

Facility Name: **Smarr Energy Facility**  
 City: Smarr  
 County: Monroe  
 AIRS #: 04-13-207-00030

Application #: TV- 12295  
 Date Application Received: May 23, 2000  
 Date Application Deemed  
 Administratively Complete: July 22, 2000  
 Date of Draft Permit: August 4, 2000  
 Permit No: 4911-207-0030-V-05-0

Program	Review Engineers	Review Managers
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<b>TOXICS</b>	Not Applicable	Not Applicable

## Introduction

This narrative is being provided to assist the reader in understanding the content of the attached draft Part 70 operating permit. Complex issues and unusual items are explained in simpler terms and/or greater detail than is sometimes possible in the actual permit. This permit is being proposed pursuant to: (1) Section 391-3-1-.03(10) of the Georgia Rules for Air Quality Control, (2) Part 70 of Chapter I of Title 40 of the Code of Federal Regulations, and (3) Title V of the Clean Air Act Amendments of 1990. The primary purpose of this permit is to consolidate and identify existing state and federal air requirements applicable to **Smarr Energy Facility** and to provide practical methods for determining compliance with these requirements. The following narrative is designed to accompany the draft permit and is presented in the same general order as the permit. It initially describes the facility receiving the permit, then the applicable requirements and their significance, and finally the methods for determining compliance with those applicable requirements. This narrative is intended only as an adjunct for the reviewer and has no legal standing. Any revisions made to the permit in response to comments received during the public participation 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: Smarr EMC

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): Previous names identified include the following:

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 or Non-attainment Area Location

Monroe County is an attainment area for all pollutants but has been determined, by the Division, to be an area contributing to the ambient air level of ozone in the metropolitan Atlanta ozone nonattainment area.

6. Class I Area Impacts

The facility is not located within 100 km of a Class I area.

**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 permits (including Part 71 permits), as amended, issued to the facility. Based on a comparative review of Item 19 in Section 1.10 of the Title V application and the "Permit" file(s) on the facility found in the Air Branch office, comments are listed in Table 2 below.

**Table 1: List of Current Permits, as Amended**

Permit Number and/or Purpose of Issuance	Date of Issuance and Date of Amendments (if any)	Comments	
		Yes	No
4911-207-0031-E-02-0	March 1, 1999	X	
4911-207-0031-E-02-1	August 31, 1999	X	
4911-207-0030-E-04-0	July 19, 1999	X	

**Table 2: Comments on Specific Permits**

Permit Number	Comments
4911-207-0031-E-02-0	Phase II Acid Rain Permit issued March 1, 1999
4911-207-0031-E-02-1	Amended Phase II Acid Rain Permit which reflects the new name of the Owner.
4911-207-0030-E-04-0	Current construction and operating permit.

D. Process Description

1. SIC Code(s)

Major - 4911  
 Other - None

2. Description of Product(s)

The facility produces electricity for sale.

3. Overall Facility Process Description

The facility consists of two simple cycle, single shaft, combustion turbines (T001 and T002). The units fire natural gas, exclusively, and they have the capability of utilizing water injection for power augmentation. Each unit generates a base load rating of approximately 106 MW per hour of gross electrical energy at ISO conditions of 59°F, 60% relative humidity and 14.7 psia. Each turbine vents through its own 90 foot stack. The natural gas used by the turbines at times is first heated in heater H001 which, when it is operating, also runs exclusively on natural gas.

4. Overall Process Flow Diagram (optional)

The facility has provided an overall 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 emissions of NO<sub>x</sub> capped to not exceed 249 tons during any twelve consecutive months. In addition, the potential emissions of the remaining criteria air pollutants do not equal or exceed 250 tpy. (Note: The facility is not one of the 28 named source categories.)

2. Title V Major Source Status by Pollutant

**Table 3: 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	X	X		
PM <sub>10</sub>	X			X
SO <sub>2</sub>	X			X
VOC	X			X
NO <sub>x</sub>	X	X		
CO	X	X		
TRS	X			X
H <sub>2</sub> S	X			X
Individual HAP	X			X
Total HAPs	X			X

## 3. MACT Standards

The facility is not subject to a proposed or final MACT standard.

## 4. Program Applicability

Program Code	Applicable (Yes/No)
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: Refer to Section VII.F.
- D. Operational Flexibility: Refer to Section VII.A.
- E. Permit Conditions: None applicable.

