Facility Name: **Doyle Energy Facility**
City: Monroe
County: Walton
AIRS #: 04-13-297-00041

Application #: TV-250401
Date Application Received: November 19, 2018
Permit No: 4911-297-0041-V-05-0

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: Doyle Energy Facility

2. Parent/Holding Company Name

   Oglethorpe Power Corporation

3. Previous and/or Other Name(s)

   Doyle Generating Facility

4. Facility Location

   1318 Gratis Road,
   Monroe, Georgia 30656 (Walton County)

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

   The facility is located in an attainment area. However, it is in Walton County, which is listed in 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.

B. Site Determination

There are no other facilities which could possibly be contiguous or adjacent and under common control. However, located within close proximity to the Title V site are two (2) existing power plant facilities, Walton County Power, LLC (AFS No. 297-00042) and MPC Generating, LLC (AFS No. 297-00040).

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
4911-297-0041-V-04-0	October 20, 2015	Name and Ownership Change
4911-297-0041-V-04-1	July 25, 2017	Update Definition of Startup and Shutdown.
4911-297-0041-V-04-2	December 13, 2017	Acid Rain Renewal Application

D. Process Description

1. SIC Code(s) 4911

2. Description of Product(s)

The facility produces electricity for sale.

3. Overall Facility Process Description

Oglethorpe Power Company (OPC) owns and operates an electrical power plant in Monroe, Georgia known as the Doyle Energy Facility. The Doyle Energy Facility is a peaking generation simple cycle facility with five combustion turbines providing a maximum of 370 megawatts (MW) of electrical power. The facility consists of three General Electric 7E combustion turbines (CTG1 is rated at approximately 64 MW, CTG2 is rated at approximately 68 MW and CTG3 is rated at approximately 69 MW) and two General Electric 7EA combustion turbines (CTG4 is rated at approximately 85 MW and CTG5 is rated at approximately 84 MW). The CTG turbines fire pipeline quality natural gas exclusively and each turbine vents through its own 50 ft. stack. The facility also uses a 9 MMBTU/hr ancillary heater to preheat the natural gas prior to combustion. The heater is limited to use pipeline quality natural gas exclusively.

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 facility is a minor source under PSD because it has potential NOx emissions capped to not exceed 250 tons during any consecutive twelve (12) month cycle. In addition, the potential emissions of the remaining criteria air pollutants do not equal or exceed 250 tons per year. (Please Note: The facility is not one of the 28 named source categories)

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			✓
PM_{10}	Yes			✓
$PM_{2.5}$	Yes			✓
SO_2	Yes			✓
VOC	Yes			✓

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
NO_x	Yes	✓		
CO	Yes	✓		
TRS	No			✓
H_2S	No			✓
Individual HAP	Yes			✓
Total HAPs	Yes			✓

3. MACT Standards

   This facility is not subject to a proposed or final MACT standard, and they are a minor source for HAPs.

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	No
Program Code V – Title V	Yes

Regulatory Analysis

II. Facility Wide Requirements

A. Emission and Operating Caps:

None applicable.

B. Applicable Rules and Regulations

None applicable.

C. Compliance Status

The facility did not indicate any non-compliance issues in the application.

D. Permit Conditions

None applicable.

III. Regulated Equipment Requirements

A. Equipment List for the Process

Emission Units		Specific Limitations/Requirements		Air Pollution Control Devices	
ID No.	**Description**	**Applicable Requirements/Standards**	**Corresponding Permit Conditions**	**ID No.**	**Description**
CTG1	GE 7E Combustion Turbine	391-3-1-.02(2)(g) 391-3-1-.02(2)(b) 391-3-1-.02(2)(nnn) 40 CFR 60, Subpart A 40 CFR 60 Subpart GG Acid Rain	3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.3.1, 3.3.2, 3.4.4, 3.4.5, 3.4.6, 5.2.1, 5.2.2, 5.2.3, 5.2.4, 6.1.4, 6.2.1, 6.2.2, 6.2.3, 6.2.4, 6.2.6, 6.2.7, 6.2.9, 6.2.10, 6.2.11	None	Not Applicable
CTG2	GE 7E Combustion Turbine	391-3-1-.02(2)(g) 391-3-1-.02(2)(b) 391-3-1-.02(2)(nnn) 40 CFR 60, Subpart A 40 CFR 60 Subpart GG Acid Rain	Same as CTG1	None	Not Applicable
CTG3	GE 7E Combustion Turbine	391-3-1-.02(2)(g) 391-3-1-.02(2)(b) 391-3-1-.02(2)(nnn) 40 CFR 60, Subpart A 40 CFR 60 Subpart GG Acid Rain	Same as CTG1	None	Not Applicable
CTG4	GE 7EA Combustion Turbine	391-3-1-.02(2)(g) 391-3-1-.02(2)(b) 391-3-1-.02(2)(nnn) 40 CFR 60, Subpart A 40 CFR 60 Subpart GG Acid Rain	Same as CTG1	None	Not Applicable
CTG5	GE 7EA Combustion Turbine	391-3-1-.02(2)(g) 391-3-1-.02(2)(b) 391-3-1-.02(2)(nnn) 40 CFR 60, Subpart A 40 CFR 60 Subpart GG Acid Rain	Same as CTG1	None	Not Applicable
HTR1	Heater	391-3-1-.02(2)(d) 391-3-1-.02(2)(g)	3.2.1, 3.4.1, 3.4.2, 3.4.3, 5.2.2, 6.2.5, 6.2.8, 6.2.9, 6.2.10	None	Not Applicable

