Re: Notice of Preliminary Decision - Authority to Construct
Facility Number S-2018
Project Number S-1134252

Dear Mr. Demos,

Enclosed for your review and comment is the District's analysis of Crimson Resource Management's application for an Authority to Construct for two 85 MMbtu/hr steam generators and to lower a crude oil storage tank's true vapor limit, at the NE/4 of Section 25, Township 31S, Range 22E in the Midway Sunset oil field.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. After addressing all comments made during the 30-day public notice and 45-day EPA notice comment periods, the District intends to issue the Authority to Construct. Please submit your written comments on this project within the 30-day public comment period, as specified in the enclosed public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. David Toni of Permit Services at (661) 392-5620.

Sincerely,

David Warner
Director of Permit Services

Enclosures

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

Seyed Sadredin
Executive Director/Air Pollution Control Officer
San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
Steam Generators

Facility Name: Crimson Resource Management  
Mailing Address: 5001 California Ave, suite 206 Bakersfield, CA 93309  
Contact Person: Bob Demos  
Telephone: 661-716-5001 x28  
Application #(s): S-2018-20-1, 29-0 and '30-0  
Project #: 1134252  
Deemed Complete: 11/19/13  
Date: 1/23/14

I Proposal

Crimson Resource Management (CRM) has requested Authority to Construct (ATC) permits for the installation of two 85 MMbtu/hr steam generators and to lower a crude oil storage tank's TVP limit.

II Applicable Rules

- Rule 2201 New and Modified Stationary Source Review Rule (4/21/11)
- Rule 2410 Prevention Of Significant Deterioration (11/26/12)
- 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 (6/21/03)
- 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 50 MMBtu/hr (10/16/08)
- Rule 4623 Storage of Organic Liquids (05/19/05)
- Rule 4801 Sulfur Compounds (12/17/92)
- CH&SC 41700 Health Risk Assessment
- CH&SC 42301 6 School Notice
- Public Resources Code 21000-21177 California Environmental Quality Act (CEQA)
- California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387 CEQA Guidelines

III Project Location

The steam generators and tank are/will be located within the NE/4 of Section 25, Township 31S, Range 22E in the Midway Sunset oil field in CRM's 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 steam generators will be used to thermally enhanced oil reservoirs. Natural gas will be combusted in the steam generators to produce steam for injection into heavy crude oil bearing strata via injection wells to reduce viscosity of the crude oil, thereby facilitating thermally enhanced oil production.

V Equipment Listing

Pre-Project Equipment Description (see PTO in Appendix B)

S-2018-20-0 986 BBL FIXED ROOF STORAGE TANK

Proposed ATCs

S-2018-20-1 MODIFICATION OF 986 BBL FIXED ROOF STORAGE TANK LOWER TVP LIMIT FROM 11PSIA TO 8 PSIA

S-2018-29-0 85 MMBTU/HR NATURAL GAS/TEOR GAS-FIRED STEAM GENERATOR WITH A NORTH AMERICAN ULTRA-LOW NOX MAGNA-FLAME LE BURNER (OR EQUIVALENT) WITH FLUE GAS RECIRCULATION

S-2018-30-0 85 MMBTU/HR NATURAL GAS/TEOR GAS-FIRED STEAM GENERATOR WITH A NORTH AMERICAN ULTRA-LOW NOX MAGNA-FLAME LE BURNER (OR EQUIVALENT) WITH FLUE GAS RECIRCULATION

Post Project Equipment Description

S-2018-20-1 986 BBL FIXED ROOF STORAGE TANK WITH PV VALVE

S-2018-29-0 85 MMBTU/HR NATURAL GAS/TEOR GAS-FIRED STEAM GENERATOR WITH A NORTH AMERICAN ULTRA-LOW NOX MAGNA-FLAME LE BURNER (OR EQUIVALENT) WITH FLUE GAS RECIRCULATION

S-2018-30-0 85 MMBTU/HR NATURAL GAS/TEOR GAS-FIRED STEAM GENERATOR WITH A NORTH AMERICAN ULTRA-LOW NOX MAGNA-FLAME LE BURNER (OR EQUIVALENT) WITH FLUE GAS RECIRCULATION

VI Emission Control Technology Evaluation

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

Tank S-2018-20 is equipped with a pressure-vacuum (PV) relief vent valve set to within 10% of the maximum allowable working pressure of the tank. The PV-valve reduces VOC wind induced emissions from the tank vent.

VII. General Calculations

A. Assumptions

Tank S-2018-20:

- Fluid throughput: 50 bbl/day
- Pre-project TVP limit: (11.0 psia) (source: Rule 4623 limit)
- Post-project TVP limit: (8.0 psia) (source: applicant)

Steam Generators S-2018-29-0 and ‘30-0:

- The maximum operating schedule is 24 hours per day
- Annual potential to emit is calculated based on 8,760 hours of operation per year
- Natural Gas Heating Value: 1,000 Btu/scf (District Practice)
- F-Factor for Natural Gas: 8,578 dscf/MMBtu corrected to 60°F (40 CFR 60, Appendix B)

B. Emission Factors

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Steam Generator Emission Factors</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO\textsubscript{x}</td>
<td>0.008 lb-NO\textsubscript{x}/MMBtu</td>
<td>7 ppmvd NO\textsubscript{x} (@ 3%O\textsubscript{2})</td>
</tr>
<tr>
<td>SO\textsubscript{x}</td>
<td>0.00285 lb-SO\textsubscript{x}/MMBtu</td>
<td>District Policy APR 1720</td>
</tr>
<tr>
<td>PM10</td>
<td>0.0076 lb-PM10/MMBtu</td>
<td>AP-42 (07/98) Table 1.4-2</td>
</tr>
<tr>
<td>CO</td>
<td>0.019 lb-CO/MMBtu</td>
<td>25 ppmvd CO (@ 3%O\textsubscript{2})</td>
</tr>
<tr>
<td>VOC</td>
<td>0.0055 lb-VOC/MMBtu</td>
<td>13 ppmvd VOC (@ 3%O\textsubscript{2})</td>
</tr>
<tr>
<td>CO2e</td>
<td>117 lb-CO2e/MMBtu</td>
<td>CCAR document</td>
</tr>
</tbody>
</table>

C. Calculations
1. Pre-Project Potential to Emit (PE1)

Since the steam generators are new emission units, PE1 = 0 for all pollutants.

2. Post Project Potential to Emit (PE2)

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

\[
PE_{2_{NOx}} = (0.008 \text{ lb/MMBtu}) \times (85 \text{ MMBtu/hr}) \times (24 \text{ hr/day}) = 16.3 \text{ lb NOx/day}
\]

\[
PE_{2_{NOx}} = (0.008 \text{ lb/MMBtu}) \times (85 \text{ MMBtu/hr}) \times (24 \text{ hr/day}) \times (365 \text{ day/year}) = 5957 \text{ lb NOx/year}
\]

<table>
<thead>
<tr>
<th>PE2 (each steam generator)</th>
<th>Daily Emissions (lb/day)</th>
<th>Annual Emissions (lb/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
<td>16.3</td>
<td>5,957</td>
</tr>
<tr>
<td>SOx</td>
<td>5.8</td>
<td>2122</td>
</tr>
<tr>
<td>PM10</td>
<td>15.5</td>
<td>5,659</td>
</tr>
<tr>
<td>CO</td>
<td>38.8</td>
<td>14,147</td>
</tr>
<tr>
<td>VOC</td>
<td>11.2</td>
<td>4,095</td>
</tr>
<tr>
<td>CO2e</td>
<td>238,680.0</td>
<td>87,118,200</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>SSPE1 (lb/year)*</th>
<th>Permit Unit</th>
<th>NOx</th>
<th>SOx</th>
<th>PM10</th>
<th>CO</th>
<th>VOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSPE1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>230,354</td>
</tr>
</tbody>
</table>

*from 1123982
4 Post Project Stationary Source Potential to Emit (SSPE2)

Pursuant to District Rule 2201, the SSPE2 is the PE from all units with valid ATCs or PTOs at the Stationary Source and the quantity of ERCs which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site

