PERMIT AMENDMENT NO. 4911-103-0012-V-06-1
ISSUANCE DATE: 10/26/2022

GEORGIA
DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

Air Quality - Part 70 Operating Permit Amendment

Facility Name:	**Effingham Energy Facility**
Facility Address:	**3440 McCall Road** **Rincon, Georgia 31326, Effingham County**
Mailing Address:	**2100 East Exchange Place** **Tucker, Georgia 30084-5336**
Parent/Holding Company:	**Oglethorpe Power Corporation**
Facility AIRS Number:	**04-13-103-00012**

In accordance with the provisions of the Georgia Air Quality Act, O.C.G.A. Section 12-9-1, et seq and the Georgia Rules for Air Quality Control, Chapter 391-3-1, adopted pursuant to and in effect under the Act, the Permittee described above is issued a construction permit for:

The CT Upgrades Project involving modifications to the facility's combustion turbines.

This Permit Amendment shall also serve as a final amendment to the Part 70 Permit unless objected to by the U.S. EPA or withdrawn by the Division. The Division will issue a letter when this Operating Permit amendment is finalized.

This Permit Amendment is conditioned upon compliance with all provisions of The Georgia Air Quality Act, O.C.G.A. Section 12-9-1, et seq, the Rules, Chapter 391-3-1, adopted and in effect under that Act, or any other condition of this Amendment and Permit No. 4911-103-0012-V-06-0. Unless modified or revoked, this Amendment expires upon issuance of the next Part 70 Permit for this source. This Amendment may be subject to revocation, suspension, modification or amendment by the Director for cause including evidence of noncompliance with any of the above; or for any misrepresentation made in App No. 668257 dated July 1, 2022; any other applications upon which this Amendment or Permit No. 4911-103-0012-V-06-0 are based; supporting data entered therein or attached thereto; or any subsequent submittal or supporting data; or for any alterations affecting the emissions from this source.

This Amendment is further subject to and conditioned upon the terms, conditions, limitations, standards, or schedules contained in or specified on the attached **10** pages.

STATE OF GEORGIA
CONSTITUTION
WISDOM
JUSTICE
MODERATION
1776

Richard E. Dunn, Director
Environmental Protection Division

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PART 1.0 FACILITY DESCRIPTION

1.3 Process Description of Modification

Oglethorpe Power Corporation (OPC) is proposing the CT (combustion turbine) Upgrades Project involving modifications to the facility's combustion turbines. The project would result in increases in maximum heat input and maximum projected annual air emissions.

The proposed CT Upgrades Project would involve the implementation of two upgrades for OPC Effingham Energy's two combustion turbines: the Advanced Gas Path (AGP) Upgrade and the Low Load Turndown (LLTD) Upgrade.

The AGP would improve facility electrical output and efficiency, as well as extend the maintenance interval of the units by replacing existing gas turbine hardware with hardware using improved designs and materials and modifying site-specific control logic. These changes would increase the capacity of the facility by approximately 23 MW, with variations for ambient temperatures.

The LLTD upgrade would involve the installation of new combustion turbine components and software controls to replace selected equipment and connected accessories to allow for sustained operations at lower operating loads during periods of low demand.

PART 3.0 REQUIREMENTS FOR EMISSION UNITS

Note: Except where an applicable requirement specifically states otherwise, the averaging times of any of the Emissions Limitations or Standards included in this permit are tied to or based on the run time(s) specified for the applicable reference test method(s) or procedures required for demonstrating compliance.

