



San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT



AUG 25 2014

Mr. Timothy Alburger
Seneca Resources
2131 Mars Court
Bakersfield, CA 93308

Re: **Proposed ATC / Certificate of Conformity (Significant Mod)**
District Facility # S-3755
Project # 1142803

Dear Mr. Alburger:

Enclosed for your review is the District's analysis of an application for Authority to Construct for the facility identified above. You requested that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The project authorizes one new steam generator resulting in an emissions increase of 4,617 lb/yr NO_x and 3,999 lb/yr VOC.

After addressing all comments made during the 30-day public notice and the 45-day EPA comment periods, the District intends to issue the Authority to Construct with a Certificate of Conformity. Please submit your comments within the 30-day public comment period, as specified in the enclosed public notice. Prior to operating with modifications authorized by the Authority to Construct, the facility must submit an application to modify the Title V permit as an administrative amendment, in accordance with District Rule 2520, Section 11.5.

If you have any questions, please contact Mr. Leonard Scandura, Permit Services Manager, at (661) 392-5500.

Thank you for your cooperation in this matter.

Sincerely,



Arnaud Marjollet
Director of Permit Services

AM:RE/st

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

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San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
85 MMBtu/hr steam generator

| | |
|--|---|
| Facility Name: Seneca Resources | Date: August 14, 2014 |
| Mailing Address: 2131 Mars Court Bakersfield, CA 93308 | Engineer: Richard Edgehill Lead Engineer: Allan Phillips |
| Contact Person: Timothy Alburger | |
| Telephone: (661) 399-4270 ext 3544 | |
| Fax: (661) 399-7706 | |
| E-Mail: alburgert@srcx.com | |
| Application #(s): S-3755-32-0 | |
| Project #: 1142803 | |
| Deemed Complete: July 2, 2014 | |

I. Proposal

Seneca Resources (Seneca) has requested an Authority to Construct (ATC) for the installation of one 85 MMBtu/hr natural gas-fired steam generator.

The project is a Federal Major Modification requiring BACT, offsets, and public notice.

Seneca facility S-3755 has a Title V permit. The project is a Federal Major Modification; therefore, it is classified as a Title V Significant Modification pursuant to Rule 2520, Section 3.20, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. Seneca must apply to administratively amend their Title V Operating Permit to include the requirements of the ATC(s) issued with this project.

II. Applicable Rules

| | |
|-----------|---|
| Rule 2201 | New and Modified Stationary Source Review Rule (4/21/11) |
| Rule 2410 | Prevention of Significant Deterioration (June 16, 2011) |
| Rule 2520 | Federally Mandated Operating Permits (6/21/01) |
| Rule 4002 | National Emissions Standards for Hazardous Air Pollutants (5/20/04) |
| Rule 4101 | Visible Emissions (2/17/05) |
| Rule 4102 | Nuisance (12/17/92) |
| Rule 4201 | Particulate Matter Concentration (12/17/92) |
| Rule 4301 | Fuel Burning Equipment (12/17/92) |
| Rule 4305 | Boilers, Steam Generators and Process Heaters – Phase II (8/21/03) |
| Rule 4306 | Boilers, Steam Generators and Process Heaters – Phase III (3/17/05) |

Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators,
 and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08)
Rule 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 generator will be authorized to operate at Section 18, T11N, R23W within Seneca's HOWSS (facilities S-1114, S-3007, and S-3755). The steam generator will be restricted by permit not to be 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.

Project location map(s) are included in **Attachment I**.

IV. Process Description

The proposed steam generator S-3755-32-0 will be used to provide steam for Thermally Enhanced Oil Recovery (TEOR) Operations. The unit will be equipped with an ultra-low NOx burner and FGR, and will achieve NOx emissions of 5 ppmv @ 3% O₂. Combusted gas will be restricted by permit condition to contain no more than 1.0 gr S/100scf.

V. Equipment Listing

S-3755-32-0: 85 MMBTU/HR PCL (OR EQUIVALENT) NATURAL GAS-FIRED STEAM GENERATOR, WITH NORTH AMERICAN LEL ULTRA LOW NOX BURNER (OR EQUIVALENT) AND A FLUE GAS RECIRCULATION SYSTEM

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

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

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

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

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

VI. Emission Control Technology Evaluation

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

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

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

VII. General Calculations

A. Assumptions

- The maximum operating schedule is 24 hours per day (per applicant)
- EPA F-factor for natural gas is 8,578 dscf/MMBtu (40 CFR 60, Appendix B)
- Natural/Field Gas Heating Value: 1,000 Btu/scf (District Practice)

B. Emission Factors

| Pollutant | Post-Project Emission Factors (EF2) | | | Source |
|------------------|-------------------------------------|-----------------------------------|---|--|
| NO _x | 6.2 lb-NO _x /MMscf | 0.0062 lb-NO _x /MMBtu | 5 ppmvd NO _x (@ 3%O ₂) | proposed |
| SO _x | 2.85 lb-SO _x /MMscf | 0.00285 lb SO ₂ /MMBtu | | District standard for natural gas |
| PM ₁₀ | 7.6 lb-PM ₁₀ /MMscf | 0.0076 lb-PM ₁₀ /MMBtu | | Applicant email 7-1-14 and AP-42 (07/98) Table 1.4-2 |
| CO | 18.5 lb-CO/MMscf | 0.0185 lb-CO/MMBtu | 25 ppmv CO @3% O ₂ | Proposed |
| VOC | 5.37lb-VOC/MMscf | 0.00537 lb-VOC/MMBtu | 13 ppmv VOC @3% O ₂ | Proposed – essentially identical to AP-42 (07/98) Table 1.4-2* |

*Source test results have shown that VOC emissions are much lower than 0.00537 lb-VOC/MMBtu.

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Since this is a new emissions unit, PE1 = 0 for all pollutants.

