FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
BOB MARTINEZ CENTER
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

RICK SCOTT
GOVERNOR

CARLOS LOPEZ-CANTERA
LT. GOVERNOR

HERSCHEL T. VINYARD JR.
SECRETARY

PERMITTEE

Lakeland Electric
501 East Lemon Street
Lakeland, Florida 33801-5079

Authorized Representative:
Farzie Shelton, Associate General Manager
of Technical Support

Air Permit No. 1050004-038-AC
Permit Expires: December 31, 2015
Minor Air Construction Permit
C.D. McIntosh, Jr. Power Plant
FGD Upgrades for McIntosh Unit 3

PROJECT

This is the final air construction permit, which authorizes the upgrade of the existing wet flue gas desulfurization (FGD) system on fossil fuel-fired steam generator Unit 3, emission unit (EU) 006 at the C. D. McIntosh Power Plant, to improve sulfur dioxide (SO_2) emissions reduction efficiency as required by the applicable Mercury and Air Toxics (MATS) compliance emission standards in 40 Code of Federal Regulations Part 63, Subpart UUUUU - National Emission Standards for Hazardous Air Pollutants (NESHAP): Coal- and Oil-Fired Electric Utility Steam Generating Units. This NESHAP comes into effect on April 16, 2015.

The C.D. McIntosh, Jr. Power Plant is an existing electrical generation plant categorized under Standard Industrial Classification Number (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 3106.2 km North. Latitude is: 28° 04' 50" North; and, Longitude is: 81° 55' 32" West.

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

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for: Jeffery F. Koerner, Program Administrator
Office of Permitting and Compliance
Division of Air Resource Management

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CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Air 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.

Ms. Farzie Shelton, LE: farzie.shelton@lakelandelectric.com
Mr. Ronald Kremann, LE: ron.kremann@lakelandelectric.com
Mr. Kennard F. Kosky, P.E., Golder: Ken_Kosky@golder.com
Ms. Kelley Boatwright, DEP SWD: Kelley.M.Boatwright@dep.state.fl.us
Mr. Justin Green, DEP Siting Office: justin.b.green@dep.state.fl.us
Ms. Alisa Coe, Earth Justice: acoe@earthjustice.org
Ms. Heather Ceron, US EPA Region 4: ceron.heather@epa.gov
Ms. Lorinda Shepherd, EPA Region 4: shephard.lorinda@epa.gov
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.

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FACILITY DESCRIPTION

The existing facility consists of three fossil fuel fired steam generators, three diesel powered engines, and two gas turbines. Fossil fuel fired steam generator Unit 1 is fired with natural gas, No. 6 fuel oil or on-specification used oil generated by the City of Lakeland. Fossil fuel fired steam generator Unit 2 is fired with natural gas, propane, No. 2 fuel oil or No. 6 fuel oil. Fossil fuel fired steam generator Unit 3 is fired with coal, fuel oil and natural gas. Gas Turbine Peaking Unit 1 is primarily fired with natural gas or No. 2 fuel oil with a maximum sulfur content of 0.5 percent by weight. McIntosh Unit 5, a 370 megawatts (MW) combined cycle stationary combustion turbine, is fired with natural gas, or No. 2 or superior grade fuel oil with a maximum sulfur content of 0.05 percent by weight. The three diesel engines are: a 25 horsepower non-emergency Lister Coal Tunnel Sump diesel engine; a 300 horsepower emergency Fire Water UPS Diesel No. 32 engine; and a 500 horsepower black-start CT Startup Diesel engine.

The existing facility consists of the following regulated emissions units:

E.U. ID No.	Emission Unit Description
001	McIntosh Unit 1 - Fossil Fuel Fired Steam Generator
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

Also included at the facility are miscellaneous unregulated/insignificant emissions units and/or activities.

PROPOSED PROJECT

On October 23, 2014, The applicant submitted an application to the Department requesting authorization to upgrade the existing wet flue gas desulfurization (FGD) system for the McIntosh fossil-fuel steam generator Unit 3 (EU 006) to improve sulfur dioxide (SO_2) emissions reduction efficiency as required by NESHAP 40 CFR 63, Subpart UUUUU - National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units (MATS). Subpart UUUUU has a compliance date for existing units of April 16, 2015.

The applicant has determined that the FGD upgrades will increase the SO_2 removal efficiency to more than 95 percent in order to achieve the SO_2 emissions limit required by MATS. The scrubber upgrades will also help the permittee met the particulate matter (PM) emissions limit in MATS.

