Facility Name: **Smarr Energy Facility**
City: Smarr
County: Monroe
AIRS #: 04-13-20700030

Application #: TV-580769
Date Application Received: November 3, 2021
Permit No: 4911-207-0030-V-09-0

| Program | Review Engineers | Review Managers |
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## Introduction

This narrative is being provided to assist the reader in understanding the content of referenced operating permit. Complex issues and unusual items are explained here in simpler terms and/or greater detail than is sometimes possible in the actual permit. The permit is being issued pursuant to: (1) Georgia Air Quality Act, O.C.G.A § 12-9-1, et seq. and (2) Georgia Rules for Air Quality Control, Chapter 391-3-1, and (3) Title V of the Clean Air Act. Section 391-3-1-.03(10) of the Georgia Rules for Air Quality Control incorporates requirements of Part 70 of Title 40 of the Code of Federal Regulations promulgated pursuant to the Federal Clean Air Act. The narrative is intended as an adjunct for the reviewer and to provide information only. It has no legal standing. Any revisions made to the permit in response to comments received during the public participation and EPA review process will be described in an addendum to this narrative.

## I. Facility Description

A. Facility Identification

1. Facility Name: Smarr Energy Facility

2. Parent/Holding Company Name: Oglethorpe Power Corporation (OPC)

   The operator of the facility is Oglethorpe Power Corporation (OPC) and OPC is responsible for certifying compliance with this permit.

3. Previous and/or Other Name(s)

   Oglethorpe Power Corporation – Smarr Combustion Turbine Project
   Smarr Electric Membership Corporation-Smarr Combustion Turbine Project
   Smarr EMC-Smarr Combustion Turbine Project

4. Facility Location: 1077 Rumble Road, Smarr, Monroe County, Georgia 31086

5. Attainment, Non-attainment Area Location, or Contributing Area

   The Smarr Energy Facility is located in an attainment area. In addition, the Smarr Energy Facility is located in a contributing area per Georgia Rule 391-3-1-.03(8)(e).

B. Site Determination

There are no other facilities which could possibly be contiguous or adjacent and under common control.

C. Existing Permits

Table 1 below lists all current Title V permits, all amendments, 502(b)(10) changes, and off-permit changes, issued to the facility, based on a comparative review of form A.6, Current Permits, of the Title V application and the "Permit" file(s) on the facility found in the Air Branch office.

Table 1: List of Current Permits, Amendments, and Off-Permit Changes

| Permit Number and/or Off-Permit Change | Date of Issuance/ Effectiveness | Purpose of Issuance |
|---|---|---|
| 4911-207-0030-V-08-0 | June 13, 2017 | Title V Renewal Permit |
| 4911-207-0030-V-08-1 | December 6, 2022 | Acid Rain Permit Renewal |
| 4911-207-0030-V-08-2 | March 30, 2023 | Replaced a 10.8 MMBtu/hr NG fired boiler with a 6.0 MMBtu/hr boiler. |

D. Process Description

1. SIC Codes(s): 4911

The SIC Code(s) identified above were assigned by EPD's Air Protection Branch for purposes pursuant to the Georgia Air Quality Act and related administrative purposes only and are not intended to be used for any other purpose. Assignment of SIC Codes by EPD's Air Protection Branch for these purposes does not prohibit the facility from using these or different SIC Codes for other regulatory and non-regulatory purposes.

Should the reference(s) to SIC Code(s) in any narratives or narrative addendum previously issued for the Title V permit for this facility conflict with the revised language herein, the language herein shall control; provided, however, language in previously issued narratives that does not expressly reference SIC Code(s) shall not be affected.

2. Description of Product(s)

The Smarr Energy Facility is a peaking power generation facility which provides approximately 212 megawatts of capacity.

3. Overall Facility Process Description

The facility includes two Siemens Model V84.2 combustion turbines (T001 and T002) operating in simple cycle mode. The combustion turbines are fired exclusively by pipeline quality natural gas. The natural gas fired by the combustion turbines is preheated, as needed, by Heater H001, which is also fired by natural gas. The combustion turbines have the capability of utilizing water injection for power augmentation and may also use evaporative cooling to lower the temperature of the intake air.

4. Overall Process Flow Diagram

The facility provided a process flow diagram in their Title V permit application.

E. Regulatory Status

1. PSD/NSR

The Smarr Energy Facility is not classified as one of the 28 named source categories specified in 40 CFR 52.21(b)(1) which therefore sets the PSD major source threshold at 250 tons per year. Potential emissions of *regulated NSR pollutants* are either less than 250 tpy or are limited to less than 250 tpy.

The Facility is located in Monroe County which is considered an attainment area for ozone and all other criteria pollutants.