3.1.1 Additional Emission Units

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	**Description**		**ID No.**	**Description**
AB1	Natural Gas-Fired Auxiliary Boiler with a 17 MMBtu/hr Heat Input Capacity	40 CFR 52.21 40 CFR 60 Subpart A 40 CFR 60 Subpart Dc 391-3-1-.02(2)(d) 391-3-1-.02(2)(g)	N/a	N/a
CT1	Cooling Tower 8 cells	40 CFR 52.21	DE1	Drift Eliminators
CTG1	GE 7FA Combustion Turbine, 200 MW	40 CFR 60 Subpart A 40 CFR 60 Subpart GG*** **40 CFR 60, Subpart KKKK**** 40 CFR 52.21 391-3-1-.02(2)(b) and (g) Acid Rain CSAPR	SCR1	Selective Catalytic Reduction (SCR)
CTG2	GE 7FA Combustion Turbine, 200 MW	40 CFR 60 Subpart A 40 CFR 60 Subpart GG*** **40 CFR 60, Subpart KKKK**** 40 CFR 52.21 391-3-1-.02(2)(b) and (g) Acid Rain CSAPR	SCR2	Selective Catalytic Reduction (SCR)
DWP1	Emergency Firewater Pump, 235 bhp (2.06 MMBtu/hr)	40 CFR 52.21 391-3-1-.02(2)(b) and (g) 40 CFR 63, Subpart A 40 CFR 63, Subpart ZZZZ	N/a	N/a
FP1	Natural Gas-fired Preheater with a 1.875 MMBtu/hr Heat Input Capacity	40 CFR 52.21 391-3-1-.02(2)(d) 391-3-1-.02(2)(g)	N/a	N/a
HRSG1	Heat Recovery Steam Generator (no duct firing)	40 CFR 52.21 **40 CFR 60, Subpart KKKK****	N/a	N/a
HRSG2	Heat Recovery Steam Generator (no duct firing)	40 CFR 52.21 **40 CFR 60, Subpart KKKK****	N/a	N/a
STG1	Steam Turbine Generator, 155 MW	40 CFR 52.21	N/a	N/a

* 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.

** Reflects the regulatory applicability for the Combustion Turbines (CTG1, CTG2) following the completion of the Advanced Gas Path (AGP) Upgrade Project.

*** Reflects the regulatory applicability for the Combustion Turbines (CTG1, CTG2) prior to the completion of the Advanced Gas Path (AGP) Upgrade Project.

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3.3 Equipment Federal Rule Standards

Modified Conditions

3.3.1 The Permittee shall comply with all applicable provisions of the New Source Performance Standards (NSPS) as found in 40 CFR 60, in particular, Subpart A "General Provisions" and Subpart GG - "Standards of Performance for Stationary Gas Turbines," for the construction and operation of the combustion turbines with Source Codes CTG1 and CTG2 except as noted in this Permit. **This condition will no longer apply following completion of the Advanced Gas Path (AGP) upgrade.**
[40 CFR 60 Subpart A and GG]

3.3.2 The Permittee shall only fire natural gas in combustion turbines CTG1, and CTG2, the auxiliary boiler AB1, and the Natural Gas-fired Preheater FP1.
[40 CFR 52.21(j); 40 CFR 60.333(b)(subsumed, CTG1 and CTG2 only), **40 CFR 60.4330(a)(2)(subsumed, CTG1 and CTG2 only)** and 391-3-1-.02(2)(g) (subsumed)]

3.3.10 The Permittee shall not:
[40 CFR 60.333(a) and 40 CFR 60.333(b)]

a. cause to be discharged into the atmosphere from combustion turbine, CTG1 or CTG2 any gases which contain sulfur dioxide in excess of 0.015 percent by volume at 15 percent oxygen and on a dry basis; OR

b. burn in any stationary gas turbine any fuel which contains total sulfur in excess of 0.8 percent by weight (8000 ppmw).

This condition will no longer apply following completion of the Advanced Gas Path (AGP) Upgrade.

New Conditions

3.3.17 Following completion of the Advanced Gas Path (AGP) Upgrade, the Permittee shall comply with all applicable provisions of the New Source Performance Standards (NSPS) as found in 40 CFR 60 Subpart A - "General Provisions" and 40 CFR 60 Subpart KKKK - "Standards of Performance for Stationary Combustion Turbines," for operation of each of the combustion turbines (Emission Unit ID Nos: CTG1, and CTG2).