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

B. Equipment & Rule Applicability

The facility operates five combustion turbines, combustion turbines CTG1, CTG2, and CTG3, each have an approximate power output rating of 64 MW, 68 MW and 69 MW, respectively. Combustion turbines CTG4 and CTG5 have an approximate power rating of 84 MW and 85 MW, respectively. These units are fired exclusively with pipeline quality natural gas. Each turbine uses dry-low NOx (DLN) burners to minimize emissions. Each combustion turbine is subject to the requirements of 40 CFR 60, Subpart GG – "Standard of Performance for Stationary Gas Turbines" because each has a

heat input at peak load equal to or greater than 10.7 gigajoules per hour [10.14 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.

There is no allowable PM or VOC emission rate from these turbines specified by a rule, regulation, or permit condition. The allowable NOx emission rate from each turbine is specified by NSPS Subpart GG [40 CFR 60.332(b)].

The facility is located in one of the counties contributing to the Atlanta non-attainment area and is subject to Georgia Rule 391-3-1-.02(2)(nnn). This rule limits the NOx emissions to 30 ppm at 15% oxygen, dry basis, during the ozone season, which is May 1 to September 30.

In addition to the short-term NOx emission limit, NOx emissions from the turbines and heater, combined are limited to not exceed 250 tons during any twelve consecutive months.

The facility is also limited to operate above 50 megawatts generating capacity. This gives reasonable assurance that the facility is below the 60 lb/hr CO emissions limit.

Therefore, combustion turbines CTG1, CTG2, and CTG3, each, can operate up to 1,550 hours during any twelve consecutive months as requested in the application. In order to remain below the 250 tpy CO emissions threshold, combustion turbines CTG4 and CTG5, each, are permitted to operate 1,840 hours during any twelve consecutive months.

Sulfur dioxide emissions from each turbine are regulated by Georgia Rule 391-3-1-.02(2)(g)1. Georgia Rule (g)1 regulates fuel burning sources capable of firing fossil fuel(s) at a rate exceeding 250 million BTUs per hour heat input, constructed or extensively modified after January 1, 1972, excluding kraft pulp mill recovery furnaces, may not emit sulfur dioxide equal to or exceeding:

(i) 0.8 pounds of sulfur dioxide per million BTUs of heat input derived from liquid fossil fuel or derived from liquid fossil fuel and wood residue.

(ii) 1.2 pounds of sulfur dioxide per million BTUs of heat input derived from solid fossil fuel or derived from solid fossil fuel and wood residue;

(iii) When different fossil fuels are burned simultaneously in any combination, the applicable standard expressed as pounds of sulfur dioxide per million BTUs of heat input shall be determined by proration using the following formula:

$$a = \frac{y(0.80) + z(1.2)}{y + z}$$

where:

y = percent of total heat input derived from liquid fossil fuel;
z = percent of total heat input derived from solid fossil fuel;
a = the allowable emission in pounds per million BTUs.

The Acid Rain Program regulates sulfur dioxide emissions from the turbines. Doyle Energy Facility, LLC must obtain, in the open market, the number of SO_2 allowances that correspond to their annual SO_2 emissions.

Visible emissions from each turbine cannot exceed forty (40) percent in agreement with Georgia Rule 391-3-1-.02(2)(b). Since these combustion turbines can only burn natural gas, compliance should occur at all times.

Heater HTR1 is an indirect-fired heater and as such meets the definition of "fuel-burning equipment" in the Georgia Rule 391-3-1-.01(ccc). Heater HTR1 is used to control the temperature of the natural gas prior to being introduced to the combustion turbines. This heater is rated at 9.0 MMBtu/hr and it is fired exclusively with natural gas. Heater HTR1 is not subject to 40 CFR 60, Subpart Dc–"Standard of Performance for Small Industrial-Commercial-Institutional-Steam Generating units" because it has a maximum design heat input capacity less than 10 MMBtu/hr.

