FLORIDA DEPARTMENT OF
Environmental Protection

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PERMITTEE

Seminole Electric Cooperative, Inc.
P.O. Box 272000
Tampa, Florida 33688-2000

Authorized Representative:
Mr. James Frauen, VP, Technical Services and Development

Air Permit No. 0490340-020-AC (PSD-FL-214F)
Permit Expires: December 31, 2020
Midulla Generating Station
Heat Input Increase Authorization
Hardee County, Florida

PROJECT

This is the final air construction permit, which authorizes control logic and operating parameter changes to the two existing Siemens combined-cycle combustion turbines. Permit No. PSD-FL-214A is also revised in order to increase the design heat input capacity for natural gas and fuel oil firing. The proposed work will be conducted at the existing Midulla Generating Station, which is a power plant categorized under Standard Industrial Classification Code No. 4911. The existing facility is in Hardee County at 6697 North County Road 663, Bowling Green, Florida. The UTM coordinates of the MGS are Zone 17, 405.10 kilometers (km) East and 3,057.75 km North.

This final permit is organized into the following sections: Section 1 (General Information); Section 2 (Administrative Requirements); Section 3 (Emissions Unit Specific Conditions); and Section 4 (Appendices). Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of Section 4 of this permit.

STATEMENT OF BASIS

This air pollution construction permit is issued under the provisions of: Chapter 403 of the Florida Statutes (F.S.) and Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297 of the Florida Administrative Code (F.A.C.). The permittee is authorized to conduct the proposed work in accordance with the conditions of this permit. This project is subject to the general preconstruction review requirements in Rule 62-212.300, F.A.C. and is not subject to the preconstruction review requirements for major stationary sources in Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

Upon issuance of this final permit, any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel (Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000) and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within 30 days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida

David Lyle Read, P.E.

David Lyle Read, P.E.
2018.11.30 12:06:24 -05'00'

For:
Syed Arif, P.E., Program Administrator
Office of Permitting and Compliance
Division of Air Resource Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Final Air Construction Permit package was sent by electronic mail, or a link to these documents made available electronically on a publicly accessible server, with received receipt requested before the close of business on the date indicated below to the following persons.

Mr. James Frauen, SECI (jfrauen@seminole-electric.com)
Mr. Chris Weber, SECI (cweber@seminole-electric.com)
Michael Ballenger, P.E., Trinity Consultants (MBallenger@trinityconsultants.com)
Mr. Steve Morgan, SWD Office (Steve.Morgan@dep.state.fl.us)
DEP Siting Office: SCO@dep.state.fl.us
Ms. Lynn Scearce, DEP OPC: lynn.scearce@dep.state.fl.us

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

Lynn Scearce Digitally signed by Lynn Scearce
Date: 2018.11.30 13:28:48 -05'00'

FACILITY DESCRIPTION

The MGS is an existing power plant which consists of two combined cycle combustion turbines, ten simple cycle combustion turbines, two emergency engines and miscellaneous unregulated and insignificant activities.

The existing facility consists of the following emissions units (EU). EUs affected by this permitting action are highlighted in yellow.

EU No.	Brief Description
001	Combined Cycle Unit 1
002	Combined Cycle Unit 2
003	One 265 HP Diesel Engine Driven Emergency Fire Water Pump
004	One 1,528 HP Diesel Engine Driven Emergency Generator
005 - 009	Five 60 MW Twin Pac Simple Cycle Turbine sets (CT-4A – CT-8B)
010	Gasoline Dispensing Facilities

PROPOSED PROJECT

The proposed control logic and operating parameter changes to EU Nos. 001 and 002 will be implemented after completing the hardware replacements that were authorized through Permit No. 0490340-019-AC. EU No. 001 is scheduled to complete the hardware replacements during the next outage scheduled for the fourth quarter of 2018 and the hardware replacement for EU No. 002 will not be completed until 2019. The increase in heat input capacity cannot be realized by the hardware replacements alone. Both the hardware replacements and control logic and operating parameter changes will need to be implemented before either EU No. 001 or 002 can accommodate an increase in the design heat input capacity. Therefore, the applicant is requesting to increase the permitted heat input rates for natural gas and fuel oil firing to 2,235 million British thermal units per hour (MMBtu/hour) and 2,151 MMBtu/hour, respectively.

FACILITY REGULATORY CLASSIFICATION

- The facility is not a major source of hazardous air pollutants (HAP).
- The facility operates units subject to the acid rain provisions of the Clean Air Act.
- The facility is a Title V major source of air pollution in accordance with Chapter 62-213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.
- The facility operates units subject to the New Source Performance Standards (NSPS) of 40 Code of Federal Regulations (CFR) 60.
- The facility operates units subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63.

SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: The permitting authority for this project is the Office of Permitting and Compliance in the Division of Air Resource Management of the Department of Environmental Protection (Department). The Office of Permitting and Compliance mailing address is 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400.

2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Southwest District Office at: 13051 N Telecom Parkway, Suite 101, Temple Terrace, FL 33637-0926.