3.3.18 Following completion of the Advanced Gas Path (AGP) Upgrade, the Permittee shall not burn in Combustion Turbines CTG1 and CTG2, any fuel which contains total potential sulfur emissions in excess of 0.060 lb SO_2/MMBtu heat input.
[40 CFR 60.4330(a)2 and 391-3-1-.02(2)(g)2. (subsumed)]

3.3.19 Following completion of Advanced Gas Path (AGP) Upgrade, the Permittee shall not discharge, or cause the discharge, into the atmosphere from the combined exhaust of each combined cycle combustion turbine, any gases which contain nitrogen oxides in excess of the following emission standards on a 30 unit operating-day rolling average basis.
[40 CFR 60.4320, 40 CFR 60.4350(h), 40 CFR 60.4380(b)(3)]

a. 15 ppmvd, corrected to 15% oxygen, when operating at or above 209 MW (equivalent to 75 percent of peak load); and

b. 96 ppmvd, corrected to 15% oxygen, when operating at less than 209 MW (equivalent to 75 percent of peak load).

c. For any 30-unit operating day period during which multiple emission standards apply, the applicable standard is the average of the applicable standards during each hour. For hours with multiple emissions standards, the applicable limit for that hour is determined based on the condition that corresponded to the highest emissions standard.

PART 4.0 REQUIREMENTS FOR TESTING

4.1 General Testing Requirements

Modified Condition

4.1.3 Performance and compliance tests shall be conducted and data reduced in accordance with applicable procedures and methods specified in the Division's Procedures for Testing and Monitoring Sources of Air Pollutants. The methods for the determination of compliance with emission limits listed under Sections 3.2, 3.3, 3.4 and 3.5 which pertain to the emission units listed in Section 3.1 are as follows:

g. Method 5 and/or Method 201A in conjunction with Method 202 shall be used for the determination of the particulate matter concentration for the combustion turbines. The sampling time for each run shall be one hour.

Minor changes in methodology may be specified or approved by the Director or his designee when necessitated by process variables, changes in facility design, or improvement or corrections that, in his opinion, render those methods or procedures, or portions thereof, more reliable.
[391-3-1-.02(3)(a)]

The remainder of the condition remains the same.

4.2 Specific Testing Requirements

New Conditions

4.2.1 No later than 180 days after initial startup following completion of the Advanced Gas Path (AGP) Upgrade or the Low Load Turndown (LLTD) Upgrade, the Permittee shall conduct initial performance tests for total PM on each combustion turbine stack to verify compliance with Condition 3.3.4d. and furnish to the Division a written report of the results of each performance tests. Subsequent performance test, on each affected facility, shall be conducted no more than 60 months following the initial or previous performance test.
[391-3-1-.02(6)(b)1(i) and 40 CFR 52.21]

4.2.2 Within 60 days after achieving the maximum production rate following the completion of the Advanced Gas Path (AGP) Upgrade, but not later than 180 days after the initial startup, the Permittee shall conduct performance tests on each combustion turbine stack, for NOx emissions in accordance with 40 CFR 60.4400 to verify compliance with 3.3.4a. If the NOx CEMS is used as the initial compliance method, the initial performance test for each NOx CEMS specified in Permit Condition 5.2.1a. for each affected facility must be performed in accordance with 40 CFR 60.4405.
[40 CFR 52.21, 40 CFR 60.8, 40 CFR 60.4400, 40 CFR 60.4405, 391-3-1-.02(6)(b)1(i)]

PART 5.0 REQUIREMENTS FOR MONITORING (Related to Data Collection)

5.2 Specific Monitoring Requirements

Modified Conditions

5.2.1 The Permittee shall install, calibrate, maintain, and operate a system to continuously monitor and record the indicated pollutants on the following equipment. Each system shall meet the applicable performance specification(s) of the Division's monitoring requirements. [391-3-1-.02(6)(b)1 and 40 CFR 70.6(a)(3)(i)]

a. A Continuous Emissions Monitoring System (CEMS) for measuring NO_X concentration and diluent (either oxygen or carbon dioxide) discharge to the atmosphere from each combustion turbine. The one-hour average nitrogen oxides emissions rates shall also be recorded in pound per million Btu heat input and ppm, corrected to 15 percent oxygen on a dry basis
[**40 CFR 60.334(b) (subsumed), and 40 CFR 60.4345 following completion of the Advanced Gas Path (AGP) Upgrade**]

b. A Continuous Emissions Monitoring System (CEMS) for measuring carbon monoxide concentration, and diluent (either oxygen or carbon dioxide) discharge to the atmosphere from each combustion turbine. The one-hour average carbon monoxide emissions rates shall also be recorded in pound per million Btu heat input and ppm, corrected to 15 percent oxygen on a dry basis

