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

Duke Energy Florida (DEF), Inc.
299 First Avenue, North
St. Petersburg, Florida 33701

Authorized Representative:
Robby Odom, Station Manager

Air Permit No. 0170004-044-AC
Crystal River Energy Complex Units 1 and 2
Standard Industrial Classification Code No. 4911
Expiration Date: December 31, 2016
Hydrated Lime/Activated Carbon Injection Systems
Citrus County

PROJECT

Duke Energy operates the existing Crystal River Energy Complex, located in Citrus County at 15760 West Power Line Street in Crystal River, Florida. The UTM coordinates are Zone 17, 334.3 kilometers (km) East and 3204.5 km North.

This is the final air construction permit, which authorizes improvement and permanent operation of previously installed and tested hydrated lime and activated carbon injection systems upstream of the electrostatic precipitators serving Units 1 and 2.

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).

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 Final Air Permit package (including the Final Determination and Final Permit) 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.

Robby Odom, Station Manager, DEF: robby.odom@duke-energy.com
Scott Osbourn, P.E., Golder Associates, Inc: sosbourn@golder.com
Kelley Boatwright, Administrator, DEP SWD: kelley.m.boatwright@dep.state.fl.us
Alisa Coe, Esq., Earth Justice: acoe@earthjustice.org
Heather Ceron, US EPA Region 4: ceron.heather@epa.gov
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 facility consists of the following emissions units (EU).

EU No.	Brief Description
Regulated Emission Units	
001	Fossil Fuel Steam Generator, Unit 1
002	Fossil Fuel Steam Generator, Unit 2
003	Fossil Fuel Steam Generator, Unit 5
004	Fossil Fuel Steam Generator, Unit 4
006	Fly ash transfer (Source 1) from Unit 1
008	Fly ash storage silo (Source 3) for Units 1 and 2
009	Fly ash transfer (Source 4) from Unit 2
010	Fly ash transfer (Source 5) from Unit 2
012	Relocatable diesel generators
013	Cooling towers for Units 1, 2, and 3
014	Bottom ash storage silo for Units 1 and 2
015	Cooling towers for Units 4 and 5
016	Material handling activities for coal-fired steam units
020	Portable Cooling Towers for Units 1 and 2
023	Limestone and Gypsum Material Handling Activities
028	3500 kW diesel generator associated with Unit 3
029	Diesel fire pump, south yard
030	Emergency generator (meteorological weather station)
033	Portable Concrete Batch Plant
035	Hydrated Lime Injection System (New)
036	Activated Carbon Injection System (New)
Unregulated Emissions Units and/or Activities	
017	Fuel and lube oil tanks and vents
018	Sewage treatment, water treatment, lime storage
019	Two 3500 kW diesel generators associated with Unit 3

PROPOSED PROJECT

This project addresses coal-fired Units 1 and 2. The project will authorize improvement and permanent operation of previously installed and tested hydrated lime and activated carbon injection (HLI and ACI) systems upstream of the electrostatic precipitators (ESPs) serving Units 1 and 2. The HLI and ACI reduce hydrogen chloride (HCl) and mercury (Hg) emissions. The systems will operate in conjunction with use of Western Bituminous (WB) coal with inherently less sulfur, Hg, chlorine and nitrogen oxides (NO_X) emitting characteristics. The HLI and ACI systems, use of WB coal and ongoing improvements to the ESPs will reduce air pollutant emissions.

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FACILITY REGULATORY CLASSIFICATION

- The facility is a "Major" or "Title V Source" of air pollution as defined in Rule 62-210.200, F.A.C. and in accordance with Chapter 62-213, F.A.C.
- The facility is a "Major Stationary Source" as defined in Rule 62-210.200, F.A.C. and in accordance with Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD).
- 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 subject to the Clean Air Interstate Rule (CAIR) set forth in Rule 62-296.470, F.A.C.
- The facility operates units subject to the Best Available Retrofit Technology (BART) set forth in Rule 62-296.340, F.A.C.
- The facility operates units subject to the Standards of Performance for New Stationary Sources (NSPS) pursuant to 40 CFR Part 60.

