JUN 13 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,

[Signature]

David Warner
Director of Permit Services

DW: DBT/cm

Enclosures
JUN 13 2012

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

Re: Notice of Preliminary Decision - Authority to Construct
Project Number: S-1114465

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,

[Signature]

David Warner
Director of Permit Services

DW: DBT/cm

Enclosure
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  
Bakersfield, CA 93311  
Engineer: David Torii  
Lead Engineer: Allan Phillips  
Contact Person: Jerry Frost, HES Advisor  
Telephone: (661) 869-8000  
Fax: (661) 869-8059  
Application #: S-1327-162-0, '163-0, '164-0, '165-0, '166-0 and '167-0  
Project #: 1114465  
Deemed Complete: 12/1/11

I. 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 (8/21/03)  
Rule 4306 Boilers, Steam Generators and Process Heaters – Phase III (3/17/05)  
Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)  
Rule 4351 Boilers, Steam Generators and Process Heaters -- Phase 1 (8/21/03)  
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 MM BTU/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 MM BTU/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 MM BTU/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 MM BTU/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 MM BTU/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 MM BTU/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 MM BTU/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 MM BTU/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-NOx burners reduce NOx 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-NOx 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 NOx. 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 (NOx) 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 NOx is formed by high flame temperatures, the lower flame temperatures produced by FGR serve to reduce thermal NOx.

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 MSCF/ and 99.5% when burning 4500 MSCF/.
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

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Emission Factors</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx*</td>
<td>0.011 lb-NOx/MMBtu</td>
<td>9 ppmvd NOx (@ 3%O2)</td>
</tr>
<tr>
<td>NOx**</td>
<td>0.008 lb-NOx/MMBtu</td>
<td>7 ppmvd NOx (@ 3%O2)</td>
</tr>
<tr>
<td>SOx</td>
<td>0.00285 lb-SO2/MMBtu</td>
<td>Waste gas</td>
</tr>
<tr>
<td>PM10</td>
<td>0.0076 lb-PM10/MMBtu</td>
<td>25 ppmvd CO (@ 3%O2)</td>
</tr>
<tr>
<td>CO</td>
<td>0.018 lb-CO/MMBtu</td>
<td>13 ppmvd VOC (@ 3%O2)</td>
</tr>
<tr>
<td>VOC</td>
<td>0.0055 lb-VOC/MMBtu</td>
<td>13 ppmvd VOC (@ 3%O2)</td>
</tr>
</tbody>
</table>

*when firing on waste gas (BACT/Rule 4320 requirement)
**when firing on PUC quality natural 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
Daily SOx emissions from one SG firing on 3000 Mscf/day waste gas:

Daily SOx emissions from waste gas portion of fuel

\[(55,000 \text{ scf H2S/MMscf})(\text{MMscf/452 MMBtu})(1 \text{ lb-mole}/379 \text{ scf H2S})(34 \text{ lb-H2S/lb-mole})\]
\[(64 \text{ lb-SOx/34 lb-H2S})(1 - 0.999) = 0.0206 \text{ lb-SOx/MMBtu}\]
\[(3000 \text{ Mscf/day})(452,000 \text{ Btu/Mscf})(0.0206 \text{ lb-SOx/MMBtu})(\text{MM/scf/1 E6}) = 27.9 \text{ lb-SOx/day}\]

Daily SOx emissions from PUC gas portion of fuel

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

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

\[27.9 \text{ lb-SOx/day} + 0 \text{ lb-SOx/day} = 27.9 \text{ lb-SOx/day}\]

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

\[(3000 \text{ Mscf/day})(452,000 \text{ Btu/Mscf})(0.0206 \text{ lb-SOx/MMBtu})(\text{MM/scf/1 E6}) = 27.9 \text{ lb-SOx/day}\]

Bubbled daily SOx emissions from PUC gas portion of fuel

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

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

\[27.9 + 0 = 27.9 \text{ lb-SOx/day}\]

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<thead>
<tr>
<th>S-1327-162-0</th>
<th>EF</th>
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<td>NOx</td>
<td>0.011 lb-NOx/MMBtu</td>
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<tr>
<td>SOx</td>
<td>See above</td>
<td>24 hr/day</td>
<td>27.9*</td>
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<tr>
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<td>See above</td>
<td></td>
<td>27.9**</td>
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<tr>
<td>PM10</td>
<td>0.0076 lb-PM10/MMBtu</td>
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<td>11.4</td>
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<tr>
<td>CO</td>
<td>0.018 lb-CO/MMBtu</td>
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<td>27.0</td>
</tr>
<tr>
<td>VOC</td>
<td>0.0055 lb-VOC/MMBtu</td>
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<td>8.25</td>
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*emissions from one SG when fired on waste gas

**bubbled limit for S-1327-163, '164 and '165 when fired on waste gas
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*emissions from one SG when fired on waste gas
**bubbled limit for S-1327-163, '164 and '165 when fired on waste gas

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*emissions from one SG when fired on waste gas
**bubbled limit for S-1327-163, '164 and '165 when fired on waste gas

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

Annual SO\(_x\) emissions from firing on total of 3000 Mscf-H2S/day:

\[
(3000 \text{ Mscf/day})(452,000 \text{ Btu/Mscf})(\text{MM/1 E6})(365 \text{ day/yr})(0.0206 \text{ lb-SO}\(_x\)/\text{MMBtu}) = 10,196 \text{ lb-SO}\(_x\)/\text{yr}
\]