**III. Regulated Equipment Requirements**

## A. Brief Process Description

The facility consists of two simple cycle, single shaft, combustion turbines (T001 and T002). The units fire natural gas, exclusively, and they have the capability of utilizing water injection for power augmentation. Each unit generates a base load rating of approximately 106 MW per hour of gross electrical energy at ISO conditions of 59°F, 60% relative humidity and 14.7 psia. Each turbine vents through its own 90 foot stack. The natural gas used by the turbines at times is first heated in heater H001 which, when it is operating, also runs exclusively on natural gas.

## B. Equipment List for the Process

Emission Unit ID No.	Emission Unit Description	Pollutant(s) Emitted	Applicable Requirements	Is the Rule or Regulation Federally Enforceable?	APCE* Control ID No.	APCE Description
T001	Combustion Turbine	NO <sub>x</sub> , SO <sub>2</sub> , CO, VOC, PM, PM10, HAPs	391-3-1-.02(2)(g) 391-3-1-.02(2)(b) 40 CFR 60 Subpart GG; Acid Rain	Yes Yes Yes Yes	C001	DLN** Burner
T002	Combustion Turbine	NO <sub>x</sub> , SO <sub>2</sub> , CO, VOC, PM, PM10, HAPs	391-3-1-.02(2)(g) 391-3-1-.02(2)(b) 40 CFR 60 Subpart GG; Acid Rain	Yes Yes Yes Yes	C002	DLN Burner
H001	Heater	NO <sub>x</sub> , SO <sub>2</sub> , CO, VOC, PM, PM10, HAPs	391-3-1-.02(2)(d) 391-3-1-.02(2)(g)	Yes Yes	None	NA

\*APCE = Air Pollution Control Equipment

\*\* DLN = Dry Low NO<sub>x</sub>

## C. Equipment &amp; Rule Applicability

Combustion Turbines T001 and T002

The Smarr Energy Facility [Smarr] includes two Siemens Westinghouse V84.2 combustion turbines, T001 and T002, each with a power output rating of approximately 106 MW. These units are fired exclusively with pipeline quality natural gas. Each turbine utilizes DLN burners to minimize NO<sub>x</sub> 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 NO<sub>x</sub> emission rate from each turbine is specified by NSPS Subpart GG [40 CFR 60.332(b)] and the maximum allowable NO<sub>x</sub> emission rate is approximately 101 ppmvd, at 15% oxygen [Heat rate = 10.68 kJ/Wh]. The Siemens Westinghouse manufacturing specifications for the V84.2 turbine states that the expected NO<sub>x</sub> emission rate at base load and 59°F is approximately 10 ppmvd, at 15% oxygen. Smarr conducted NO<sub>x</sub> emission performance tests on T001 and T002 in July 1999 in accordance with Condition No. 4.4a of their existing SIP permit. The results are illustrated in the following table:

Maximum Output Capacity (MW)	Operating Capacity (MW)	Allowable NOx Emission rate, ppmvd, @15% oxygen	Average tested NOx emission rate, ppmvd, @ 15% oxygen	Tested Percent of Allowable (%)
106	104	101	6.387 - 6.7	6.32 - 6.63
106	90 - 93	101	7.41 - 7.873	7.34 - 7.8
106	71	101	7.27 - 9.48	7.34 - 9.39
106	52	101	12.08 - 12.183	11.96 - 12.06

In addition to the short term NOx emission limit, NOx emissions from the turbines and heater, combined, are limited to not exceed 249 tons during any twelve consecutive months.

These turbines were first permitted by reviewing SIP Application No. 10916 dated September 18, 1998. Siemens Westinghouse stated that the expected CO emission rate at various temperatures and load conditions would range from 9 lb/hr to 34.1 lb/hr. EPD considered these short term CO emission limits to be very low, even for a natural gas-fired combustion turbine. At that time, EPD has seen other combustion turbines with much higher CO emissions, particularly at low loads. In addition, the CO emission factor for these combustion turbines was determined to be 116.5 lb/hr using AP-42 (AP-42 CO emission factor is 0.11 lb/MMBtu, Table 3.1-1) With this in mind, EPD limited CO emissions by restricting the combined turbine operation to no more than 12,500 hours during any twelve consecutive months. This operational limit equates to the following short term CO limit:

$$\text{CO (lb/hr)} = (250 \text{ tons/yr}) * (2000 \text{ lb/ton}) * (1 \text{ yr}/12,500 \text{ hrs}) = 40 \text{ lb/hr}$$

Smarr conducted CO emission performance tests on T001 and T002 in July 1999 in accordance with Condition 4.4b of their existing SIP permit. The results are illustrated in the following table:

