848	9	. 0	0	0		. 0		0 ·
S	6848	10	0	0	0	0	0	0	0
S	6848	11	0	0	0	0	ō	8	0
	SSPE (lbs	s)		83947	25514	33701	269079	120588	
	6848	12		6329	2122	3763	16381	4468	
	1327			5182	1846	2267	11660	3543	
	1	141 ~8 142		285	ાજમે હ	2267	11660	3563	•
	•	147		5182	184 6	2267	11660	3543	
		166		5182	احدازو	2267	11460	\$543	
		1615		5182	1846	2247	11660	3563	
		153		7112	1864	2289	12077	3577	
hi, Trebuistation		150	6	7142	2269	2289	12077	3577	
Tuesday, D	Tuesday, December 13, 2011		7	7142	. 1864 	2289	12077	3 597	Page 3 of 3
Notes;		16		7142	1864	2289	12027	3597	

Blank values for a particular permit unit do not necessarily relfect zero emissions. For units with blank values, the PE must still be determined based on physical PE or as limited by permit condition.

For permits that show outstanding ATCs, consult PAS ATC Emission Profile records to determine what the highest PE is for each pollutant.

ATCs for new units (e.g. S-XXXX-X-0) must be added in separately. PM10 CO VOC

ERC's for onsite reductions must be added in separately per Rule 2201 as well.

144,754 H1332. 58188 392068 157, 259

APPENDIX C BACT Analysis

BACT Analysis for Steam Generators (S-1327-162-0 through '167-0)

1. 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 limits requirements in District Rule 4320 are lower than the limits in BACT Guideline 1.2.1 (Steam Generator ≥ 5 MMBtu/hr, Oilfield); which has been rescinded. 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 > 20.0 MMBtu/hr to 7 ppm @ 3% O_2 and 9 ppmv for waste gas fired units. These emission limits are Achieved in Practice control technology for the BACT analysis. District Rule 4320 also contains an enhanced schedule with initial and final limit options that allows applicants additional time to meet the requirements of the rule. The enhanced schedule NO_X emission initial limit requirement is 9 ppmv @ 3% O_2 and final limit of 5 ppmv @ 3% O_2 . Since this is an enhanced option in the rule, the final limit of 5 ppmv @ 3% O_2 will be considered the Technologically Feasible control technology for the BACT analysis.

The following are possible control technologies:

- 1. 5 ppmv @ 3% O2 Technologically Feasible
- 2. 7 ppmv @ 3% O2 Achieved in Practice
- 3. 9 ppmv @ 3% O2 (waste gas fired units) 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. 5 ppmv @ 3% O2 Technologically Feasible
- 2. 7 ppmv @ 3% O2 Achieved in Practice
- 3. 9 ppmv @ 3% O2 (waste gas fired units) Technologically Feasible

Step 4 - Cost Effectiveness Analysis

The applicant has proposed a NOx limit of 7 ppmv @ 3% O₂ and 9 ppmv when waste gas fired therefore a cost analysis for the 5 ppmvd with SCR (0.0062 lb/MMBTU) option is required.

SCR Cost Effective Analysis:

Assumptions:

- Industry standard (IS) is assumed to be a NOx emission rate of 15 ppmv @3% O2 in accordance with Rule 4306
- Unit's maximum emissions are defined by the burner size multiplied by the emissions rate and a maximum annual operating schedule of 8,760 hours

Calculations:

Industry Std NOx Emissions = 62.5 MMBtu/hr x 0.018 lb/MMBtu x 8,760 hr/yr = 9855 lb/yr

Feasible NOx Emissions = 62.5 MMBtu/hr x 0.0062 lb/MMBtu x 8,760 hr/yr = 3395 lb/yr

NOx reduction due to SCR:

Total reduction = Emissions (15 ppmv) - Emissions (5 ppmv)

Total reduction = 9855 lb/yr - 3395 lb/yr

Total reduction = 6460 lb/yr = 3.2 ton/yr

<u>SCR Capital Cost</u> (PCL Construction, August 19, 2010): \$745,000.00 (includes all purchased equipment, taxes, freight and installation of SCR for a 85 MMBtu/hr unit) – detailed cost follow/attached.

Equivalent Annual Capital Cost (CC):

A =
$$(P)\left[\frac{(i)(1+i)^n}{(1+i)^n-1}\right]$$
 where:

A: Equivalent annual capital cost of the control equipment

P: Present value of the control equipment

I: Interest rate (District policy is to use 10%)

n: Equipment life (District policy is to use 10 years)

$$A = (\$745,000) \left[\frac{(0.1)(1+0.1)^{10}}{(1+0.1)^{10}-1} \right] = \frac{\$121,050}{yr}$$

Annual Direct Cost (ADC):

Operation & Maintenance = \$125,000/yr (PCL quote)

Annual Indirect Cost (AIC) = included (PCL quote)

Total Annualized Cost = CC + ADC + AIC = \$121,050 + \$125,000 + \$0 = \$246,050/yr

Cost Effectiveness:

Cost effectiveness = \$246,050/3.2 ton/yr

Cost effectiveness = \$76,891/ton

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

Step 5 - Select BACT

BACT for NOx emissions from the oilfield steam generator is 7 ppmv @ 3% O2 and 9 ppmv when waste gas fired. The applicant has proposed to install the steam generators each with a NOx emission limit of ppmv @ 3% O2 and 9 ppmv when waste gas fired; therefore, BACT for NOx emissions is satisfied.

2. BACT Analysis for SO_X Emissions

Step 1 - Identify All Possible Control Technologies

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

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

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

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

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

Step 4 - Cost Effectiveness Analysis

The applicant has proposed the use of natural gas, CGS, and/or TVR gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf. Since the applicant has chosen the most effective control technology in step 3, a cost effectiveness analysis is not required.

Step 5 - Select BACT

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

3. BACT Analysis for PM₁₀ Emissions

Step 1 - Identify All Possible Control Technologies

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

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

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

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

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

Step 4 - Cost Effectiveness Analysis

The applicant has proposed the use of natural gas, CGS gas, and/or TVR gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf. Since the applicant has chosen

the most effective control technology in step 3, a cost effectiveness analysis is not required.

Step 5 - Select BACT

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

4. BACT Analysis for CO Emissions

Step 1 - Identify All Possible Control Technologies

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

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

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

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

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

Step 4 - Cost Effectiveness Analysis

The applicant has proposed a CO emission limit that meets 50 ppmvd @ 3% O2. Since the applicant has chosen the most effective control technology in step 3, a cost effectiveness analysis is not required.