<table>
<thead>
<tr>
<th>SSPE2 (lb/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permit Unit</td>
</tr>
<tr>
<td>SSPE1</td>
</tr>
<tr>
<td>S-2018-20-0</td>
</tr>
<tr>
<td>ATC S-2018-20-1</td>
</tr>
<tr>
<td>S-2018-29-0</td>
</tr>
<tr>
<td>S-2018-30-0</td>
</tr>
<tr>
<td>SSPE2</td>
</tr>
</tbody>
</table>

5 Major Source Determination

Rule 2201 Major Source Determination

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status, the following shall not be included:
- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e., IC engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

<table>
<thead>
<tr>
<th>Rule 2201 Major Source Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>(lb/year)</td>
</tr>
<tr>
<td>Permit Unit</td>
</tr>
<tr>
<td>Facility emissions pre-project</td>
</tr>
<tr>
<td>Facility emissions - post project</td>
</tr>
<tr>
<td>Major Source Threshold</td>
</tr>
<tr>
<td>Major Source?</td>
</tr>
</tbody>
</table>

As seen in the table above, the facility is an existing Major Source for VOC and will remain a Major Source for VOC

Rule 2410 and Federal Major Source Determination

For this determination, the traditional stationary source definition shall be used, the area wide stationary source definition shall not be used.
Crimson Resource Management, 1134252, S-2018

The proposed steam generators are located on property that is non-contiguous or adjacent to other Crimson property (see map in Appendix D). The subject property only includes the two proposed steam generators.

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). Therefore, the following PSD Major Source thresholds are applicable:

<table>
<thead>
<tr>
<th>PSD Major Source Determination (tons/year)</th>
<th>NO2</th>
<th>VOC</th>
<th>SO2</th>
<th>CO</th>
<th>PM</th>
<th>PM10</th>
<th>CO2e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Facility PE before Project Increase</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PSD Major Source Thresholds</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>100,000</td>
</tr>
<tr>
<td>PSD Major Source? (Y/N)</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
</tbody>
</table>

As shown above, the facility is not an existing major source for PSD for at least one pollutant. Therefore, the facility is not an existing major source for PSD.

<table>
<thead>
<tr>
<th>Federal Major Source Determination (lb/year)</th>
<th>NOx</th>
<th>SOx</th>
<th>PM10</th>
<th>CO</th>
<th>VOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility emissions pre project</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Facility emissions – post project</td>
<td>11,914</td>
<td>4244</td>
<td>11,318</td>
<td>28,294</td>
<td>8190</td>
</tr>
<tr>
<td>Major Source Threshold</td>
<td>20,000</td>
<td>140,000</td>
<td>140,000</td>
<td>200,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Major Source?</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

As shown above, the facility is not an existing Federal Major Source.

The modification to tank S-2018-20 does not result in a SB 288 or Federal Major Modification, or result in a PSD significant emission increase. Therefore, it is not necessary to determine whether the tank’s Federal stationary source is a Major Source.

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 District Rule 2201, BE = PE1 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 District Rule 2201

Therefore BE = PE1

Since S-2018-29-0 and '30-0 are new emissions units, their BE = PE1 = 0 for all pollutants

a. BE VOC

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

Tank S-2018-20-1 is equipped with a PV vent, which meets Achieved in Practice BACT requirements Therefore, BE = PE1

7. SB 288 Major Modification

Since this facility is not a major source for any of the pollutants addressed in this project, this project does not constitute an SB 288 major modification

8. Federal Major Modification

Since this facility is not a Federal Major Source for any pollutants, this project does not constitute a Federal Major Modification. Additionally, since the facility is not a major source for PM10 (140,000 lb/year), it is not a major source for PM2.5 (200,000 lb/year)

9. Rule 2410 — Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to pollutants for which the District is in attainment or for unclassified pollutants. The pollutants addressed in the PSD applicability determination are listed as follows:

- NO2 (as a primary pollutant)
- SO2 (as a primary pollutant)
- CO
- PM
- PM10
- Greenhouse gases (GHG) CO2, N2O, CH4, HFCs, PFCs, and SF6

The first step of this PSD evaluation consists of determining whether the facility is an existing PSD Major Source or not (See Section VII C 5 of this document)

In the case the facility is an existing PSD Major Source, the second step of the PSD evaluation is to determine if the project results in a PSD significant increase
In the case the facility is NOT an existing PSD Major Source but is an existing source, the second step of the PSD evaluation is to determine if the project, by itself, would be a PSD major source.

In the case the facility is a new source, the second step of the PSD evaluation is to determine if this new facility will become a new PSD major Source as a result of the project and if so, to determine which pollutant will result in a PSD significant increase.

Potential to Emit for New or Modified Emission Units vs PSD Major Source Thresholds

As a screening tool, the project potential to emit from all new and modified units is compared to the PSD major source threshold, and if total project potential to emit from all new and modified units is below this threshold, no further analysis will be needed.

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i) Therefore the following PSD Major Source thresholds are applicable:

| PSD Major Source Determination Potential to Emit (tons/year) |
|--------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| NO2 | VOC | SO2 | CO | PM | PM10 | CO2e |
| Total PE from New and Modified Units |
| 60 | 114 | 19 | 141 | 57 | 57 | 87 | 118 |
| PSD Major Source threshold |
| 250 | 250 | 250 | 250 | 250 | 250 | 100,000 |
| New PSD Major Source? |
| n | n | n | n | n | n | n |

As shown in the table above, the project potential to emit, by itself, does not exceed any of the PSD major source thresholds. Therefore Rule 2410 is not applicable and no further discussion is required.

10 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 specifically exempted by Rule 2201, BACT shall be required for the following actions:

a. Any new emissions unit with a potential to emit exceeding two pounds per day,
b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an A1PE exceeding two pounds per day, and/or
d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined by the rule

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

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

As seen in Section VII C 2 above, the applicant is proposing to install two new steam generators each with a PE greater than 2 lb/day for NOx, SOx, PM10, CO, and VOC. BACT is triggered for NOx, SOx, PM10, CO and VOC for the steam generators. However, BACT is not triggered for CO since the SSPE2 for CO is not greater than 200,000 lbs/year, as demonstrated in Section VII C 5 above.

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

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

c. Modification of emissions units — A1PE > 2 lb/day

\[
A1PE = PE2 - HAPE
\]

Where,

- A1PE = Adjusted Increase in Permitted Emissions, (lb/day)
- PE2 = Post-Project Potential to Emit, (lb/day)
- HAPE = Historically Adjusted Potential to Emit, (lb/day)

\[
HAPE = PE1 \times (EF2/EF1)
\]

Where

- PE1 = The emissions unit's PE prior to modification or relocation, (lb/day)
- EF2 = The emissions unit's permitted emission factor for the pollutant after modification or relocation. If EF2 is greater than EF1 then EF2/EF1 shall be set to 1
- EF1 = The emissions unit's permitted emission factor for the pollutant before the modification or relocation

\[
A1PE = PE2 - (PE1 \times (EF2 / EF1))
\]
EF1 = EF2

\[ \text{AIPE} = 107.2 - (147.4 \times (1)) \]
\[ = 107.2 - 147.4 \]
\[ = -40.2 \text{lb/day} \]
\[ = 0.0 \text{lb/day} \]

As demonstrated above, the AIPE is not greater than 20 lb/day for the tank, therefore BACT is not triggered.

d SB 288/Federal Major Modification

As discussed in Sections VII C 7 and VII C 8 above, this project does not constitute a SB 288 or Federal Major Modification. Therefore BACT is not triggered.

2 BACT Guideline

Please note that BACT Guideline 121 [Steam Generator (≥ 5 MMBtu/hr, Oilfield] has been rescinded. The NO\text{X} emission limit requirement of District Rule 4320 is lower than the Achieved-in-Practice requirement of BACT Guideline 121 (14 ppmv @ 3% O\text{2}) therefore, a project specific BACT analysis will be performed to determine BACT for this project. More details regarding this are provided in Appendix E.

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 E), BACT has been satisfied with the following:

- NO\text{X} 7 ppmv @ 3% O\text{2}
- SO\text{X} Natural gas treated to remove 95% by weight of sulfur compounds
- PM\text{10} Natural gas treated to remove 95% by weight of sulfur compounds
- VOC Gaseous fuel

B Offsets

1 Offset Applicability

Offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals to or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The SSPE2 is compared to the offset thresholds in the following table.
2 Quantity of Offsets Required

As seen above, the facility is an existing Major Source for VOC and the SSPE2 is greater than the offset threshold. Therefore offset calculations will be required for this project.