2. Title V Major Source Status by Pollutant

**Table 2: Title V Major Source Status**

| Pollutant | Is the Pollutant Emitted? | If emitted, what is the facility's Title V status for the pollutant? | | |
|---|---|---|---|---|
| | | Major Source Status | Major Source Requesting SM Status | Non-Major Source Status |
| PM | Yes | Yes | | |
| $PM_{10}$ | Yes | Yes | | |
| $PM_{2.5}$ | Yes | Yes | | |
| $SO_2$ | Yes | | | Yes |
| VOC | Yes | | | Yes |
| $NO_x$ | Yes | Yes | | |
| CO | Yes | Yes | | |
| TRS | N/A | | | |
| $H_2S$ | N/A | | | |
| Individual HAP | Yes | | | Yes |
| Total HAPs | Yes | | | Yes |

3. MACT Standards

40 CFR 63 Subpart ZZZZ – Stationary Reciprocating Internal Combustion Engines applies to the emergency generator operated by the facility.

4. Program Applicability (AIRS Program Codes)

| Program Code | Applicable (y/n) |
|---|---|
| Program Code 6 - PSD | No |
| Program Code 8 – Part 61 NESHAP | No |
| Program Code 9 - NSPS | Yes |
| Program Code M – Part 63 NESHAP | Yes |
| Program Code V – Title V | Yes |

**Regulatory Analysis**

## II. Facility Wide Requirements

A. Emission and Operating Caps:

It has been the historical intent for the facility to operate under a PSD Avoidance limit for NOx emissions. Permit Condition No. 2.2.1 takes into account all NOx emitting equipment at the facility.

B. Applicable Rules and Regulations

Not applicable.

C. Compliance Status

The applicant did not identify any non-compliance issues.

D. Permit Conditions

Permit Condition No. 2.2.1 establishes the PSD Avoidance limit for the entire facility.

## III. Regulated Equipment Requirements

A. Equipment List for the Process

| Emission Units | | Applicable Requirements/Standards | Air Pollution Control Devices | |
|---|---|---|---|---|
| ID No. | Description | | ID No. | Description |
| T001 | Combustion Turbine | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(g)<br>391-3-1-.02(2)(nnn)<br>40 CFR 60 Subpart A<br>40 CFR 60 Subpart GG<br>Acid Rain<br>CSAPR** | DLN1 | Dry Low NOx Burner |
| T002 | Combustion Turbine | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(g)<br>391-3-1-.02(2)(nnn)<br>40 CFR 60 Subpart A<br>40 CFR 60 Subpart GG<br>Acid Rain<br>CSAPR** | DLN2 | Dry Low NOx Burner |
| H001 | 6.0 MMBtu/hr Heater | 391-3-1-.02(2)(d)<br>391-3-1-.02(2)(g) | None | None |
| GEN1 | 500 kW Emergency Generator | 391-3-1-.02(2)(b)<br>391-3-1-.02(2)(g)<br>391-3-1-.02(2)(mmm)<br>40 CFR 63 Subpart A<br>40 CFR 63 Subpart ZZZZ | None | None |

* Generally applicable requirements contained in this permit may also apply to emission units listed above. The lists of applicable requirements/standards are intended as a compliance tool and may not be definitive.

** CSAPR = Cross State Air Pollution Rule (i.e., 40 CFR 97)

B. Equipment & Rule Applicability

**Permit No. 4911-207-0030-V-07-1 Issued November 17, 2014**

The Smarr Energy Facility (SEF) must comply with the North American Electric Reliability Corporation (NERC) requirements. The NERC enforces its Reliability Standards, in some cases, by requiring SEF to operate the turbine in a variety of operational modes for a short period of time. These NERC operational modes are referred to as *special testing*, in this case. Periods of operation that fall under *special testing* are non-routine in nature and outside of the control of SEF, and these periods of operation are classified as *startup* operation.

Permit No. 4911-207-0030-V-07-1 includes the definition of *special testing* noted as follows:

1. The startup time (periods of *special testing*) shall not exceed 240 minutes; and
2. The total duration of special testing shall not exceed 10 hour per unit during any twelve consecutive month period.

This Permit Amendment was processed as a Title V Minor Modification without construction.

**Combustion Turbines (T001 and T002)**

The SEF includes two Siemens Westinghouse V84.2 combustion turbines each with a power output rating of approximately 106 MW. These units are fired exclusively with pipeline quality natural gas. Each turbine utilizes *dry low NOx burners* to minimize NOx emissions.

Note: Each turbine emits very small amounts of lubrication oil through a demister vent located 25 feet up the side of the enclosure of the turbine.

**Startup and Shutdown Operational Modes:** SEF operates combustion turbines T001 and T002 following typical operational procedures for simple cycle combustion turbines. The combustion turbines T001 and T002 operate in diffusion flame combustion mode prior to activation of the dry low NOx burners (DNLB). The operational period of a combustion turbine (T001 and T002) with the DLNB's activated is called *pre-mix operation.* Under ideal conditions the DNLB's are activated approximately 10-15 minutes after a "flame on" signal.