Step 5 - Select BACT

BACT for CO emissions from the oilfield steam generator is 50 ppmv @ 3% O2. The applicant has proposed to install the steam generators each with a CO emission limit of 25 ppmv @ 3% O2; therefore, BACT for CO emissions is satisfied.

5. BACT Analysis for VOC Emissions

Step 1 - Identify All Possible Control Technologies

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

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

2. Gaseous fuel - Achieved-In-Practice

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

1. Gaseous fuel - Achieved-In-Practice

Step 4 - Cost Effectiveness Analysis

The applicant has proposed the used of natural gas and/or waste gas treated for sulfur. Since the applicant has chosen the most effective control technology in step 3, a cost effectiveness analysis is not required.

Step 5 - Select BACT

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

APPENDIX D Compliance Certification

October 13, 2011, 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

OPENSTURY MINISTER

Title

APPENDIX E HRA

San Joaquin Valley Air Pollution Control District Risk Management Review

To:

David Tori - Permit Services

From:

Leland Villalvazo - Technical Services

Date:

March 21, 2010

Facility Name:

Vintage Petroleum

Location:

Western Oil Fields

Application #(s):

S-1327 -162-0 thru 167-0

Project #:

S-1114465

A. RMR SUMMARY

RMR Summary						
Categories	Steam Gen 162-0 thru 167-0		Project Totals	Facility Totals		
Prioritization Score	0.002 ea.		0.02	0.921		
Acute Hazard Index	NA		NA	NA		
Chronic Hazard Index	NA		NA	NA		
Maximum Individual Cancer Risk (10 ⁻⁶)	NA		NA	NA		
T-BACT Required?	No					
Special Permit Conditions?	No					

Proposed Permit Conditions

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

Unit # 162 thru 167-0

No special conditions are required.

B. RMR REPORT

I. Project Description

Technical Services received a request on December 1, 2011, to perform an Ambient Air Quality Analysis and a Risk Management Review for three 65 MMBTU/hr NG & CVG fired steam generators. These units will operate in one of two modes and the RMR/AAQA was run using the worst-case scenario.

II. Analysis

Technical Services performed modeling for criteria pollutants CO, NOx, SOx and PM₁₀; as well as a RMR. The emission rates used for criteria pollutant modeling were 1.13 lb/hr CO, 0.6875 lb/hr NOx, 2.9633 lb/hr SOx, and 0.477 lb/hr PM₁₀. The engineer supplied the maximum fuel rate for the IC engine used during the analysis.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

Diesel ICE	1 Hour	3 Hours	8 Hours.	24 Hours	Annuai
CO	Pass 🕬	X	Pass	X	X
NO _x	Pass ¹	X	X	X	Pass
SO _x	.∵ Pass	Pass	X	Pass -	∍ Pass
PM ₁₀	X	X	X	Pass ²	Pass ²
PM _{2.5}	X	X	X	∵Pass² ⊹	Pass ²

^{*}Results were taken from the attached PSD spreadsheet.

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).

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

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

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

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

¹The project was compared to the 1-hour NO2 National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures. ²The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2).

APPENDIX F CEQA

BPS Analysis

Step 1 - Identify BPS for New Steam Generators

High Efficiency Steam Generator Design With:

1. Split flow dual pass water feed configuration, a convection section having at least 128 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by the manufacturer) and at least six inches of castable refractory or a manufacturer's overall thermal efficiency rating of at least 85%

And

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

Step 2 - Select BPS

High Efficiency Steam Generator Design With:

1. Split flow dual pass water feed configuration, a convection section having at least 128 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by the manufacturer) and at least six inches of castable refractory or a manufacturer's overall thermal efficiency rating of at least 85%

And

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

Step 3

The following conditions will be included on the permit to ensure compliance with BPS requirements:

- The unit shall be equipped with split flow dual pass water feed configuration, a
 convection section having at least 128 square feet of heat transfer surface area
 per MMBtu/hr of maximum rated heat input (verified by the manufacturer) and
 at least six inches of castable refractory or a manufacturer's overall thermal
 efficiency rating of at least 85%. [CEQA] N
- The unit shall be equipped with variable frequency drive high efficiency electrical motors driving the blower and water pump. [CEQA] N

APPENDIX G Draft ATCs

San Joaquin Valley Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: S-1327-162-0

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: NW2 TOWNSHIP: 26S RANGE: 20E

EQUIPMENT DESCRIPTION:

62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR AND TWO-STAGE EXHAUST GAS SOX SCRUBBING SYSTEM FOLLOWED BY A WET ESP SHARED WITH S-1327-163 AND '164

CONDITIONS

- 1. 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]
- 2. 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]
- 3. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]
- 4. 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]
- 5. The unit shall be equipped with split flow dual pass water feed configuration, a convection section having at least 128 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by the manufacturer) and at least six inches of castable refractory or a manufacturer's overall thermal efficiency rating of at least 85%. [CEQA]

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-ether governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Difectory APCO

DAVID WARNER, Director of Permit Services

- The unit shall be equipped with variable frequency drive high efficiency electrical motors driving the blower and water pump. [CEQA]
- 7. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
- 8. {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]
- 9. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
- 10. This steam generator shall be located at the NW1/4 of Section 2, T26S, R20E. [District Rule 2201]
- 11. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of waste gas combusted in the unit shall be installed, utilized and maintained. [District Rules 2201, 4305, 4306, and 4320]
- 12. PUC quality natural gas and waste gas shall be combined prior to the burner and shall not be fed separately to the burner. [District Rule 4320]
- 13. Burner nozzles may be changed when when unit is converted to fire solely on PUC quality natural or from solely PUC quality natural gas firing to firing on a mixture of PUC quality natural gas and waste gas. [District Rule 2201]
- 14. FGR shall be utilized except when unit is fired solely on PUC quality natural gas. [District Rule 2201]
- 15. Exhaust from unit shall be directed to two stage SOx scrubber authorized herein except when unit is fired solely on PUC quality natural gas. [District Rule 2201]
- 16. SO2 scrubber exhaust shall be vented to operational wet electrostatic precipitator prior to being exhausted to atmosphere. [District Rules 2201 and 4101]
- 17. Two stage scrubber, including wet electrostatic precipitator, control efficiency shall be maintained at least 99.9% by weight sulfur compounds or greater. [District Rule 2201]
- 18. Scrubber recirculation liquid pH shall be maintained only by the addition of caustic unless prior approval for an alternative pH maintenance method is received from the District. [District Rules 2201 and 4320]
- 19. Daily average pH of scrubber liquor (calculated from hourly averages) shall be maintained between 6 and 7 in the first stage scrubber and 7 and 8 in the second stage scrubber, and shall be continuously monitored. [District Rules 2201 and 4320]
- 20. PUC quality natural gas is any gaseous fuel where the sulfur content is no more than one-fourth (0.25) grain of hydrogen sulfide per one hundred (100) standard cubic feet, no more than five (5) grains of total sulfur per one hundred (100 standard cubic feet) and at least 80% methane by volume. [District Rule 4320]
- 21. Fuel H2S, total sulfur, and methane content shall be determined semi-annually using the following test methods H2S: ASTM D6228; total sulfur, ASTM D1072; ASTM D3246, double GC for H2S and mercaptans or ASTM D6228; and methane content: ASTM D1945. [District Rule4320]
- 22. Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320]
- 23. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201and 4320]
- 24. If the unit is not fired on PUC-regulated natural gas and compliance is achieved through fuel sulfur content limitations, then the sulfur content of the fuel shall be determined by testing sulfur content at a location after all fuel sources are combined prior to incineration, or by performing mass balance calculations based on monitoring the sulfur content and volume of each fuel source. The sulfur content of the fuel shall be determined using the test methods referenced in this permit. [District Rules 2201 and 4320]
- 25. If fuel analysis is used to demonstrate compliance with conditions of this permit, the fuel higher heating value for each fuel shall be certified by a third party fuel supplier or determined by: ASTM D 1826 or D1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 220]