Maximum Output Capacity (MW)	Operating Capacity (MW)	Allowable CO Emission rate, lb/hr	Average tested CO emission rate, lb/hr	Tested Percent of Allowable (%)
106	104	40	0.12 - 0.17	0.3 - 0.42
106	90 - 93	40	0.12	0.3
106	52	40	0.24 - 4.56	0.6 - 11.40

EPD noted in their permit review (narrative dated January 5, 1999) that if Smarr could demonstrate, through the initial performance testing or other available information, that the potential CO emissions are below 250 tpy without the operational limit, then the CO emission limit, as well as any related monitoring requirements, could be removed during the Title V permitting process. These performance tests indicate that the CO emission rate (lb/hr) should be well below 40 lb/hr; thus, the operational limit, defined in existing permit Condition Nos. 2.5 and 2.6b, can be removed.

The allowable sulfur content limit for fuel combusted by the turbines is specified by NSPS Subpart GG [40 CFR 60.332(b)] and by Georgia Rule 391-3-1-.02(2)(g). NSPS GG specifies the most stringent fuel sulfur content limit at 0.8 weight percent whereas Georgia Rule (g) limits the fuel sulfur content to 2.5 weight percent.

Sulfur dioxide emissions from the turbines are regulated by the Acid Rain Program. Smarr must obtain, in the open market, the number of SO<sub>2</sub> allowances that correspond to their annual SO<sub>2</sub> emissions.

The allowable opacity limit is specified by Georgia Rule 391-3-1-.02(2)(b) and Georgia Rule 391-3-1-.03(2)(c). Georgia Rule (b) applies to this Equipment Group because the turbines are subject to at least one other emission limitation in Georgia Rule 391-3-1-.02(2), and this rule establishes a forty (40) percent opacity limit. For the purpose of the SIP Permit, EPD imposed a twenty (20) percent opacity limit. That decision has been revisited and EPD has determined that the Title V permit should impose only Georgia Rule (b) to limit opacity from each turbine.

EPD established a prohibition on operating the turbines below 50% of their rated capacity for more than two consecutive hours in Condition 10.1 of their existing SIP permit. This condition was included, in part, to minimize the occurrence of a turbine emitting more than 40 lbs of CO per hour. The turbines were tested at 52% of their rated capacity and the tested CO emissions were 11.4% of the allowable. Since there is a reasonable assurance that the rolling annual CO emission rate from the turbines plus heater, combined, will stay below 250 tpy, even at 50% of the turbines capacity, Condition 10.1 does not need to be carried over to their Title V permit.

#### Heater H001

Heater H001 is an indirect-fired heater and as such meets the definition of "fuel-burning equipment" in Georgia Rule 391-3-1-.01(ccc). Heater H001 is used to control the dew point of the natural gas prior to being introduced to the combustion turbines. This heater is rated at 8.4 MMBtu/hr and it is fired exclusively with natural gas.

Heater H001 is not subject to the requirements of 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 H001 is established by Georgia Rule 391-3-1-.02(2)(d)2.(i). The allowable opacity limit is specified by Georgia Rule 391-3-1-.02(2)(d)3 which is twenty (20) percent not to exceed twenty-seven (27) percent during one six-minute average. The allowable sulfur content limit for fuel combusted by this heater is specified by Georgia Rule 391-3-1-.02(2)(g), namely 2.5 weight percent.

The vendor of the heater (Thermoflux, Inc.) noted that the guaranteed NOx emission rate is approximately 1.6 lb/hr. This value was determined by the burner manufacturer. Thermoflux witnessed the installation of the heater and tested the NOx and CO emission rate upon installation. The tested NOx emission rate was 57 ppm (or 0.08 lb/MMBtu) and the tested CO emission rate was 12 ppm shortly after installation. [Please note that the existence of this test data was revealed during a telephone conversation between EPD and Thermoflux.] At a maximum heat input of 8.4 MMBtu/hr, the predicted NOx mass emission rate from the heater is approximately 0.67 lb/hr (41.8 percent of the allowable).

This heater operates under an existing NOx emission limit of 1.6 lbs/hr and an operational limit of 5,800 hrs/yr. Based on the fact that the estimated NOx emission rate is 42% of the allowable, these operating limits are removed from the Title V permit. Smarr will be required to track NOx emissions from H001 by monitoring cumulative hours of operation and multiplying that value by a NOx emission factor of 1.6 lbs/hr.