3. Appendices: The following Appendices are attached as a part of this permit: Appendix A (Citation Formats and Glossary of Common Terms); Appendix B (General Conditions); Appendix C (Common Conditions); Appendix D (Common Testing Requirements); Appendix E (Determination of Emission Rate Change); and, Appendix F (Student's t test Table).

4. Applicable Regulations, Forms and Application Procedures: Unless otherwise specified in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403, F.S.; and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296 and 62-297, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.

5. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

6. Modifications: The permittee shall notify the Compliance Authority upon commencement of construction. No new emissions unit shall be constructed and no existing emissions unit shall be modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]

7. Construction and Expiration: The expiration date shown on the first page of this permit provides time to complete the physical construction activities authorized by this permit, complete any necessary compliance testing, and obtain an operation permit. Notwithstanding this expiration date, all specific emissions limitations and operating requirements established by this permit shall remain in effect until the facility or emissions unit is permanently shut down. For good cause, the permittee may request that a permit be extended. Pursuant to Rule 62-4.080(3), F.A.C., such a request shall be submitted to the Permitting Authority in writing before the permit expires. [Rules 62-4.070(3) & (4), 62-4.080 & 62-210.300(1), F.A.C.]

8. Source Obligation:

   a. At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.

   b. At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by exceeding its projected actual emissions, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.

   [Rule 62-212.400(12), F.A.C.]

9. Application for Title V Permit: This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V air operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V air operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050 and Chapter 62-213, F.A.C.]

10. NSPS, Subpart KKKK Applicability Determination: The permittee shall submit an applicability analysis related to 40 CFR 60, Subpart KKKK – Standards of Performance for Stationary Combustion Turbines with the Title V Permit application required by **Section 2**, **Condition 9** above. A compliance schedule and methodology shall be submitted with the Title V permit application for the emissions unit(s) that have not completed the required testing. The report shall include information as detailed in **Section 3**, **Specific Condition No. 2.** [Rule 62-4.070, F.A.C.; and, Application No. 0490340-020-AC]

11. Actual Emissions Reporting: This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (12), F.A.C. for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., the permittee is subject to the following monitoring, reporting and recordkeeping provisions as described in **Section 3, Specific Condition No. 3**. [Rules 62-212.300(1)(e) and 62-210.370, F.A.C.; and, Application No. 0490340-020-AC]

A. Combined Cycle Combustion Turbine Units 1 and 2 (EU 001 and 002)

This section of the permit addresses the following emissions units.

EU No.	Emission Unit Description
001	Combined Cycle Unit 1
002	Combined Cycle Unit 2

Description: Combined Cycle Units 1 and 2 form a combined cycle system consisting of two combustion turbines (Siemens Westinghouse Model No. 501FD), two non-fired heat recovery steam generators (HRSG), two exhaust stacks and common steam turbine-electrical generator (STEG). The combined cycle combustion turbines are base loaded units, which fire natural gas as the primary fuel and may fire low sulfur distillate oil as a backup fuel.

Controls and Monitoring: To control carbon monoxide (CO) and volatile organic compound (VOC) emissions, each unit is equipped with a catalytic oxidation system. To control nitrogen oxides (NO_X) emissions, each unit is equipped with dry low-NO_X combustion technology and selective catalytic reduction (SCR) for firing natural gas, and wet injection for firing distillate oil. The water-to-fuel ratio is continuously monitored and recorded for each unit. Pursuant to the federal Acid Rain program, each unit monitors NO_X emissions with a continuous emissions monitoring system (CEMS).

{*Permitting Note*: *The emissions units are regulated under: Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD) of Air Quality and Best Available Control Technology (BACT); Subpart GG in 40 CFR 60, Standards of Performance for Stationary Gas Turbines; and Phase II of the federal Acid Rain program.}*

EQUIPMENT

1. Combined Cycle Units 1 & 2 Upgrades: The permittee is authorized to utilize control logic and operating parameter changes to the FD3 conditions for the combustion turbines designated as EU Nos. 001 and 002. [Application No. 0490340-020-AC]

TESTING REQIUIREMENTS

2. NSPS Subpart KKKK Applicability Determination: The permittee shall conduct tests in accordance with 40 CFR 60, Appendix C – Determination of Emission Rate Change (see Appendix E). The permittee shall submit the data with the Title V Permit application required by **Section 2, Specific Condition 9**. The submittal shall include a preliminary inference whether the short-term NO_X emission rates (in pounds per hour), while operating in the normal combined cycle mode and burning natural gas, after the change are greater than before the change with 95% confidence (Student's t test, see Appendix F) and an analysis regarding the applicability of 40 CFR 60, Subpart KKKK – Standards of Performance for Stationary Combustion Turbines. The tests shall be conducted using the installed NO_X CEMS with the units operated as if a manual test were being performed. Valid data using the averaging time which would be required if a manual emission test were being conducted shall be used. The number (n) of runs shall be between 20 and 29. If test data shows NO_X emissions for any combustion turbine increases, the permittee will become subject to 40 CFR 60, Subpart KKKK, and shall immediately begin complying with all of the provisions applicable to the unit. In such case, the applicable provisions of 40 CFR 60, Subpart KKKK will be incorporated into the Title V air operation permit during the next revision or renewal. [Rule 62-4.070, F.A.C.; and, Application No. 0490340-020-AC]