CONDITIONS CONTINUE ON NEXT PAGE

- 26. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, waste 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]
- 27. Waste gas H2S concentration shall not exceed 55,000 ppmv. [District Rule 2201]
- 28. Units S-1327-162, '163 and '164 shall not consume greater than a combined total of 3000 Mscf/day of waste gas. [District Rule 2201]
- 29. When fired solely on PUC quality natural gas emission rates shall not exceed: PM10: 0.0076 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]
- 30. When fired mixture of waste gas and PUC quality natural gas emission rates shall not exceed: PM10: 0.0076 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 9 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
- 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]
- 32. When any unit is connected to scrubber/wet ESP and is burning TEOR/TVR gas, scrubber/wet ESP shall be operating and permittee shall demonstrate compliance with PM10 and sulfur oxide emissions limit by stack source testing within 60 days of initial scrubbing date and annually thereafter. If compliance is demonstrated on two consecutive annual source tests, testing shall be required not less than once every 36 months unless testing is required by scrubber operational mode change as noted above. Annual source testing shall resume if any test fails to show compliance. Sulfur removal efficiency of scrubber/wet ESP shall be demonstrated during initial stack source test and calculated with subsequent tests. Ongoing compliance with sulfur oxide emissions limit shall be by calculation using the scrubber liquid pH, the demonstrated sulfur removal efficiency, and the fuel gas sulfur content. Fuel gas sulfur content shall be obtained by sample analysis at least semi-annually. [District Rules 2201 and 4320]
- 33. When complying with PM10 and SOx emission limits by testing of stack emissions, testing shall be performed using EPA Methods 5 or 201A, 6, 6B, 8, or ARB 100 or ARB Methods 1-6. When operating unscrubbed, a grab sample analysis by double GC performed in the laboratory and EPA Method 19 may be used to calculate SOx emissions. [District Rules 2201 4320]
- 34. 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]
- 35. 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]
- 36. 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]

CONDITIONS CONTINUE ON NEXT PAGE

- 37. The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201, 4305, 4306, and 4320]
- 38. 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]
- 39. Source testing to measure NOx and CO emissions from this unit shall be conducted at least once every twelve (12) months or when the fuel source is changed. 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]
- 40. {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]
- 41. NOx 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]
- 42. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
- 43. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
- 44. SOx emissions for source test purposes shall be determined using EPA Method 6, EPA Method 6C, EPA Method 8, or ARB 100. [District Rule 2201] Federally Enforceable Through Title V Permit
- 45. 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]
- 46. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
- 47. 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]
- 48. 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, 4320]
- 49. Prior to operating equipment under Authorities to Construct S-1327-162-0, '163-0 and '164-0, permittee shall surrender NOX emission reduction credits for the following quantity of emissions: 1st quarter 6776 lb, 2nd quarter 6776 lb, 3rd quarter 6776 lb, and fourth quarter 6776 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 50. ERC Certificate Numbers C-1087-2, N-831-2, N-948-2, S-3038-2, S-3054-2, S-3586-2, S-3587-2, S-3589-2, S-3590-2, S-3591-2 and S-3592-0 (or a certificate(s) split from this certificate(s)) 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]
- 51. Prior to operating equipment under Authorities to Construct S-1327-162-0, '163-0 and '164-0, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter 3389 lb, 2nd quarter 3389 lb, 3rd quarter 3389 lb, and fourth quarter 3389 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]

CONDITIONS CONTINUE ON NEXT PAGE

- 52. ERC Certificate Numbers N-832-1, N-833-1, S-730-1, S-734-1, S-735-1, S-736-1, S-737-1, S-738-1, S-1755-1, S-1756-1, S-1757-1, S-1758-1, S1759-1, S-3573-1, S-3575-1, S-3576-1, S-3577-1, S-3582-1 and S-3584-1 (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]
- 53. Prior to operating equipment under Authorities to Construct S-1327-162-0, '163-0 and '164-0, permittee shall surrender SOx emission reduction credits for the following quantity of emissions: 1st quarter 4681 lb, 2nd quarter 4681 lb, 3rd quarter 4681 lb, and fourth quarter 4681 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 54. ERC Certificate Number N-1004-5 (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]
- 55. ATCs S-1327-165-0, '166-0 and '167-0 shall be canceled upon implementation of ATCs S-1327-162-0, '163-0 and '164-0. [District Rule 2201]



AUTHORITY TO CONSTRUCT

PERMIT NO: S-1327-163-0

LEGAL OWNER OR OPERATOR: VINTAGE PRODUCTION CALIFORNIA LLC

MAILING ADDRESS:

9600 MING AVE. SUITE 300 BAKERSFIELD, CA 93311

LOCATION:

HEAVY OIL WESTERN, KERN COUNTY

SECTION: NW2 TOWNSHIP: 268 RANGE: 20E

EQUIPMENT DESCRIPTION:

62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR SERVED BY SOX SCRUBBING SYSTEM LISTED ON S-1327-162

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]
- 3. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]
- 4. 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]
- The unit shall be equipped with split flow dual pass water feed configuration, a convection section having at least 128 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by the manufacturer) and at least six inches of castable refractory or a manufacturer's overall thermal efficiency rating of at least 85%. [CEQA]

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 ether governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Directory APCO