Annual SO\(_x\) emissions from PUC gas portion of mixture:

\[
[(62.5 \text{ MMBtu/hr})(8760 \text{ hr/yr})(3 \text{ SGs}) - (3000 \text{ Mscf/day})(452,000 \text{ Btu/Mscf})(\text{MM/1 E6}) (365 \text{ day/yr})](0.00285 \text{ lb-SO}\(_x\)/\text{MMBtu})(1 - 0.999) = 3 \text{ lb/yr}
\]

Total annual SO\(_x\) emissions from S-1327-162, '163 and '164:

\[10,196 + 3 = 10,199 \text{ lbSO}\(_x\)/\text{yr}
\]

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<td>SO(_x)</td>
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<td>8760 hr/yr</td>
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<td>VOC</td>
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*bubbled limit for S-1327-163, '164 and '165 when fired on waste gas
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<tr>
<td>SOx</td>
<td>See above</td>
<td>10,199*</td>
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*bubbled limit for S-1327-163, '164 and '165 when fired on waste gas

**S-1327-165, ‘166 and ‘167**

Daily SO\textsubscript{x} emissions from one SG when two SGs firing on 4500 Mscf/day waste gas:

\[
\frac{(55,000 \text{ scf H2S/MMscf})(452 \text{ MMBtu/MMscf})(1 \text{ lb-mole/379 scf H2S})(34 \text{ lb-H2S/lb-mole})}{(64 \text{ lb-SOx/MMscf})(34 \text{ lb-H2S})(1 - 0.995)} = 0.103 \text{ lb-SOx/MMBTu}
\]

\[
(62.5 \text{ MMBtu/hr})(0.103 \text{ lb-SOx/MMBTu})(24 \text{ hr/day}) = 154.5 \text{ lb-SOx/day}
\]

Worst case daily SO\textsubscript{x} emissions from two steam generators are firing on a total 4500 Mscf/day waste gas and one is firing on PUC-quality gas:

SO\textsubscript{x} emissions from firing on 4500 Mscf H2S

\[
(4500 \text{ Mscf/day})(452,000 \text{ Btu/MMscf})(0.103 \text{ lb-SOx/MMBTu}) = 209.5 \text{ lb-SOx/day}
\]

SO\textsubscript{x} emissions from firing one steam generator on PUC-quality gas:

\[
(62.5 \text{ MMBtu/day})(24 \text{ hr/day})(0.00285 \text{ lb-SOx/MMBTu}) = 4.3 \text{ lb-SOx/day}
\]

Total worst case SO\textsubscript{x} 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

<table>
<thead>
<tr>
<th></th>
<th>EF</th>
<th>Rating</th>
<th>lb/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO\textsubscript{X}</td>
<td>0.011 lb-NO\textsubscript{X}/MMBtu</td>
<td>62.5 MMBtu/hr</td>
<td>16.5</td>
</tr>
<tr>
<td>SO\textsubscript{X}</td>
<td>See above</td>
<td>24 hr/day</td>
<td></td>
</tr>
<tr>
<td>SO\textsubscript{X}</td>
<td>See above</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM\textsubscript{10}</td>
<td>0.0076 lb-PM\textsubscript{10}/MMBtu</td>
<td></td>
<td>11.4</td>
</tr>
<tr>
<td>CO</td>
<td>0.018 lb-CO/MMBtu</td>
<td></td>
<td>27.0</td>
</tr>
<tr>
<td>VOC</td>
<td>0.0055 lb-VOC/MMBtu</td>
<td></td>
<td>8.25</td>
</tr>
</tbody>
</table>

*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

<table>
<thead>
<tr>
<th></th>
<th>EF</th>
<th>Rating</th>
<th>lb/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO\textsubscript{X}</td>
<td>0.011 lb-NO\textsubscript{X}/MMBtu</td>
<td>62.5 MMBtu/hr</td>
<td>16.5</td>
</tr>
<tr>
<td>SO\textsubscript{X}</td>
<td>See above</td>
<td>24 hr/day</td>
<td></td>
</tr>
<tr>
<td>SO\textsubscript{X}</td>
<td>See above</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM\textsubscript{10}</td>
<td>0.0076 lb-PM\textsubscript{10}/MMBtu</td>
<td></td>
<td>11.4</td>
</tr>
<tr>
<td>CO</td>
<td>0.018 lb-CO/MMBtu</td>
<td></td>
<td>27.0</td>
</tr>
<tr>
<td>VOC</td>
<td>0.0055 lb-VOC/MMBtu</td>
<td></td>
<td>8.25</td>
</tr>
</tbody>
</table>

*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

<table>
<thead>
<tr>
<th></th>
<th>EF</th>
<th>Rating</th>
<th>lb/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO\textsubscript{X}</td>
<td>0.011 lb-NO\textsubscript{X}/MMBtu</td>
<td>62.5 MMBtu/hr</td>
<td>16.5</td>
</tr>
<tr>
<td>SO\textsubscript{X}</td>
<td>See above</td>
<td>24 hr/day</td>
<td></td>
</tr>
<tr>
<td>SO\textsubscript{X}</td>
<td>See above</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM\textsubscript{10}</td>
<td>0.0076 lb-PM\textsubscript{10}/MMBtu</td>
<td></td>
<td>11.4</td>
</tr>
<tr>
<td>CO</td>
<td>0.018 lb-CO/MMBtu</td>
<td></td>
<td>27.0</td>
</tr>
<tr>
<td>VOC</td>
<td>0.0055 lb-VOC/MMBtu</td>
<td></td>
<td>8.25</td>
</tr>
</tbody>
</table>