2. Post Project Potential to Emit (PE2)

| Pollutant | Daily PE2 | | | |
|------------------|-------------------|--------------------------|--------------------------------|--------------------|
| | EF2 (lb/MMBtu) | Heat Input (MMBtu/hr) | Operating Schedule (hr/day) | Daily PE2 (lb/day) |
| NO _x | 0.0062 | 85 | 24 | 12.6 |
| SO _x | 0.00285 | 85 | 24 | 5.8 |
| PM ₁₀ | 0.0076 | 85 | 24 | 15.5 |
| CO | 0.019 | 85 | 24 | 37.7 |
| VOC | 0.0054 | 85 | 24 | 11.0 |

| Pollutant | Annual PE2 | | | |
|------------------|-------------------|--------------------------|---------------------------------|-------------------------|
| | EF2 (lb/MMBtu) | Heat Input (MMBtu/hr) | Operating Schedule (hr/year) | Annual PE2 (lb/year) |
| NO _x | 0.006 | 85 | 8,760 | 4,617 |
| SO _x | 0.00285 | 85 | 8,760 | 2,122 |
| PM ₁₀ | 0.0076 | 85 | 8,760 | 5,659 |
| CO | 0.019 | 85 | 8,760 | 13,775 |
| VOC | 0.0054 | 85 | 8,760 | 3,999 |

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

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 (not applicable).

| SSPE1 (lb/year) | | | | | |
|-----------------|-----------------|-----------------|------------------|---------|---------|
| Permit Unit | NO _x | SO _x | PM ₁₀ | CO | VOC |
| SSPE1* | 91,091 | 457,191 | 71,377 | 333,070 | 144,406 |

*Combined SSPE1 for facilities S-1114, S-3007, and S-3755 from District Calculator (6-16-14) neglecting emissions changes from ATCs for new and modified units

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 (not applicable).

| SSPE2 (lb/year) | | | | | |
|-----------------|-----------------|-----------------|------------------|---------|---------|
| Permit Unit | NO _x | SO _x | PM ₁₀ | CO | VOC |
| SSPE1 | 91,091 | 457,191 | 71,377 | 333,070 | 144,406 |
| ATC S-3755-32-0 | 4,617 | 2,122 | 5,659 | 13,775 | 3,999 |
| SSPE2 | 95,708 | 459,313 | 77,036 | 346,845 | 148,405 |

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

| Rule 2201 Major Source Determination (lb/year) | | | | | | |
|---|-----------------|-----------------|------------------|-------------------|---------|---------|
| | NO _x | SO _x | PM ₁₀ | PM _{2.5} | CO | VOC |
| Facility emissions pre-project | 91,091 | 457,191 | 71,377 | ≤71,377 | 333,070 | 144,406 |
| Facility emissions – post project | 95,708 | 459,313 | 77,036 | ≤77,036 | 346,845 | 148,405 |
| Major Source Threshold | 20,000 | 140,000 | 140,000 | 200,000 | 200,000 | 20,000 |
| Major Source? | Yes | Yes | No | No | Yes | Yes |

*PM2.5 is included in PM10

This source is an existing Major Source for NO_x, SO_x, CO, and VOC and will remain a Major Source for these air contaminants. The source is an existing non-major source for PM10 and PM2.5 and is not becoming a major source for PM10 and PM2.5 in this project.

Federal Major Source Determination:

The unit will be located in Seneca Resource's heavy oil western stationary source which is an existing Federal Major Source for all NO_x, SO_x, and VOCs and will remain so. No change in other pollutants are proposed or expected as a result of this project.

An ATC application (ATC S-1114-25-0, project S1142406) for a new 85 MMBtu/hr steam generator, was received on 5/23/14. The unit authorized by ATC S-1114-125-0 will also be located in Seneca Resource's heavy oil western stationary source but at SE Section 25, T31S, R22E which is not contiguous or adjacent to this project's unit (Section 18, T11N, R23W). Therefore, the two projects are at separate Federal

Stationary Sources and therefore are not aggregated for major modification or PSD calculation purposes.

Rule 2410 Major Source Determination:

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)(iii). Therefore the PSD Major Source threshold is 250 tpy for any regulated NSR pollutant and 100,000 tpy for CO₂e.

| PSD Major Source Determination (tons/year) | | | | | | |
|---|-----------------|------|-----------------|-------|------|------------------|
| | NO ₂ | VOC | SO ₂ | CO | PM | PM ₁₀ |
| Estimated Facility PE before Project Increase | 45.5 | 72.2 | 228.6 | 166.5 | 35.7 | 35.7 |
| PSD Major Source Thresholds | 250 | 250 | 250 | 250 | 250 | 250 |
| PSD Major Source ? (Y/N) | N | N | N | N | N | N |

As shown above, the facility is not an existing PSD major source for any regulated NSR pollutant expected to be emitted at this facility.

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.

Since the steam generator is a new emissions unit, BE = PE₁ = 0 for all pollutants.

7. SB 288 Major Modification

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

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

| SB 288 Major Modification Thresholds | | | |
|--------------------------------------|-----------------------|---------------------|---|
| Pollutant | Project PE2 (lb/year) | Threshold (lb/year) | SB 288 Major Modification Calculation Required? |
| NO _x | 4,617 | 50,000 | No |
| SO _x | 2,122 | 80,000 | No |
| VOC | 3,999 | 50,000 | No |

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

8. Federal Major Modification

Since this facility is not a Major Source for PM₁₀/PM_{2.5}, this project does not constitute a Federal Major Modification for PM₁₀/PM_{2.5}.

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

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

| Federal Major Modification Thresholds for Emission Increases | | | |
|--|-----------------------------------|--------------------|-----------------------------|
| Pollutant | Total Emissions Increases (lb/yr) | Thresholds (lb/yr) | Federal Major Modification? |
| NO _x * | 4,617 | 0 | Yes |
| VOC* | 3,999 | 0 | Yes |
| SO _x | 2,122 | 80,000 | No |

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

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

9. 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

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.

I. Project Emissions Increase - New Major Source Determination

The post-project potentials to emit from all new and modified units are compared to the PSD major source thresholds to determine if the project constitutes a new major source subject to PSD requirements.

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). The PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

| PSD Major Source Determination: Potential to Emit (tons/year) | | | | | | |
|--|-----|-----|-----|-----|-----|------|
| | NO2 | VOC | SO2 | CO | PM | PM10 |
| Total PE from New and Modified Units | 2.3 | 2.0 | 1.1 | 6.9 | 1.1 | 1.1 |
| PSD Major Source threshold | 250 | 250 | 250 | 250 | 250 | 250 |
| New PSD Major Source? | N | N | N | N | N | N |

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

10. 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 for each pollutant is shown in the table(s) below and reported in the PAS database emissions profile.