- 6. The unit shall be equipped with variable frequency drive high efficiency electrical motors driving the blower and water pump. [CEQA]
- 7. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
- 8. {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]
- 9. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
- 10. This steam generator shall be located at the NW1/4 of Section 2, T26S, R20E. [District Rule 2201]
- 11. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of waste gas combusted in the unit shall be installed, utilized and maintained. [District Rules 2201, 4305, 4306, and 4320]
- 12. PUC quality natural gas and waste gas shall be combined prior to the burner and shall not be fed separately to the burner. [District Rule 4320]
- 13. Burner nozzles may be changed when when unit is converted to fire solely on PUC quality natural or from solely PUC quality natural gas firing to firing on a mixture of PUC quality natural gas and waste gas. [District Rule 2201]
- 14. FGR shall be utilized except when unit is fired solely on PUC quality natural gas. [District Rule 2201]
- 15. Exhaust from unit shall be directed to two stage SOx scrubber authorized herein except when unit is fired solely on PUC quality natural gas. [District Rule 2201]
- 16. PUC quality natural gas is any gaseous fuel where the sulfur content is no more than one-fourth (0.25) grain of hydrogen sulfide per one hundred (100) standard cubic feet, no more than five (5) grains of total sulfur per one hundred (100 standard cubic feet) and at least 80% methane by volume. [District Rule 4320]
- 17. Fuel H2S, total sulfur, and methane content shall be determined semi-annually using the following test methods H2S: ASTM D6228; total sulfur; ASTM D1072; ASTM D3246, double GC for H2S and mercaptans or ASTM D6228; and methane content: ASTM D1945. [District Rule4320]
- 18. Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320]
- 19. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201and 4320]
- 20. If the unit is not fired on PUC-regulated natural gas and compliance is achieved through fuel sulfur content limitations, then the sulfur content of the fuel shall be determined by testing sulfur content at a location after all fuel sources are combined prior to incineration, or by performing mass balance calculations based on monitoring the sulfur content and volume of each fuel source. The sulfur content of the fuel shall be determined using the test methods referenced in this permit. [District Rules 2201 and 4320]
- 21. If fuel analysis is used to demonstrate compliance with conditions of this permit, the fuel higher heating value for each fuel shall be certified by a third party fuel supplier or determined by: ASTM D 1826 or D1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 2201 and 4320]
- 22. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, waste 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]
- 23. Waste gas H2S concentration shall not exceed 55,000 ppmv. [District Rule 2201]
- 24. Units S-1327-162, '163 and '164 shall not consume greater than a combined total of 3000 Mscf/day of waste gas. [District Rule 2201]
- 25. When fired solely on PUC quality natural gas emission rates shall not exceed: PM10: 0.0076 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 7 ppmvd NOx @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]

- 26. When fired mixture of waste gas and PUC quality natural gas emission rates shall not exceed: PM10: 0.0076 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 9 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
- 27. 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]
- 28. 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]
- 29. 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]
- 30. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 2201, 4305, 4306, and 4320]
- 31. The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201, 4305, 4306, and 4320]
- 32. 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]
- 33. Source testing to measure NOx and CO emissions from this unit shall be conducted at least once every twelve (12) months or when the fuel source is changed. 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]
- 34. {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]
- 35. NOx 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]
- 36. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
- 37. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]

- 38. 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]
- 39. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
- 40. 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]
- 41. 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, 4320]
- 42. Prior to operating equipment under Authorities to Construct S-1327-162-0, '163-0 and '164-0, permittee shall surrender NOX emission reduction credits for the following quantity of emissions: 1st quarter 6776 lb, 2nd quarter 6776 lb, 3rd quarter 6776 lb, and fourth quarter 6776 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 43. ERC Certificate Numbers C-1087-2, N-831-2, N-948-2, S-3038-2, S-3054-2, S-3586-2, S-3587-2, S-3589-2, S-3590-2, S-3591-2 and S-3592-0 (or a certificate(s) split from this certificate(s)) 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]
- 44. Prior to operating equipment under Authorities to Construct S-1327-162-0, '163-0 and '164-0, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter 3389 lb, 2nd quarter 3389 lb, 3rd quarter 3389 lb, and fourth quarter 3389 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 45. ERC Certificate Numbers N-832-1, N-833-1, S-730-1, S-734-1, S-735-1, S-736-1, S-737-1, S-738-1, S-1755-1, S-1756-1, S-1757-1, S-1758-1, S1759-1, S-3573-1, S-3575-1, S-3576-1, S-3577-1, S-3582-1 and S-3584-1 (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]
- 46. Prior to operating equipment under Authorities to Construct S-1327-162-0, '163-0 and '164-0, permittee shall surrender SOx emission reduction credits for the following quantity of emissions: 1st quarter 4681 lb, 2nd quarter 4681 lb, 3rd quarter 4681 lb, and fourth quarter 4681 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 47. ERC Certificate Number N-1004-5 (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]
- 48. This ATC shall be implemented concurrently with or subsequent to ATCs S-1327-162-0. [District Rule 2201]
- 49. ATCs S-1327-165-0, '166-0 and '167-0 shall be canceled upon implementation of ATCs S-1327-162-0, '163-0 and '164-0. [District Rule 2201]



AUTHORITY TO CONSTRUCT

PERMIT NO: S-1327-164-0

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: NW2 TOWNSHIP: 26S RANGE: 20E

EQUIPMENT DESCRIPTION:

62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR SERVED BY SOX SCRUBBING SYSTEM LISTED ON S-1327-162

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

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.

