Florida Department of Environmental Protection

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PERMITTEE

Lakeland Electric
3030 East Lake Parker Drive
Lakeland, FL 33805

Authorized Representative:
Michael Lunday, Plant Manager

Air Permit No. 1050004-047-AC
Permit Expires: December 31, 2018
Minor Air Construction Permit
C.D. McIntosh, Jr. Power Plant
Unit 3 Scrubber Nozzle Replacement

PROJECT

This is the final air construction permit, which authorizes the replacement of scrubber nozzles in the flue gas desulfurization system of McIntosh Unit 3. The proposed work will be conducted at the existing C.D. McIntosh, Jr. Power Plant, which is a power plant categorized under Standard Industrial Classification No. 4911. The existing facility is located in Polk County at 3030 East Lake Parker Drive in Lakeland, Florida. The UTM coordinates are Zone 17, 409.0 kilometers (km) East and 3,106.2 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.
2018.02.26 12:05:33 -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. Michael Lunday, Lakeland Electric: michael.lunday@lakelandelectric.com
Mr. Nedin Bahtic, P.E., Lakeland Electric: nedin.bahtic@lakelandelectric.com
Mr. Kennard F. Kosky, P.E., Golder Associates Inc.: kkosky@golder.com
DEP Southwest District Office: SWD_Air@dep.state.fl.us
DEP Southwest District Permitting Office: SWD_Air_Permitting@dep.state.fl.us
DEP Siting Office: SCO@dep.state.fl.us
Ms. Alisa Coe, Earth Justice: acoe@earthjustice.org
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 2018.02.26 13:37:30 -05'00'

FACILITY DESCRIPTION

This facility consists of: a 20 megawatt (MW) simple-cycle combustion turbine peaking unit (Unit 1); two fossil fuel fired electric generating units, 114.7 MW (Unit 2) and 364 MW (Unit 3); a 370 MW combined-cycle combustion turbine (Unit 5); and, three stationary diesel fuel-fired reciprocating internal combustion engines.

Simple cycle combustion turbine peaking Unit 1 is fired with natural gas with a maximum heat input rate of 330 million Btu per hour (MMBtu/hour) or No. 2 fuel oil with a maximum sulfur content of 0.5 percent by weight and a maximum heat input rate of 320 MMBtu/hr. Fossil fuel fired steam electric generator Unit 2 is fired with natural gas with a maximum heat input rate of 1,184.5 million Btu per hour (MMBtu/hour), No. 2 fuel oil or No. 6 fuel oil, both with a maximum heat input rate of 1,115 MMBtu/hr. Fossil fuel fired steam electric generator Unit 3 is fired with coal and natural gas, both with a maximum heat input rate of 3,640 MMBtu/hr. McIntosh Unit 5, a combined-cycle combustion turbine, is fired with natural gas with a maximum heat input rate of 2,407 MMBtu/hour or No. 2 or superior grade fuel oil with a maximum sulfur content of 0.05 percent by weight and a maximum heat input rate of 2,236 MMBtu/hr. The three diesel engines are: a 25-horsepower non-emergency diesel engine-driven sump pump manufactured by Lister and used at the coal tunnel; a 300-horsepower diesel engine-driven emergency fire water pump designated as UPS Diesel No. 32; and, a 500-horsepower diesel engine-driven black-start generator used to start up the combustion turbines.

The existing facility consists of the following emissions units (EU).

EU No.	Emission Unit Description
004	Gas Turbine Peaking Unit 1
005	McIntosh Unit 2 – Fossil Fuel Fired Steam Generator
006	McIntosh Unit 3 – Fossil Fuel Fired Steam Generator
008	Diesel drive coal tunnel sump engine
010	Fire water UPS diesel No. 32
011	CT startup diesel
028	McIntosh Unit 5 – 370 MW Combined Cycle Stationary Combustion Turbine

PROPOSED PROJECT

Lakeland Electric applied for an air construction permit to replace nozzles on the flue gas desulfurization (FGD) system for Unit 3. Lakeland Electric proposed to replace the existing single ramp bottom nozzle with Lechler's TwinAbsorb®EH nozzles (P/N 300.501). These new nozzles have a self-draining, non-clogging design and will produce finer droplets, increased secondary atomization and improved mass transfer. The new nozzles would modify the spray patter which would improve Unit 3's sulfur dioxide (SO_2) removal efficiency.