The QNEC shall be calculated as follows:

$QNEC = (PE2 - BE)/4$, where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.
 PE2 = Post Project Potential to Emit for each emissions unit, lb/yr.
 BE = Baseline Emissions (per Rule 2201) for each emissions unit, lb/yr.

| QNEC (lb/qtr) — S-3755-32-0 | | | | | |
|-----------------------------|-----------------|-----------------|------------------|--------|-------|
| Pollutant | NO _x | SO _x | PM ₁₀ | CO | VOC |
| PE2 (lb/yr) | 4,617 | 2,122 | 5,659 | 13,775 | 3,999 |
| BE (lb/yr) | 0 | 0 | 0 | 0 | 0 |
| QNEC | 1,154 | 531 | 1,415 | 3,444 | 1,000 |

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*:

- Any new emissions unit with a potential to emit exceeding two pounds per day,
- The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- 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 of this evaluation, the project authorizes an 85 MMBtu/hr new steam generator with a PE greater than 2 lb/day for NO_x, SO_x, PM₁₀, CO, and VOC. BACT is triggered for NO_x, SO_x, PM₁₀, CO, and VOC.

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

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

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

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

d. SB 288/Federal Major Modification

As discussed in Section VII.C.7 above, this project does constitute a Federal Major Modification for NO_x and VOC emissions. Therefore BACT is triggered for NO_x and VOC for all emissions units in the project for which there is an emission increase.

2. BACT Guideline

BACT Guideline 1.2.1 [Steam Generator (≥ 5 MMBtu/hr, Oilfield) updated 3/24/14 is included in **Attachment III**.

3. Top-Down BACT Analysis

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

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

NO_x: 5 ppmvd @ 3% O₂
 SO_x, PM₁₀: Natural gas, with a sulfur content not exceeding 1 gr of sulfur compounds (as S) per 100 scf.
 CO: 25 ppmvd @ 3% O₂
 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.

| Offset Determination (lb/year) | | | | | |
|--------------------------------|-----------------|-----------------|------------------|---------|---------|
| | NO _x | SO _x | PM ₁₀ | CO | VOC |
| SSPE2 | 95,708 | 459,313 | 77,036 | 346,845 | 148,405 |
| Offset Thresholds | 20,000 | 54,750 | 29,200 | 200,000 | 20,000 |
| Offsets calculations required? | Yes | Yes | Yes | Yes | Yes |

2. Quantity of Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for NO_x, SO_x, PM₁₀, CO, and VOCs. Therefore offset calculations will be required for this project.

The quantity of offsets in pounds per year 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

The facility is proposing to install a new emissions unit; therefore BE = 0. Also, there is only one emissions unit associated with this project and there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

NO_x

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

PE2 (NO_x) = 4,617 lb/year

BE (NO_x) = 0 lb/year

ICCE = 0 lb/year

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

Offsets Required (lb/year) = $([4,617 - 0] + 0) \times 1.5$
 $= 4,617 \times 1.5$
 $= 6,926 \text{ lb NO}_x/\text{year}$

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

| | | | |
|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| <u>1st Quarter</u> | <u>2nd Quarter</u> | <u>3rd Quarter</u> | <u>4th Quarter</u> |
| 1,732 | 1,732 | 1,732 | 1,732 |

The applicant has stated that the facility plans to use ERC certificate listed in the following table which have been reserved for the quantities shown.

| Certificate | Q1 | Q2 | Q3 | Q4 |
|-------------|-------|-------|-------|-------|
| S-4334-2 | 1,750 | 1,750 | 1,750 | 1,750 |

*offspring of S-3459-2 (listed in application)

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

PM₁₀

PE2 (PM10) = 5,659 lb/year

BE (PM10) = 0 lb/year

ICCE = 0 lb/year

The site of reductions occurred at another stationary source greater than 15 miles from the proposed steam generators and therefore the correct offset ratio 1.5:1.

The amount of PM₁₀ ERCs that need to be withdrawn is:

$$\begin{aligned}
 \text{Offsets Required (lb/year)} &= ([5,659 - 0] + 0) \times 1.5 \\
 &= 5,659 \times 1.5 \\
 &= 8,489 \text{ lb PM}_{10}/\text{year}
 \end{aligned}$$

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

| <u>1st Quarter</u> | <u>2nd Quarter</u> | <u>3rd Quarter</u> | <u>4th Quarter</u> |
|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| 2122 | 2122 | 2122 | 2122 |

The applicant has stated that the facility plans to use ERC certificate listed in the following table which have been reserved for the quantities shown.

| Certificate | Q1 | Q2 | Q3 | Q4 | Reserved |
|-------------|----|----|----|-------|----------|
| C-1297-4* | 0 | 0 | 0 | 4,231 | 4,022 |
| S-4345-4** | 0 | 0 | 0 | 4,466 | 4,466 |
| Total | 0 | 0 | 0 | 8,697 | 8,488 |

*offspring of C-1252-4 (listed in application)

** offspring of S-4151-4 (listed in application)

As demonstrated in the table below the quarterly offset requirement for the project has been satisfied.

| Certificate* | Q1 | Q2 | Q3 | Q4 | Total |
|--------------|-------|-------|-------|-------|-------|
| C-1297-4 | 1,006 | 1,006 | 1,005 | 1,005 | 4,022 |
| S-4345-4 | 1,116 | 1,116 | 1,117 | 1,117 | 4,466 |
| Total | 2,122 | 2,122 | 2,122 | 2,122 | 8,488 |

* Rule 2201 Section 4.13.7 AER for PM that occurred from October through March, inclusive, may be used to offset increases in PM during any period of the year.

SOx

$$\begin{aligned}\text{PE2 (SOx)} &= 2,122 \text{ lb/year} \\ \text{BE (SOx)} &= 0 \text{ lb/year} \\ \text{ICCE} &= 0 \text{ lb/year}\end{aligned}$$

The site of reductions occurred at another stationary source greater than 15 miles from the proposed steam generators and therefore the correct offset ratio 1.5:1.

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

$$\begin{aligned}\text{Offsets Required (lb/year)} &= ([2,122 - 0] + 0) \times 1.5 \\ &= 2,122 \times 1.5 \\ &= 3,183 \text{ lb PM}_{10}/\text{year}\end{aligned}$$

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

$$\begin{array}{cccc}\frac{1^{\text{st}} \text{ Quarter}}{796} & \frac{2^{\text{nd}} \text{ Quarter}}{796} & \frac{3^{\text{rd}} \text{ Quarter}}{796} & \frac{4^{\text{th}} \text{ Quarter}}{796}\end{array}$$

The applicant has stated that the facility plans to use ERC certificate listed in the following table which have been reserved for the quantities shown.

| Certificate | Q1 | Q2 | Q3 | Q4 |
|-------------|-----|-----|-----|-----|
| S-4332-5 | 800 | 800 | 800 | 800 |

*offspring of S-4168-5 (listed in application)

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

VOCs

$$\begin{aligned}\text{PE2 (VOCs)} &= 3,999 \text{ lb/year} \\ \text{BE (VOCs)} &= 0 \text{ lb/year} \\ \text{ICCE} &= 0 \text{ lb/year}\end{aligned}$$