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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 DEP Southwest District Office at: 13051 N. Telecom Parkway 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: 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.
[Rule 62-210.300(1) F.A.C.]; Rule 62-212.300(1)(a), F.A.C.]

7. Future Monitoring, Reporting and Recordkeeping of Projected Actual Emissions: This construction permit avoids the requirements of subsections 62-212.400(4) through (12), F.A.C., for certain pollutants based in whole or in part on projected actual emissions calculations. In accordance with Rule 62-212.300(1)(e), F.A.C., monitoring, reporting and recordkeeping provisions shall apply to emissions of such pollutants as described in **Section 3, Specific Condition 13**.

8. Title V Permit: This permit authorizes construction activities on the permitted emissions units and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after completing the work on both units and 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.
[Rules 62-4.030, 62-4.050, 62-4.220 and Chapter 62-213.420, F.A.C.]

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EMISSION UNITS 001, 002, 035 AND 036

This section of the permit addresses the following emissions units.

EU No.	Emission Unit Description
001	Fossil Fuel Steam Generator, Unit 1 - 3,750 MMBtu/hour
002	Fossil Fuel Steam Generator, Unit 2 - 4,795 MMBtu/hour
035	Hydrated Lime Injection System (New)
036	Activated Carbon Injection System (New)

EU-001 is a pulverized coal, dry bottom, tangentially-fired boiler, It is rated at 440.5 megawatt (MW). Emissions are exhausted through a 499 feet stack with a 15 feet exit diameter, 291° F exit temperature and 1,407,923 acfm actual volumetric flow rate.

EU-002 is a pulverized coal, dry bottom, tangentially-fired boiler. It is rated at 523.8 MW. Emissions are exhausted through a 502 feet stack with a 16 feet exit diameter, 300° F exit temperature and 1,931,324 acfm actual volumetric flow rate.

Particulate matter (PM) emissions from both EU-001 and EU-002 are controlled by electrostatic precipitators (ESPs) manufactured by Buell Manufacturing Company, Inc.

Fuels include bituminous coal or a mixture of bituminous coal and bituminous coal briquettes. Distillate fuel oil is used during startup and used oil is used subject to certain conditions.

[Rules 62-4.160(2), 62-204.800, 62-210.200(PTE), 62-214.330 & 62-296.405, F.A.C.; and, Permit Nos. 0170004-003-AC and 0170004-006-AC]

COMPLIANCE WITH EXISTING PERMIT CONDITIONS

1. Existing Permits: This permit supplements all existing valid permits. The permittee shall continue to comply with all applicable conditions from valid air construction and Title V operation permits. Except as provided in Specific Condition 8, no additional emission limits, stack testing or continuous emission monitoring requirements are established by this permit on EU-001 and EU-002.
   [Application No. 0170004-044-AC; Rule 62-4.070(3), F.A.C.]

EQUIPMENT

2. Hydrated Lime Injection (HLI) System: The permittee is authorized to make improvements to and permanently operate the previously installed pneumatic conveying systems, sorbent silos, fabric filters, injection system, rotary valves and blowers.
   [Application No. 0170004-044-AC; Rule 62-4.070(3), F.A.C.; Permit No. 0170004-040-AC]

3. Activated Carbon Injection (ACI) System: The permittee is authorized to make improvements to and permanently operate the previously installed pneumatic conveying system, sorbent silos, fabric filters, injection system, rotary valves and blowers.
   [Application No. 0170004-044-AC; Rule 62-4.070(3), F.A.C.; Permit No. 0170004-040-AC]

4. Electrostatic Precipitators (ESPs) and Ash Handling Equipment: The permittee is authorized and required to make changes and improvements to the Units 1 and 2 ESPs and ash handling systems to facilitate the use of lower sulfur coal blends and remove dry HLI/ACI reaction products while complying with applicable particulate matter regulations. [Application 0170004-044-AC; Permit Nos. 0170004-040-AC and 0170004-017-AC; Rule 62-4.070(3), F.A.C.]