A combustion turbine operating in the time period of "flame on" to activation of the DLNB's is classified as being in "startup" mode. The requirements of 40 CFR 60.11(d) apply during "startup" mode of an SEF combustion turbine which requires, in part, that SEF maintain and operate each combustion turbine in a manner consistent with good air pollution control practice for minimizing emissions.

Historically, SEF's combustion turbines are dispatched by the Georgia Systems Operation Corporation to operate at a certain load. Additionally, SEF is dispatched at no load lower than 65 MW (depending on ambient conditions) and this operating load represents *pre-mix* operation. Basically, SEF's combustion turbines are not dispatched to operate at a load that is representative of "startup" mode (i.e., diffusion flame combustion).

SEF's existing Title V Permit provides a *special testing* definition for startup under NERC requirements, for example. SEF requested an additional condition be added to Section 3 of the Title V Permit Renewal which defines startup and shutdown of combustion turbines T001 and T002. SEF proposed the following definition which is found in similar Title V permits for other peaking power plants in Georgia:

- Except during periods of *special testing*, time allocated to a startup is the lesser of:
    - Any time up to thirty (30) minutes; or
    - When combusting natural gas, the time from a "flame on" signal until two (2) minutes after the premix signal.
- Time allocated to a shutdown is the lesser of:
    - Any time up to thirty (30) minutes; or
    - The time from when the control system shutdown command is given until the "flame out" signal is received.

**40 CFR 63 Subpart GG – Standards of Performance for Stationary Gas Turbines [NSPS GG]:** Each combustion turbine (T001 and T002) is subject to NSPS GG because each has a heat input at peak load equal to or greater than 10.7 gigajoules per hour [10.4 MMBtu/hr], based on the lower heating value of the fuel fired; and because the turbines were constructed after October 3, 1977. The NSPS General Provisions [40 CFR 60, Subpart A] also apply to each turbine.

Each combustion turbine (T001 and T002) is equipped with water injection for power augmentation. The use of water injection is not used for control of NOx emissions. Each combustion turbine (T001 and T002) is equipped with dry low NOx burners.

**NOx Emissions:** The allowable NOx emission rate from each turbine is specified by 40 CFR 60.332(b) which references the following allowable NOx emission rate formula specified in 40 CFR 60.332(a)(1):

NOx is limited to less than or equal to (0.0075)*(14.4/Y)+F

Where;

Y = heat rate in kilojoules per watt hour

F = fuel bound nitrogen allowance

SEF may choose to apply a NOx allowance for fuel-bound nitrogen and determine the appropriate F-value in accordance with 40 CFR 60.332(a)(4) or may accept an F-value of zero.

Note: The application for the original Title V permit reported a value of 10.68 kJ/W-hr for "Y" and 0 for "F", yielding an allowable $NO_X$ emission rate of 101 ppmvd corrected to 15% oxygen, dry basis. However, actual values of Y and F may vary depending on both the fuel and the actual operation of the turbine.

**$SO_2$ Emissions:** The allowable $SO_2$ emission standard is 0.015 percent by volume @15% oxygen and on a dry basis. An alternative standard is based on total sulfur and the NSPS GG limit is 8,000 ppmw (or 0.8 weight percent).

**NSPS GG and Periods of SSM[1]:** NSPS GG is silent as to whether the short-term NOx or $SO_2$ emissions standards apply during periods of startup, shutdown, or malfunction. In this case, the Division interprets NSPS GG as not applying during periods of startup, shutdown, or malfunction. This includes operational periods that fall under the definition of *special testing*.

SEF must operate the combustion turbines (T001 and T002) in compliance with 40 CFR 60.11(d) during periods of startup, shutdown, malfunction, and *special testing*.

**Georgia Rule 391-3-1-.02(2)(g) – Sulfur Dioxide:** Each combustion turbine (T001 and T002) is subject to this state rule because the combustion turbines can be classified as *fuel-burning sources*. The allowable fuel sulfur content is 2.5 weight percent.

[1] SSM = Startup, Shutdown, or Malfunction

**Georgia Rule 391-3-1-.02(2)(b) – Visible Emissions:** Each combustion turbine (T001 and T002) is subject to this state standard because they are subject to some other emission limitation under Georgia Rule 391-3-1-.02(2), in this case Georgia Rule (g). Georgia Rule (b) limits opacity to forty (40) percent.

**Georgia Rule 391-3-1-.02(2)(nnn) – NOx Emissions from Large Stationary Gas Turbines:** Each combustion turbine (T001 and T002) is subject to this state rule because they have a nameplate capacity of greater than 25 MWe and are located in Monroe County. NOx emissions are limited to 30 ppmvd @15% oxygen from May 1 through September 30 of each calendar year.