5.2.3 The Permittee shall monitor the sulfur content of the natural gas burned in CTG1, and CTG2 by the submittal of a semiannual analysis of the gas by the supplier or a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, specifying that the maximum total sulfur content of the fuel is 20.0 grains/100 scf or less. [391-3-1-.02(6)(b)1; 40 CFR 60.334(h)(1), 40 CFR 60.334(h)(3) and 40 CFR 60.334(b)(subsumed), and **40 CFR 60.4365 following completion of the Advanced Gas Path (AGP) Upgrade**]

New Condition

5.2.8 Following completion of the Advanced Gas Path (AGP) Upgrade, the Permittee shall calculate a 30-day rolling average NOx emission rate (in ppmvd at 15 percent oxygen) for each combustion turbine. The 30-day rolling average NOx emission rate is the arithmetic average of all hourly NOx emission data in ppm, determined in accordance with Condition 5.2.1a. for a given day and the twenty-nine unit operating days immediately preceding that unit operating day. A new 30-day average is calculated each unit operating day as the average of all hourly NOx emission rates for the preceding 30-unit operating days if a valid NOx emission rate is obtained for at least 75 percent of all operating hours. [391-3-1.02(6)(b)1, 40 CFR 70.6(a)(3)(i), 40 CFR 60.4380]

PART 6.0 OTHER RECORD KEEPING AND REPORTING REQUIREMENTS

6.1 General Record Keeping and Reporting Requirements

6.1.7 For the purpose of reporting excess emissions, exceedances or excursions in the report required in Condition 6.1.4, the following excess emissions, exceedances, and excursions shall be reported:
[391-3-1-.02(6)(b)1, 40 CFR 70.6(a)(3)(i), and 40 CFR 60.4375]

a. Excess emissions: (means for the purpose of this Condition and Condition 6.1.4, any condition that is detected by monitoring or record keeping which is specifically defined, or stated to be, excess emissions by an applicable requirement)

Modified Condition

i. Any unit operating hour in which the 4-hour rolling average NO_X concentration exceeds the applicable emission limit in 40 CFR 60.332(a)(1) for each combustion turbine. For the purposes of permit condition, a "4-hour rolling average NO_X concentration" is the arithmetic average of the average NO_X concentration measured by the CEMS for a given hour (corrected to 15 percent O_2 and the three-unit operating hour average NO_X concentrations immediately preceding that unit operating hour. **This condition will no longer apply following completion of the Advanced Gas Path (AGP) upgrade.**
[40 CFR 60.334(j)(1)(iii)(A)]

New Conditions

ii. Following completion of the Advanced Gas Path (AGP) Upgrade, any time the total potential sulfur emissions of the fuel being burned in Combustion Turbines CTG1 and CTG2 exceed 0.060 lb SO_2/MMBtu heat input (equivalent to 20 grains sulfur per 100 scf).
[40 CFR 60.4330(a)2]

iii. Following completion of the Advanced Gas Path (AGP) Upgrade, any unit operating period in which the 30-day rolling average NOx emission rate from each combustion turbine stack exceeds the applicable emission standards as stated in Condition 3.3.17. The definition of a "30 unit operating day average NOx emission rate" is defined in 40 CFR 60.4380(b)(1).
[40 CFR 60.4350 and 40 CFR 60.4380(b)(1)]

The remainder of the condition remains the same

b. Exceedances: (means for the purpose of this Condition and Condition 6.1.4, any condition that is detected by monitoring or record keeping that provides data in terms of an emission limitation or standard and that indicates that emissions (or opacity) do not meet the applicable emission limitation or standard consistent with the averaging period specified for averaging the results of the monitoring)

Modified Condition

i. Any three-hour rolling average NOx emission rate, which exceeds 3.0 ppmvd at 15% oxygen for each combustion turbine.
[391-3-1.02(6)(b)1, 40 CFR 70.6(a)(3)(i); 40 CFR 52.21]