*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

Total annual worst case SO\textsubscript{X} emissions from S-1327-165, '166 and '167:

\[(213.8 \text{ lb-SO}_x/\text{day})(365 \text{ days/year}) = 78,037 \text{ lb-SO}_x/\text{yr}\]

### S-1327-165-0

<table>
<thead>
<tr>
<th></th>
<th>EF</th>
<th>Rating</th>
<th>lb/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO\textsubscript{X}</td>
<td>0.011 lb-NO\textsubscript{X}/MMBtu</td>
<td>8760 hr/yr</td>
<td>6023</td>
</tr>
<tr>
<td>SO\textsubscript{X}</td>
<td>See above</td>
<td></td>
<td>78,037*</td>
</tr>
<tr>
<td>PM\textsubscript{10}</td>
<td>0.0076 lb-PM\textsubscript{10}/MMBtu</td>
<td></td>
<td>4161</td>
</tr>
<tr>
<td>CO</td>
<td>0.018 lb-CO/MMBtu</td>
<td></td>
<td>9855</td>
</tr>
<tr>
<td>VOC</td>
<td>0.0055 lb-VOC/MMBtu</td>
<td></td>
<td>3011</td>
</tr>
</tbody>
</table>

*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 Stationary Source Potential to Emit [SSPE1] (lb/year) |
|-----------------|---|---|---|---|---|
| NOX             | SOX | PM10 | 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.
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 Rule 2201.

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.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Project PE2 (lb/year)</th>
<th>Threshold (lb/year)</th>
<th>SB 288 Major Modification Calculation Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
<td>18,069</td>
<td>50,000</td>
<td>No</td>
</tr>
<tr>
<td>SOx</td>
<td>78,037</td>
<td>80,000</td>
<td>No</td>
</tr>
<tr>
<td>PM10</td>
<td>12,483</td>
<td>30,000</td>
<td>No</td>
</tr>
<tr>
<td>VOC</td>
<td>9033</td>
<td>50,000</td>
<td>No</td>
</tr>
</tbody>
</table>

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.
### Federal Major Modification Thresholds for Emission Increases

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Total Emissions Increases (lb/yr)</th>
<th>Thresholds (lb/yr)</th>
<th>Federal Major Modification?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO(_x^*)</td>
<td>18,069</td>
<td>0</td>
<td>Yes</td>
</tr>
<tr>
<td>VOC(^*)</td>
<td>9033</td>
<td>0</td>
<td>Yes</td>
</tr>
<tr>
<td>PM(_{10})</td>
<td>12,483</td>
<td>30,000</td>
<td>No</td>
</tr>
<tr>
<td>PM(_{2.5})</td>
<td>12,483</td>
<td>20,000</td>
<td>No</td>
</tr>
<tr>
<td>SO(_x)</td>
<td>78,037</td>
<td>80,000</td>
<td>No</td>
</tr>
</tbody>
</table>

*If there is any emission increase 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.

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

   a. **New emissions units – PE > 2 lb/day**
As seen in Section VII.C.2 of this evaluation, the applicant is proposing to install new SGs each with a PE greater than 2 lb/day for NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, CO, and VOC. BACT is triggered for NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, 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<sub>x</sub>: 7 ppmv @ 3% O<sub>2</sub> and 9 ppmv when waste gas fired
- SO<sub>x</sub>: 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
- PM<sub>10</sub>: 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% O<sub>2</sub>
- 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.
<p>|
|-----------------|-------|-------|-------|-------|-------|</p>
<table>
<thead>
<tr>
<th>S-1327-162, '163 and '164 Offset Determination (lb/year)</th>
<th>NO\textsubscript{X}</th>
<th>SO\textsubscript{X}</th>
<th>PM\textsubscript{10}</th>
<th>CO</th>
<th>VOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Project SSPE (SSPE2)</td>
<td>&gt;20,000</td>
<td>54,627</td>
<td>70,881</td>
<td>&gt;200,000</td>
<td>&gt;20,000</td>
</tr>
<tr>
<td>Offset Threshold</td>
<td>20,000</td>
<td>54,750</td>
<td>29,200</td>
<td>200,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Offsets triggered?</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

2. Quantity of Offsets Required

NO\textsubscript{X}:

\[
\text{PE2 (NO}_X\text{)} = 18,069 \text{ lb/year} \\
\text{BE (NO}_X\text{)} = 0 \text{ lb/year} \\
\text{ICCE} = 0 \text{ lb/year}
\]

The project is a Federal Major Modification and therefore the correct offset ratio for NO\textsubscript{X} and VOCs is 1.5:1.