The quantity of offsets in pounds per year for VOC is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated:

Offsets Required (lb/year) = \((\Sigma[PE2 - BE] + ICCE) \times DOR\), for all new or modified emissions units in the project,

Where,

- \(PE2\) = Post Project Potential to Emit, (lb/year)
- \(BE\) = Baseline Emissions, (lb/year)
- \(ICCE\) = Increase in Cargo Carrier Emissions, (lb/year)
- \(DOR\) = Distance Offset Ratio, determined pursuant to Section 4.8

- \(BE = PE1\) 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,

- \(BE = HAE\)

As shown in section VII C.6 above, tank S-2018-20 is a Clean Emission Unit, therefore its BE equals PE1.

Steam generators S-2018-29 and '30 are new, therefore, their PE1s equal zero.

Also, there are no increases in cargo carrier emissions. Therefore offsets can be determined as follows:

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

\(PE2\) (VOC) = 4095 + 4095 + 25,578 lb/year
\(BE\) (VOC) = 35,768 lb/year
\(ICCE\) = 0 lb/year
Crimson Resource Management, 1134252, S-2018

Offsets Required (lb/year) = ([4095 + 4095 + 25,578 - 35,170] + 0) x DOR
= -1402 lb VOC/year
= 0 lb VOC/year

As demonstrated in the calculation above, the amount of offsets is zero. Therefore, offsets will not be required for this project.

C Public Notification

1 Applicability

Public noticing is required for:

a New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,

b Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,

c Any project which results in the offset thresholds being surpassed, and/or

d Any project with an SSIPE of greater than 20,000 lb/year for any pollutant

a New Major Sources, Federal Major Modifications, and SB 288 Major Modifications

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

As demonstrated in Sections VII C 7 and VII C 8, this project does not constitute an SB 288 or Federal Major Modification, therefore, public noticing for SB 288 or Federal Major Modification purposes is not required.

b PE > 100 lb/day

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

c Offset Threshold

The SSPE1 and SSPE2 are compared to the offset thresholds in the following table.

<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>0</td>
<td>11,914</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>SOX</td>
<td>0</td>
<td>4244</td>
<td>54,750 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>PM10</td>
<td>0</td>
<td>11,318</td>
<td>29,200 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>CO</td>
<td>0</td>
<td>28,294</td>
<td>200,000 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>VOC</td>
<td>230,354</td>
<td>228,952</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
</tbody>
</table>
As detailed above, there were no thresholds surpassed with this project, therefore public noticing is not required for offset purposes.

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

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as SSIPE2 - SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>SSPE1 (lb/year)</th>
<th>SSPE2 (lb/year)</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>0</td>
<td>11,914</td>
<td>11,914</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>SO2</td>
<td>0</td>
<td>4244</td>
<td>4244</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>PM2.5</td>
<td>0</td>
<td>11,318</td>
<td>11,318</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
<tr>
<td>CO</td>
<td>0</td>
<td>28,294</td>
<td>28,294</td>
<td>20,000 lb/year</td>
<td>Yes</td>
</tr>
<tr>
<td>VOC</td>
<td>230 354</td>
<td>228,952</td>
<td>-1402</td>
<td>20,000 lb/year</td>
<td>No</td>
</tr>
</tbody>
</table>

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

2 Public Notice Action

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

D Daily Emission Limits (DELS)

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

*Proposed Rule 2201 (DEL) Conditions*

S-2018-20-1

- This tank shall only store, place, or hold organic liquid with a true vapor pressure (TVP) of less than 80 psia under all storage conditions [District Rule 2201] N
- Crude oil throughput shall not exceed 50 bbl/day based on a monthly average [District Rules 2201] N
- Daily VOC emissions shall not exceed 1072 lb/day [District Rule 2201] N

S-2018-29-0 and '30-0
• Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmvd NOx @ 3% O2 or 0.008 lb-NOx/MMBtu, 0.0076 lb-PM10/MMBtu, 35 ppmvd CO @ 3% O2 or 0.026 lb-CO/MMBtu, or 0.0055 lb-VOC/MMBtu [District Rules 2201, 4305, 4306, 4320 and 4801]

E Compliance Assurance

1 Source Testing

Source testing is not required for the tank to demonstrate compliance with Rule 2201.

The steam generators are subject to District Rule 4305, Boilers, Steam Generators and Process Heaters, Phase 2, District Rule 4306, Boilers, Steam Generators and Process Heaters, Phase 3, and District Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 50 MMBtu/hr. Source testing requirements, in accordance with District Rules 4305, 4306, and 4320 will be discussed in Section VIII, District Rule 4320 of this evaluation.

2 Monitoring

Monitoring is not required for the tank to demonstrate compliance with Rule 2201.

As required by District Rule 4305, Boilers, Steam Generators and Process Heaters, Phase 2, District Rule 4306, Boilers, Steam Generators and Process Heaters, Phase 3, and District Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 50 MMBtu/hr, this unit is subject to monitoring requirements. Monitoring requirements, in accordance with District Rules 4305, 4306, and 4320 will be discussed in Section VIII, District Rule 4320 of this evaluation.

3 Recordkeeping

Permittee shall maintain monthly records of average daily crude oil throughput and shall keep accurate records of each organic liquid stored in the tank, including its storage temperature, TVP, and API gravity [District Rules 2201 and 4623].

All records shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request [District Rules 2201 and 4623].

As required by District Rule 4305, Boilers, Steam Generators and Process Heaters, Phase 2, District Rule 4306, Boilers, Steam Generators and Process Heaters, Phase 3, and District Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 50 MMBtu/hr, this unit is subject to recordkeeping requirements. Recordkeeping requirements, in accordance with District Rules 4305, 4306, and 4320 will be discussed in Section VIII, District Rule 4320 of this evaluation.
4 Reporting

No reporting is required to demonstrate compliance with Rule 2201

F Ambient Air Quality Analysis (AAQA)

An AAQA shall 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. The District's Technical Services Division conducted the required analysis. Refer to Appendix G of this document for the AAQA summary sheet.

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

The proposed location is in a non-attainment area for the state's PM10 as well as federal and state PM2.5 thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM10 and PM2.5.

Rule 2410 Prevention Of Significant Deterioration

As shown above in section VII C 9, PSD requirements are not triggered for this project, therefore, no further discussion is required.

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.

Rule 4001 New Source Performance Standards (NSPS)

Steam Generators

40 CFR Part 60, Subpart Dc applies to Small Industrial-Commercial-Industrial Steam Generators between 10 MMBtu/hr and 100 MMBtu/hr (post-6/9/89 construction, modification or reconstruction).

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

Tank

40 CFR Part 60, Subparts, K, Ka, and Kb could potentially apply to the storage tank. However, pursuant to 40 CFR 60 110 (b), 60 110(a) (b), and 60 110(b) (b), these subparts do not apply to storage vessels less than 10,000 bbls, used for petroleum or condensate, that is stored, processed and/or treated at a drilling and production facility prior to custody transfer.

40 CFR Part 60, Subpart OOOO—Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution (constructed, reconstructed, or modified after 8/23/11) applies to single storage vessel, located in the oil and natural gas production segment, natural gas processing segment or natural gas transmission and storage segment. The subject tank was installed prior to 8/23/11 and has not been reconstructed or modified (pursuant to 60 14(e)(2) (lowering the TVP limit is not an NSPS modification) after 8/23/11.
Therefore, the requirements of 40 CFR Part 60 Subpart OOOO are not applicable to this project.

**Rule 4101 Visible Emissions**

Rule 4101 states that 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.

As long as the equipment is properly maintained and operated, compliance with visible emissions limits is expected under normal operating conditions.

**Rule 4102 Nuisance**

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

**California Health & Safety Code 41700 (Health Risk 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 F), 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 31 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.