The allowable PM emissions limit from HTR1 is established in Georgia Rule 391-3-.02(2)(d)2.(1).

The allowable opacity limit is specified by Georgia Rule 391-3-1-.02(2)(d)3 which is twenty (20) percent during one six-minute average. The allowable sulfur content for the fuel combusted by this heater is specified in Georgia Rule 391-3-1-.02(2)(g), namely 2.5 weight percent.

Doyle will be required to track NOx emissions from HTR1 by monitoring the cumulative hours of operation and calculating emissions based upon a Division-approved emission factor.

C. Permit Conditions

Condition 3.2.1 limits the combined nitrogen oxides emissions from CTG1 through CTG5 and HTR1 to less than 250 tons per year in order to avoid PSD classification.

Condition 3.2.2 limits the hours of operation for CTG1 through CTG3 to 1,550 hours each per consecutive twelve (12) month period in order to limit carbon monoxide emissions and avoid PSD classification.

Condition 3.2.3 limits the hours of operation for CTG4 and CTG5 to 1,840 hours each per consecutive twelve (12) month period in order to limit carbon monoxide emissions and avoid PSD classification.

Condition 3.2.4 limits the carbon monoxide emissions from any gases emitted from CTG1 through CTG5 to 60 pounds of carbon monoxide per hour in order to limit carbon monoxide emissions.

Condition 3.2.5 limits the operation of CTG1 through CTG5 at less than 50 megawatts to periods of startup and shutdown.

Condition 3.3.1 limits the nitrogen oxides emissions from each turbine CTG1 through CTG5 to that of the following equation:

$$STD = 0.0075 \times (14.4/Y) + F$$

where: STD = allowable NOx emissions (% volume @ 15% O_2, dry)
Y = heat rate in kilojoules per watt hour
F = fuel bound nitrogen allowance

Condition 3.3.2 limits the sulfur content of fuel burned in HTR1 to less than 0.8 percent weight sulfur.

Condition 3.4.1 prohibits particulate emissions from HTR1 to exceed 0.5 pounds per million BTU heat input.

Condition 3.4.2 prohibits the discharge from HTR1 to exceed twenty (20) percent opacity with the exception of one (1) six-minute period per hour of no more than 27 percent opacity.

Condition 3.4.3 limits the sulfur content for the fuel used in HTR1 to 2.5 percent sulfur.

Condition 3.4.4 limits the emissions from CTG1 through CTG5 to less than 40 percent opacity each.

Condition 3.4.5 prohibits the emission of nitrogen oxides from CTG1 through CTG5 in excess of 30 ppm @ 15% oxygen, dry basis each, during the period May 1 through September 30 of each year.

Condition 3.4.6 limits the additional startup time during special testing periods to 240 minutes, per each unit; the total duration of special testing time of each combustion turbine (Source Codes: CTG1 through CTG5) shall not exceed 10 additional hours per unit during any twelve consecutive month period.

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

Not applicable.

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

1. Individual Equipment:

Combustion turbines CTG1, CTG2, CTG3, CTG4, and CTG5 are subject to the requirements for Subpart GG for NOx emissions and fuel sulfur content; Georgia Rule 391-3-1-.02(2)(b) for visible emissions; and Georgia Rule 391-3-1-.03(2)(c) for PSD avoidance purposes for NOx, CO, SO_2, PM/PM_{10}, and VOC emissions. Short-term NOx emissions are tracked with a Continuous Emissions Monitoring System (CEMS), which is required by the Acid Rain regulation. Any one-hour average NOx concentration from any turbine, which exceeds 98 ppmvd, at 15% oxygen, must be reported as an exceedance.

The CEMS is also used to determine the contribution of NOx emissions on an annual basis from the turbines to verify compliance with the facility wide PSD Avoidance NOx emission limit of 250 tons per year.

Periodic monitoring for verification of compliance with NOx limits in Georgia Rule (nnn) is accomplished through Condition 5.2.1, which requires the operation of a NOx CEMS. The use of the NOx CEMS is adequate to meet the requirements of the periodic monitoring required by Georgia Rule (nnn). EPD requires that the natural gas consumption by the turbines be continuously monitored and recorded, and Doyle has installed a device on each turbine for measuring this parameter which was required by Condition 5.2.2

In order to comply with the CO limit on operational hours, which in turn limits the CO emissions to less than 250 tons per year, Doyle is required to equip the turbines with timers to track the cumulation of hours of operation. Doyle must also track the electricity (MW) generated in order to comply with the restrictions on operating output.