REPORTING & MONITORING REQUIREMENTS

3. Actual Emissions Reporting: This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (12), F.A.C. for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., the permittee is subject to the following monitoring, reporting and recordkeeping provisions.

a. The permittee shall monitor the emissions of any PSD pollutant that the Department identifies could increase as a result of the construction or modification and that is emitted by any emissions unit that could be affected; and, using the most reliable information available, calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of 10 years following resumption of regular operations after the change. Emissions shall be computed in accordance with the provisions in Rule 62-210.370, F.A.C., which are provided in Appendix C of this permit.

b. The permittee shall report to the Department within 60 days after the end of each calendar year during the 10-year period setting out the unit's annual emissions during the calendar year that preceded submission of the report. The report shall contain the following:

(1) The name, address and telephone number of the owner or operator of the major stationary source;

(2) The annual emissions calculations pursuant to the provisions of 62-210.370, F.A.C., which are provided in Appendix C of this permit;

(3) If the emissions differ from the preconstruction projection, an explanation as to why there is a difference; and

(4) Any other information that the owner or operator wishes to include in the report.

c. The information required to be documented and maintained pursuant to subparagraphs 62-212.300(1)(e)1 and 2, F.A.C., shall be submitted to the Department, which shall make it available for review to the general public.

d. For this project, the permittee estimated the following baseline actual emissions: 43.74 tons per year (TPY) of CO; 354.72 TPY of NO_X; 6.17 TPY of sulfur dioxide (SO_2); 38.32 TPY of volatile organic compounds (VOC); 79.78 TPY of particulate matter (PM); particulate matter with a mean particle diameter of 10 microns or less (PM_{10}); $PM_{2.5}$; and 1,468,329 TPY of carbon dioxide-equivalent.

e. The Department has identified SO_2, VOC, PM/PM_{10}/$PM_{2.5}$ and NO_X as the only PSD-pollutant that could reasonably increase as a result of this modification. For comparative purposes with baseline actual emissions, the permittee shall use the installed continuous emissions monitoring systems (CEMS) to determine and report the actual annual emissions of NO_X.

f. Heat input rates will vary depending upon gas turbine characteristics, ambient conditions, and alternate methods of operation. The permittee shall provide manufacturer's performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities with the Title V Permit application required by **Section 2**, **Condition 9**. Operating data may be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department.

{Permitting Note: Continuous compliance with the NO_X standard will be demonstrated by CEMS. Other required stack tests may be conducted during the next scheduled period in accordance with existing permit conditions.}

[Rules 62-212.300(1)(e) & 62-210.370, F.A.C.; and, Application No. 0490340-020-AC]

4. Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix D (Common Testing Requirements) of this permit. [Rule 62-297.310(10), F.A.C.]

5. Test Methods: Required tests shall be performed in accordance with the following reference methods, unless otherwise specified in **Section 3, Specific Condition 3**.

Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
5B	Method for Determining Particulate Matter Emissions (All PM is assumed to be PM_{10}.)

Method	Description of Method and Comments
8	Determination of Sulfuric Acid Mist and Sulfur Dioxide Emissions from Stationary Sources
18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography
19	Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxides Emission Rates (Optional F-factor method may be used to determine flow rate and gas analysis to calculate mass emissions in lieu of Methods 1-4.)
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines
25A	Method for Determining Gaseous Organic Concentrations (Flame Ionization)

The above methods are described in Appendix A of 40 CFR 60 and are adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Rules 62-204.800, F.A.C.; and Appendix A of 40 CFR 60]

PERMITS MODIFIED

{Permitting Note: All modifications of conditions in previous permits are revised as indicated. ~~Strikethrough~~ is used to denote the deletion of text. Double-underlines are used to denote the addition of text. All changes are emphasized with yellow highlight.}

The following revisions replace the referenced specific condition in **Permit No. PSD-FL-214A**:

6. *Section A. General Requirements, Specific Condition 1.*

~~Pursuant to Rule 62-212.200(56), F.A.C., Potential to Emit (PTE), the maximum heat input to each Westinghouse 501F (D) CT, or equivalent, at an ambient temperature of 32°F, shall neither exceed 1,962 MMBtu/hr while firing natural gas nor 1,888 MMBtu/hr while firing fuel oil.~~

Permitted Capacity. At an ambient temperature of 32º F, the maximum allowable heat input rate to each combustion turbine shall not exceed the rates stated below. Heat input rates will vary depending on gas turbine characteristics, ambient conditions, and alternate methods of operation.

Unit No.	MMBtu/hr Heat Input	Fuel Type
001 and 002	2,235	Natural Gas
001 and 002	2,151	Distillate Fuel Oil

[Rules 62-4.160(2), 62-210.200(PTE), 62-214.330 & 62-212.400(PSD), F.A.C.; ~~PSD-FL-214 and PSD-FL-214A~~ and, Application No. 0490340-020-AC]