The amount of VOCs ERCs that need to be withdrawn is:

$$\begin{aligned}\text{Offsets Required (lb/year)} &= ([3,999 - 0] + 0) \times 1.5 \\ &= 3,999 \times 1.5 \\ &= 5,999 \text{ lb PM}_{10}/\text{year}\end{aligned}$$

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

$$\begin{array}{cccc}\frac{1^{\text{st}} \text{ Quarter}}{1,500} & \frac{2^{\text{nd}} \text{ Quarter}}{1,500} & \frac{3^{\text{rd}} \text{ Quarter}}{1,500} & \frac{4^{\text{th}} \text{ Quarter}}{1,500}\end{array}$$

The applicant has stated that the facility plans to use ERC certificate listed in the following table which have been reserved for the quantities shown.

| Certificate | Q1 | Q2 | Q3 | Q4 |
|-------------|-------|-------|-------|-------|
| S-4330-1 | 1,500 | 1,500 | 1,500 | 1,500 |

*offspring of S-4184-1 (listed in application)

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

The ATCs will include the following offset conditions:

Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1,732 lb/quarter, SOx: 796 lb/quarter, PM10: 2,122 lb/quarter, and VOCs: 1,500 lb/qtr. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 4/21/11). [District Rule 2201] N

ERC Certificate Numbers S-4334-2, C-1297-4, C-4345-4, S-4332-5, and S-4330-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] N

CO

CO: 13,775 lb/yr

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

C. Public Notification

1. Applicability

Public noticing is required for:

- a. New Major Sources, Federal Major Modifications, and 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 VII.C.7, this project is an SB 288 or Federal Major Modification. Therefore, public noticing for SB 288 or Federal Major Modification purposes is required.

b. PE > 100 lb/day

Applications which include a new emissions unit with a 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.

| Offset Thresholds | | | | |
|-------------------|--------------------|--------------------|---------------------|----------------------------|
| Pollutant | SSPE1 (lb/year) | SSPE2 (lb/year) | Offset Threshold | Public Notice Required? |
| NO _x | 91,091 | 95,708 | 20,000 lb/year | No |
| SO _x | 457,191 | 459,313 | 54,750 lb/year | No |
| PM ₁₀ | 71,377 | 73,611 | 29,200 lb/year | No |
| CO | 333,070 | 346,845 | 200,000 lb/year | No |
| VOC | 144,406 | 148,405 | 20,000 lb/year | No |

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

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE = SSPE2 – SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table.

| SSIPE Public Notice Thresholds | | | | | |
|---------------------------------------|--------------------|--------------------|--------------------|----------------------------------|----------------------------|
| Pollutant | SSPE2 (lb/year) | SSPE1 (lb/year) | SSIPE (lb/year) | SSIPE Public Notice Threshold | Public Notice Required? |
| NO _x | 95,708 | 91,091 | 4,617 | 20,000 lb/year | No |
| SO _x | 459,313 | 457,191 | 2,122 | 20,000 lb/year | No |
| PM ₁₀ | 73,611 | 71,377 | 2,234 | 20,000 lb/year | No |
| CO | 346,845 | 333,070 | 13,775 | 20,000 lb/year | No |
| VOC | 148,405 | 144,406 | 3,999 | 20,000 lb/year | No |

As demonstrated above, the SSIPE was not greater than 20,000 lb/year; therefore public noticing for SSIPE purposes is not required.

2. Public Notice Action

As discussed above, public noticing is required for this project for SB288/Federal Major Modification and SSIPE > 20,000 lb/yr purposes. 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:

The sulfur content of any fuel, or fuels combined, shall not exceed 1 grains of total sulfur (as H₂S) per 100 dscf of fuel gas. [District Rules 2201 and 4320] Y

Emissions shall not exceed any of the following limits: 5 ppmvd NO_x @ 3% O₂ or 0.0062 lb-NO_x/MMBtu, 0.00285 lb-SO_x/MMBtu, 0.0076 lb-PM₁₀/MMBtu, 25 ppmvd CO @ 3% O₂ or 0.0185 lb-CO/MMBtu, or 0.00537 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306 and 4320] Y

E. Compliance Assurance

1. Source Testing

NO_x and CO

This units 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 5.0 MMBtu/hr . Source testing requirements, in accordance with District Rules 4305, 4306, and 4320 will be discussed in Section VIII, District Rules 4305, 4306, and 4320 of this evaluation.

1. Monitoring

Sulfur Monitoring for Rule 4320 Compliance

The following conditions will be included on the ATCs for the steam generators:

When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested monthly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 6 consecutive months for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, monthly testing shall resume. [District Rules 1070, 2201, 2520, and 4320] Y

NOx and CO

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

2. Recordkeeping

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

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

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

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

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

Criteria Pollutant Modeling Results*

| Steam Generator | 1 Hour | 3 Hours | 8 Hours. | 24 Hours | Annual |
|-------------------|-------------------|---------|----------|-------------------|-------------------|
| CO | Pass | X | Pass | X | X |
| NO _x | Pass ¹ | X | X | X | Pass |
| SO _x | Pass | Pass | X | Pass | Pass |
| PM ₁₀ | X | X | X | Pass ² | Pass ² |
| PM _{2.5} | X | X | X | Pass ² | Pass ² |

*Results were taken from the attached PSD spreadsheet.

¹The project was compared to the 1-hour NO₂ National Ambient Air Quality Standard that became effective on April 12, 2010 using the District's approved procedures.

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

As shown, the calculated contribution of PM₁₀ will not exceed the EPA significance level. This project is not expected to cause or make worse a violation of an air quality standard.

G. Compliance Certification

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

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

H. Alternate Siting Analysis

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

Rule 2520 Federally Mandated Operating Permits

This facility is subject to this Rule, and has received their Title V Operating Permit. Section 3.29 defines a significant permit modification as a "permit amendment that does not qualify as a minor permit modification or administrative amendment."

The project is Federal Major Modification and therefore is also a Title V Significant Modification. As discussed above, the facility has applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Included in **Attachment VI** is Seneca's Title V Compliance Certification form. Continued compliance with this rule is expected.

Rule 4001 New Source Performance Standards

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

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

Rule 4101 Visible Emissions

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

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

Rule 4102 Nuisance

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

California Health & Safety Code 41700 – Health Risk Analysis

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

An HRA is not required for a project with a total facility prioritization score of less than one. According to the Technical Services Memo for this project (**Attachment V**), the total facility prioritization score including this project was greater than one. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project.