F-Factor for NG 8,578 dscf/MMBtu at 60 °F
PM₁₀ Emission Factor 0.005 lb-PM₁₀/MMBtu
Percentage of PM as PM₁₀ in Exhaust 100%
Exhaust Oxygen (O₂) Concentration 3%
Excess Air Correction to F Factor = \frac{20.9}{(20.9 - 3)} = 1.17

GL = \left( \frac{0.0076 \text{ lb-PM}}{\text{MMBtu}} \times \frac{7,000 \text{ grain}}{\text{lb-PM}} \right) / \left( \frac{8,578 \text{ ft}^3}{\text{MMBtu}} \times 1.17 \right)

GL = 0.005 \text{ grain/dscf} < 0.1 \text{ grain/dscf}

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

Rule 4301  Fuel Burning Equipment

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

Section 5.0 gives the requirements of the rule.
A person shall not discharge into the atmosphere combustion contaminants exceeding in concentration at the point of discharge, 0.1 grain per cubic foot of gas calculated to 12% of carbon dioxide at dry standard conditions.

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

- 200 pound per hour of sulfur compounds, calculated as sulfur dioxide (SO2)
- 140 pounds per hour of nitrogen oxides, calculated as nitrogen dioxide (NO2)
- Ten pounds per hour of combustion contaminants as defined in Rule 1020 and derived from the fuel.

<table>
<thead>
<tr>
<th>District Rule 4301 Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO2</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>0.008 x 85 = 0.68</td>
</tr>
<tr>
<td>Rule Limit (lb/hr)</td>
</tr>
</tbody>
</table>

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

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

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

The unit is natural gas-fired with a maximum heat input of 20.0 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.

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

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

The unit is natural gas-fired with a maximum heat input of 20.0 MMBtu/hr. Pursuant to Section 2.0 of District Rule 4306, the unit is subject to District Rule 4306, Boilers, Steam Generators and Process Heaters – Phase 3.

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

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

**Section 5.0 Requirements**

Section 5.1 of the rule requires compliance with the NOx and CO emissions limits listed in Table 1 of Section 5.2 or payment of an annual emissions fee to the District as specified in Section 5.3 and compliance with the control requirements specified in Section 5.4; or as stated in Section 5.1.3, comply with the applicable Low-use Unit requirements of Section 5.5.

**Section 5.2 NOx and CO Emission Limits**

C. Oilfield Steam Generators

<table>
<thead>
<tr>
<th>Rule 4320 Emissions Limits</th>
<th>Operated on gaseous fuel</th>
<th>Operated on liquid fuel</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category</strong></td>
<td><strong>NOx Limit</strong></td>
<td><strong>CO Limit</strong></td>
</tr>
<tr>
<td>1. Units with a total rated heat input &gt;20.0 MMBtu/hr</td>
<td>Standard Schedule 7 ppmv or 0.008 lb/MMBtu; or Staged Enhanced Schedule Initial limit: 9 ppmv @ 3% O2, 0.011 lb/MMBtu</td>
<td>400 ppmv @ 3% O2</td>
</tr>
<tr>
<td></td>
<td>Final limit: 5 ppmv @ 3% O2, 0.0062 lb/MMBtu</td>
<td></td>
</tr>
</tbody>
</table>

- The proposed NOx emission factor is 7 ppmv.

Therefore, compliance with Section 5.1 of District Rule 4320 is expected.
A permit condition listing the emissions limits will be listed on permits as shown in the DEL section above.

Section 5.3 Annual Fee Calculation

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

Section 5.4 Particulate Matter Control Requirements

Section 5.4 of the rule requires one of four options for control of particulate matter: 1) combustion of PUC-quality natural gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases, 2) limit fuel sulfur content to no more than five (5) grains of total sulfur per one hundred (100) standard cubic, 3) install and properly operate an emission control system that reduces SO₂ emissions by at least 95% by weight, or limit exhaust SO₂ to less than or equal to 9 ppmv corrected to 3.0% O₂ or 4) refinery units, which require modification of refinery equipment to reduce sulfur emissions, shall be in compliance with the applicable requirement in Section 5.4.1 no later than July 1, 2013.

The units have a sulfur emission limit of 0.00285 lb SO₂/MMBtu (1.0 gr S/100scf) and are authorized to combust natural/TEOR gas.

Therefore the units are in compliance with the SOx/PM10 requirements of Section 5.4.1.2 of the rule which states the following:

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

Compliance with the rule is expected.

Section 5.5 Low Use

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

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

Section 5.6, Startup and Shutdown Provisions

Applicable emissions limits are not required during startup and shutdown provided the duration of each start-up or each shutdown shall not exceed two hours, the emission control system shall be in operation and emissions shall be minimized insofar as technologically
feasible during start-up or shutdown or operator has submitted an application for a Permit to Operate condition to allow more than two hours for each start-up or each shutdown provided the operator meets all of the conditions specified in Sections 5 6 3 1 through 5 6 3 3. The following conditions are included on the ATCs to address the startup and shutdown emissions:

Duration of start up and shutdown shall not exceed 2 hours each per occurrence [District Rules 2201 4305 4306 and 4320]

Maximum NOx emissions from the steam generator including start up and shutdown shall not exceed 19.7 lb-NOx/day [District Rule 2201]

**Section 5 7, Monitoring Provisions**

Section 5 7 requires either use of a APCO approved Continuous Emissions Monitoring System (CEMS) for NOx, CO, and oxygen, or implementation of an APCO-approved Alternate Monitoring System consisting of:

- 5 7 1 1 Periodic NOx and CO exhaust emission concentrations,
- 5 7 1 2 Periodic exhaust oxygen concentration,
- 5 7 1 3 Flow rate of reducing agent added to exhaust,
- 5 7 1 4 Catalyst inlet and exhaust temperature,
- 5 7 1 5 Catalyst inlet and exhaust oxygen concentration,
- 5 7 1 6 Periodic flue gas recirculation rate, or
- 5 7 1 7 Other operational characteristics

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

- **(4063)** The permittee shall monitor and record the stack concentration of 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 or the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month [District Rules 4305, 4306 and 4320]

- **(4064)** If either the 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 the performing the notification and testing required by this condition [District Rules 4305 4306 and 4320]

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

- {4066} The permittee shall maintain records of (1) the date and time of 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].

5.7.6 Monitoring SOx Emissions

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

Section 5.7.6.2 Operators complying with Section 5.4.1.3 by installing and operating a control device with 95% 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.

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

Sulfur Monitoring

The following conditions will be included on the ATCs:

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].

If the steam generator 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 Rule 4320].

When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, the permittee shall demonstrate compliance at least annually [District Rule 4320].

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

Section 5.8, Compliance Determination

Section 5.8.1 requires that the operator of any unit shall have the option of complying with either the applicable heat input (lb/MMBtu) emission limits or the concentration (ppmv) emission limits specified in Section 5.2. The emission limits selected to demonstrate compliance shall be specified in the source test proposal pursuant to Rule 1081 (Source Sampling) as stated in the following ATC condition.
Crimson Resource Management, 1134252, S-2018

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

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

Section 5.8.4 For emissions monitoring pursuant to Sections 5.7.1, and 6.3.1 using a portable 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 readings evenly spaced out over the 15-consecutive-minute period.

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

Section 6.1 Recordkeeping

Section 6.1 requires that the records required by Sections 6.1.1 through 6.1.5 shall be maintained for five calendar years and shall be made available to the APCO and EPA upon request. Failure to maintain records or information contained in the records that demonstrate noncompliance with the applicable requirements of this rule shall constitute a violation of this rule.
A permit condition will be listed on the 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, 4306, and 4320]

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

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

Section 6.1.3 The operator of any unit subject to Section 5.5.1 or Section 6.3.1 shall maintain records to verify that the required tune-up and the required monitoring of the operational characteristics of the unit have been performed.

Section 6.1.4 The operator performing start-up or shutdown of a unit shall keep records of the duration of start-up or shutdown.