This project affects the following emissions unit:

Facility ID No. 1050004

E.U. 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.

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- The facility is a Title V major source of air pollution in accordance with Chapter 62-213, Florida Administrative Code (F.A.C).
- The facility is a Prevention of Significant Deterioration (PSD) major stationary source of air pollution in accordance with Rule 62-212.400, F.A.C.
- The facility operates units subject to the New Source Performance Standards (NSPS) of Title 40 Code of Federal Regulations (CFR) Part 60.
- The facility operates units subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR Part 63.
- The facility operates units subject to NESHAP: Coal- and Oil-Fired Electric Utility Steam Generating Units. This emissions unit shall comply with Appendix 40 CFR 63 Subpart UUUUU.
- The facility is subject to the Federal Clean Air Interstate Rule (CAIR) as implemented by FDEP in Rule 62-296.470, F.A.C.
- Unit 3 was originally certified pursuant to the power plant siting provisions of Chapter 62-17, F.A.C.

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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 Department's Southwest District at: 13051 N. Telecom Parkway, Temple Terrace, Florida 33637-0926, Telephone: (813) 632-7600, Fax: (813) 632-7665.

3. Appendices: The following Appendices are attached as a part of this permit:
   a. Appendix A Citation Formats and Glossary of Common Terms;
   b. Appendix B General Conditions;
   c. Appendix C Common Conditions;
   d. Appendix D Common Testing Requirements; and
   e. Appendix E 40 CFR 63, Subpart UUUUU - National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units.

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 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(4), 62-4.080 & 62-210.300(1), F.A.C.]

8. Existing Permits: This permit does not authorize any new construction or increases in allowable operating limitations or emissions limits. This permit supplements all existing valid air permits. Except as specified in this permit, the permittee shall continue to comply with all applicable conditions from valid air construction and operation permits. [Rule 62-4.070(3), F.A.C.]

9. Application for Title V Permit: This permit authorizes construction of the permitted emissions unit 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 air 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, 62-4.220 and Chapter 62-213, F.A.C.]

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A. EU 006: McIntosh Unit 3 - Fossil Fuel Fired Steam Generator

This section of the permit addresses the following emissions unit:

E.U. 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 (MMBtu/hr). Unit 3 is equipped with: an electrostatic precipitator (ESP) to control PM emissions; a FGD to control SO_2 emissions; and low NO_X burners (LNB) and an over fire air (OFA) system to control nitrogen oxide (NO_X) emissions. McIntosh Unit 3 began commercial service in September, 1982. The stack parameters are: a height of 250 feet with a diameter of 18 feet; a gas exit temperature of 125 degrees Fahrenheit (°F); and an actual stack gas flow rate of 1,260,536 actual cubic feet per minute (acfm). This emissions unit is regulated under Acid Rain and CAIR programs. This emissions unit is subject to the MATS which comes into effect on April 16, 2015.

Petroleum coke shall not be fired in McIntosh Unit 3. [Permit No. 1050004-032-AC and Florida Regional Haze State Implementation Plan (approved on September 30, 2013)]

The existing wet FGD with forced oxidation system has two B&W absorber tower modules that can each process 50 percent of the flue gas flow or can bypass the flue gas flow. It also has a flue gas reheat system that reheats the processed flue gas to a certain temperature in order to keep the stack liner dry. Each tower has: An absorption tray, three levels of slurry spray nozzles, primary and secondary moisture separators with spray headers for cleaning the moisture separators, forced oxidation system with blowers, lances and agitators and three absorber recirculation pumps each with a dedicated spray header. Two pumps in service and one spare pump.

{Permitting note(s): The emissions unit is regulated under Acid Rain, Phase II; Rule 62-296.405(2), F.A.C., Fossil Fuel Steam Generators with More than 250 million Btu per Hour Heat Input; and NSPS - 40 CFR 60, Subpart D, Standards of Performance for Fossil-Fuel Fired Steam Generators for Which Construction is Commenced After August 17, 1971, adopted and incorporated by reference in Rule 62-204.800(8)(b)1., F.A.C.; Rule 212.400(6), F.A.C., Prevention of Significant Deterioration (PSD); Rule 62-212.400(6), F.A.C., Best Available Control Technology (BACT) Determination; Compliance Assurance Monitoring (CAM), adopted and incorporated by reference in Rule 62-204.800, F.A.C.; and, Rule 62-296.470, F.A.C., Clean Air Interstate Rule (CAIR).}