The NOx emissions standard specified by Georgia Rule (nnn) do not apply, in this case, during periods of startup, shutdown, or malfunction. This conclusion is based on Section 2.121 of the *Procedures for Testing and Monitoring of Air Pollutants* silence on the matter. In addition, the NOx emissions standard specified by Georgia Rule (nnn) do not apply during *special testing*.

**Georgia Rule 391-3-1-.03(8)(c)15 – Additional Provisions for Electrical Generating Units Located in Areas Contributing to the Ambient Air Level of Ozone in the Metropolitan Atlanta Ozone Non-Attainment Area:** This state rule only applies to *electrical generating units* and the major source threshold, as defined by this rule, is 100 tons per year of NOx emissions. The SEF is located in Monroe County which is one of the counties included in this state rule.

This state rule does not apply to SEF because the combustion turbines were first permitted in November of 1998. Georgia Rule 391-3-1-.03(8)(c)15 became effective in mid-1999. In addition, SEF has not triggered the modification portion of Georgia Rule 391-3-1-.03(8)(c)15(ii) and is therefore not subject to the control requirements or offset provisions.

**Heater (H001)**

Heater H001 is used to control the dew point of the natural gas prior to being introduced to the combustion turbines (T001 and T002). This heater is rated at 6.0 MMBtu/hr and it is fired exclusively with natural gas.

**Georgia Rule 391-3-1-.02(2)(g) – Sulfur Dioxide:** Heater H001 is subject to this state rule because the heater can be classified as a *fuel-burning source*. The allowable fuel sulfur content is 2.5 weight percent.

**Georgia Rule 391-3-1-.02(2)(d) – Fuel-Burning Equipment:** Heater H001 is an indirect-fired heater and as such meets the definition of *fuel-burning equipment* in Georgia Rule 391-3-1-.01(cc). Therefore, the PM emissions and opacity are limited by Georgia Rule (d). Georgia Rule (d) limits PM emissions from the heater to 0.5 pounds per million BTU heat input.

Georgia Rule 391-3-1-.02(2)(d)3. limits the visible emissions the opacity of which must be less than twenty (20) percent, except for one six-minute period per hour of not more than twenty-seven (27) percent opacity.

**Emergency Generator (GEN1)**

Emergency generator GEN1 is rated at approximately 500 kW (or 671 hp), is fired with No. 2 fuel oil, and this emergency generator GEN1 was constructed prior to June 12, 2006.

**Georgia Rule 391-3-1-.02(2)(g) – Sulfur Dioxide:** Emergency generator GEN1 is subject to this state rule because the generator can be classified as a *fuel-burning source*. The allowable fuel sulfur content is 2.5 weight percent.

**Georgia Rule 391-3-1-.02(2)(b) – Visible Emissions:** Emergency generator GEN1 is subject to this state standard because it is subject to some other emission limitation under Georgia Rule 391-3-1-.02(2), in this case Georgia Rule (g). Georgia Rule (b) limits opacity to forty (40) percent.

**Georgia Rule 391-3-1-.02(mmm) – NOx Emissions from Stationary Gas Turbines and Stationary Engines Used to Generate Electricity:** The emergency generator is subject to this state rule because its capacity is between 100 kW and 25 MW [inclusive] and is located in Monroe County. Emergency generator GEN1 meets the definition found in Georgia Rule 391-3-1-.02(2)(mmm)4(i) which states:

*Emergency standby stationary gas turbine and stationary engines means any stationary gas turbine or stationary engine that operates only when electric power from the local utility is not available and which operates less than 200 hours per year.*

In this case, emergency generator GEN1 is not subject to the NOx emission limitation of Georgia Rule 391-3-1-.02(2)(mmm)1 because it meets the definition of *emergency standby stationary gas turbines and stationary engines* found in Georgia Rule 391-3-1-.02(2)(mmm)4.(i). The emergency generator GEN1 is limited to 199 hours of operation every twelve consecutive months.

**40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines:** The emergency generator GEN1 was manufactured prior to April 1, 2006 and is therefore not subject to this NSPS.

**40 CFR 63 Subpart ZZZZ – Stationary Reciprocating Internal Combustion Engines (RICE):** Emergency generator GEN1 is subject to this NESHAP per 40 CFR 63.6590(a)(1)(iii) as well as located at an area source of HAPs. The operation of GEN1 must comply with the following, except during startup, in accordance with 40 CFR 63.6603(a) and Option No. 4 of Table 2d to Subpart ZZZZ:

- Change oil and filter every 500 hours of operation or annually, whichever comes first;
- Inspect air cleaner every 1,000 hours of operation, or annually, whichever comes first; and
- Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

The SEF shall operate the emergency generator GEN1 according to the requirements Option No. 9 of Table 6 to Subpart ZZZZ which specifies work or management practices of 40 CFR 63.6605(b), 40 CFR 63.6625(i), and 40 CFR 63.6640(f).