Currently, heater HTR1 is subject to Georgia Rule 391-3-1-.02(2)(d) and (g) for PM emissions, visible emissions, and for fuel sulfur content; and Georgia Rule 391-3-1-.03(2)(c) to limit NOx emissions for PSD Avoidance purposes. The heater is fired exclusively with natural gas. 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 periodic monitoring is prescribed to verify compliance with these standards.

Natural gas contains negligible amount of sulfur and the likelihood of violating the fuel sulfur content in Georgia Rule (g) is minimal. Consequently, no additional periodic monitoring is prescribed to verify compliance with these standards.

Doyle will track the operational time of this heater by a monitoring system installed to record the cumulation of hours this heater which shows all periods of its operation. The Division has determined that using the NOx emission factor of 0.88 lb/hr as defined by AP-42 and the cumulative hours of heater operation, the NOx emissions can be calculated. The heater NOx emissions will then be added to the turbine emissions to get the facility total NOx emissions, and this total provides reasonable assurance that the annual limit will not be exceeded.

C. Compliance Assurance Monitoring (CAM)

Not Applicable

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.

B. Specific Record Keeping and Reporting Requirements

The turbines are subject to a maximum allowable fuel sulfur content of 0.8 percent in accordance with NSPS GG [40 CFR 60.333(b)].

Doyle's existing permit requires that the sulfur content of the natural gas be tracked and recorded on a semi-annual basis. Doyle will be required to maintain semi-annual analysis certifications for the sulfur content of the natural gas burned in the turbines and any semi-annual analysis of which shows a sulfur content in excess of 0.8 weight percent must be reported as an exceedance. Please note that the NSPS GG defines a fuel sulfur excess emission on a daily basis. However, this Title V permit establishes a semi-annual trigger value, thus the reason for reporting any fuel sulfur content over the limit as an exceedance rather than an excess emission.

Compliance with the twelve-month rolling total NOx emission rate from the 6 significant emission units is tracked by using the NOx CEMS data and the heater operational data to compute the combined NOx mass emission rate. The NOx mass emission rate from the turbines is to be computed by multiplying the total NOx emissions in units of lb/MMBtu, as determined in accordance with the procedures of 40 CFR Part 75, by the total heat input determined from the turbine fuel usage record. Doyle is required to maintain the monthly records, which specify the twelve consecutive month total NOx emissions (in tons) from CTG1, CTG2, CTG3, CTG4, CTG5, and HTR1, combined. Failure to maintain NOx emissions from CTG1, CTG2, CTG3, CTG4, CTG5, and HTR1, combined, below 250 tons during any twelve consecutive months must be reported as an exceedance.

Condition 6.1.4 outlines the quarterly reporting requirements for excess emissions, exceedances, or excursions. Conditions 6.2.9 specifies that Doyle must include the twelve consecutive month total NOx emissions (in tons) from CTG1, CTG2, CTG3, CTG4, CTG5, and HTR1, in that report. In addition, if there are no excess emissions, exceedances or excursions as defined by Condition 6.1.7, Doyle must so note that in the quarterly report to the Division.

Condition 6.1.4g. includes the running annual total of special testing time of each combustion turbine (Source Code: CTG1 through CTG5) per any calendar year in the quarterly report.

Condition 6.2.11 provides notice to the Division of any special testing, per the facility request of each combustion turbine (Source Code: CTG1 through CGT5).

VII. Specific Requirements

A. Operational Flexibility

The applicant did not include any alternative operating scenarios in their Title V Renewal application.

B. Alternative Requirements

There are no alternative requirements that need to be incorporated into the Title V permit.

C. Insignificant Activities

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

D. Temporary Sources

This section is not applicable to this facility. 40 CFR 70.6(e) requires Georgia EPD to provide for the permitting of certain types of temporary sources. The facility currently has no such sources and is unlikely to have such sources in the future. However, they may add temporary sources provided that the facility follows the necessary regulatory procedures for the operation of such sources. This may include amending the Title V permit, if necessary.

E. Short-Term Activities

There are no short-term activities that need to be included in the Title V permit.

F. Compliance Schedule/Progress Reports

No compliance schedule or progress reports are required.

G. Emissions Trading

The facility is not involved in any emissions trading programs.

H. Acid Rain Requirements

This facility is subject to the requirements in Title IV of the Clean Air Act. They are subject to 40 CFR 72 (permits), 73 (sulfur dioxide), and 75 (monitoring). They are not subject to nitrogen oxide provisions (40 CFR 76) of the Acid Rain regulations because the turbines do not have the capability to burn coal. Each turbine is an affected unit under the Acid Rain regulations.

The Phase II Permit Application for the Doyle Energy Facility 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

The facility does not operate equipment that is subject to the Title VI regulations.

J. Pollution Prevention

There are no pollution prevention provisions incorporated into this Title V Permit.

K. Specific Conditions

None Applicable.

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.//