Assuming an offset ratio of 1.5:1, the amount of NO\textsubscript{X} ERCs that need to be withdrawn is:

\[
\text{Offsets Required (lb/year)} = ([18,069 - 0] + 0) \times 1.5 \\
= 27,104 \text{ lb NO}_X/\text{year}
\]

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

<table>
<thead>
<tr>
<th>1\textsuperscript{st} Quarter</th>
<th>2\textsuperscript{nd} Quarter</th>
<th>3\textsuperscript{rd} Quarter</th>
<th>4\textsuperscript{th} Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>6776</td>
<td>6776</td>
<td>6776</td>
<td>6776</td>
</tr>
</tbody>
</table>

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\textsubscript{X} emissions associated with this project. The above certificates have available quarterly NO\textsubscript{X} credits as follows:
<table>
<thead>
<tr>
<th>ERC</th>
<th>1&lt;sup&gt;st&lt;/sup&gt;</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt;</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt;</th>
<th>4&lt;sup&gt;th&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-1087-2</td>
<td>753</td>
<td>0</td>
<td>0</td>
<td>310</td>
</tr>
<tr>
<td>N-831-2</td>
<td>173</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>N-948-2</td>
<td>1532</td>
<td>1530</td>
<td>1530</td>
<td>1530</td>
</tr>
<tr>
<td>S-3038-2</td>
<td>417</td>
<td>345</td>
<td>508</td>
<td>572</td>
</tr>
<tr>
<td>S-3054-2</td>
<td>22</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>S-3586-2</td>
<td>0</td>
<td>1512</td>
<td>6228</td>
<td>0</td>
</tr>
<tr>
<td>S-3587-2</td>
<td>758</td>
<td>694</td>
<td>618</td>
<td>1641</td>
</tr>
<tr>
<td>S-3589-2</td>
<td>1837</td>
<td>0</td>
<td>0</td>
<td>598</td>
</tr>
<tr>
<td>S-3590-2</td>
<td>0</td>
<td>434</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>S-3591-2</td>
<td>508</td>
<td>498</td>
<td>408</td>
<td>379</td>
</tr>
<tr>
<td>S-3592-2</td>
<td>1283</td>
<td>275</td>
<td>1967</td>
<td>1412</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>7283</strong></td>
<td><strong>5288</strong></td>
<td><strong>11,262</strong></td>
<td><strong>6442</strong></td>
</tr>
<tr>
<td><strong>Offsets:</strong></td>
<td><strong>6776</strong></td>
<td><strong>6776</strong></td>
<td><strong>6776</strong></td>
<td><strong>6776</strong></td>
</tr>
<tr>
<td><strong>Remainder:</strong></td>
<td><strong>507</strong></td>
<td><strong>-1488</strong></td>
<td><strong>4486</strong></td>
<td><strong>-344</strong></td>
</tr>
<tr>
<td><strong>Transferred from 3&lt;sup&gt;rd&lt;/sup&gt; qtr</strong></td>
<td><strong>1488</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Remainder:</strong></td>
<td><strong>507</strong></td>
<td><strong>0</strong></td>
<td><strong>4486-1488-344=2654</strong></td>
<td></td>
</tr>
</tbody>
</table>

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:**

PE\(_2\) (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/yr) = ([9033 - 0] + 0) x 1.5
= 13,550 lb NOx/year

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

<table>
<thead>
<tr>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>3388</td>
<td>3388</td>
<td>3388</td>
<td>3388</td>
</tr>
</tbody>
</table>

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-3594-1 to offset the increases in VOC emissions associated with this project. The above certificate has available quarterly VOC credits as follows:
<table>
<thead>
<tr>
<th>ERC</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-832-1</td>
<td>30</td>
<td>30</td>
<td>32</td>
<td>30</td>
</tr>
<tr>
<td>N-833-1</td>
<td>16</td>
<td>16</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>S-730-1</td>
<td>69</td>
<td>97</td>
<td>110</td>
<td>67</td>
</tr>
<tr>
<td>S-734-1</td>
<td>4</td>
<td>8</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>S-735-1</td>
<td>7</td>
<td>11</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>S-736-1</td>
<td>80</td>
<td>157</td>
<td>165</td>
<td>81</td>
</tr>
<tr>
<td>S-737-1</td>
<td>310</td>
<td>575</td>
<td>603</td>
<td>317</td>
</tr>
<tr>
<td>S-738-1</td>
<td>192</td>
<td>375</td>
<td>395</td>
<td>198</td>
</tr>
<tr>
<td>S-1755-1</td>
<td>53</td>
<td>109</td>
<td>120</td>
<td>52</td>
</tr>
<tr>
<td>S-1756-1</td>
<td>360</td>
<td>778</td>
<td>883</td>
<td>372</td>
</tr>
<tr>
<td>S-1757-1</td>
<td>2</td>
<td>7</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>S-1758-1</td>
<td>88</td>
<td>193</td>
<td>195</td>
<td>93</td>
</tr>
<tr>
<td>S-1759-1</td>
<td>137</td>
<td>261</td>
<td>382</td>
<td>193</td>
</tr>
<tr>
<td>S-3573-1</td>
<td>45</td>
<td>45</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>S-3575-1</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>S-3576-1</td>
<td>96</td>
<td>221</td>
<td>234</td>
<td>98</td>
</tr>
<tr>
<td>S-3577-1</td>
<td>203</td>
<td>463</td>
<td>491</td>
<td>214</td>
</tr>
<tr>
<td>S-3582-1</td>
<td>123</td>
<td>1513</td>
<td>2068</td>
<td>162</td>
</tr>
<tr>
<td>S-3584-1</td>
<td>362</td>
<td>290</td>
<td>454</td>
<td>518</td>
</tr>
<tr>
<td>Total:</td>
<td>2177</td>
<td>5155</td>
<td>6231</td>
<td>2470</td>
</tr>
<tr>
<td>Offsets</td>
<td>3388</td>
<td>3388</td>
<td>3388</td>
<td>3388</td>
</tr>
<tr>
<td>Required:</td>
<td>Remainder: -1211 1767 2843 -918</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transferred from 3rd qtr</td>
<td>1211</td>
<td>918</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remainder:</td>
<td>0</td>
<td>1766</td>
<td>2843-1211-918=714</td>
<td>0</td>
</tr>
</tbody>
</table>