The cancer risk for this project is shown below:

| HRA Summary | | |
|-------------|-------------------|-----------------|
| Unit | Cancer Risk | T-BACT Required |
| S-3755-32 | 0.266 per million | No |

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

Unit 32-0

{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] N

Rule 4201 Particulate Matter Concentration

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

F-Factor for NG: 8,578 dscf/MMBtu at 60 °F

PM₁₀ Emission Factor: 0.005 lb-PM₁₀/MMBtu

Percentage of PM as PM₁₀ in Exhaust: 100%

Exhaust Oxygen (O₂) Concentration: 3%

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

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

$$GL = 0.0053 \text{ grain/dscf} < 0.1 \text{ grain/dscf}$$

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.

| District Rule 4301 Limits | | | |
|---------------------------|---------------------------|--------------------------|----------------------------|
| Unit | NO ₂ | Total PM | SO ₂ |
| S-3755-32 (lb/hr) | $0.0062 \times 85 = 0.53$ | $0.003 \times 85 = 0.26$ | $0.00285 \times 85 = 0.24$ |
| Rule Limit (lb/hr) | 140 | 10 | 200 |

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

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

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

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

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

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

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

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

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

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

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

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

Section 5.1 NOx Emission Limits

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

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

The unit will comply with the NOx and CO emissions limits specified in Section 5.2 of the rule.

The proposed NOx and CO limits are 5 and 25 ppmv @ 3% O₂, respectively.

Therefore, compliance with the emissions limits of Section 5.2 of District Rule 4320 is expected.

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

Section 5.4 Particulate Matter Control Requirements

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

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

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

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

The steam generator will be fired on natural gas containing no more than 1 gr S/100 scf. Therefore, compliance with this section of 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 generator is not a low use unit 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. No special start-up and shut-down emissions have been proposed.

Section 5.7 Monitoring Provisions

Section 5.7.1 requires that permit units subject to District Rule 4320, Section 5.2 shall either install or maintain an operational APCO approved Continuous Emission Monitoring System (CEMS) for NO_x, CO and O₂, or implement an APCO-approved alternate monitoring.

Seneca has proposed to implement Alternate Monitoring Scheme A (pursuant to District Policy SSP-1105), which requires periodic monitoring of NO_x, CO, and O₂ concentrations at least once a month using a portable analyzer. The following conditions will be placed in the permits to ensure compliance with the requirements of this alternate monitoring plan:

{2395} The permittee shall monitor and record the stack concentration of NOX, CO, and O2 at least once every month (in which a source test is not performed) using a portable analyzer that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306, and 4320] Y

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

comply with Rule 1100 in lieu of performing the notification and testing required by this condition. [District Rules 4102, 4305, 4306 and 4320] Y

All NO_x, CO, and O₂ emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. The NO_x, CO, and O₂ analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute sample period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive minute period. [District Rules 4102, 4305, 4306 and 4320] Y

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

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

If the unit is fired on noncertified gaseous fuel and compliance with SO_x emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 3246, D 4084, D 4468, D 6667 or grab sample analysis by GC-FPD/TCD or double GC performed in the laboratory. [District Rule 1070, 2201, 2520, and 4320] Y

When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested monthly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 6 consecutive months for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, monthly testing shall resume. [District Rules 1070, 2201, 2520, and 4320] Y

If fuel analysis is used to demonstrate compliance with conditions of this permit, the fuel higher heating value for each fuel shall be certified by a third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 1070, 2201, 2520, and 4320] Y

Section 5.8 Compliance Determination

Section 5.8.1 requires that the operator of any unit have the option of complying with either the applicable heat input (lb/MMBtu), emission limits or the concentration (ppmv) emission limits specified in Section 5.2. The emission limits selected to demonstrate compliance shall

be specified in the source test proposal pursuant to Rule 1081 (Source Sampling). Therefore, the following condition will be retained or listed on the permits as follows:

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

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

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

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

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

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

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

Section 6.1 Recordkeeping

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

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

Section 6.2, Test Methods

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

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

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

Section 6.3, Compliance Testing

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

Source testing to measure natural gas-combustion NO_x and CO emissions from this unit shall be conducted within 60 days of 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 4305, 4306 and 4320] Y

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

Sections 6.3.2.1 through 6.3.2.7 address the requirements of group testing which is not proposed in this project. Therefore these sections are not applicable.

Conclusion

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

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. The unit will combust gas containing no more than 1 gr S/100 scf and therefore compliance 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.

The proposed steam generator will combust fuel (natural gas) which results in GHG emissions that are mitigated under ARB's Cap and Trade regulation. Consistent with CCR §15064(h)(3), the District finds that compliance with ARB's Cap and Trade regulation would avoid or substantially lessen the impact of project-specific GHG emissions on global climate change. The District therefore concludes that projects occurring at facilities which combust fuel subject to ARB's Cap and Trade regulation would have a less than significant individual and cumulative impact on global climate change. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15301 (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 Public Notice period, issue ATC S-3755-32-0 subject to the permit conditions on the attached draft ATC in **Attachment XII**.

X. Billing Information

| Annual Permit Fees | | | |
|---------------------------|---------------------|------------------------|-------------------|
| Permit Number | Fee Schedule | Fee Description | Annual Fee |
| S-3755-32-0 | 3020-02-H | 85 MMBtu/hr | \$1030.00 |

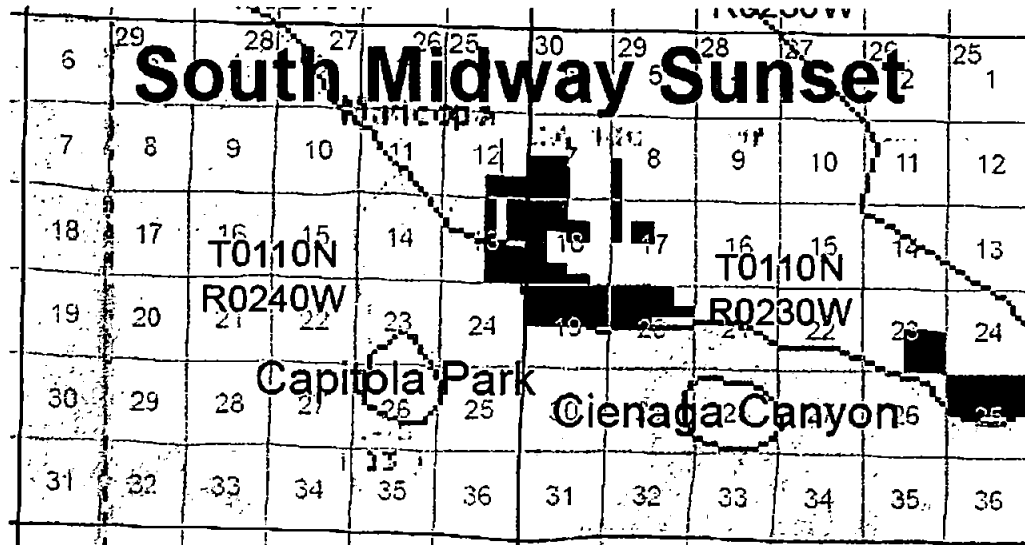
Attachments

- I. Project Location Map
- II. Emissions Profiles
- III. BACT Guideline
- IV: BACT Analysis
- V: HRA and AAQA Modeling
- VI: Statewide Compliance Statement and Title V Compliance Certification Form
- XII: Draft ATC