C. Permit Conditions

Permit Condition No. 3.2.1 contains the fuel type restriction for the combustion turbines.

Permit Condition No. 3.2.2 contains the fuel type restriction for the heater.

Permit Condition No. 3.2.3 contains the operational restriction for the emergency generator.

Permit Condition No. 3.3.1 contains the general requirement for the combustion turbines.

Permit Condition No. 3.3.2 contains the NSPS GG NOx emission limit for each combustion turbine.

Permit Condition No. 3.3.3 contains the NSPS GG $SO_2$ emission limit for each combustion turbine.

Permit Condition No. 3.3.4 defines startup, shutdown, and special testing as requested by SEF.

Permit Condition No. 3.3.5 defines 40 CFR 63 Subparts A and ZZZZ specified as applicable requirements for the emergency generator.

Permit Condition Nos. 3.3.6 thru 3.3.9 specify the applicable requirements of 40 CFR 63 Subpart ZZZZ for the emergency generator.

Permit Condition No. 3.4.1 specifies the Georgia Rule (b) requirement.

Permit Condition No. 3.4.2 specifies the Georgia Rule (nnn) NOx emission standard requirement.

Permit Condition No. 3.4.3 specifies the Georgia Rule (d) PM limit for the heater.

Permit Condition No. 3.4.4 specifies the opacity limit for the heater.

Permit Condition No. 3.4.5 specifies the Georgia Rule (g) sulfur limit for the emergency generator GEN1.

## IV. Testing Requirements (with Associated Record Keeping and Reporting)

A. General Testing Requirements

The permit includes a requirement that the Permittee conduct performance testing on any specified emission unit when directed by the Division. Additionally, a written notification of any performance test(s) is required 30 days (or sixty (60) days for tests required by 40 CFR Part 63) prior to the date of the test(s) and a test plan is required to be submitted with the test notification. Test methods and procedures for determining compliance with applicable emission limitations are listed and test results are required to be submitted to the Division within 60 days of completion of the testing.

B. Specific Testing Requirements

**Georgia Rule 391-3-1-.02(2)(nnn) – NOx Emissions from Large Stationary Gas Turbines:** The SEF conducted NOx performance tests on the combustion turbines in July 1999 in accordance with Section 2.121 of the ***Procedures for Testing and Monitoring Sources of Air Pollutants***.

There are no regulatory requirements which specify subsequent performance testing of the combustion turbines (T001 and T002) at this time.

## V. Monitoring Requirements

A. General Monitoring Requirements

Condition 5.1.1 requires that all continuous monitoring systems required by the Division be operated continuously except during monitoring system breakdowns and repairs. Monitoring system response during quality assurance activities is required to be measured and recorded. Maintenance or repair is required to be conducted in an expeditious manner.

B. Specific Monitoring Requirements

Acid Rain: The SEF operates a NOx CEMS on each combustion turbine (ID Nos. T001 and T002) for purposes of complying with Acid Rain [40 CFR 75].

Facility-Wide NOx Emissions Limit: The Acid Rain CEMS is used to determine the monthly mass emissions of NOx from each combustion turbine (T001 and T002) as part of the protocol for calculating facility-wide NOx emissions. NOx emissions from the heater H001 and the emergency generator are computed based on an established emission factor, fuel usage, and hours of operation. This is further clarified in part 6 of this narrative.

**Combustion Turbines (ID Nos. T001 and T002):** Combustion turbines T001 and T002 are subject to the requirements of 40 CFR 60 Subpart GG for NOx and $SO_2$ emissions; Georgia Rule 391-3-1-.02(2)(nnn) for NOx emissions effective May 1 through September 30 of each calendar year, Georgia Rule 391-3-1-.02(b) for visible emissions; and Georgia Rule 391-3-1.02(2)(g) for fuel sulfur content.

**40 CFR 63 Subpart GG – Standards of Performance for Stationary Gas Turbines [NSPS GG]:** NSPS GG imposes the following monitoring requirements for the combustion turbines (T001 and T002):

| Pollutant | Monitoring Requirement |
|---|---|
| NOx | 40 CFR 60.334(a):<br><br>• SEF must install, calibrate, maintain and operate a continuous monitoring system (CMS) to monitor and record the fuel consumption. **In this case SEF does not have to operate a CMS to monitor and record the ratio of water or steam to fuel being fired in each turbine because the water injection is used for purposes of power augmentation and not NOx reduction.**<br><br>• SEF monitors the fuel usage for each combustion turbine (T001 and T002) per this legal citation. |