- D. Compliance Status: Refer to Section VII.F.
- E. Operational Flexibility: Refer to Section VII.A.
- F. Permit Conditions

As noted earlier in this narrative, Smarr operates under SIP Permit No. 4911-207-0030-E-04-0 issued July 19, 1999. The following conditions are not carried over to their Title V permit:

" Condition 2.3 limits the NOx emissions from heater H001 to 1.6 lbs/hr. This is being carried over as the maximum NOx emission factor for the heater in Part 6 of this narrative and Permit.

" Condition 2.4 limits the hours of operation of heater H001. This is not needed as they are tracking hours of operation to compute NOx emissions from the heater. Smarr must limit the operation of the turbines and heater such that their combined NOx emission rate does not exceed 249 tons during any twelve consecutive months.

" Condition 2.5 limits the hours of operation of the turbines combined in order to limit combined CO emissions from the turbines below the PSD threshold of 250 tons per year. This limit is no longer needed as the potential CO emissions from the site do not equal or exceed 250 tons per year.

" Condition 2.6b limits the hourly CO emission rate. This limit is no longer needed as the turbines do not have the potential to emit over this emission rate during normal operating conditions at high or low loads.

" Condition 2.6c limits the opacity from each turbine to no more than 20 percent. Georgia Rule (b) is used to limit opacity (40%) in lieu of Georgia Rule 391-3-1-.03(2)(c) which limits it to 20 percent in this case.

Title V permit conditions are noted as follows:

" Condition 3.2.1 limits NOx emissions from T001, T002, and H001, combined to not exceed 249 tons during any twelve consecutive months for PSD avoidance purposes.

" Condition 3.2.2 limits the opacity from each turbine to twenty (20) percent which is more stringent than Georgia Rule (b). This is carried over from Condition No. 2.6c of their existing SIP permit.

" Condition 3.2.3 restricts the turbine fuel use to only natural gas.

" Condition 3.3.1 specifies the formula for computing the allowable NOx emission rate from each turbine in accordance with NSPS GG.

" Condition 3.3.2 specifies the maximum sulfur content for fuel burned in the turbines in accordance with NSPS GG.

" Condition 3.3.3 reminds the Permittee that the turbines are subject to all applicable provisions of the NSPS General Provisions.

" Condition 3.4.1 specifies the allowable PM emission rate from heater H001 in accordance with Georgia Rule (d)2.(i).

" Condition 3.4.2 establishes the allowable opacity limit for heater H001 in accordance with Georgia Rule (d).

" Condition 3.4.3 specifies the maximum sulfur content for fuel consumed by heater H001 in accordance with Georgia Rule (g).

" Condition 3.4.4 establishes the allowable opacity limit for each turbine in accordance with Georgia Rule (b).

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

##### **A. General Testing Requirements**

This facility is not currently required to perform any emissions testing. However, a condition specifying that the Division can require emissions testing on any emissions unit is included. The test methods to be used to determine compliance with the limitations in Part 3 are listed and a general condition requiring notification of any test and submission of a test plan are also provided.

##### **B. Specific Testing Requirements: None applicable.**

**V. Monitoring Requirements** (with Associated Record Keeping and Reporting)**A. General Monitoring Requirements**

Condition 5.1.1 requires that all monitors be operated continuously except during breakdowns and repairs. Any repairs or maintenance should be completed in an expeditious manner so downtime is minimized. All data should be recorded during any calibration activity to help verify that the calibration was performed and completed properly.

**B. Specific Monitoring Requirements**

Turbines T001 and T002 are subject to the requirements of Subpart GG for NO<sub>x</sub> emissions and fuel sulfur content; and Georgia Rules 391-3-1-.03(2)(c) for visible emissions. As noted in Part 3 of this narrative, NSPS GG limits the NO<sub>x</sub> emissions to a maximum of approximately 101 ppmvd, at 15% oxygen. The tested NO<sub>x</sub> emission rates, at loads ranging from approximately 49% to base load, were 12 to 6.7 ppmvd, at 15% oxygen, respectively. With this in mind, the likelihood of violating the NO<sub>x</sub> emission limit in Subpart GG is minimal. Short term NO<sub>x</sub> emissions are tracked with a Continuous Emissions Monitoring System (CEMS) which is required by the Acid Rain regulation. Any one-hour average NO<sub>x</sub> concentration from either turbine which exceeds 101 ppmvd, at 15% oxygen, must be reported as an excursion rather than an excess emission. NSPS GG defines an excess NO<sub>x</sub> emission based on the tracking of the water-to-fuel ratio.

The CEMS is also used to determine the contribution of NO<sub>x</sub> emissions on an annual basis from the turbines to verify compliance with the facility-wide PSD Avoidance NO<sub>x</sub> emission limit of 249 tpy. This is further clarified in Part 6 of this narrative.