As seen above, the facility has sufficient credits to fully offset the quarterly NOx 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, S-1759-1, 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 SOx 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 (SOx) = 122,465 lb/year
Offset threshold (SOx) = 54,750 lb/year
ICCE = 0 lb/year

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

Offsets Required (lb/year) = [(122,465 – 54,750 + 0) x 1.5]
= 67,715 x 1.5
= 101,573 lb SOx/year

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

<table>
<thead>
<tr>
<th>Quarter</th>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25,393</td>
<td>25,393</td>
<td>25,393</td>
<td>25,393</td>
</tr>
</tbody>
</table>

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 SOx emissions associated with this project. The above certificates have available quarterly SOx credits as follows:
As seen above, the facility has sufficient credits to fully offset the quarterly SO\textsubscript{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\textsubscript{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) = \((12,483 - 0) \times 1.5\)  
= 18,725 lb PM10/year
Calculating the appropriate quarterly emissions to be offset is as follows:

<table>
<thead>
<tr>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>4681</td>
<td>4681</td>
<td>4681</td>
<td>4681</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>ERC #N-1004-5</th>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>11,129</td>
<td>7,479</td>
<td>9,912</td>
<td>11,130</td>
<td></td>
</tr>
</tbody>
</table>

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 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]

- 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:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>PE2 (lb/day)</th>
<th>Public Notice Threshold</th>
<th>Public Notice Triggered?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
<td>16.5</td>
<td>100 lb/day</td>
<td>No</td>
</tr>
<tr>
<td>SOx</td>
<td>209.5</td>
<td>100 lb/day</td>
<td>Yes</td>
</tr>
<tr>
<td>PM10</td>
<td>11.4</td>
<td>100 lb/day</td>
<td>No</td>
</tr>
<tr>
<td>CO</td>
<td>27.0</td>
<td>100 lb/day</td>
<td>No</td>
</tr>
<tr>
<td>VOC</td>
<td>8.3</td>
<td>100 lb/day</td>
<td>No</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>SSPE1 (lb/year)</th>
<th>SSPE2 (lb/year)</th>
<th>Offset Threshold</th>
<th>Public Notice Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
<td>&gt;20,000</td>
<td>&gt;20,000</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>SOx</td>
<td>37,484</td>
<td>120,909</td>
<td>54,750 lb/year</td>
<td>Yes</td>
</tr>
<tr>
<td>PM10</td>
<td>58,398</td>
<td>70,881</td>
<td>29,200 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>CO</td>
<td>&gt;200,000</td>
<td>&gt;200,000</td>
<td>200,000 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>VOC</td>
<td>&gt;20,000</td>
<td>&gt;20,000</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>SSIPE (lb/year)</th>
<th>SSIPE Public Notice Threshold</th>
<th>Public Notice Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
<td>18,069</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>SOx</td>
<td>78,037</td>
<td>20,000 lb/year</td>
<td>Yes</td>
</tr>
<tr>
<td>PM_{10}</td>
<td>70,881</td>
<td>20,000 lb/year</td>
<td>Yes</td>
</tr>
<tr>
<td>CO</td>
<td>356,477</td>
<td>20,000 lb/year</td>
<td>Yes</td>
</tr>
<tr>
<td>VOC</td>
<td>9033</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
</tbody>
</table>

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 PM$_{10}$; 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 PM$_{10}$. 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**

<table>
<thead>
<tr>
<th>Diesel ICE</th>
<th>1 Hour</th>
<th>3 Hours</th>
<th>8 Hours</th>
<th>24 Hours</th>
<th>Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>NO$_x$</td>
<td>Pass</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Pass</td>
</tr>
<tr>
<td>SO$_x$</td>
<td>Pass</td>
<td>X</td>
<td>Pass</td>
<td>X</td>
<td>Pass</td>
</tr>
<tr>
<td>PM$_{10}$</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>PM$_{2.5}$</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Pass</td>
<td>Pass</td>
</tr>
</tbody>
</table>

*Results were taken from the attached PSD spreadsheet.*

1The project was compared to the 1-hour NO$_2$ 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).

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.
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 SO₂, NO₂, and combustion contaminants (defined as total PM in Rule 1020). This rule also limits combustion contaminants to ≤ 0.1 gr/scf. According to AP 42 (Table 1.4-2, footnote c), all PM emissions from natural gas combustion are less than 1 μm in diameter.