ATTACHMENT I Project Location Map

Seneca Resources

South Midway-Sunset, Maricopa-USC – PTO S-3755 w/ annexation of Ripley (Sections 23 and 25) – PTO S-3007



ATTACHMENT II Emissions Profiles

| | |
|-------------------------------|---------------------|
| Permit #: S-3755-32-0 | Last Updated |
| Facility: SENECA RESOURCES | 08/06/2014 EDGEHILR |

Equipment Pre-Baselined: NO

| | <u>NOX</u> | <u>SOX</u> | <u>PM10</u> | <u>CO</u> | <u>VOC</u> |
|--|------------|------------|-------------|-----------|------------|
| Potential to Emit (lb/Yr): | 4617.0 | 2122.0 | 5659.0 | 13775.0 | 3999.0 |
| Daily Emis. Limit (lb/Day) | 12.6 | 5.8 | 15.5 | 37.7 | 11.0 |
| Quarterly Net Emissions Change (lb/Qtr) | | | | | |
| Q1: | 1154.0 | 530.0 | 1414.0 | 3443.0 | 999.0 |
| Q2: | 1154.0 | 530.0 | 1415.0 | 3444.0 | 1000.0 |
| Q3: | 1154.0 | 531.0 | 1415.0 | 3444.0 | 1000.0 |
| Q4: | 1155.0 | 531.0 | 1415.0 | 3444.0 | 1000.0 |
| Check if offsets are triggered but exemption applies | N | N | N | Y | N |
| Offset Ratio | 1.5 | 1.5 | 1.5 | | 1.5 |
| Quarterly Offset Amounts (lb/Qtr) | | | | | |
| Q1: | 1732.0 | 796.0 | 2122.0 | | 1500.0 |
| Q2: | 1732.0 | 796.0 | 2122.0 | | 1500.0 |
| Q3: | 1732.0 | 796.0 | 2122.0 | | 1500.0 |
| Q4: | 1732.0 | 796.0 | 2122.0 | | 1500.0 |

ATTACHMENT III BACT Guideline

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 1.2.1*

Last Update 3/24/2014

Oilfield Steam Generator (> or =20 MMBtu/hr)

| Pollutant | Achieved in Practice or contained in the SIP | Technologically Feasible | Alternate Basic Equipment |
|-----------|--|--------------------------|---------------------------|
| VOC | Gaseous fuel | | |
| SOx | Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO2 scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 9 ppmvd SO2 @ 3% O2 | | |
| PM10 | Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO2 scrubber and either achieve 95% by weight control of sulfur compounds or achieving an emission rate of 9 ppmvd SO2 @ 3% O2 | | |
| NOx | <ul style="list-style-type: none"> •Units rated 85 MMBtu/hr and fired solely on PUC quality natural gas: 6 ppmvd @ 3% O2; or •Units firing on ≥50% PUC quality natural gas; commercial propane; and/or LPG: 7 ppmvd @ 3% O2, except units rated 85 MMBtu/hr and fired solely on PUC quality natural gas; or •Units firing on <50% PUC quality natural gas; commercial propane; and/or LPG: 9 ppmvd @ 3% O2 | 5 ppmvd @ 3% O2 | |
| CO | 25 ppmvd @ 3% O2 | | |

ATTACHMENT IV BACT Analysis

Top Down BACT Analysis for the Steam Generator

Oxides of nitrogen (NO_x) are generated from the high temperature combustion of the natural gas fuel. A majority of the NO_x emissions are formed from the high temperature reaction of nitrogen and oxygen in the inlet air. The rest of the NO_x emissions are formed from the reaction of fuel-bound nitrogen with oxygen in the inlet air.

1. BACT Analysis for NO_x Emissions:

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse Guideline 1.2.1, updated 3/24/14, identifies for achieved in practice BACT for NO_x emissions from oil field steam generators ≥5 MMBtu/hr as follows (non-applicable Achieved-in-Practice requirements are in strikeout text):

Achieved-in-Practice

•Units rated 85 MMBtu/hr and fired solely on PUC-quality natural gas: 6 ppmvd @ 3% O₂

~~•Units firing on ≥50% PUC quality natural gas; commercial propane; and/or LPG: 7 ppmvd @ 3% O₂, except units rated 85 MMBtu/hr and fired solely on PUC quality natural gas— unit is 85 MMBtu/hr~~

~~•Units firing on <50% PUC quality natural gas; commercial propane; and/or LPG: 9 ppmvd @ 3% O₂— unit is fired on PUC-quality natural gas~~

Technologically Feasible

5 ppmvd @ 3% O₂ – units rated 85 MMBtu/hr and fired solely on PUC-quality natural gas

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) 6 ppmvd @ 3% O₂ – Achieved-in-Practice
- 2) 5 ppmvd @ 3% O₂ – Technologically Feasible

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_x limit of 5 ppmvd @ 3% O₂, the highest rank technology; therefore, a cost effective analysis is not required.

e. Step 5 - Select BACT

Applicant has proposed 5 ppmv NO_x @ 3% O₂. BACT 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 SJVUAPCD BACT Clearinghouse Guideline 1.2.1, updated 3/24/14, identifies for achieved in practice BACT for SO_x emissions from oil field steam generators ≥5 MMBtu/hr as follows:

Achieved-in-Practice

Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO₂ scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 9 ppmvd SO₂ @ 3% O₂

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

Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO₂ scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 9 ppmvd SO₂ @ 3% O₂

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 SO_x emissions from this oil field steam generator is natural gas fuel with a sulfur content ≤1 gr-S/100 scf. BACT is satisfied.

3. BACT Analysis for PM₁₀ Emissions:

Particulate matter (PM₁₀) emissions result from the incomplete combustion of various elements in the fuel.