These turbines utilize water injection for purposes of power augmentation and not for NO<sub>x</sub> reduction purposes. Thus they are not required to monitor the water to fuel ratio as required by Subpart GG [40 CFR 60.334(a)]. EPD requires that the natural gas consumption by the turbines be continuously monitored and recorded and Smarr has installed a device on each turbine for measuring this parameter. Verification of compliance with the fuel sulfur limit for the turbines is discussed in Part 6 of this narrative.

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 periodic monitoring is prescribed.

As noted earlier, there is no need to limit CO emissions from the turbines, based on performance testing. Thus the monitoring requirement to track the hours of operation of each turbine is not necessary and will not be carried over to their Title V permit.

Currently, heater H001 is subject to Georgia Rules 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 NO<sub>x</sub> emissions for PSD Avoidance purposes. This 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. 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.

Heater H001 is restricted to no more than 5,800 hours during any twelve consecutive months. Smarr tracks the operational time of this heater by a monitoring system installed to record the cumulation of hours of this heater which shows all periods of its operation. As noted in Part 3 of this narrative, the vendor of this heater (Thermoflux, Inc.) projected that the maximum NO<sub>x</sub> emission rate from this heater would be 1.6 lb/hr and the tested NO<sub>x</sub> emission rate was 0.67 lb/hr. Based upon these data, the Division has determined that using an emissions factor of 1.6 lb/hr and the fuel consumption of the heater to calculate NO<sub>x</sub> emissions from the heater, which will be added to the turbine emissions, will provide a reasonable assurance that the annual limit will not be exceeded.

## VI. Other 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 related information to deviations from 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 semiannual basis.

### B. Specific Record Keeping and Reporting Requirements

The turbines are subject to a maximum allowable fuel sulfur content of 0.8 weight percent in accordance with NSPS GG [40 CFR 60.333(b)]. Subpart GG [40 CFR 60.334(b)(2)] requires daily monitoring of the sulfur content and nitrogen content of the natural gas; however, this regulation allows for the development of custom monitoring schedules as an alternative to this daily monitoring requirement. Smarr's existing permit requires that the sulfur content of the natural gas be tracked and recorded on a semi-annual basis and it removes the requirement to track the nitrogen content. EPD believes that such a Title V periodic monitoring protocol for verification of compliance with the emission and monitoring standards in Subpart GG is appropriate. Smarr will be required to maintain semi-annual certifications of the sulfur content of 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 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 three 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 records. Smarr is required to maintain monthly records which specify the twelve consecutive month total NOx emissions (in tons) from T001, T002, and H001, combined. Failure to maintain NOx emissions from T001, T002 and H001, combined, below or equal to 249 tons during any twelve consecutive months must be reported as an excursion.

Condition 6.1.4 outlines the quarterly reporting requirements, and Condition 6.2.8 specifies two additional parameters which must be included in these quarterly reports. Smarr must include the twelve consecutive month total NOx emissions (tons) from T001, T002, and H001, combined for each month in the reporting period. In addition if there are no excess NOx emissions, as defined by Condition 6.17bii, Smarr must so note that in the quarterly report to the Division.

## VII. Specific Requirements

### A. Operational Flexibility

This permit includes the standard conditions allowing section 502(b)(10) changes and off-permit changes. Additional operational flexibility provisions do not need to be incorporated into this Title V Permit as their permit already provides sufficient flexibility for the facility. The applicant did not include any alternative operating scenarios in their Title V permit application.

### B. Alternative Requirements

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

C. Insignificant Activities

A list of insignificant activities is attached at the end of the Title V Permit. These insignificant emission units may also be seen in Section 4.10 and 4.50 of the Title V permit application.

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. This 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 any necessary regulatory procedures for the operation of such sources. This may include amending the Title V permit, if necessary.

E. Short-Term Activities

Smarr is allowed to conduct sand blasting for maintenance purposes as a short-term activity and it must be conducted in a manner which complies with Georgia Rule 391-3-1-.02(2)(n).

Smarr is allowed to conduct painting for maintenance purposes. This activity meets the definition of Trivial Activities(e)2. - Paint Maintenance and Upkeep Activities. Hence, Smarr Does not need to include this activity in their Title V permit.

F. Compliance Schedule/Progress Reports

The facility is in compliance with all Air Quality Regulations. Therefore, no compliance schedule or progress reports are necessary.

G. Emissions Trading

The facility is not involved in any emissions trading programs.