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

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>NO₂</th>
<th>Total PM</th>
<th>SO₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATC S-1327-162-0</td>
<td>0.7</td>
<td>0.5</td>
<td>6.4</td>
</tr>
<tr>
<td>ATC S-1327-163-0</td>
<td>0.7</td>
<td>0.5</td>
<td>6.4</td>
</tr>
<tr>
<td>ATC S-1327-164-0</td>
<td>0.7</td>
<td>0.5</td>
<td>6.4</td>
</tr>
<tr>
<td>ATC S-1327-165-0</td>
<td>0.7</td>
<td>0.5</td>
<td>8.7</td>
</tr>
<tr>
<td>ATC S-1327-166-0</td>
<td>0.7</td>
<td>0.5</td>
<td>8.7</td>
</tr>
<tr>
<td>ATC S-1327-167-0</td>
<td>0.7</td>
<td>0.5</td>
<td>8.7</td>
</tr>
<tr>
<td>Rule Limit (lb/hr)</td>
<td>140</td>
<td>10</td>
<td>200</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Category</th>
<th>NOx Limit</th>
<th>Authority to Construct</th>
<th>Compliance Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Units with a total rated heat input &gt;20.0 MMBtu/hr</td>
<td>a) Standard Schedule 7 ppmv or 0.008 lb/MMBtu; or</td>
<td>July 1, 2009</td>
<td>July 1, 2010</td>
</tr>
<tr>
<td></td>
<td>b) Staged Enhanced Schedule Initial Limit 9 ppmv or 0.011 lb/MMBtu; and</td>
<td>July 1, 2011</td>
<td>July 1, 2012</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Final Limit 5 ppmv or 0.0062 lb/MMBtu</td>
<td>January 1, 2013</td>
<td>January 1, 2014</td>
</tr>
<tr>
<td>3. Units firing on less than 50%, by volume, PUC quality gas.</td>
<td>Staged Enhanced Schedule Initial Limit 12 ppmv or 0.014 lb/MMBtu; and</td>
<td>July 1, 2010</td>
<td>July 1, 2011</td>
</tr>
<tr>
<td></td>
<td>Final Limit 9 ppmv or 0.011 lb/MMBtu</td>
<td>January 1, 2013</td>
<td>January 1, 2014</td>
</tr>
</tbody>
</table>

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 NOX, CO and O2, 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 NOX, CO, and O2 concentrations at least once a month using a portable analyzer. The following conditions will be placed in the permits to ensure compliance with the requirements of this alternate monitoring plan:

- [2395] The permittee shall monitor and record the stack concentration of NOX, CO, and O2 at least once every month (in which a source test is not performed) using a portable analyzer that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306, and 4320]
- If either the NOx or CO concentrations corrected to 3%, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 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 2201 and 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 limits 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 re-ignition as defined in Section 3.0 of District Rule 4320. For the purposes of permittee-performed alternate monitoring, emissions measurements may be performed at any time after the unit reaches conditions representative of normal operation. [District Rules 4305, 4306 and 4320]

Section 5.8.4 requires that for emissions monitoring pursuant to Sections 5.7.1 and 6.3.1 using a portable NOX analyzer as part of an APCO approved Alternate Emissions Monitoring System, emission readings shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15-consecutive-minute sample reading or by taking at least five (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 NOx 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:

\[ \text{Volume } \text{SO}_2 = \frac{nRT}{P} \]

With:

- \( N \) = moles \( \text{SO}_2 \)
- \( T \) (Standard Temperature) = 60°F = 520°F
- \( P \) (Standard Pressure) = 14.7 psi
- \( R \) (Universal Gas Constant) = 10.73 psi·ft³

\( \text{lb·mol·°R} \)
$\frac{0.103 \text{lb} - \text{SO}_x}{\text{MMBtu}} \times \frac{\text{MMBtu}}{8,578 \text{dscf}} \times \frac{1 \text{lb} \cdot \text{mol}}{64 \text{lb}} \times \frac{10.73 \text{ psi} \cdot \text{ft}^3}{64 \text{ lb} \cdot \text{mol} \cdot \text{°R}} \times \frac{520 \text{°R}}{14.7 \text{ psi}} \times \frac{1,000,000 \text{ parts}}{\text{million}} = 71 \frac{\text{parts}}{\text{million}}$

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

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

<table>
<thead>
<tr>
<th>Permit Number</th>
<th>Fee Schedule</th>
<th>Fee Description</th>
<th>Annual Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-1327-162-0</td>
<td>3020-02-H</td>
<td>62.5 MMBtu/hr</td>
<td>$1030</td>
</tr>
<tr>
<td>S-1327-163-0</td>
<td>3020-02-H</td>
<td>62.5 MMBtu/hr</td>
<td>$1030</td>
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<tr>
<td>S-1327-164-0</td>
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<tr>
<td>S-1327-165-0</td>
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<td>3020-02-H</td>
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<td>3020-02-H</td>
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<td>$1030</td>
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</tbody>
</table>
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:

\[ \text{QNEC} = \text{PE2} - \text{PE1}, \text{ where:} \]

- \( \text{QNEC} \) = Quarterly Net Emissions Change for each emissions unit, lb/qtr.
- \( \text{PE2} \) = Post Project Potential to Emit for each emissions unit, lb/qtr.
- \( \text{PE1} \) = 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:

\[
\begin{align*}
\text{PE2}_{\text{quarterly}} &= \frac{\text{PE2}_{\text{annual}}}{4 \text{ quarters/year}} \\
&= \frac{4,600 \text{ lb/year}}{4 \text{ qtr/year}} \\
&= 1,150 \text{ lb PM}_{10}/\text{qtr}
\end{align*}
\]

\[
\begin{align*}
\text{PE1}_{\text{quarterly}} &= \frac{\text{PE1}_{\text{annual}}}{4 \text{ quarters/year}} \\
&= \frac{4,600 \text{ lb/year}}{4 \text{ qtr/year}} \\
&= 1,150 \text{ lb PM}_{10}/\text{qtr}
\end{align*}
\]

| S-1327-162, '163 and '164
Quarterly NEC [QNEC] |
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>PE2 (lb/yr)</td>
</tr>
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<tr>
<td>PM\textsubscript{10}</td>
</tr>
<tr>
<td>CO</td>
</tr>
<tr>
<td>VOC</td>
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*Bubble limit to be entered for S-1327-162-0 only

| S-1327-165, '166 and '167
Quarterly NEC [QNEC] |
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<tr>
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<tbody>
<tr>
<td>PE2 (lb/yr)</td>
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<tr>
<td>NO\textsubscript{X}</td>
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*Bubble limit to be entered for S-1327-165-0 only
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<th>PM10</th>
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<th>VOC</th>
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<td>10199.0</td>
<td>4161.0</td>
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<td>Daily Emis. Limit (lb/Day)</td>
<td>16.5</td>
<td>27.9</td>
<td>11.4</td>
<td>27.0</td>
<td>8.3</td>
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<td>Quarterly Net Emissions Change (lb/Qtr)</td>
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## Application Emissions