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

Section 6.2, Test Methods

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

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Units</th>
<th>Test Method Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO\textsubscript{x}</td>
<td>ppmv</td>
<td>EPA Method 7E or ARB Method 100</td>
</tr>
<tr>
<td>NO\textsubscript{x}</td>
<td>lb/MMBtu</td>
<td>EPA Method 19</td>
</tr>
<tr>
<td>CO</td>
<td>ppmv</td>
<td>EPA Method 10 or ARB Method 100</td>
</tr>
<tr>
<td>Stack Gas O\textsubscript{2}</td>
<td>%</td>
<td>EPA Method 3 or 3A, or ARB Method 100</td>
</tr>
<tr>
<td>Stack Gas Velocities</td>
<td>ft/min</td>
<td>EPA Method 2</td>
</tr>
<tr>
<td>Stack Gas Moisture Content</td>
<td>%</td>
<td>EPA Method 4</td>
</tr>
<tr>
<td>Oxides of sulfur</td>
<td></td>
<td>EPA Method 6C, EPA Method 8, or ARB Method 100</td>
</tr>
<tr>
<td>Total Sulfur as Hydrogen Sulfide (H\textsubscript{2}S) Content</td>
<td></td>
<td>EPA Method 11 or EPA Method 15, as appropriate.</td>
</tr>
</tbody>
</table>
The following test method conditions are included on the ATCs:

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

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

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

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

\[
\text{% Control Efficiency} = \left( \frac{C_{SO_2 \text{ inlet}} - C_{SO_2 \text{ outlet}}}{C_{SO_2 \text{ inlet}}} \right) \times 100
\]

where

- \(C_{SO_2 \text{ inlet}}\) = concentration of SOₓ (expressed as SO₂) at the inlet side of the SOₓ emission control system, in lb/dscf
- \(C_{SO_2 \text{ outlet}}\) = concentration of SOₓ (expressed as SO₂) at the outlet side of the SOₓ emission control system, in lb/dscf

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

Section 6.3 Compliance Testing

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

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

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

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

1. 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).

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

3. Source testing to measure NOx and CO emissions from this unit while fired on natural gas shall be conducted at least once every twelve (12) months. After demonstrating compliance on two (2) consecutive annual source tests, the unit shall be tested not less than once every thirty-six (36) months. If the result of the 36-month source test demonstrates that the unit does not meet the applicable emission limits, the source testing frequency shall revert to at least once every twelve (12) months (District Rules 4305, 4306, and 4320).

4. The results of each source test shall be submitted to the District within 60 days thereafter (District Rule 1081).

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

Section 6.4, Emission Control Plan (ECP)

Section 6.4.1 requires that the operator of any unit shall submit to the APCO for approval an Emissions Control Plan according to the compliance schedule in Section 7.0 of District Rule 4320. The proposed unit will be in compliance with the emissions limits listed in Table 1, Section 5.1 of this rule and with periodic monitoring and source testing requirements. Therefore, this current application for the new proposed unit satisfies the requirements of the Emission Control Plan, as listed in Section 6.4 of District Rule 4320. No further discussion is required.

Section 7.0, Compliance Schedule

Section 7.0 indicates that an operator with multiple units at a stationary source shall comply with this rule in accordance with the schedule specified in Table 1, Section 5.2 of District Rule 4320. The units will be in compliance with the emissions limits listed in Table 1, Section 5.2 of this rule, and periodic monitoring and source testing as required by District Rule 4320. Therefore, requirements of the compliance schedule, as listed in Section 7.1 of District Rule 4306, are satisfied. No further discussion is required.

Conclusion

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

Rule 4623, Storage of Organic Liquids

This rule applies to any tank with a capacity of 1,100 gallons or greater in which any organic liquid is placed, held, or stored.
According to the information provided by the applicant, CRM produces on average less than 6,000 barrels per day of crude oil from all operations within the county and does not engage in refining, transportation, or marketing of refined petroleum products. Therefore, under Section 3.29 of this rule and District Rule 1020, Section 3.45, this facility is a small producer.

According to Section 4.3, except for complying with Sections 6.3.4 and 7.2, a small producer's tank with a throughput of 50 barrels of crude oil per day or less is exempt from the requirements of this rule.

The proposed tanks shall contain crude oil contents with TVP less than 0.5 psi and a throughput of less than 50 bbls of crude oil per day. Therefore, the following conditions shall be placed on the permit:

- Crude oil throughput shall not exceed 50 barrels per day based on a monthly average (District Rules 2201 & 4623)
- Permittee shall maintain monthly records of average daily crude oil throughput and shall submit such information to the APCO 30 days prior to the expiration date indicated in the Permit to Operate (District Rules 2201 & 4623)
- All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request (District Rules 2201 & 4623)

Compliance with the requirements of this rule is expected.

**Rule 4801 Sulfur Compounds**

A person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge 0.2% by volume calculated as SO₂, on a dry basis averaged over 15 consecutive minutes.

Using the ideal gas equation the sulfur compound emissions are calculated as follows:

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

With:

- \(N\) = moles SO₂
- \(T\) (Standard Temperature) = 60°F = 520°R
- \(P\) (Standard Pressure) = 14.7 psi
- \(R\) (Universal Gas Constant) = \(\frac{10.73 \text{psi ft}^3}{\text{lb mol °R}}\)

\[
\frac{0.00285 \text{ lb-SO}_x \times \text{MMBtu} \times 1\text{ lb mol} \times 10.73 \text{ psi ft}^3 \times 520^\circ \text{R} \times 1,000,000 \text{ parts}}{8,578 \text{ dscf} \times 64 \text{ lb} \times \text{lb mol °R} \times 14.7 \text{ psi} \times \text{million parts}} = 1.5 \frac{\text{parts}}{\text{million}}
\]

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

Therefore, compliance with the requirements of this rule 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)

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.

Facilities subject to the Cap and Trade regulation are subject to an industry-wide cap on overall GHG emissions. As such, any growth in emissions must be accounted for under that cap such that a corresponding and equivalent reduction in emissions must occur to allow any increase. Therefore, it is reasonable to conclude that implementation of the Cap and Trade program will and must fully mitigate project-specific GHG emissions.

Regardless of, and independent to, the above significance determination, the District finds that, through compliance with the Cap and Trade regulation, project-specific GHG emissions would be fully mitigated. The District therefore concludes that projects occurring at facilities subject to ARB’s Cap and Trade regulation would have a less than significant individual and cumulative impact on global climate change.

Facilities with annual emissions equal to or greater than 25,000 metric tons of CO2e are required to comply with the Cap-and-Trade Program. The proposed steam generators have annual CO2e emissions greater than 25,000 metric tons and are therefore subject to the Cap and Trade regulation. 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 ATC S-2018-20-1, 29-0 and 30-0 subject to the permit conditions on the attached draft ATCs in Appendix G.

X Billing Information

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APPENDIX A
Quarterly Net Emissions Change (QNEC)
**Quarterly Net Emissions Change (QNEC)**

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

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

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

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

- \( PE2_{\text{quarterly}} = PE2_{\text{annual}} - 4 \) quarters/year
- \( PE1_{\text{quarterly}} = PE1_{\text{annual}} - 4 \) quarters/year

---

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**RESOURCE MANAGEMENT**

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## Application Emissions

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**Last Updated:** 01/27/2014  
**Facility:** CRIMSON  
**Corporate:** RESOURCE MANAGEMENT  
**Last Updated:** 01/27/2014  
**TORID**

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**Permit #** S-2018-30-0  
**Facility** CRIMSON  
**Last Updated** 01/27/2014  
**Facility** CRIMSON  
**Last Updated** 01/27/2014  
**Last Updated** 01/27/2014

#### Facility: CRIMSON

**Last Updated:** 01/27/2014

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#### Resource Management

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San Joaquin Valley
Air Pollution Control District

PERMIT UNIT S-2018-20 0
EXPIRATION DATE 06/30/2014

SECTION SE25 TOWNSHIP 31S RANGE 22E
EQUIPMENT DESCRIPTION
986 BBL FIXED ROOF STORAGE TANK

PERMIT UNIT REQUIREMENTS

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

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

3. Permittee's crude oil production shall average less than 6,000 bbl/day from all operations within Kern County and permittee shall not engage in refining, transporting, or marketing of refined petroleum products. [District Rule 4623]

4. Crude oil throughput shall not exceed 50 barrels per day based on a monthly average. [District Rule 4623]

5. Permittee shall maintain monthly records of average daily crude oil throughput and shall submit such information to the APCO 30 days prior to the expiration date indicated in the Permit to Operate. [District Rule 4623]