H. Acid Rain Requirements

This facility is subject to 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 the nitrogen oxide provisions (40 CFR 76) of the Acid Rain regulations because the turbines do not have the capability to burn coal. Each of the turbines is an affected unit under the Acid Rain regulations.

The Smarr Energy Facility was issued a Phase II Acid Rain permit by EPD on March 1, 1999 (Permit No. 4911-207-0031-E-02-0). The facility is required, under 40 CFR 75, to monitor certain pollutants and parameters, including NO<sub>x</sub> emissions, SO<sub>2</sub> emissions, CO<sub>2</sub> emissions, flowrate, and heat input. These pollutants and parameters are reported directly to EPA, electronically, on a quarterly basis. On July 27, 1999, Smarr performed a Certification Program for their CEMS, in accordance with Part 75.

The Phase II Permit Application for the Smarr 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. Prevention of Accidental Releases

This facility is not subject to the requirements of 40 CFR 68.

J. Stratospheric Ozone Protection Requirements

The facility noted in their Title V permit application that they do not operate equipment subject to the Title VI regulations.

K. Pollution Prevention

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

L. Specific Conditions

None

**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.

**Addendum to Narrative**

EPD issued draft Title V Permit 4911-207-0030-V-05-0 for the Smarr Energy Facility located in Smarr, Georgia on August 14, 2000. The public notice for this permit was published in the Monroe County Reporter on September 6, 2000. The public and EPA comment periods expired October 6, 2000 and October 21, 2000, respectively. Comments were received from Oglethorpe Power on October 6, 2000 and November 27, 2000; however, no comments were received from the public or EPA. Updated portions of the Title V permit application were received October 23, 2000, November 2, 2000, and November 27, 2000.

Below are EPD's responses to Oglethorpe Power's comments:

**1. Condition 1.3**

Condition 1.3 provides an overall facility process description. Oglethorpe Power requests that this condition be revised to note that each turbine includes a lube oil demister vent.

**Response:** EPD agrees to the requested change.

**2. Heater H001**

The fuel used by the turbines must at times first be heated in a natural gas heater (H001) which, when operating, is also fired by natural gas. Oglethorpe Power discovered that the number they thought to be the heat input for H001, 8.4 MMBtu/hr, was instead the heat absorption rate for the unit. Oglethorpe Power contacted the vendor and discovered that the heat input for the unit is 10.8 MMBtu/hr. This change does not revise the hourly NOx emission rate already specified in the draft Title V permit. With this in mind, they requested that the necessary changes be made to the Title V permit before it becomes final.

**Response:** EPD has incorporated new and revised permit conditions to account for this change in heat input for H001.

Condition 3.4.1 defines the Georgia Rule (d) allowable PM emission rate based on a heat input rating of less than 10 MMBtu/hr as defined in Georgia Rule 391-3-1-.02(2)(d)2(i). *This condition is revised* to define the allowable PM emission rate based on Georgia Rule 391-3-1-.02(2)(d)2(ii) instead of 391-3-1-.02(2)(d)2(i).

Heater H001 is subject to 40 CFR 60 Subpart Dc since it has a heat input capacity of 100 MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr, and because it was constructed after June 9, 1989. Heater H001 fires only pipeline quality natural gas. Hence, the unit is only subject to the requirement to maintain monthly records which specify the volume of natural gas consumed by the heater. In addition, a condition is added which requires the installation and operation of a monitoring device to track the quantity of natural gas burned in H001 on a monthly basis. The semiannual reporting requirements of NSPS Dc are replaced by the quarterly reporting requirements of existing condition 6.1.4. *The addition of this new applicable requirement revises Condition Nos. 3.1 and 3.3.3 and adds Condition 5.2.2.c.*

EPD considered the applicability of Georgia Rule 391-3-1-.02(2)(III) - "NOx Emissions from Fuel-Burning Equipment" to heater H001. Georgia Rule (III) applies to "fuel-burning equipment" with a maximum design heat input capacity greater than or equal to 10 MMBtu/hr and less than or equal to 250 MMBtu/hr permitted before May 1, 1999. Oglethorpe Power did not include this heater in the original construction and operating permit application dated September 18, 1998 (SIP Application No. 10916; Permit issued November 2, 1998) because of an oversight on their part. Oglethorpe Power requested inclusion of this heater on June 4, 1999 and this heater was included in the permit on July 19, 1999. Both EPD and Oglethorpe Power consider the heater as an integral part of the original design permitted in 1998. Thus, EPD does not believe that heater H001 is subject to Georgia Rule (III) because it was permitted prior to May 1, 1999.