7 APCO Seyed Sadredin, Executive Director

DAVID WARNER, Director of Permit Services

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- 6. 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]
- 7. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
- 8. {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]
- 9. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
- 10. This steam generator shall be located at the NW1/4 of Section 2, T26S, R20E. [District Rule 2201]
- 11. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of waste gas combusted in the unit shall be installed, utilized and maintained. [District Rules 2201, 4305, 4306, and 4320]
- 12. PUC quality natural gas and waste gas shall be combined prior to the burner and shall not be fed separately to the burner. [District Rule 4320]
- 13. Burner nozzles may be changed when when unit is converted to fire solely on PUC quality natural or from solely PUC quality natural gas firing to firing on a mixture of PUC quality natural gas and waste gas. [District Rule 2201]
- 14. FGR shall be utilized when unit is fired solely on PUC quality natural gas. [District Rule 2201]
- 15. Exhaust from unit shall be directed to two stage SOx scrubber authorized herein except when unit is fired solely on PUC quality natural gas. [District Rule 2201]
- 16. PUC quality natural gas is any gaseous fuel where the sulfur content is no more than one-fourth (0.25) grain of hydrogen sulfide per one hundred (100) standard cubic feet, no more than five (5) grains of total sulfur per one hundred (100 standard cubic feet) and at least 80% methane by volume. [District Rule 4320]
- 17. Fuel H2S, total sulfur, and methane content shall be determined semi-annually using the following test methods H2S: ASTM D6228; total sulfur; ASTM D1072; ASTM D3246, double GC for H2S and mercaptans or ASTM D6228; and methane content: ASTM D1945. [District Rule4320]
- 18. Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320]
- 19. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201 and 4320]
- 20. If the unit is not fired on PUC-regulated natural gas and compliance is achieved through fuel sulfur content limitations, then the sulfur content of the fuel shall be determined by testing sulfur content at a location after all fuel sources are combined prior to incineration, or by performing mass balance calculations based on monitoring the sulfur content and volume of each fuel source. The sulfur content of the fuel shall be determined using the test methods referenced in this permit. [District Rules 2201 and 4320]
- 21. If fuel analysis is used to demonstrate compliance with conditions of this permit, the fuel higher heating value for each fuel shall be certified by a third party fuel supplier or determined by: ASTM D 1826 or D1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 2201 and 4320]
- 22. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, waste 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]
- 23. Waste gas H2S concentration shall not exceed 55,000 ppmv. [District Rule 2201]
- 24. Units S-1327-162, '163 and '164 shall not consume greater than a combined total of 3000 Mscf/day of waste gas.

 [District Rule 2201]
- 25. When fired solely on PUC quality natural gas emission rates shall not exceed: PM10: 0.0076 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]

- 26. When fired mixture of waste gas and PUC quality natural gas emission rates shall not exceed: PM10: 0.0076 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 9 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
- 27. 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]
- 28. 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]
- 29. 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]
- 30. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 2201, 4305, 4306, and 4320]
- 31. The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201, 4305, 4306, and 4320]
- 32. 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]
- 33. Source testing to measure NOx and CO emissions from this unit shall be conducted at least once every twelve (12) months or when the fuel source is changed. 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]
- 34. {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]
- 35. NOx 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]
- 36. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
- 37. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]

- 38. 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]
- 39. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
- 40. 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]
- 41. 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, 4320]
- 42. Prior to operating equipment under Authorities to Construct S-1327-162-0, '163-0 and '164-0, permittee shall surrender NOX emission reduction credits for the following quantity of emissions: 1st quarter 6776 lb, 2nd quarter 6776 lb, 3rd quarter 6776 lb, and fourth quarter 6776 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 43. ERC Certificate Numbers C-1087-2, N-831-2, N-948-2, S-3038-2, S-3054-2, S-3586-2, S-3587-2, S-3589-2, S-3590-2, S-3591-2 and S-3592-0 (or a certificate(s) split from this certificate(s)) 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]
- 44. Prior to operating equipment under Authorities to Construct S-1327-162-0, '163-0 and '164-0, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter 3389 lb, 2nd quarter 3389 lb, 3rd quarter 3389 lb, and fourth quarter 3389 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 45. ERC Certificate Numbers N-832-1, N-833-1, S-730-1, S-734-1, S-735-1, S-736-1, S-737-1, S-738-1, S-1755-1, S-1756-1, S-1757-1, S-1758-1, S1759-1, S-3573-1, S-3575-1, S-3576-1, S-3577-1, S-3582-1 and S-3584-1 (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]
- 46. Prior to operating equipment under Authorities to Construct S-1327-162-0, '163-0 and '164-0, permittee shall surrender SOx emission reduction credits for the following quantity of emissions: 1st quarter 4681 lb, 2nd quarter 4681 lb, 3rd quarter 4681 lb, and fourth quarter 4681 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 47. ERC Certificate Number N-1004-5 (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]
- 48. This ATC shall be implemented concurrently with or subsequent to ATCs S-1327-162-0. [District Rule 2201]
- 49. ATCs S-1327-165-0, '166-0 and '167-0 shall be canceled upon implementation of ATCs S-1327-162-0, '163-0 and '164-0. [District Rule 2201]



AUTHORITY TO CONSTRUCT

PERMIT NO: S-1327-165-0

LEGAL OWNER OR OPERATOR: VINTAGE PRODUCTION CALIFORNIA LLC

MAILING ADDRESS:

EQUIPMENT DESCRIPTION:

LOCATION:

9600 MING AVE, SUITE 300

BAKERSFIELD, CA 93311

CA

SECTION: NW2 TOWNSHIP: 26S RANGE: 20E

62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR AND TWO-STAGE EXHAUST GAS SOX SCRUBBING SYSTEM FOLLOWED BY A WET ESP SHARED WITH S-1327-166 AND '167

HEAVY OIL WESTERN, KERN COUNTY

CONDITIONS

- 1. 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]
- 2. 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]
- 3. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]
- 4. 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]
- 5. The unit shall be equipped with split flow dual pass water feed configuration, a convection section having at least 128 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by the manufacturer) and at least six inches of castable refractory or a manufacturer's overall thermal efficiency rating of at least 85%. [CEQA]

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 Directory APCO

- 6. The unit shall be equipped with variable frequency drive high efficiency electrical motors driving the blower and water pump. [CEQA]
- 7. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
- 8. {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]
- 9. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
- 10. This steam generator shall be located at the NW1/4 of Section 2, T26S, R20E. [District Rule 2201]
- 11. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of waste gas combusted in the unit shall be installed, utilized and maintained. [District Rules 2201, 4305, 4306, and 4320]
- 12. PUC quality natural gas and waste gas shall be combined prior to the burner and shall not be fed separately to the burner. [District Rule 4320]
- 13. Burner nozzles may be changed when when unit is converted to fire solely on PUC quality natural or from solely PUC quality natural gas firing to firing on a mixture of PUC quality natural gas and waste gas. [District Rule 2201]
- 14. FGR shall be utilized when unit is fired solely on PUC quality natural gas. [District Rule 2201]
- 15. Exhaust from unit shall be directed to two stage SOx scrubber authorized herein except when unit is fired solely on PUC quality natural gas. [District Rule 2201]
- 16. SO2 scrubber exhaust shall be vented to operational wet electrostatic precipitator prior to being exhausted to atmosphere. [District Rules 2201 and 4101]
- 17. Two stage scrubber, including wet electrostatic precipitator, control efficiency shall be maintained at least 99.5% by weight sulfur compounds or greater. [District Rule 2201]
- 18. Scrubber recirculation liquid pH shall be maintained only by the addition of caustic unless prior approval for an alternative pH maintenance method is received from the District. [District Rule 2201]
- 19. Daily average pH of scrubber liquor (calculated from hourly averages) shall be maintained between 6 and 7 in the first stage scrubber and 7 and 8 in the second stage scrubber, and shall be continuously monitored. [District NSR Rule]
- 20. PUC quality natural gas is any gaseous fuel where the sulfur content is no more than one-fourth (0.25) grain of hydrogen sulfide per one hundred (100) standard cubic feet, no more than five (5) grains of total sulfur per one hundred (100 standard cubic feet) and at least 80% methane by volume. [District Rule 4320]
- 21. Fuel H2S, total sulfur, and methane content shall be determined semi-annually using the following test methods H2S: ASTM D6228; total sulfur; ASTM D1072; ASTM D3246, double GC for H2S and mercaptans or ASTM D6228; and methane content: ASTM D1945. [District Rule4320]
- 22. Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320]
- 23. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201 and 4320]
- 24. If the unit is not fired on PUC-regulated natural gas and compliance is achieved through fuel sulfur content limitations, then the sulfur content of the fuel shall be determined by testing sulfur content at a location after all fuel sources are combined prior to incineration, or by performing mass balance calculations based on monitoring the sulfur content and volume of each fuel source. The sulfur content of the fuel shall be determined using the test methods referenced in this permit. [District Rules 2201 and 4320]
- 25. If fuel analysis is used to demonstrate compliance with conditions of this permit, the fuel higher heating value for each fuel shall be certified by a third party fuel supplier or determined by: ASTM D 1826 or D1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 2201 and 4320]