This project will modify the following emissions units.

EU No.	Emission Unit Description
006	McIntosh Unit 3 – Fossil Fuel Fired Steam Generator

FACILITY REGULATORY CLASSIFICATION

- The facility is a major source of hazardous air pollutants (HAP).
- The facility operates units subject to the acid rain provisions of the Clean Air Act (CAA).
- 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(PSD), F.A.C.
- The facility does operate units subject to the New Source Performance Standards (NSPS) of Title 40 Part 60 of the Code of Federal Regulations (40 CFR 60).
- The facility does operate units subject to the National Emissions Standards of 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 DEP Southwest District Office at: 13051 N Telecom Parkway, Suite 101, Temple Terrace, Florida 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); and Appendix D (Common Testing Requirements).

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. 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.]

A. McIntosh Unit 3 – Fossil Fuel Fired Steam Generator (EU No. 006)

This section of the permit addresses the following emissions units.

EU No.	Emission Unit Description
006	McIntosh Unit 3 – Fossil Fuel Fired Steam Generator

McIntosh Unit 3 is a nominal 364 megawatt (electric) dry bottom wall-fired fossil fuel fired steam generator. The unit is fired on coal, residual oil and natural gas. The maximum heat input rate is 3,640 million Btu per hour. Unit 3 is equipped with a flue gas desulfurization (FGD) system to control sulfur dioxide (SO_2) emissions. Dibasic acid or other organic acids may be used in the FGD system to enhance SO_2 removal efficiency. An electrostatic precipitator is used to control particulate matter (PM) emissions. Low NO_X burners, selective catalytic reduction and an overfire air system are used to control nitrogen oxide (NO_X) emissions. SO_2, NO_X, PM, carbon dioxide, carbon monoxide and mercury emissions are monitored using continuous emissions monitoring systems. McIntosh Unit 3 began commercial service in September 1982. The FGD is exempted from CAM because the Acid Rain SO_2 continuous emissions monitor will be used to demonstrate continuous compliance. The stack parameters are: height, 250 feet: diameter, 18 feet; exit temperature, 125 degrees F; and, actual stack gas flow rate, 1,260,536 acfm.

{Permitting note: This emissions unit is regulated under Acid Rain, Phase II; 40 CFR 60, Subpart A, General Provisions, and 40 CFR 60, Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators, adopted by reference in Rules 62-204.800(8)(d) and 62-204.800(8)(b)1., F.A.C., respectively; 40 CFR 63, Subpart A, General Provisions, and 40 CFR 63, Subpart UUUUU, Coal and Oil-Fired Electric Utility Steam Generating Units, adopted by reference in Rules 62-204.800(11)(d)1. and 62-204.800(11)(b)102., F.A.C., respectively; Rule 62-212.400(6), F.A.C., Prevention of Significant Deterioration (PSD); and Rule 62-212.400(6), F.A.C., Best Available Control Technology (BACT) Determination.}

EQUIPMENT

1. Unit 3 Scrubber Nozzles: The permittee is authorized to install Lechler's TwinAbsorb®EH nozzles (P/N 300.501), or equivalent nozzles, as a replacement for the existing single ramp bottom nozzle in the flue gas desulfurization system of this unit. [Application No. 1050004-047-AC]

CONTROL TECHNOLOGY

{Permitting Note: The FGD system must be operated in a manner consistent with safety and good air pollution control practices for minimizing emissions, pursuant to 40 CFR 63.10000(b)}

2. Circumvention: The permittee shall not circumvent any control device, or allow the emission of air pollutants without the applicable air pollution control device operating properly. [Rule 62-210.650, F.A.C.]

RECORDS AND REPORTS

3. Operational Data: The permittee shall retain all documentation onsite which is necessary for the proper installation, operation and maintenance of the scrubber nozzles authorized by this permit. [Rule 62-4.070(3), F.A.C.]