**2. Attachment D**

Attachment D contains a copy of the U.S. EPA Acid Rain Program Phase II Permit Application dated September 18, 1998. Oglethorpe Power submitted a revised Phase II Permit Application dated September 6, 2000 noting the revised facility name of Smarr Energy Facility and the corrected ORIS Code. Oglethorpe Power requests that the September 6, 2000 version of the application be placed in Appendix D of the final Title V permit.

**Response:** EPD agrees to the requested change.

**Other Notes**

**1. Georgia Rule 391-3-1-.02(2)(nnn)**

Georgia Rule 391-3-1-.02(2)(nnn) has become an applicable requirement for the turbines since the issuance of the draft Title V permit. Georgia Rule (nnn) limits NO<sub>x</sub> emissions from each turbine to 30 ppm at 15 percent oxygen, dry basis, during the ozone season (May 1 through September 30) beginning May 1, 2003. This portion of Georgia Rule (nnn) applies since the turbines were permitted before April 1, 2000 and they fire natural gas. The Smarr Energy Facility turbines are Siemens V84.2 models and the tested NO<sub>x</sub> emission rate ranged from 6.387 to 12.08 ppmvd at 15% oxygen, depending on turbine load. Periodic monitoring for verification of compliance with the NO<sub>x</sub> limit in Georgia Rule (nnn) is accomplished through existing draft condition 5.2.1 which, requires the installation and operation of a NO<sub>x</sub> Continuous Emission Monitoring System. The use of a NO<sub>x</sub> CEMS is sufficient to meet the requirements of periodic monitoring. No additional periodic monitoring is specified. The inclusion of this new applicable requirement revises the permit as follows:

Condition 3.1 now lists Georgia Rule (nnn) as an applicable requirement.

Condition 3.4.5 defines the requirements of Georgia Rule (nnn).

Condition 4.1.3 is revised to account for this new applicable requirement.

Condition 6.1.7.b.iv is added to define an exceedance based on Georgia Rule (nnn).

REVISED PERMIT CONDITIONS FOR  
4911-207-0030-V-05-0

### 1.3 Overall Facility Process Description

The facility consists of two simple cycle, single shaft, combustion turbines (T001 and T002). The units fire natural gas, exclusively, and they have the capability of utilizing water injection for power augmentation. Each unit generates a base load rating of approximately 106 MW per hour of gross electrical energy at ISO conditions of 59°F, 60% relative humidity and 14.7 psia. Each turbine vents through its own 90 foot stack. Each turbine also vents through a lube oil demister vent located 25 feet up the side of the enclosure. The natural gas used by the turbines at times is first heated in heater H001 which, when it is operating, also runs exclusively on natural gas.

### 3.1 Emission Units

Emission Units		Specific Limitations/Requirements		Air Pollution Control Devices	
ID No.	Description	Applicable Requirements / Standards*	Corresponding Permit Conditions	ID No.	Description
T001	Combustion Turbine	391-3-1-.02(2)(g) 391-3-1-.02(2)(b) <b>391-3-1-.02(2)(nnn)</b> 40 CFR 60 Subpart GG Acid Rain	3.2.1, 3.2.2, 3.3.1, 3.3.2, 3.3.3, 3.4.4, <b>3.4.5</b> , 5.2.1, 5.2.2, 6.2.1, 6.2.2, 6.2.3, 6.2.4, 6.2.5, 6.2.7, 6.2.8	DLN1	DLN Burner
T002	Combustion Turbine	391-3-1-.02(2)(g) 391-3-1-.02(2)(b) <b>391-3-1-.02(2)(nnn)</b> 40 CFR 60 Subpart GG Acid Rain	Same as T002	DLN1	DLN Burner
H001	Heater	391-3-1-.02(2)(d) 391-3-1-.02(2)(g) <b>40 CFR 60 Subpart Dc</b>	3.2.1, <b>3.3.3</b> , 3.4.1, 3.4.2, 3.4.3, 5.2.2, 6.2.6, 6.2.7, 6.2.8, <b>6.2.9</b>	None	NA

\* Generally Applicable Requirements contained in this permit may apply also to emission units listed above.