- 26. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, waste 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 22011]
- 27. Waste gas H2S concentration shall not exceed 55,000 ppmv. [District Rule 2201]
- 28. Units S-1327-165, '166 and '167 shall not consume greater than a combined total of 4500 Mscf/day of waste gas. [District Rule 2201]
- 29. When fired solely on PUC quality natural gas emission rates shall not exceed: PM10: 0.0076 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]
- 30. When fired mixture of waste gas and PUC quality natural gas emission rates shall not exceed: PM10: 0.0076 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 9 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
- 31. 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]
- 32. When any unit is connected to scrubber/wet ESP and is burning TEOR/TVR gas, scrubber/wet ESP shall be operating and permittee shall demonstrate compliance with PM10 and sulfur oxide emissions limit by stack source testing within 60 days of initial scrubbing date and annually thereafter. If compliance is demonstrated on two consecutive annual source tests, testing shall be required not less than once every 36 months unless testing is required by scrubber operational mode change as noted above. Annual source testing shall resume if any test fails to show compliance. Sulfur removal efficiency of scrubber/wet ESP shall be demonstrated during initial stack source test and calculated with subsequent tests. Ongoing compliance with sulfur oxide emissions limit shall be by calculation using the scrubber liquid pH, the demonstrated sulfur removal efficiency, and the fuel gas sulfur content. Fuel gas sulfur content shall be obtained by sample analysis at least semi-annually. [District Rules 2201 and 4320]
- 33. When complying with PM10 and SOx emission limits by testing of stack emissions, testing shall be performed using EPA Methods 5 or 201A, 6, 6B, 8, or ARB 100 or ARB Methods 1-6. When operating unscrubbed, a grab sample analysis by double GC performed in the laboratory and EPA Method 19 may be used to calculate SOx emissions. [District Rules 2201 4320]
- 34. 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]
- 35. 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]
- 36. 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]

- 37. The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201, 4305, 4306, and 4320]
- 38. 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]
- 39. Source testing to measure NOx and CO emissions from this unit shall be conducted at least once every twelve (12) months or when the fuel source is changed. 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]
- 40. {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]
- 41. NOx 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]
- 42. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
- 43. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
- 44. 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]
- 45. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
- 46. 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]
- 47. Permittee shall record the amount of each fuel combusted during each operating day. [District Rules 2201 and 4320]
- 48. 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, 4320]
- 49. Prior to operating equipment under Authorities to Construct S-1327-165-0, '166-0 and '167-0, permittee shall surrender NOX emission reduction credits for the following quantity of emissions: 1st quarter 6776 lb, 2nd quarter 6776 lb, 3rd quarter 6776 lb, and fourth quarter 6776 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 50. ERC Certificate Numbers C-1087-2, N-831-2, N-948-2, S-3038-2, S-3054-2, S-3586-2, S-3587-2, S-3589-2, S-3590-2, S-3591-2 and S-3592-0 (or a certificate(s) split from this certificate(s)) 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]
- 51. Prior to operating equipment under Authorities to Construct S-1327-165-0, '166-0 and '167-0, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter 3388 lb, 2nd quarter 3388 lb, 3rd quarter 3388 lb, and fourth quarter 3388 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]

- 52. ERC Certificate Numbers N-832-1, N-833-1, S-730-1, S-734-1, S-735-1, S-736-1, S-737-1, S-738-1, S-1755-1, S-1756-1, S-1757-1, S-1758-1, S1759-1, S-3573-1, S-3575-1, S-3576-1, S-3577-1, S-3582-1 and S-3584-1 (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]
- 53. Prior to operating equipment under Authorities to Construct S-1327-165-0, '166-0 and '167-0, permittee shall surrender SOX emission reduction credits for the following quantity of emissions: 1st quarter 25,393 lb, 2nd quarter 25,393 lb, 3rd quarter 25,393 lb, and fourth quarter 25,393 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 54. ERC Certificate Numbers C-1086-5, N-935-5, N-1001-5, N-1004-5, S-3526-5 and S-3527-5 (or a certificate(s) split from this certificate(s)) 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]
- 55. Prior to operating equipment under Authorities to Construct S-1327-165-0, '166-0 and '167-0, permittee shall surrender SOx emission reduction credits for the following quantity of emissions: 1st quarter 4681 lb, 2nd quarter 4681 lb, 3rd quarter 4681 lb, and fourth quarter 4681 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 56. ERC Certificate Number N-1004-5 (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]
- 57. ATCs S-1327-162-0, '163-0 and '164-0 shall be canceled upon implementation of ATCs S-1327-165-0, '166-0 and '167-0. [District Rule 2201]



AUTHORITY TO CONSTRUCT

PERMIT NO: S-1327-166-0

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: NW2 TOWNSHIP: 26S RANGE: 20E

EQUIPMENT DESCRIPTION:

62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR SERVED BY SOX SCRUBBING SYSTEM LISTED ON S-1327-165

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]
- 2. 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]
- 3. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]
- 4. 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]
- 5. The unit shall be equipped with split flow dual pass water feed configuration, a convection section having at least 128 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by the manufacturer) and at least six inches of castable refractory or a manufacturer's overall thermal efficiency rating of at least 85%. [CEQA]

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-ether governmental agencies which may pertain to the above equipment.