| Pollutant | Monitoring Requirement |
|---|---|
| NOx | 40 CFR 60.334(b): This monitoring requirement provides flexibility in allowing either the installation and operation of a CMS for monitoring the water or steam to fuel being fired in each combustion turbine or the installation, certification, maintenance, operation and quality-assurance of a NOx Continuous Emissions Monitoring System (CEMS).<br><br>**The requirements of 40 CFR 60.334(b) do not apply to the combustion turbines at SEF because they use water injection for the purpose of power augmentation and not NOx reduction.** |
| NOx | 40 CFR 60.334(h)(2): SEF shall monitor the nitrogen content of the fuel combusted in the turbine, if SEF claims an allowance for fuel bound nitrogen (i.e., if an F-value greater than zero is being or will be used by SEF to calculate the numerical value of STD in 40 CFR 60.332(a). The nitrogen content of the fuel shall be determined using methods described in 40 CFR 60.335(b)(9) or an approved alternative.<br><br>**SEF claims a value of "zero" for the F-value. Therefore, they do not have to track the nitrogen content of the fuel combusted in each turbine.** |
| $SO_2$ | 40 CFR 60.334(h) provides two alternatives for verifying compliance with the $SO_2$ standard.<br><br>Option No. 1 – 40 CFR 60.334(h)(1): SEF shall monitor the total sulfur content of the fuel being fired in the turbine using total sulfur methods described in 40 CFR 60.335(b)(10). Alternatively, if the total sulfur content of the gaseous fuel during the most recent performance test was less than 0.4 weight percent (or 4,000 ppmw), measurement of the major sulfur compounds may be determined using the specified fuel sulfur testing specifications.<br><br>Option No. 2-40 CFR 60.334(h)(3): In lieu of complying with 40 CFR 60.334(h)(1), SEF may elect not to monitor the total sulfur content of the gaseous fuel combustion in the turbine, if the gaseous fuel is demonstrated to meet the definition of natural gas in 40 CFR 60.331(u), regardless of whether an existing custom schedule approved the U.S.<br><br>EPA for NSPS GG requires such monitoring. 40 CFR 60.334(h)(3) provides two alternatives for making such a demonstration. **This is the option chosen by SEF.** |
| NOx<br>$SO_2$ | 40 CFR 60.334(i) – Frequency of determining the sulfur and nitrogen content of the gaseous fuel:<br><br>• SEF uses "zero" for the F-value and therefore is not required to track the nitrogen content of the gaseous fuel.<br><br>• SEF combusts natural gas that meets the definition of natural gas in 40 CFR 60.331(u) and therefore does not monitor the total sulfur content of the gaseous fuel. |

| Pollutant | Monitoring Requirement |
|---|---|
| NOx | 40 CFR 60.334(j) – Definition of Excess Emissions<br><br>• 40 CFR 60.334(j)(1)(i) - NOx emission standard: This regulatory citation defines an excess emissions based on the average steam or water to fuel ratio. No definition of excess emissions applies in this case because the turbines are not equipped with water injection for NOx control.<br><br>• 40 CFR 60.334(j)(1)(ii) - NOx emission standard: This regulatory citation defines an excess emissions based on the fuel bound nitrogen content. SEF uses "zero" for the F-value and therefore no definition of excess emissions applies in this case.<br><br>• 40 CFR 60.334(j)(1)(iii) – NOx emission standard: This regulatory citation defines an excess emissions based on using NOx and diluent CEMS. In this case, the use of a NOx and diluent CEMS is not required by the regulation because the combustion turbines are not equipped with water injection for NOx control. Therefore no definition of excess emissions using NOx and diluent CEMS applies in this case. |
| $SO_2$ | 40 CFR 60.334(j) – Definition of Excess Emissions<br><br>• 40 CFR 60.334(j)(2): Defines an excess emissions for fuel sulfur content if the Permittee is required to monitor the sulfur content of the fuel under 40 CFR 60.334(h). The definition of an excess emission for fuel sulfur content, as stated in 40 CFR 60.334(j)(2)(i) does not apply in this case because SEF is combusting fuel that meets the definition of natural gas in 40 CFR 60.331(u). |

**Georgia Rule 391-3-1-.02(2)(nnn) – NOx Emissions from Large Stationary Gas Turbines:** The Division's *Procedures for Testing and Monitoring Air Pollutants* Section 2.121 imposes no specific monitoring requirements for NOx emissions from the combustion turbines because the combustion turbines were permitted before April 1, 2000. The Acid Rain NOx CEMS is used to monitor NOx emissions and an exceedance of the Georgia Rule (nnn) NOx emission standard is defined as any three-hour average in which the NOx emissions exceeds 30 ppm at 15% oxygen, dry basis. This requirement applies during the periods May 1 through September 30 of each year.