3.3.3 The Permittee shall comply with all applicable provisions of the New Source Performance Standards (NSPS) as found in 40 CFR Part 60 Subpart A - "General Provisions" as they pertain to combustion turbines T001 and T002 and heater H001. [40 CFR 60 Subpart A]

3.4.1 ~~The Permittee shall not discharge, or cause the discharge, into the atmosphere from heater H001 any gases which contain PM in amounts equal to or exceeding 0.5 pounds per million Btu heat input. [391-3-1-.02(2)(d)2.(i)]~~ **The Permittee shall not discharge, or cause the discharge, into the atmosphere from heater H001 any gases which contain PM in amount equal to or exceeding the rate specified by  $P = 0.5(10/R)^{0.5}$  where P equals the allowable PM emission rate in pounds per million Btu heat input and R equals the heat input of heater H001 in million Btu per hour. [391-3-1-.02(2)(d)2(ii)]**

3.4.5 **The Permittee shall not discharge, or cause the discharge, into the atmosphere, from each combustion turbine, T001 and T002, emissions of nitrogen oxides in excess of 30 ppm at 15% oxygen, dry basis. This condition becomes effective May 1, 2003 and shall apply during the period May 1 through September 30 of each year.**  
[391-3-1-.02(2)(nnn)1(i)]

- 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:
- a. Method 1 shall be used for the determination of sample point locations,
  - b. Method 2 shall be used for the determination of stack gas flow rate,
  - c. Method 3 or 3A shall be used for the determination of stack gas molecular weight, ~~and excess air correction factor.~~
  - d. ~~Method 3B shall be used for the determination of the correction factor for excess air. Method 3A may be used as an alternative to Method 3B.~~ **Method 3B shall be used for the determination of the oxygen concentration and emission rate correction factor. As an alternative to Method 3B, Method 3A may be used.**
  - e. Method 4 shall be used for the determination of stack gas moisture,
  - f. Method 5 shall be used for the determination of PM concentration,
  - g. Method 7 or 7E shall be used for the determination of NO<sub>x</sub> concentration from heater H001, ~~only~~,
  - h. **Method 7E shall be used for the determination of NO<sub>x</sub> concentration from combustion turbines T001 and T002 for purposes of verifying compliance with Georgia Rule 391-3-1-.02(2)(nnn).**
  - ~~h. Method 9 and Section 1.3 of the Procedures Manual shall be used for the determination of opacity,~~
  - ~~i. Method 19 shall be used for the determination of PM and NO<sub>x</sub> emission rates,~~
  - ~~j. Method 20 shall be used for the determination of NO<sub>x</sub> concentration from combustion turbines T001 and T002 for purposes of verifying compliance with 40 CFR 60.332(a)(1).~~
  - i. **Method 9 and Section 1.3 of the Procedures Manual shall be used for the determination of opacity,**
  - j. **Method 19 shall be used for the determination of PM and NO<sub>x</sub> emission rates,**
  - k. **Method 20 shall be used for the determination of NO<sub>x</sub> concentration from combustion turbines T001 and T002 for purposes of verifying compliance with 40 CFR 60.332(a)(1).**

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 which, in his opinion, render those methods or procedures, or portions thereof, more reliable.

[391-3-1-.02(3)(a)]

- 5.2.2 The Permittee shall install, calibrate, maintain, and operate monitoring devices for the measurement of the indicated parameters on the following equipment. Data shall be recorded at the frequency specified below. Where such performance specification(s) exist, 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. The quantity of natural gas, in cubic feet, burned in each combustion turbine, T001 and T002. Data shall be recorded continuously.
  - b. The cumulation of hours of operation of heater H001 which shows all periods of operation of the heater. Data shall be recorded monthly.
  - c. **The quantity of natural gas, in cubic feet, burned in heater H001. Data shall be recorded monthly.**
- 6.1.7.b.iv. **Any one-hour average in which the NO<sub>x</sub> concentration from any combustion turbine, T001 and T002, exceeds 30 ppm at 15% oxygen, dry basis, as determined by the continuous emission monitoring system required by Condition 5.2.1. This condition becomes effective May 1, 2003 and shall apply during the periods May 1 through September 30 of each year.**
- 6.2.9 **The Permittee shall maintain monthly records that specify the volume of natural gas consumed by heater H001. [40 CFR 70.6(a)(3)(i) , 40 CFR 60.48c(g) and Alternate Fuel Usage Recordkeeping Frequency for Dc Boilers, Approved by U.S. EPA Region 4 on August 14, 1996]**

<b>Draft Permit Review</b>		
<b>Reviewing Program</b>	<b>Comments Received? (y/n)</b>	<b>Comments Taken Into Consideration In Draft Permit? (y/n)</b>
<b>ISMP</b>		
<b>SSCP</b>		

**SSPP Unit Manager:**

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//SSPP Unit Manager//

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Date

**SSPP Program Manager:**

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SSPP Program Manager

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Date