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse Guideline 1.2.1, updated 3/24/14, identifies for achieved in practice BACT for CO₁₀ emissions from oil field steam generators ≥5 MMBtu/hr as follows:

Achieved-in-Practice

Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO₂ scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 9 ppmvd SO₂ @ 3% O₂

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

Fired on PUC quality natural gas, commercial propane, and/or commercial LPG; or gaseous fuel treated to remove 95% by weight of sulfur compounds; or treated such that the sulfur content of all fuel streams combined does not exceed 1 gr of sulfur compounds (as S) per 100 dscf; or use of a continuously operating SO₂ scrubber and either achieve 95% by weight control of sulfur compounds or achieve an emission rate of 9 ppmvd SO₂ @ 3% O₂

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 PM₁₀ emissions from this oil field steam generator is natural gas fuel with a sulfur content ≤1 gr-S/100 scf. BACT is satisfied.

4. BACT Analysis for CO Emissions:

Carbon monoxide (CO) emissions are generated from the incomplete combustion of air and fuel.

a. Step 1 - Identify all control technologies

The SJVUAPCD BACT Clearinghouse Guideline 1.2.1, updated 3/24/14, identifies for achieved in practice BACT for CO emissions from oil field steam generators ≥ 5 MMBtu/hr as follows:

- 1) 25 ppmvd @ 3% O₂

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) 25 ppmvd @ 3% O₂

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 CO emissions from this oil field steam generator is a CO limit of 25 ppmvd @ 3% O₂. The applicant has proposed to install an oil field steam generator with a CO limit of 25 ppmvd @ 3% O₂; therefore BACT for CO emissions is satisfied.

5. 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 SJVUAPCD BACT Clearinghouse guideline 1.2.1, 1st quarter 2005, identifies for achieved in practice BACT for VOC emissions from oil field steam generators ≥ 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 this oil field steam generator is gaseous fuel. The applicant has proposed to install an oil field steam generator fired on gaseous fuel; therefore BACT for PM₁₀ emissions is satisfied.

ATTACHMENT V HRA and AAQA Modeling

San Joaquin Valley Air Pollution Control District Risk Management Review

To: Richard Edgehill – Permit Services
From: Kyle Melching – Technical Services
Date: August 5, 2014
Facility Name: Seneca Resources
Location: NE/4 S18 T11N R23W
Application #(s): S-3755-32-0
Project #: S-1142803

A. RMR SUMMARY

| RMR Summary | | | |
|--------------------------------|--------------------------------|----------------|-----------------|
| Categories | NG/Steam Generator (Unit 32-0) | Project Totals | Facility Totals |
| Prioritization Score | 0.11 | 0.11 | >1 |
| Acute Hazard Index | 0.00 | 0.00 | 0.05 |
| Chronic Hazard Index | 0.00 | 0.00 | 0.01 |
| Maximum Individual Cancer Risk | 2.66E-07 | 2.66E-07 | 8.28E-07 |
| T-BACT Required? | No | | |
| Special Permit Conditions? | Yes | | |

Proposed Permit Conditions

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

Unit 32-0

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] N

B. RMR REPORT

I. Project Description

Technical Services received a request on August 4, 2014, to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for a natural gas-fired 85 mmBtu/hr steam generator

II. Analysis

For the Risk Management Review, toxic emissions from the project were calculated using District approved emission for natural gas external combustion. 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 project's prioritization score was less than 1.0, (see RMR Summary Table); but due to previously analyzed projects a refined Health Risk Assessment was ran and performed for the project. AERMOD was used with point source parameters outlined below and concatenated 5-year meteorological data from Fellows to determine maximum dispersion factors at the nearest residential and business receptors. The dispersion factors were input into the HARP model to calculate the Chronic and Acute Hazard Indices and the Carcinogenic Risk.

The following parameters were used for the review:

| Analysis Parameters (Unit 32-0) | | | |
|---------------------------------|-------|------------------------------|-----------|
| Source Type | Point | Nearest Receptor (m) | 887 |
| Stack Height (m) | 6.1 | Closest Receptor Type | Residence |
| Stack Diameter (m) | 1.07 | Project Location | Rural |
| Stack Exit Velocity (m/s) | 8.18 | Natural Gas Usage (mmscf/hr) | 0.085 |
| Stack Exit Temperature (K) | 377 | Natural Gas Usage (mmscf/yr) | 744.6 |

Technical Services also performed modeling for criteria pollutants CO, NO_x, SO_x, & PM₁₀, as well as the RMR. Emission rates used for criteria pollutant modeling were 1.57 lb/hr and 13,775 lb/yr CO, 0.53 lb/hr and 4,617 lb/yr NO_x, 0.24 lb/hr and 2,122 lb/yr SO_x, 0.65 lb/hr and 5,659 lb/yr PM₁₀.

The results from the Criteria Pollutant Modeling are as follows:

Criteria Pollutant Modeling Results*
Values are in $\mu\text{g}/\text{m}^3$

| NG-Fired Generator | 1 Hour | 3 Hours | 8 Hours | 24 Hours | Annual |
|--------------------|-------------------|---------|---------|-------------------|-------------------|
| CO | Pass | X | Pass | X | X |
| NO _x | Pass ¹ | X | X | X | Pass |
| SO _x | Pass | Pass | X | Pass | Pass |
| PM ₁₀ | X | X | X | Pass ² | Pass ² |
| PM _{2.5} | X | X | X | Pass ² | Pass ² |

*Results were taken from the attached PSD spreadsheet.

¹The project was compared to the 1-hour NO₂ National Ambient Air Quality Standard that became effective on April 12, 2010, using the District's approved procedures.

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

III. Conclusion

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.

The acute and chronic indices are below 1.0; and the maximum individual cancer risk associated with the project is **2.66E-07**, which is less than the 1 in a million threshold. 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 unit.

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

IV. Attachments

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Stack Parameter Worksheet
- D. Prioritization score w/ toxic emissions summary
- E. HARP Risk Report
- F. Facility Summary
- G. AAQA Summary
- H. AERMOD Non-Regulatory Option Checklist

ATTACHMENT VI
Statewide Compliance Statement and Title V Compliance
Certification Form

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

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

I. TYPE OF PERMIT ACTION (Check appropriate box)

☒ SIGNIFICANT PERMIT MODIFICATION
☐ MINOR PERMIT MODIFICATION

☐ ADMINISTRATIVE
AMENDMENT

| | |
|--|-----------------------------|
| COMPANY NAME: Seneca Resources | FACILITY ID: S- 1114 |
| 1. Type of Organization: <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Sole Ownership <input type="checkbox"/> Government <input type="checkbox"/> Partnership <input type="checkbox"/> Utility | |
| 2. Owner's Name: | |
| 3. Agent to the Owner: | |

II. COMPLIANCE CERTIFICATION (Read each statement carefully and initial all circles for confirmation):

- ☒ Based on information and belief formed after reasonable inquiry, the equipment identified in this application will continue to comply with the applicable federal requirement(s).
- ☒ Based on information and belief formed after reasonable inquiry, the equipment identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.
- ☒ Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.
- ☒ Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true accurate and complete.