**Georgia Rule 391-3-1-.02(2)(b) – Visible Emissions:** Natural gas is a clean burning fuel and the likelihood of violating the forty (40) percent opacity standard in Georgia Rule 391-3-1-.02(2)(b) is minimal. Thus, no additional monitoring is prescribed.

**Heater (H001):** Heater H001 is subject to Georgia Rule 391-3-1-.02(2)(d) for PM emissions and opacity; and Georgia Rule 391-3-1-.02(2)(g) for fuel sulfur content. Natural gas is a clean burning fuel and therefore the likelihood of violating the opacity and PM emission standards in Georgia Rule (d) are minimal. Hence, no additional monitoring is prescribed to verify compliance with these standards. As mentioned earlier, natural gas contains negligible amounts of sulfur and the likelihood of violating the fuel sulfur content limit in Georgia Rule (g) is minimal. Consequently, no additional periodic monitoring is prescribed to verify compliance with these standards.

**Emergency Generator (GEN1):** The emergency generator is subject to Georgia Rule 391-3-1-.02(2)(b) for visible emissions; Georgia Rule 391-3-1-.02(2)(g) for fuel sulfur content; and 40 CFR 63 Subpart ZZZZ for work practice standards to minimize emissions of HAPs.

**40 CFR 63 Subpart ZZZZ – Stationary Reciprocating Internal Combustion Engines (RICE):** 40 CFR 63 Subpart ZZZZ imposes a requirement for the Permittee to install a non-resettable hour meter on the emergency generator per 40 CFR 63.6625(f).

**Georgia Rule 391-3-1-.02(2)(g):** The facility must keep fuel oil supplier certifications that certify the fuel sulfur content of the fuel oil combusted in the emergency generator. This is further discussed in Section 6 of this narrative.

C. Compliance Assurance Monitoring (CAM)

Not Applicable

D. Permit Conditions

Permit Condition No. 5.2.1 contains the NOx CEMS requirements for the combustion turbines.

Permit Condition No. 5.2.2 contains the fuel usage requirements per NSPS Subpart GG for the combustion turbines.

Permit Condition No. 5.2.3.a. contains the requirement for monitoring the hours of operation of heater H001 for PSD Avoidance purposes.

Permit Condition No. 5.2.3.b. contains the requirement for monitoring the hours of operation of emergency generator GEN1 for PSD Avoidance purposes.

Permit Condition No. 5.2.4 contains the RICE NESHAP requirement for the installation of a non-resettable hour meter on GEN1.

## VI. Record Keeping and Reporting Requirements

A. General Record Keeping and Reporting Requirements

The Permit contains general requirements for the maintenance of all records for a period of five years following the date of entry and requires the prompt reporting of all information related to deviations from the applicable requirements. Records, including identification of any excess emissions, exceedances, or excursions from the applicable monitoring triggers, the cause of such occurrence, and the corrective action taken, are required to be kept by the Permittee and reporting is required on a quarterly basis.

Permit Condition No. 6.1.7.b.i establishes an exceedance based on facility-wide NOx emissions for PSD Avoidance purposes.

Permit Condition No. 6.1.7.b.ii establishes an exceedance as any period during which the sulfur content of the natural gas fired in any combustion turbine (T001 and T002) exceeds 20.0 grains per 100 scf.

Permit Condition No. 6.1.7.b.iii establishes an exceedance definition for the short-term NOx emission rate established by 40 CFR 60.332(a) for each combustion turbine.

Permit Condition No. 6.1.7.b.iv establishes an exceedance definition for the short-term NOx emission rate established by Georgia Rule (nnn) for each combustion turbine.

Permit Condition Nos. 6.1.7.b.v and 6.1.7.b.vi pertain to operational periods of *special testing*.

Permit Condition No. 6.1.7.c.i establishes an excursion definition for the emergency generator.

Permit Condition No. 6.1.7.d.i requires that the quarterly report provide a twelve-consecutive month total NOx emission rate for the entire facility.

Permit Condition No. 6.1.7.d.ii requires that the quarterly report provide a twelve-consecutive month of the hours of operation of each combustion turbine that meets the definition of special testing as defined in Condition 3.3.4.

B. Specific Record Keeping and Reporting Requirements

**Verification of Compliance with Facility-Wide NOx Emissions Limit:**

- SEF is required to maintain hours of operation and fuel usages for the heater H001 and the emergency generator GEN1 as part of the calculation protocol for monthly NOx emissions.

- SEF is required to determine and record the mass emission rate (lb/hr) of NOx from each combustion turbine T001 and T002 using the Acid Rain CEMS.

- SEF is required to determine and record the monthly mass emission rate, in tons per month, of NOx from the facility.

- SEF is required to determine and record the twelve consecutive month total in tons of NOx from the facility.

**Verification of Compliance with the Short-Term NOx Emission Limits:**

- SEF is required to utilize the NOx CEMS data and convert it to 3-hour rolling averages.