**Permit #:** S-1327-163-0  
**Facility:** VINTAGE  
**Last Updated:** 03/07/2012  
**PRODUCTION CALIFORNIA**

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**Notes:**

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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 on site reductions must be added in separately per Rule 1201 as well.
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Tuesday, December 13, 2011

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

SSPE 1

Notes on current reductions must be added in separately per Rule 2201 as well.
APPENDIX C
BACT Analysis
BACT Analysis for Steam Generators (S-1327-162-0 through ‘167-0)

1. BACT Analysis for NO\textsubscript{X} Emissions:

   **Step 1 - Identify All Possible Control Technologies**

   The District adopted District Rule 4320 on October 16, 2008. The NO\textsubscript{X} emission limits requirements in District Rule 4320 are lower than the limits in BACT Guideline 1.2.1 (Steam Generator \geq 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\textsubscript{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\textsubscript{X} emission initial limit requirement is 9 ppmv @ 3% O\textsubscript{2} and final limit of 5 ppmv @ 3% O\textsubscript{2}. Since this is an enhanced option in the rule, the final limit of 5 ppmv @ 3% O\textsubscript{2} will be considered the Technologically Feasible control technology for the BACT analysis.

   The following are possible control technologies:

   1. 5 ppmv @ 3% O\textsubscript{2} - Technologically Feasible
   2. 7 ppmv @ 3% O\textsubscript{2} - Achieved in Practice
   3. 9 ppmv @ 3% O\textsubscript{2} (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% O\textsubscript{2} - Technologically Feasible
   2. 7 ppmv @ 3% O\textsubscript{2} - Achieved in Practice
   3. 9 ppmv @ 3% O\textsubscript{2} (waste gas fired units) - Technologically Feasible

   **Step 4 - Cost Effectiveness Analysis**

   The applicant has proposed a NO\textsubscript{x} limit of 7 ppmv @ 3% O\textsubscript{2} 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:

\[
\text{Industry Std NOx Emissions} = 62.5 \text{ MMBtu/hr} \times 0.018 \text{ lb/MMBtu} \times 8,760 \text{ hr/yr} \\
= 9855 \text{ lb/yr}
\]

\[
\text{Feasible NOx Emissions} = 62.5 \text{ MMBtu/hr} \times 0.0062 \text{ lb/MMBtu} \times 8,760 \text{ hr/yr} \\
= 3395 \text{ lb/yr}
\]

NOx reduction due to SCR:

\[
\text{Total reduction} = \text{Emissions (15 ppmv)} - \text{Emissions (5 ppmv)} \\
\text{Total reduction} = 9855 \text{ lb/yr} - 3395 \text{ lb/yr} \\
\text{Total reduction} = 6460 \text{ lb/yr} = 3.2 \text{ ton/yr}
\]

**SCR Capital Cost** (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):

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

\[A: \quad \text{Equivalent annual capital cost of the control equipment}
\]

\[P: \quad \text{Present value of the control equipment}
\]

\[I: \quad \text{Interest rate (District policy is to use 10%)}
\]

\[n: \quad \text{Equipment life (District policy is to use 10 years)}
\]

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

Annual Direct Cost (ADC):

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

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

Total Annualized Cost = CC + ADC + AIC

\[
= 121,050 + 125,000 + 0 \\
= 246,050/\text{yr}
\]
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 SOx Emissions

Step 1 - Identify All Possible Control Technologies

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

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

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

Step 2 - Eliminate Technologically Infeasible Options

None of the above listed technologies are technologically infeasible.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

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

Step 4 - Cost Effectiveness Analysis
The applicant has proposed the use of 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 PM$_{10}$ Emissions

   Step 1 - Identify All Possible Control Technologies

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

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

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

   Step 2 - Eliminate Technologically Infeasible Options

   None of the above listed technologies are technologically infeasible.

   Step 3 - Rank Remaining Control Technologies by Control Effectiveness

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

   Step 4 - Cost Effectiveness Analysis

   The applicant has proposed the use of natural gas, 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 $\geq 5$ 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% O$_2$ - 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% O$_2$ - Achieved-In-Practice

**Step 4 - Cost Effectiveness Analysis**

The applicant has proposed a CO emission limit that meets 50 ppmvd @ 3% O$_2$. 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% O$_2$. The applicant has proposed to install the steam generators each with a CO emission limit of 25 ppmv @ 3% O$_2$; 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
34346 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

[Signature]