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- 6. The unit shall be equipped with variable frequency drive high efficiency electrical motors driving the blower and water pump. [CEQA]
- 7. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
- 8. {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]
- 9. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
- 10. This steam generator shall be located at the NW1/4 of Section 2, T26S, R20E. [District Rule 2201]
- 11. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of waste gas combusted in the unit shall be installed, utilized and maintained. [District Rules 2201, 4305, 4306, and 4320]
- 12. PUC quality natural gas and waste gas shall be combined prior to the burner and shall not be fed separately to the burner. [District Rule 4320]
- 13. Burner nozzles may be changed when when unit is converted to fire solely on PUC quality natural or from solely PUC quality natural gas firing to firing on a mixture of PUC quality natural gas and waste gas. [District Rule 2201]
- 14. FGR shall be utilized when unit is fired solely on PUC quality natural gas. [District Rule 2201]
- 15. Exhaust from unit shall be directed to two stage SOx scrubber authorized herein except when unit is fired solely on PUC quality natural gas. [District Rule 2201]
- 16. PUC quality natural gas is any gaseous fuel where the sulfur content is no more than one-fourth (0.25) grain of hydrogen sulfide per one hundred (100) standard cubic feet, no more than five (5) grains of total sulfur per one hundred (100 standard cubic feet) and at least 80% methane by volume. [District Rule 4320]
- 17. Fuel H2S, total sulfur, and methane content shall be determined semi-annually using the following test methods H2S: ASTM D6228; total sulfur; ASTM D1072; ASTM D3246, double GC for H2S and mercaptans or ASTM D6228; and methane content: ASTM D1945. [District Rule4320]
- 18. Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320]
- 19. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201and 4320]
- 20. If the unit is not fired on PUC-regulated natural gas and compliance is achieved through fuel sulfur content limitations, then the sulfur content of the fuel shall be determined by testing sulfur content at a location after all fuel sources are combined prior to incineration, or by performing mass balance calculations based on monitoring the sulfur content and volume of each fuel source. The sulfur content of the fuel shall be determined using the test methods referenced in this permit. [District Rules 2201 and 4320]
- If fuel analysis is used to demonstrate compliance with conditions of this permit, the fuel higher heating value for each fuel shall be certified by a third party fuel supplier or determined by: ASTM D 1826 or D1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 2201 and 4320]
- 22. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, waste 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]
- 23. Waste gas H2S concentration shall not exceed 55,000 ppmv. [District Rule 2201]
- 24. Units S-1327-165, '166 and '167 shall not consume greater than a combined total of 4500 Mscf/day of waste gas. [District Rule 2201]
- 25. When fired solely on PUC quality natural gas emission rates shall not exceed: PM10: 0.0076 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]

- 26. When fired mixture of waste gas and PUC quality natural gas emission rates shall not exceed: PM10: 0.0076 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 9 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
- 27. 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]
- 28. 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]
- 29. 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]
- 30. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 2201, 4305, 4306, and 4320]
- 31. The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201, 4305, 4306, and 4320]
- 32. 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]
- 33. Source testing to measure NOx and CO emissions from this unit shall be conducted at least once every twelve (12) months or when the fuel source is changed. 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]
- 34. {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]
- 35. NOx 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]
- 36. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
- 37. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]

- 38. 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]
- 39. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
- 40. 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]
- 41. 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, 4320]
- 42. Prior to operating equipment under Authorities to Construct S-1327-165-0, '166-0 and '167-0, permittee shall surrender NOX emission reduction credits for the following quantity of emissions: 1st quarter 6776 lb, 2nd quarter 6776 lb, 3rd quarter 6776 lb, and fourth quarter 6776 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 43. ERC Certificate Numbers C-1087-2, N-831-2, N-948-2, S-3038-2, S-3054-2, S-3586-2, S-3587-2, S-3589-2, S-3590-2, S-3591-2 and S-3592-0 (or a certificate(s) split from this certificate(s)) 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]
- 44. Prior to operating equipment under Authorities to Construct S-1327-165-0, '166-0 and '167-0, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter 3388 lb, 2nd quarter 3388 lb, 3rd quarter 3388 lb, and fourth quarter 3388 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 45. ERC Certificate Numbers N-832-1, N-833-1, S-730-1, S-734-1, S-735-1, S-736-1, S-737-1, S-738-1, S-1755-1, S-1756-1, S-1757-1, S-1758-1, S1759-1, S-3573-1, S-3575-1, S-3576-1, S-3577-1, S-3582-1 and S-3584-1 (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]
- 46. Prior to operating equipment under Authorities to Construct S-1327-165-0, '166-0 and '167-0, permittee shall surrender SOX emission reduction credits for the following quantity of emissions: 1st quarter 25,393 lb, 2nd quarter 25,393 lb, 3rd quarter 25,393 lb, and fourth quarter 25,393 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 47. ERC Certificate Numbers C-1086-5, N-935-5, N-1001-5, N-1004-5, S-3526-5 and S-3527-5 (or a certificate(s) split from this certificate(s)) 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]
- 48. Prior to operating equipment under Authorities to Construct S-1327-165-0, '166-0 and '167-0, permittee shall surrender SOx emission reduction credits for the following quantity of emissions: 1st quarter 4681 lb, 2nd quarter 4681 lb, 3rd quarter 4681 lb, and fourth quarter 4681 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 49. ERC Certificate Number N-1004-5 (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]
- 50. This ATC shall be implemented concurrently with or subsequent to ATCs S-1327-165-0. [District Rule 2201]
- 51. ATCs S-1327-162-0, '163-0 and '164-0 shall be canceled upon implementation of ATCs S-1327-165-0, '166-0 and '167-0. [District Rule 2201]

AUTHORITY TO CONSTRUCT

PERMIT NO: S-1327-167-0

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: NW2 TOWNSHIP: 26S RANGE: 20E

EQUIPMENT DESCRIPTION:

62.5 MMBTU/HR NATURAL GAS/TEOR GAS FIRED STEAM GENERATOR EQUIPPED WITH NORTH AMERICAN GLE ULTRA LOW-NOX BURNER (OR EQUIVALENT) WITH FGR SERVED BY SOX SCRUBBING SYSTEM LISTED ON S-1327-165

CONDITIONS

- 1. 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]
- 2. 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]
- 3. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]
- 4. 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]
- 5. The unit shall be equipped with split flow dual pass water feed configuration, a convection section having at least 128 square feet of heat transfer surface area per MMBtu/hr of maximum rated heat input (verified by the manufacturer) and at least six inches of castable refractory or a manufacturer's overall thermal efficiency rating of at least 85%. [CEQA]

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-ether governmental agencies which may pertain to the above equipment.