6. All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rule 4623]
APPENDIX C
Emission Calculations
### Tank Input Data

| Permit Number (S-xxxx-xx-xx) | - |
| Facility Tank I.D. | - |
| Nearest City (1: Bakersfield, 2: Fresno, 3: Stockton) | 1 |
| Tank ROC Vapor Pressure (psia) | 11 |
| Liquid Bulk Storage Temperature, Tb (°F) | 200 |
| Is this a constant-level tank? {yes, no} | no |
| Will flashing losses occur in this tank (only if first-line tank)? {yes, no} | yes |
| Breather Vent Pressure Setting Range (psi) | 0.06 |
| Diameter of Tank (feet) | 21.5 |
| Capacity of Tank (bbl) | 986 |
| Conical or Dome Roof? {c, d} | c |
| Shell Height of Tank (feet) | 15.78 |
| Average Liquid Height (feet) | 9 |
| Are the Roof and Shell the Same Color? {yes, no} | yes |

For Roof:
- Color (1: Spec Al, 2: Diff Al, 3: Light, 4: Med, 5: Red, 6: White) | 4 |
- Condition (1: Good, 2: Poor) | 1 |

--- This row only used if shell is different color from roof ---
--- This row only used if shell is different color from roof ---

### Liquid Input Data

| Maximum Daily Fluid Throughput (bbl) | 50 |
| Maximum Annual Fluid Throughput (bbl) | 6,000 |
| Maximum Daily Oil Throughput (bbl) (used to calculate flashing loss) | 50 |
| Maximum Annual Oil Throughput (bbl) (used to calculate flashing loss) | 6,000 |
| Molecular Weight, Mw (lb/bmol) | 100 |

### Calculated Values

| Daily Maximum Ambient Temperature, Tax (°F) | 77.66 |
| Daily Minimum Ambient Temperature, Tan (°F) | 53.15 |
| Daily Total Solar Insulation Factor, I (Btu/ft²·day) | 1648.9 |
| Atmospheric Pressure, Pa (psia) | 14.47 |
| Water Vapor Pressure at Daily Maximum Liquid Surface Temperature (Tlx), Pvx (psia) | 155.0 |
| Water Vapor Pressure at Daily Minimum Liquid Surface Temperature (Tin), Pvn (psia) | 144.2 |
| Water Vapor Pressure at Average Liquid Surface Temperature (Tla), Pva (psia) | 149.6 |
| Roof Outage, Hro (feet) | 0.2240 |
| Vapor Space Volume, Vv (cubic feet) | 2542.79 |
| Paint Factor, Alpha | 0.68 |
| Vapor Density, Wv (lb/cubic foot) | 0.1681 |
| Daily Vapor Temperature Range, Delta Tv (degrees Rankine) | 49.04 |
| Vapor Space Expansion Factor, Ke | 0.1669 |

### Results

| Standing Storage Loss | 26,042 bbl/year |
| Working Loss | 6,600 bbl/year |
| Flashing Loss | 2,527 bbl/year |
| Total Uncontrolled Tank VOC Emissions | 35,170 bbl/year |
| Permit number (S-xxxx-xx-xx) | -- |
| Facility tank I.D. | -- |
| Nearest city (1: Bakersfield, 2: Fresno, 3: Stockton) | 1 |
| Tank ROC vapor pressure (psia) | 8 |
| Liquid bulk storage temperature, Tb (°F) | 200 |
| Is this a constant-level tank? {yes, no} | no |
| Will flashing losses occur in this tank (only if first-line tank)? {yes, no} | yes |
| Breather vent pressure setting range (psi) | 0.06 |
| Diameter of tank (feet) | 21.5 |
| Capacity of tank (bbl) | 986 |
| Conical or dome roof? {c, d} | c |
| Shell height of tank (feet) | 15.78 |
| Average liquid height (feet) | 9 |
| Are the roof and shell the same color? {yes, no} | yes |
| For roof: | |
| Color {1: Spec Al, 2: Diff Al, 3: Light, 4: Med, 5: Red, 6: White} | 4 |
| Condition {1: Good, 2: Poor} | 1 |

--- This row only used if shell is different color from roof ---

**Liquid Input Data**

| Maximum daily fluid throughput (bbl) | 50 |
| Maximum annual fluid throughput (bbl) | 6,000 |
| Maximum daily oil throughput (bbl) (used to calculate flashing loss) | 50 |
| Maximum annual oil throughput (bbl) (used to calculate flashing loss) | 6,000 |
| Molecular weight, Mw (lb/lb-mol) | 100 |

**Calculated Values**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily maximum ambient temperature, Tax (°F)</td>
<td>77.65</td>
</tr>
<tr>
<td>Daily minimum ambient temperature, Tan (°F)</td>
<td>53.15</td>
</tr>
<tr>
<td>Daily total solar insulation factor, I (Btu/ft²-day)</td>
<td>1648.9</td>
</tr>
<tr>
<td>Atmospheric pressure, Pa (psia)</td>
<td>14.47</td>
</tr>
<tr>
<td>Water vapor pressure at daily maximum liquid surface temperature (Tlx), Pvx (psia)</td>
<td>155.0</td>
</tr>
<tr>
<td>Water vapor pressure at daily minimum liquid surface temperature (Tln), Pvn (psia)</td>
<td>144.2</td>
</tr>
<tr>
<td>Water vapor pressure at average liquid surface temperature (Tia), Pva (psia)</td>
<td>149.6</td>
</tr>
<tr>
<td>Roof outage, Hro (feet)</td>
<td>0.2240</td>
</tr>
<tr>
<td>Vapor space volume, Vv (cubic feet)</td>
<td>2542.79</td>
</tr>
<tr>
<td>Paint factor, alpha</td>
<td>0.68</td>
</tr>
<tr>
<td>Vapor density, Wv (lb/cubic foot)</td>
<td>0.1223</td>
</tr>
<tr>
<td>Daily vapor temperature range, delta Tv (degrees Rankine)</td>
<td>49.04</td>
</tr>
<tr>
<td>Vapor space expansion factor, Ke</td>
<td>0.1669</td>
</tr>
</tbody>
</table>

**Results**

<table>
<thead>
<tr>
<th>lb/year</th>
<th>lb/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standing Storage Loss</td>
<td>18,940</td>
</tr>
<tr>
<td>Working Loss</td>
<td>4,800</td>
</tr>
<tr>
<td>Flashing Loss</td>
<td>1,838</td>
</tr>
<tr>
<td>Total Uncontrolled Tank VOC Emissions</td>
<td>25,578</td>
</tr>
</tbody>
</table>
APPENDIX D
Rule 2410 and 40 CFR 51 165
Major Source Determination Maps
Crimson Resource Management
Property Within the Midway Sunset Oilfield

Kern County Tax Assessor
GIS Database - Crimson Land Parcels (2014)

Figure-1
Crimson Property
Within the Vicinity of the Project

Vector Environmental, Inc

0 1 2 5 2 5 Kilometers

Drawn By M V Kelly Date 02/2014
APPENDIX E
BACT Analyses
Steam Generator Top Down BACT Analysis

Oxides of nitrogen (NO\textsubscript{x}) are generated from the high temperature combustion of the natural gas fuel. A majority of the NO\textsubscript{x} emissions are formed from the high temperature reaction of nitrogen and oxygen in the inlet air. The rest of the NO\textsubscript{x} emissions are formed from the reaction of fuel-bound nitrogen with oxygen in the inlet air.

1. BACT Analysis for NO\textsubscript{x} Emissions

a. Step 1 - Identify all control technologies

The District adopted District Rule 4320 on October 16, 2008. The NO\textsubscript{x} emission limit requirements in District Rule 4320 are lower than the current BACT limits, therefore a project specific BACT analysis will be performed to determine BACT for this project. District Rule 4320 includes a compliance option that limits oilfield steam generators with heat input ratings greater than 20 MMBtu/hr to 7 ppm @ 3% O\textsubscript{2}. This emission limit is Achieved in Practice control technology for the BACT analysis. District Rule 4320 also contains an enhanced schedule option that allows applicants additional time to meet the requirements of the rule. The enhanced schedule NO\textsubscript{x} emission limit requirement is 5 ppmv @ 3% O\textsubscript{2}. Since this is an enhanced option in the rule, it will be considered the Technologically Feasible control technology for the BACT analysis.