EQUIPMENT

1. Wet Flue Gas Desulfurization (FGD) System Upgrade: The permittee is authorized to upgrade the existing wet FGD system for the McIntosh fossil-fuel steam generator Unit 3 (EU 006), in order to comply with the SO_2 and PM emission standards in NESHAP 40 CFR 63, Subpart UUUUU (MATS). The compliance date for Subpart UUUUU is April 16, 2015

   The following modifications are authorized:

   - Modify the tray bottoms in the existing absorber tray;
   - Add new second level absorber tray;
   - Replace mist eliminator trays;
   - Add nozzles per layer (optional);
   - Change nozzle design (optional); and
   - Increase absorber pump speed (optional).

   [Application No. 1050004-038-AC and 40 CFR 63, Subpart UUUUU]

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NESHAP SUBPART UUUUU (MATS) EMISSION LIMITS

2. Emission Limits: McIntosh emissions Unit 3 is subject to the MATS rules beginning April 16, 2015, which has the following applicable emissions standards:

   a. *Filterable Particulate Matter (PM)*. Emissions of PM shall not exceed either 0.030 pounds per million British thermal units (lb/MMBtu) or 0.30 pounds per megawatt-hour (lb/MWh). In lieu of the filterable PM emission limit, the permittee may select to meet a total non-Hg HAP metals emission limit of either 5.0×10^{-5} lb/MMBtu or 0.50 pounds per gigawatt-hour (lb/GWH). Finally, in lieu of ether filterable PM or total non-Hg HAP metals emission limits the permittee my meet the following individual HAP metal emission limits:

      (1) Antimony (Sb) - 0.80 pounds per terra Btu (lb/TBtu) or 8.0×10^{-3} lb/GWh.

      (2) Arsenic (As) - 1.1 lb/TBtu or 0.020 lb/GWh.

      (3) Beryllium (Be) - 0.20 lb/TBtu or 2.0 x 10-3 lb/GWh.

      (4) Cadmium (Cd) - 0.30 lb/TBtu or 3.0 x 10-3 lb/GWh.

      (5) Chromium (Cr) - 2.8 lb/TBtu or 0.030 lb/GWh.

      (6) Cobalt (Co) - 0.80 lb/TBtu or 8.0 x 10-3 lb/GWh.

      (7) Lead (Pb) - 1.2 lb/TBtu or 0.020 lb/GWh.

      (8) Manganese (Mn) - 4.0 lb/TBtu or 0.050 lb/GWh.

      (9) Nickel (Ni) - 3.5 lb/TBtu or 0.040 lb/GWh.

      (10) Selenium (Se) - 5.0 lb/TBtu or 0.060 lb/GWh.

   b. *Hydrogen Chloride (HCl)*. Emissions of HCl shall not exceed either 2.0×10^{-3} lb/MMBtu or 0.020 lb/MWh. In lieu of HCl emission limit, the permittee may select to meet a SO_2 emission limit of either 0.20 lb/MMBtu or 1.5 lb/GWH.

   c. *Mercury (Hg)*. Emissions of Hg shall not exceed either 1.2 lb/TBtu or 0.013 lb/GWh.

   The permittee (Lakeland Electric) has elected to meet the SO_2 emission limit of 0.20 lb/MMBtu on a 30 day rolling average with compliance demonstrated by a SO_2 continuous emission monitoring system (CEMS). The permittee has also elected to meet the PM emission limit of 0.030 lb/MMBtu with compliance shown by a PM CEMS, a continuous parametric monitoring system (CPMS) or quarterly stack testing.

   {Permitting Note: Power output is on a gross basis for compliance with applicable emission limits. You may not use the alternate SO_2 emission limit in lieu of the HCl limit if your Electric Utility Steam Generating Unit does not have some form of FGD system and SO_2 CEMS installed.}

   [Application No. 1050004-038-AC and 40 CFR 63, Subpart UUUUU]

MATS COMPLIANCE

3. Testing, Monitoring, Recordkeeping and Reporting Requirements: Compliance with the emissions limits given in **Specific Condition 2** of this subsection shall be demonstrated pursuant to one of the available options specified in 40 CFR 63, Subpart UUUUU (see Appendix E, 40 CFR 63, Subpart UUUUU - National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units). The permittee shall also comply with the testing, monitoring, recordkeeping and reporting requirements specified Subpart UUUUU, as applicable. [40 CFR 63 Subpart UUUUU]

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