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- 6. The unit shall be equipped with variable frequency drive high efficiency electrical motors driving the blower and water pump. [CEQA]
- 7. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
- 8. {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]
- 9. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
- 10. This steam generator shall be located at the NW1/4 of Section 2, T26S, R20E. [District Rule 2201]
- 11. A non-resettable, totalizing mass or volumetric fuel flow meter to measure the amount of waste gas combusted in the unit shall be installed, utilized and maintained. [District Rules 2201, 4305, 4306, and 4320]
- 12. PUC quality natural gas and waste gas shall be combined prior to the burner and shall not be fed separately to the burner. [District Rule 4320]
- 13. Burner nozzles may be changed when when unit is converted to fire solely on PUC quality natural or from solely PUC quality natural gas firing to firing on a mixture of PUC quality natural gas and waste gas. [District Rule 2201]
- 14. FGR shall be utilized when unit is fired solely on PUC quality natural gas. [District Rule 2201]
- 15. Exhaust from unit shall be directed to two stage SOx scrubber authorized herein except when unit is fired solely on PUC quality natural gas. [District Rule 2201]
- 16. PUC quality natural gas is any gaseous fuel where the sulfur content is no more than one-fourth (0.25) grain of hydrogen sulfide per one hundred (100) standard cubic feet, no more than five (5) grains of total sulfur per one hundred (100 standard cubic feet) and at least 80% methane by volume. [District Rule 4320]
- 17. Fuel H2S, total sulfur, and methane content shall be determined semi-annually using the following test methods H2S: ASTM D6228; total sulfur; ASTM D1072; ASTM D3246, double GC for H2S and mercaptans or ASTM D6228; and methane content: ASTM D1945. [District Rule4320]
- 18. Each fuel source shall be tested semi-annually for sulfur content and higher heating value. If a fuel content test fails to show compliance, weekly testing is required until compliance is demonstrated for 8 consecutive weeks, after which semi-annual testing may resume. [District Rules 2201 and 4320]
- 19. If the unit is fired on PUC-regulated natural gas, valid purchase contracts, supplier certifications, tariff sheets, or transportation contracts may be used to satisfy the fuel sulfur content analysis, provided they establish the fuel sulfur concentration and higher heating value. [District Rules 2201 and 4320]
- 20. If the unit is not fired on PUC-regulated natural gas and compliance is achieved through fuel sulfur content limitations, then the sulfur content of the fuel shall be determined by testing sulfur content at a location after all fuel sources are combined prior to incineration, or by performing mass balance calculations based on monitoring the sulfur content and volume of each fuel source. The sulfur content of the fuel shall be determined using the test methods referenced in this permit. [District Rules 2201 and 4320]
- 21. If fuel analysis is used to demonstrate compliance with conditions of this permit, the fuel higher heating value for each fuel shall be certified by a third party fuel supplier or determined by: ASTM D 1826 or D1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 2201 and 4320]
- 22. The unit shall only be fired on gaseous fuel that includes PUC quality natural gas, waste 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]
- 23. Waste gas H2S concentration shall not exceed 55,000 ppmv. [District Rule 2201]
- 24. Units S-1327-165, '166 and '167 shall not consume greater than a combined total of 4500 Mscf/day of waste gas. [District Rule 2201]
- 25. When fired solely on PUC quality natural gas emission rates shall not exceed: PM10: 0.0076 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]

- 26. When fired mixture of waste gas and PUC quality natural gas emission rates shall not exceed: PM10: 0.0076 lb/MMBtu, VOC: 0.0055 lb/MMBtu, NOx (as NO2): 9 ppmvd NOx @ 3% O2, or CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]
- 27. 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]
- 28. 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]
- 29. 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]
- 30. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 2201, 4305, 4306, and 4320]
- 31. The permittee shall maintain records of: (1) the date and time of NOx, CO, and O2 measurements, (2) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 3% O2, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 2201, 4305, 4306, and 4320]
- 32. 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]
- 33. Source testing to measure NOx and CO emissions from this unit shall be conducted at least once every twelve (12) months or when the fuel source is changed. 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]
- 34. {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]
- 35. NOx 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]
- 36. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]
- 37. Stack gas oxygen (O2) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]

- 38. 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]
- 39. {110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
- 40. 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]
- 41. 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, 4320]
- 42. Prior to operating equipment under Authorities to Construct S-1327-165-0, '166-0 and '167-0, permittee shall surrender NOX emission reduction credits for the following quantity of emissions: 1st quarter 6776 lb, 2nd quarter 6776 lb, 3rd quarter 6776 lb, and fourth quarter 6776 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 43. ERC Certificate Numbers C-1087-2, N-831-2, N-948-2, S-3038-2, S-3054-2, S-3586-2, S-3587-2, S-3589-2, S-3590-2, S-3591-2 and S-3592-0 (or a certificate(s) split from this certificate(s)) 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]
- 44. Prior to operating equipment under Authorities to Construct S-1327-165-0, '166-0 and '167-0, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter 3388 lb, 2nd quarter 3388 lb, 3rd quarter 3388 lb, and fourth quarter 3388 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 45. ERC Certificate Numbers N-832-1, N-833-1, S-730-1, S-734-1, S-735-1, S-736-1, S-737-1, S-738-1, S-1755-1, S-1756-1, S-1757-1, S-1758-1, S1759-1, S-3573-1, S-3575-1, S-3576-1, S-3577-1, S-3582-1 and S-3584-1 (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]
- 46. Prior to operating equipment under Authorities to Construct S-1327-165-0, '166-0 and '167-0, permittee shall surrender SOX emission reduction credits for the following quantity of emissions: 1st quarter 25,393 lb, 2nd quarter 25,393 lb, 3rd quarter 25,393 lb, and fourth quarter 25,393 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 47. ERC Certificate Numbers C-1086-5, N-935-5, N-1001-5, N-1004-5, S-3526-5 and S-3527-5 (or a certificate(s) split from this certificate(s)) 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]
- 48. Prior to operating equipment under Authorities to Construct S-1327-165-0, '166-0 and '167-0, permittee shall surrender SOx emission reduction credits for the following quantity of emissions: 1st quarter 4681 lb, 2nd quarter 4681 lb, 3rd quarter 4681 lb, and fourth quarter 4681 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]
- 49. ERC Certificate Number N-1004-5 (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]
- 50. This ATC shall be implemented concurrently with or subsequent to ATCs S-1327-165-0. [District Rule 2201]
- 51. ATCs S-1327-162-0, '163-0 and '164-0 shall be canceled upon implementation of ATCs S-1327-165-0, '166-0 and '167-0. [District Rule 2201]