I declare, under penalty of perjury under the laws of the state of California, that the forgoing is correct and true:


Signature of Responsible Official

June 18, 2014
Date

Brad Elliott

Name of Responsible Official (please print)

Vice President – West Division

Title of Responsible Official (please print)

ATTACHMENT VII

Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: S-3755-32-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: SENECA RESOURCES
MAILING ADDRESS: 2131 MARS COURT
BAKERSFIELD, CA 93308

LOCATION: HEAVY OIL WESTERN

SECTION: 18 TOWNSHIP: 11N RANGE: 23W

EQUIPMENT DESCRIPTION:

85 MMBTU/HR PCL (OR EQUIVALENT) NATURAL GAS-FIRED STEAM GENERATOR, WITH NORTH AMERICAN LEL ULTRA LOW NOX BURNER (OR EQUIVALENT) AND A FLUE GAS RECIRCULATION SYSTEM

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Prior to operating equipment under this Authority to Construct, permittee shall surrender emission reduction credits for the following quantities of emissions: NOx: 1,732 lb/quarter, SOx: 796 lb/quarter, PM10: 2,122 lb/quarter, and VOCs: 1,500 lb/quarter. Offsets include the applicable offset ratio specified in Section 4.8 of Rule 2201 (as amended 4/21/11). [District Rule 2201] Federally Enforceable Through Title V Permit
4. ERC Certificate Numbers S-4334-2, C-1297-4, C-4345-4, S-4332-5, and S-4330-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] 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.

Sayed Sadredin, Executive Director APCO

Arnaud Marjollet, Director of Permit Services

S-3755-32-0 : Aug 7 2014 8:10AM - EDOENLR : Joint Inspection NOT Required

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

5. 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] Federally Enforceable Through Title V Permit
6. 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] Federally Enforceable Through Title V Permit
7. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
8. 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] Federally Enforceable Through Title V Permit
9. {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]
10. Steam generator shall be equipped with operational fuel gas volumetric flow meter. [District Rule 2201] Federally Enforceable Through Title V Permit
11. 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
12. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
13. The sulfur content of any fuel, or fuels combined, shall not exceed 1 grains of total sulfur (as H₂S) per 100 dscf of fuel gas. [District Rules 2201 and 4320] Federally Enforceable Through Title V Permit
14. If the unit is fired on noncertified gaseous fuel and compliance with SO_x emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072, D 3031, D 3246, D 4084, D 4468, D 6667 or grab sample analysis by GC-FPD/TCD or double GC performed in the laboratory. [District Rule 1070, 2201, 2520, and 4320] Federally Enforceable Through Title V Permit
15. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested monthly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 6 consecutive months for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, monthly testing shall resume. [District Rules 1070, 2201, 2520, and 4320] Federally Enforceable Through Title V Permit
16. If fuel analysis is used to demonstrate compliance with conditions of this permit, the fuel higher heating value for each fuel shall be certified by a third party fuel supplier or determined by ASTM D 1826 or D 1945 in conjunction with ASTM D 3588 for gaseous fuels. [District Rules 1070, 2201, 2520, and 4320] Federally Enforceable Through Title V Permit
17. Emissions shall not exceed any of the following limits: 5 ppmvd NO_x @ 3% O₂ or 0.0062 lb-NO_x/MMBtu, 0.00285 lb-SO_x/MMBtu, 0.0076 lb-PM₁₀/MMBtu, 25 ppmvd CO @ 3% O₂ or 0.0185 lb-CO/MMBtu, or 0.00537 lb-VOC/MMBtu. [District Rules 2201, 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
18. Flue gas recirculation system shall be operated whenever steam generator is operated. [District Rule 2201] Federally Enforceable Through Title V Permit
19. The permittee shall monitor and record the stack concentration of NO_x, CO, and O₂ at least once every month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the unit is not in operation, i.e. the unit need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the unit unless monitoring has been performed within the last month. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

20. If either the NO_x or CO concentrations corrected to 3% O₂, as measured by the portable analyzer, exceed the allowable emissions concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 1 hour of operation after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 1 hour of operation after detection, the permittee shall notify the District within the following 1 hour and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
21. 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] Federally Enforceable Through Title V Permit
22. The permittee shall maintain records of: (1) the date and time of NO_x, CO, and O₂ measurements, (2) the O₂ concentration in percent and the measured NO_x and CO concentrations corrected to 3% O₂, (3) make and model of exhaust gas analyzer, (4) exhaust gas analyzer calibration records, and (5) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
23. 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] Federally Enforceable Through Title V Permit
24. The source test plan shall identify which basis (ppmv or lb/MMBtu) will be used to demonstrate compliance. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
25. Source testing to measure natural gas-combustion NO_x and CO emissions from this unit shall be conducted within 60 days of 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 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
26. When the unit changes fuel source, the unit shall undergo source testing to measure NO_x and CO emissions within 60 days of the change unless the unit has already undergone source testing in the last twelve (12) months or thirty-six (36) months after demonstrating compliance on the previous two (2) source tests when fired on that fuel source. [District Rule 2201] Federally Enforceable Through Title V Permit
27. Compliance demonstration (source testing) shall be by District witnessed, or authorized, sample collection by ARB certified testing laboratory. [District Rule 1081] Federally Enforceable Through Title V Permit
28. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
29. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
30. NO_x emissions for source test purposes shall be determined using EPA Method 7E or ARB Method 100 on a ppmv basis, or EPA Method 19 on a heat input basis. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

31. CO emissions for source test purposes shall be determined using EPA Method 10 or ARB Method 100. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
32. Stack gas oxygen (O₂) shall be determined using EPA Method 3 or 3A or ARB Method 100. [District Rules 4305, 4306 and 4320] Federally Enforceable Through Title V Permit
33. 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] Federally Enforceable Through Title V Permit
34. Records of sulfur content (gr S/100 scf) of combusted gas shall be maintained. [District Rules 1070, 2201, and 4320] Federally Enforceable Through Title V Permit
35. 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] Federally Enforceable Through Title V Permit

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