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

1) 5 ppmvd @ 3% O\textsubscript{2} with SCR
2) 7 ppmvd @ 3% O\textsubscript{2}

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

1) 5 ppmvd @ 3% O\textsubscript{2} with SCR
2) 7 ppmvd @ 3% O\textsubscript{2}

d. Step 4 - Cost Effectiveness Analysis

A cost effective analysis is required for technologically feasible control options that are not proposed. The applicant is proposing a NO\textsubscript{x} limit of 7 ppmvd @ 3% O\textsubscript{2}, therefore, a cost effective analysis is required for the 5 ppmvd @ 3% O\textsubscript{2} option (SCR).
**SCR Cost Effectiveness Analysis**

**Assumptions**

Industry standard (IS) assumed to be a NO\textsubscript{x} emission rate of 15 ppmv @ 3% O\textsubscript{2} in accordance with District Rule 4306

A unit's maximum emissions are defined by the burner size multiplied by the emissions factor and a maximum annual operating schedule of 8,760 hr/year

**Calculations**

Industry Standard NO\textsubscript{x} Emissions = \(85 \text{ MMBtu/hr} \times 0.018 \text{ lb/MMBtu} \times 8,760 \text{ hrs/year}\)

\[= 13,403 \text{ lb/year}\]

Tech Feasible NO\textsubscript{x} Emissions = \(85 \text{ MMBtu/hr} \times 0.006 \text{ lb/MMBtu} \times 8,760 \text{ hrs/year}\)

\[= 4,468 \text{ lb/year}\]

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

Capital Cost (provided by PCL Industrial Services, Inc with this project) $745,000 (includes all purchased equipment, taxes, freight, and installation of SCR for an 850 MMBtu/hr unit)

Equivalent Annual Capital Cost (Capital Recovery)

\[A = \frac{P \times (1+i)^n}{(1+i)^n - 1}\]

\[A = \text{Equivalent Annual Control Equipment Capital Cost}\]

\[P = \text{Present value of the control equipment, including installation cost}\]

\[i = \text{interest rate (use 10%, or demonstrate why alternate is more representative of the specific operation)}\]

\[n = \text{equipment life (assume 10 years or demonstrate why alternate is more representative of the specific operation)}\]

Where

\[P = \$745,000\]

\[i = 10\%\]

\[n = 10 \text{ years}\]

\[A = \$121,212\]

Operating costs are estimated by PCL Industrial Services to be $125,000/yr resulting in the following total annualized cost

\[\$121,212 + \$125,000 = \$246,212\]
NOx Reduction due to Selective Catalytic Reduction system

Total reduction = Emissions15 ppm — Emissions5 ppm
Total reduction = 13,403 lb/year — 4,468 lb/year
Total reduction = 8,935 lb/year = 4.47 ton NOx per year

Cost effectiveness

Cost effectiveness = $246,212 / 4.47 tpy
Cost effectiveness = $55,081 / 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 this oil field steam generator is a NOx limit of 7 ppmvd @ 3% O2. The applicant has proposed to install an oil field steam generator with a NOx limit of 7 ppmvd @ 3% O2, therefore BACT for NOx emissions is satisfied.
2 BACT Analysis for SO\(_x\) Emissions

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

a Step 1 - Identify all control technologies

The SJVAPCD BACT Clearinghouse guideline 121, 1st quarter 2005, identifies for achieved in practice BACT for SO\(_x\) emissions from oil field steam generators ≥5 MMBtu/hr as follows:

1) Natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO\(_2\) scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO\(_2\) at stack O\(_2\).

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

b Step 2 - Eliminate technologically infeasible options

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

c Step 3 - Rank remaining options by control effectiveness

1) 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 SO\(_2\) scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO\(_2\) at stack O\(_2\).

d Step 4 - Cost Effectiveness Analysis

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

e Step 5 - Select BACT

The applicant has proposed to combust natural gas with a fuel sulfur content not exceed 1 gr-S/100 dscf, therefore BACT for SO\(_x\) emissions is satisfied.
3. BACT Analysis for PM$_{10}$ Emissions

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

a. Step 1 - Identify all control technologies

The SJVAPCD BACT Clearinghouse guideline 121, 1st quarter 2005, identifies for achieved in practice BACT for PM$_{10}$ emissions from oil field steam generators ≥5 MMBtu/hr as follows:

1) Natural gas, LPG, waste gas treated to remove 95% by weight of sulfur compounds or treated such that the sulfur content does not exceed 1 gr of sulfur compounds (as S) per 100 scf, or use of a continuously operating SO$_2$ scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO$_2$ at stack O$_2$.

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

b. Step 2 - Eliminate technologically infeasible options

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

c. Step 3 - Rank remaining options by control effectiveness

1) 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 SO$_2$ scrubber and either achieving 95% by weight control of sulfur compounds or achieving an emission rate of 30 ppmvd SO$_2$ at stack O$_2$.

d. Step 4 - Cost Effectiveness Analysis

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

e. Step 5 - Select BACT

The applicant has proposed to combust natural gas with a fuel sulfur content not to exceed 1 gr-S/100 dscf; therefore BACT for PM$_{10}$ emissions is satisfied.
4 BACT Analysis for VOC Emissions

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

a Step 1 - Identify all control technologies

The SJVAPCD BACT Clearinghouse guideline 121, 1st quarter 2005, identifies for achieved in practice BACT for VOC emissions from oil field steam generators $\geq 5$ MMBtu/hr as follows

1) Gaseous fuel

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

b Step 2 - Eliminate technologically infeasible options

There are no technologically infeasible options to eliminate from step 1

c Step 3 - Rank remaining options by control effectiveness

1) Gaseous fuel

d Step 4 - Cost effectiveness analysis

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

e Step 5 - Select BACT

BACT for VOC emissions from an oil field steam generator is gaseous fuel The applicant has proposed to install oil field steam generators fired on gaseous fuel, therefore BACT for VOC emissions is satisfied
APPENDIX F
HRA and AAQA
San Joaquin Valley Air Pollution Control District
Risk Management Review

To                  David Toni — Permit Services
From                Cheryl Lawler — Technical Services
Date                January 14, 2014
Facility Name       Cnimson Resource Management
Location            S25, T31S, R22E
Application #(s)     S-2018-29-0 & 30-0
Project #            S-1134252

A  RMR SUMMARY

<table>
<thead>
<tr>
<th>Categories</th>
<th>Two NG/TEOR Gas Generators (Units 29-0 &amp; 30-0)</th>
<th>Project Totals</th>
<th>Facility Totals</th>
</tr>
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<tbody>
<tr>
<td>Prioritization Score</td>
<td>0.01*</td>
<td>0.01</td>
<td>0.29</td>
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<tr>
<td>Acute Hazard Index</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Chronic Hazard Index</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Maximum Individual Cancer Risk</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>T BACT Required?</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Permit Conditions?</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</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

**Units 29-0 & 30-0**

1. [1898] The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction [District Rule 4102].
B RMR REPORT

I Project Description

Technical Services received a request on November 13, 2013, to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for two new 85 MMBtu/hr Natural Gas/TEOR Gas generators.

II Analysis

For the Risk Management Review, toxic emissions from the generators fueled by Natural Gas and TEOR Gas were calculated using emission factors from December 2009 Emission Estimation Protocol for Petroleum Refineries by the American Petroleum Institute and Western States Petroleum Association. In accordance with the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905-1, March 2, 2001), risks from the proposed project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEART's database. The prioritization score was less than 1.0 (see RMR Summary Table). Therefore, no further analysis was necessary.

The following parameters were used for the review:

<table>
<thead>
<tr>
<th>Analysis Parameters</th>
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</thead>
<tbody>
<tr>
<td>Source Type</td>
<td>Point</td>
</tr>
<tr>
<td>Stack Height (m)</td>
<td>6 1</td>
</tr>
<tr>
<td>Stack Diameter (m)</td>
<td>1 07</td>
</tr>
<tr>
<td>Stack Gas Temperature (K)</td>
<td>366</td>
</tr>
<tr>
<td>Stack Gas Velocity (m/s)</td>
<td>9 51</td>
</tr>
</tbody>
</table>

Technical Services also performed modeling for criteria pollutants CO, NOx, SOx, and PM10, as well as the RMR Emission rates used for criteria pollutant modeling for each generator were 38.8 lb/day CO, 14.9 lb/day NOx, 6.1 lb/day SOx, and 15.5 lb/day PM10.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*

<table>
<thead>
<tr>
<th>NG/TEOR Gas Generators</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^1</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>NOx</td>
<td>Pass^2</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>SOx</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>PM10</td>
<td>X</td>
<td>X</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
</tr>
</tbody>
</table>

*Results were taken from the attached PSD spreadsheet

1The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51 165 (b)(2)
2The 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

III Conclusions
The criteria modeling runs indicate the emissions from the proposed equipment will not cause or significantly contribute to a violation of a State or National AAQS.