**Verification of Compliance with Operational Limits:**

- SEF is required to maintain records as they relate to the startup and shutdown of each combustion turbine T001 and T002 for purposes of (i) identification of periods of startup and shutdown and (ii) time allotted to each period of operation.

- SEF is required to maintain records as they relate to the time attributed to periods of operation of each combustion turbine that falls under the definition of *special testing*.

- SEF is required to maintain fuel oil supplier certifications that specifies the fuel sulfur content of fuel oil combusted in the emergency generator GEN1.

**40 CFR 60 Subpart GG Record keeping Requirements:**

| Pollutant | Legal Citation | Requirement |
|---|---|---|
| NOx | 40 CFR 60.334(h)(2) | SEF must comply with this requirement if they claim an allowance for fuel bound nitrogen.<br><br>**SEF does not claim an allowance for fuel bound nitrogen so no determination of the fuel bound nitrogen is required.** |
| $SO_2$ | 40 CFR 60.334(h)(3) | Provides two alternatives for demonstrating that the natural gas combusted in the combustion turbines meets the definition of natural gas in 40 CFR 60.331(u). |

Permit Condition Nos. 6.2.1.a and 6.2.1.b establish that SEF must retain the quantity of natural gas combusted in each combustion turbine and record the data monthly.

Permit Condition No. 6.2.1.c establishes that SEF must retain the hours of operation data for the Heater H001 and record the data monthly.

Permit Condition No. 6.2.1.d establishes that SEF must retain the hours of operation data for the emergency generator and record the data monthly.

Permit Condition No. 6.2.2 states the requirements for the use of NOx CEMS data from each turbine.

Permit Condition No. 6.2.3 states the requirement to determine and record the total monthly mass emissions, in tons per month, of NOx, from the facility.

Permit Condition No. 6.2.4 states the requirement to determine and record the rolling twelve consecutive month mass emissions of NOx, from the facility.

Permit Condition No. 6.2.5 states that SEF must retain the specified records as they relate to the startup and shutdown of each combustion turbine.

Permit Condition No. 6.2.6 states the record keeping requirement for the hours of operation of the emergency generator.

Permit Condition Nos. 6.2.7 and 6.2.8 state the procedures to verify compliance with the Ozone Season NOx Emission Limits.

Permit Condition Nos. 6.2.9 and 6.2.10 state the natural gas record keeping requirements.

Permit Condition No. 6.2.11 states the reporting requirements for special testing.

## VII. Specific Requirements

A. Operational Flexibility

Not Applicable.

B. Alternative Requirements

Not Applicable.

C. Insignificant Activities

See Permit Application on GEOS website.
See Attachment B of the permit

D. Temporary Sources

Not Applicable.

E. Short-Term Activities

Not Applicable.

F. Compliance Schedule/Progress Reports

Not Applicable.

G. Emissions Trading

Not Applicable.

H. Acid Rain Requirements

Combustion turbines T001 and T002 are subject to the permitting requirements of 40 CFR 72 (Phase II requirements) because each turbine serves a generator with a nameplate capacity greater than 25 MWe on or after November 15, 1990. The Phase II Acid Rain requirements are specified in Conditions 7.9.1 through 7.9.8. SEF submitted their Phase II Acid Rain renewal application to the Division in May 2021.

40 CFR 72.50(a)(1) allows a complete Phase II Permit Application to be attached to the Title V Permit as part of the Permit. SEF's Phase II Permit Application is attached to the Title V Permit as part of the Permit to ensure that all Acid Rain applicable requirements are incorporated into the Title V Permit.

I. Stratospheric Ozone Protection Requirements

Not Applicable.

J. Pollution Prevention

Not Applicable.

K. Specific Conditions

Section 7.15 states the Cross State Air Pollution Rule (CSAPR, a federal rule) specified in 40 CFR 97 as an applicable requirement for the combustion turbines.

## VIII. General Provisions

Generic provisions have been included in this permit to address the requirements in 40 CFR Part 70 that apply to all Title V sources, and the requirements in Chapter 391-3-1 of the Georgia Rules for Air Quality Control that apply to all stationary sources of air pollution.

Template Condition 8.14.1 was updated in September 2011 to change the default submittal deadline for Annual Compliance Certifications to February 28.

Template Condition Section 8.27 was updated in August 2014 to include more detailed, clear requirements for emergency generator engines currently exempt from SIP permitting and considered insignificant sources in the Title V permit.

Template Condition Section 8.28 was updated in August 2014 to more clearly define the applicability of the Boiler MACT or GACT for major or minor sources of HAP.

**Addendum to Narrative**

The 30-day public review started on month day, year and ended on month day, year. Comments were/were not received by the Division.

//If comments were received, state the commenter, the date the comments were received in the above paragraph. All explanations of any changes should be addressed below.//