6.2 Specific Record Keeping and Reporting Requirements

Modified Conditions

6.2.12 No determination of the nitrogen content of the natural gas burned in the combustion turbines shall be required. **This condition will no longer apply following completion of the Advanced Gas Path (AGP) upgrade.**
[Authority for Approval of Custom Fuel Monitoring Schedules under NSPS GG Approved by U.S. EPA August 14, 1987, and 40 CFR 60.334(b)(subsumed)]

6.2.13 The Permittee shall submit reports of excess emissions and monitor downtime, in accordance with 40 CFR 60.7(c) for each combustion turbine (CTG1 and CTG2). Excess emissions shall be reported for all periods of unit operation, including startup, shutdown and malfunction. For the purpose of reports required under 40 CFR 60.7(c), periods of excess emissions and monitor downtime that shall be reported are defined as specified in 40 CFR 60.334(j). All reports required under 40 CFR 60.7(c) shall be postmarked by the 60th day following the end of each 6-month period. **This condition will no longer apply following completion of the Advanced Gas Path (AGP) upgrade.**
[40 CFR 60.334(j)]

New Conditions

6.2.17 The Permittee shall monitor the emissions from each combustion turbine of any regulated NSR pollutant from the facility that could increase as a result of the CT Upgrades Project and calculate and maintain a record of the annual emissions, in tons-per-year on a calendar basis, for a period of ten years following resumption of regular operations after completion of the CT Upgrades Project. These records shall be retained for a period of five years past the end of each calendar year.

If the Permittee is required to or elects to exclude emissions associated with startups, shutdowns, and/or malfunctions from estimations of projected actual emissions for PSD applicability purposes as allowed by Georgia Rule 391-3-1-.02(7)(a)2.(ii)(II)II, the Permittee may exclude such emissions from the calculation of annual emissions.
[391-3-1-.02(7)(b)15.(i)(III)]

6.2.18 The Permittee shall calculate the actual increase in emissions from each combustion turbine due to demand growth, in tons per year on a calendar year basis, for a period 10 years following resumption of regular operations after the changes. These records shall be retained for a period of five years past the end of each calendar year.
[391-3-1-.02(7)(b)15.(i)(IV)]

6.2.19 The Permittee shall submit a report to the Division within 60 days after the end of each year during which records must be generated under Conditions 6.2.17 and 6.2.18 setting out the unit's annual emissions and the unit's actual increase in emissions due to demand growth, from each combustion turbine during the calendar year that preceded submission of the report.
[391-3-1-.02(7)(b)15.(i)(V)]

6.2.20 The Permittee shall provide written notification of the date the Emission Unit IDs CTG1 and CTG2 resume regular operations after installation of the Advanced Gas Path (AGP) Upgrade project, or the Low Load Turndown (LLTD) postmarked within 30 days after such date.
[391-3-1-.02(6)(b)1 and 40 CFR 70.6(a)(3)(i)]

PART 7.0 OTHER SPECIFIC REQUIREMENTS

7.14 Specific Conditions Associated with this Amendment

New Conditions

7.14.1 Before beginning actual construction of the modifications as described in Application No. TV-668257, the Permittee shall document and maintain a record of the following information:
[391-3-1-.02(7)(b)15.(i)(I)]

a. Description of project;

b. Identification of the emissions unit(s) whose emissions of a regulated NSR pollutant could be affected by the project; and

c. A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emission, the projected actual emissions, the amount of emissions excluded under 40 CFR 52.21(b)(41)(ii)(c) and an explanation for why such amount was excluded, and any netting calculations, if applicable.

d. The records required above shall be retained for a period of 10 years following resumption of regular operations after the change, or for a period of 15 years following resumption of regular operations after the change if the project increased the design capacity of or potential to emit of a regulated NSR pollutant at such emissions unit.

7.14.2 At least 30 days before beginning actual construction of the modifications as described in Application No. TV-668257, the Permittee shall provide a copy of the information set out in Condition 7.14.1 to the Division. If construction will begin after December 31, 2024, the Permittee shall update the determination required by Condition 7.14.1.c. and submit the updated information to the Division at least 30 days before beginning actual construction.
[391-3-1-.02(7)(b)15.(i)(II)]