For each unit, the prioritization score is not above 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 the proposed project.

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.

**Attachments**

- RMR Request Form & Attachments
- Prioritization
- AAQA Results
- Facility Summary
APPENDIX G
Draft ATCs
AUTHORITY TO CONSTRUCT

PERMIT NO  S-2018 20-1  ISSUANCE DATE DRAFT
LEGAL OWNER OR OPERATOR  CRIMSON RESOURCE MANAGEMENT
MAILING ADDRESS  5001 CALIFORNIA AVE SUITE 206
Bakersfield CA 93309
LOCATION  HEAVY OIL WESTERN STATIONARY SOURCE
SECTION SE25  TOWNSHIP 31S  RANGE 22E
EQUIPMENT DESCRIPTION  MODIFICATION OF 986 BBL FIXED ROOF STORAGE TANK  LOWER TVP LIMIT FROM 11 PSIA TO 8

CONDITIONS

1. Permittee's crude oil production shall average less than 6,000 bbl/day from all operations within Kern County and permittee shall not engage in refining, transporting, or marketing of refined petroleum products [District Rule 4623]

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

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

4. This tank shall be equipped with a pressure-vacuum (PV) relief valve set to within 10% of the maximum allowable working pressure of the tank, permanently labeled with the operating pressure settings, properly maintained in good operating order in accordance with the manufacturer's instructions, and shall remain in gas-tight condition except when the operating pressure exceeds the valve's set pressure [District Rule 2201]

5. This tank shall only store, place or hold organic liquid with a true vapor pressure (TVP) of less than 80 psia under all storage conditions [District Rule 2201]

6. Crude oil throughput shall not exceed 50 bbl/day based on a monthly average [District Rules 2201 and 4623]

7. Daily VOC emissions shall not exceed 107.2 lb/day [District Rule 2201]

8. Permittee shall conduct true vapor pressure (TVP) testing of the organic liquid stored in this tank within 60 days of initial startup, at least once every 24 months during summer (July - September), and/or whenever there is a change in the source or type of organic liquid stored in this tank [District Rules 2201 and 4623]

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin Executive Director APCO

DAVID WARNER - Director of Permit Services
9 The TVP testing shall be conducted at actual storage temperature of the organic liquid in the tank. The permittee shall also conduct an API gravity testing [District Rules 2201 and 4623]

10 For crude oil with an API gravity of 26 degrees or less, the TVP shall be determined using the latest version of the Lawrence Berkeley National Laboratory "test Method for Vapor pressure of Reactive Organic Compounds in Heavy Crude Oil Using Gas Chromatograph", as approved by ARB and EPA [District Rules 2201 and 4623]

11 For crude oil with an API gravity of greater than 26 degrees, the TVP shall be determined by measuring the Reid Vapor Pressure (RVP) using ASTM D 323-94 (Test Method for Vapor Pressure for Petroleum Products), and converting the RVP to TVP at the maximum organic liquid storage temperature [District Rules 2201 and 4623]


13 Permittee shall maintain monthly records of average daily crude oil throughput and shall keep accurate records of each organic liquid stored in the tank, including its storage temperature, TVP and API gravity [District Rules 2201 and 4623]

14 All records shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request [District Rules 2201 and 4623]
San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO  S 2018-29 0

LEGAL OWNER OR OPERATOR  CRIMSON RESOURCE MANAGEMENT
MAILING ADDRESS  5001 CALIFORNIA AVE SUITE 206
                  BAKERSFIELD, CA 93309

LOCATION  HEAVY OIL WESTERN STATIONARY SOURCE

EQUIPMENT DESCRIPTION
85 MMBTU/HR NATURAL GAS/TEOR GAS-FIRED STEAM GENERATOR WITH A NORTH AMERICAN ULTRA LOW
NOX MAGNA FLAME LE BURNER (OR EQUIVALENT) WITH FLUE GAS RECIRCULATION

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 No air contaminant shall be released into the atmosphere which causes a public nuisance [District Rule 4102]

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

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 Sadrelin 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
All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere [District Rule 2201].

The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction [District Rule 4102].

Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmv NOx @ 3% O2 or 0.008 lb NOx/MMBtu, 0.00285 lb SOx/MMBtu, 0.0076 lb PM10/MMBtu, 25 ppmv CO @ 3% O2 or 0.019 lb CO/MMBtu, or 0.0055 lb VOC/MMBtu [District Rules 2201, 4305, 4306, 4320, and 4801].

Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods [District Rules 4305, 4306, and 4320].

Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off [District Rules 4305, 4306, and 4320].

Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial startup and at least once every twelve (12) months thereafter. 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].

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

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

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

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

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

Fuel sulfur content shall be determined using EPA Method 11 or Method 15 [District Rule 4320].

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 30 of District Rule 4306 [District Rules 4305, 4306, and 4320].

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].

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].
23 If the steam generator 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 Rule 4320].

24 When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, permittee shall demonstrate compliance at least annually [District Rule 4320].

25 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 Rule 4320].

26 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 4305, 4306, and 4320].

27 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 4305, 4306, and 4320].

28 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].

29 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 4305, 4306, and 4320].

30 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)].

31 ATCs S 2018-20-1 shall be implemented prior to or concurrently with this ATC [District Rule 2201].
AUTHORITY TO CONSTRUCT

PERMIT NO S-2018-30 0

LEGAL OWNER OR OPERATOR CRIMSON RESOURCE MANAGEMENT
MAILING ADDRESS 5001 CALIFORNIA AVE, SUITE 206
BAKERSFIELD, CA 93309
LOCATION HEAVY OIL WESTERN STATIONARY SOURCE

EQUIPMENT DESCRIPTION
85 MMBTU/HR NATURAL GAS/TEOR GAS-FIRED STEAM GENERATOR WITH A NORTH AMERICAN ULTRA-LOW NOX MAGNA-FLAME LE BURNER (OR EQUIVALENT) WITH FLUE GAS RECIRCULATION

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

6. 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].

CONDITIONS CONTINUE ON NEXT PAGE

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

Seyed Sadredin Executive Director APCO

DAVID WARNER—Director of Permit Services

Southern Regional Office • 34946 Flyover Court • Bakersfield CA 93308 • (661) 392 5500 • Fax (661) 392 5585
7 All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere [District Rule 2201]

8 The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction [District Rule 4102]

9 Except for periods of startup and shutdown, emissions from the natural gas-fired unit shall not exceed any of the following limits: 7 ppmvd NOx @ 3% O2 or 0 008 lb-NOx/MMBtu, 0 00285 lb-SOx/MMBtu, 0 0076 lb PM10/MMBtu, 25 ppmvd CO @ 3% O2 or 0 019 lb-CO/MMBtu, or 0 0055 lb-VOC/MMBtu [District Rules 2201, 4305, 4306, 4320 and 4801]

10 Duration of start-up or shutdown shall not exceed two hours each per occurrence. During start-up or shutdown, the emissions control system shall be in operation, and emissions shall be minimized insofar as technologically possible. The operator shall maintain daily records of the duration of start-up and shutdown periods [District Rules 4305, 4306, and 4320]

11 Start up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off [District Rules 4305, 4306, and 4320]

12 Source testing to measure natural gas-combustion NOx and CO emissions from this unit shall be conducted within 60 days of initial startup and at least once every twelve (12) months thereafter. 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]

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

19 Fuel sulfur content shall be determined using EPA Method 11 or Method 15 [District Rule 4320]

20 All emissions measurements shall be made with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. No determination of compliance shall be established within two hours after a continuous period in which fuel flow to the unit is shut off for 30 minutes or longer, or within 30 minutes after a re-ignition as defined in Section 3 0 of District Rule 4306 [District Rules 4305, 4306, and 4320]

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22 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]
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24 When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, permittee shall demonstrate compliance at least annually [District Rule 4320].

25 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 Rule 4320].

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27 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 the performing the notification and testing required by this condition [District Rules 4305, 4306, and 4320].

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30 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 60.48(c)(i)].

31 ATCs S 2018-20-1 shall be implemented prior to or concurrently with this ATC [District Rule 2201].