Title
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-1114485

A. RMR SUMMARY

<table>
<thead>
<tr>
<th>RMR Summary</th>
<th>Steam Gen 162-0 thru 167-0</th>
<th>Project Totals</th>
<th>Facility Totals</th>
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<tbody>
<tr>
<td>Prioritization Score</td>
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<td>0.02</td>
<td>0.921</td>
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<tr>
<td>Acute Hazard Index</td>
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<td>NA</td>
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<tr>
<td>Chronic Hazard Index</td>
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<tr>
<td>Maximum Individual Cancer Risk (10^-6)</td>
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<td>NA</td>
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<td>T-BACT Required?</td>
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<td>NA</td>
</tr>
<tr>
<td>Special Permit Conditions?</td>
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<td>NA</td>
<td>NA</td>
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</tbody>
</table>

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

1. 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 PM_{10}, 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 PM_{10}. 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*

<table>
<thead>
<tr>
<th>Diesel ICE</th>
<th>1 Hour</th>
<th>3 Hours</th>
<th>8 Hours</th>
<th>24 Hours</th>
<th>Annual</th>
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<tbody>
<tr>
<td>CO</td>
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<td></td>
<td>Pass</td>
<td>X</td>
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</tr>
<tr>
<td>PM_{10}</td>
<td>X</td>
<td>X</td>
<td></td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>PM_{2.5}</td>
<td>X</td>
<td>X</td>
<td></td>
<td>Pass</td>
<td>Pass</td>
</tr>
</tbody>
</table>

*Results were taken from the attached PSD spreadsheet.

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

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
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
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]

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 Sadedin, Executive Director/ACPO

DAVID WARNER, Director of Permit Services
S-1327-95-3 May 20 2013 3:56 PM - TCL2 - Jodi Inglis NOT Finalized

Southern Regional Office • 34946 Flyover Court • Bakersfield, CA 93308 • (661) 392-5500 • Fax (661) 392-5585
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, totaling 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 4320]

14. FGR shall be utilized except when unit is fired solely on PUC quality natural gas. [District Rule 4201]

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 4320]

16. SO2 scrubber exhaust shall be vented to operational wet electrostatic precipitator prior to being exhausted to atmosphere. [District Rules 2201 and 4320]

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 Rule 4320]

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 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 ppmv 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 ppmv 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 4326]

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. 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. 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]
San Joaquin Valley
Air Pollution Control District

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
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

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]

**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 Sadrediv, Executive Director APCO

DAVID WARNER - Director of Permit Services
Southern Regional Office • 34946 Flyover Court • Bakersfield, CA 93308 • (661) 392-5500 • Fax (661) 392-5585
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, totaling 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 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 Rule 4320]

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 Msce/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]

* CONDITIONS CONTINUE ON NEXT PAGE *
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 maintain 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 notify the District of the failure to maintain 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, and 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, S-1759-1, 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]
San Joaquin Valley
Air Pollution Control District

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

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. 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]

5. 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.

Seyed Sadredin, Executive Director APCQ

DAVID WARNER, Director of Permit Services
S-1327-1640, May 20, 2017  3:09PM - TOEQ - Asia Inspection NOT Required
Southern Regional Office  •  34946 Flyover Court  •  Bakersfield, CA 93308  •  (661) 392-5500  •  Fax (661) 392-5585
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. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

8. 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. 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 unit is converted to fire solely on PUC quality natural gas 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 Rule 4320]

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 Mcf/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 ppmv NOx @ 3% O2, or CO: 23 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]

CONDITIONS CONTINUE ON NEXT PAGE
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 ppinnv 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 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. 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 the 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]

CONDITIONS CONTINUE ON NEXT PAGE
38. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of the 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. 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, and 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, S-1759-1, 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: 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-1327-166 AND '167

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 Sadreidin, Executive Director APCO

DAVID WARNER, Director of Permit Services
S-1327-165/ May 30 2013 2:56 PM - 16/5/13 - Joint Inspection MUST Required
Southern Regional Office  •  34946 Flyover Court  •  Bakersfield, CA 93308  •  (661) 392-5500  •  Fax (661) 392-5585
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-resetable, 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 unit is converted to fire solely on PUC quality natural gas 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 Rule 4320]

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]

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-1327-165, '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 ppmvd @ 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 ppmvd @ 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. 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. 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-1327-16S-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-1327-16S-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]
Conditions for S-1327-165-0 (continued)

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]
San Joaquin Valley
Air Pollution Control District

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 GLSTEOR 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 2201]

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 the 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 Sadedin, Executive Director APCO

DAVID WARNER - Director of Permit Services
S-1327-166-D: May 30, 2013 3:30 PM - 2013 3:30 PM
Jul 26 Inspection 6ST Required

Southern Regional Office • 34946 Flyover Court • Bakersfield, CA 93308 • (661) 392-5500 • Fax (661) 392-5585
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, totaling 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 gas 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 Rule 4320]

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: 45 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]

CONDITIONS CONTINUE ON NEXT PAGE
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, and 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]
San Joaquin Valley
Air Pollution Control District

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: 28S 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]

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

Seyed Sadredin, Executive Director APCO

DAVID WARNER, Director of Permit Services

Southern Regional Office • 34546 Flyover Court • Bakersfield, CA 93308 • (661) 392-5500 • Fax (661) 392-5585
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/Scf 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, totaling 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 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 SO_x 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 Rule 4320]

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 Mcf/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 ppmv NOx @ 3% O2, CO: 25 ppmv @ 3% O2. [District Rules 2201, 4305, 4306, and 4320]

CONDITIONS CONTINUE ON NEXT PAGE
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. If 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 any 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. 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 1 or 3A or ARB Method 100. [District Rules 2201, 4305, 4306, and 4320]

CONDITIONS CONTINUE ON NEXT PAGE
38. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two or 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]