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PERFORMANCE RESTRICTIONS

5. Hydrated Lime Injection Rate: The maximum hydrated lime injection rate for Units 1 and 2 shall not exceed 1,500 lb/hr/unit. [Application 0170004-044-AC; Permit 0170004-040-AC]

6. Activated Carbon Injection Rate: The maximum activated carbon injection rate for Units 1 and 2 shall not exceed 400 lb/hr/unit. [Application 0170004-044-AC; Permit 0170004-040-AC]

7. Sorbent Storage Particulate Matter (PM) Control: The following conditions apply to each sorbent storage silo dust collection system:
   a. Loading operations shall not exceed six hours/day/silo.
   b. The flow through the hydrated lime and activated carbon storage silo dust collection systems shall not exceed 2,000 standard cubic feet per minute during loading operations.
   c. Each dust collector shall be designed for a dust outlet specification of 0.015 grains per dry standard cubic foot (gr/dscf).

   [Application 0170004-044-AC; Permit No. 0170004-040-AC]

EMISSION STANDARDS

8. Visible Emissions: As determined by EPA Method 9, visible emissions from each dust collector exhaust shall not exceed 5% opacity based on a 6-minute average. This visible emissions limit is a work practice standard to prevent circumvention of the control device and ensure proper operation. If visible emissions in excess of this standard occur, the permittee shall investigate the cause and take corrective action to regain operation below the standard (e.g., cause: bag failure / corrective action: replaced bags). Visible emissions in excess of the opacity standard are not necessarily a violation of this permit; however, failure to investigate excess emissions and take corrective action to minimize emissions may be considered circumvention of a control device. [Application 0170004-044-AC; Permit No. 0170004-040-AC]

TESTING AND MONITORING REQUIREMENTS

9. Initial VE Compliance Tests: The dust collectors shall be tested to demonstrate initial compliance with the emissions standards for opacity given in **Specific Condition 8** of this subsection. The initial tests shall be conducted within 60 days after achieving permitted capacity, but not later than 180 days after initial operation of the emission unit. [Rules 62-4.070(3) and 62-297.310(7)(a)1, F.A.C.]

10. Annual VE Compliance Tests: During each federal fiscal year (October 1st to September 30th), the dust collectors shall be tested to demonstrate initial compliance with the emissions standards for opacity given in **Specific Condition 8** of this subsection. [Rule 62-297.310(7)(a)4, F.A.C.]

11. Test Requirements: The permittee shall notify the Compliance Authority in writing at least 15 days prior to any required tests. Tests shall be conducted in accordance with the applicable requirements specified in Appendix D (Common Testing Requirements) of this permit.

12. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
9	Visual Determination of the Opacity of Emissions from Stationary Sources

The above method is described in Appendix A of 40 CFR 60 which is included as Appendix GP of this permit and is 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 and 62-297.100, F.A.C.; and Appendix A of 40 CFR 60]

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MONITORING REQUIREMENTS

13. Future Monitoring, Reporting and Recordkeeping of Projected Actual Emissions: This construction permit avoids the requirements of subsections 62-212.400(4) through (12), F.A.C., for certain pollutants based in whole or in part on projected actual emissions calculations. In accordance with Rule 62-212.300(1)(e), F.A.C., the following monitoring, reporting and recordkeeping provisions shall apply to emissions of such pollutants for a period of 5 years (2014 through 2018) following resumption of regular operations after the change:

    a. The permittee shall monitor the emissions of the filterable portion of particulate matter (PM) from Unit 1 and 2, calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis. Emissions shall be computed in accordance with Rule 62-210.370, F.A.C.

    b. The permittee shall report to the Department within 60 days after the end of each year during which records must be generated under subparagraph 62-212.300(1)(e)1., F.A.C., 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 as calculated pursuant to subparagraph 62-212.300(1)(e)1., F.A.C.;

        (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.

    [Rules 62-4.070 and 62-212.300(1)(e), F.A.C.]

    {Permitting Note: Refer to the Technical Evaluation issued April 25, 2014 that contains baseline actual emissions, past production rates, projected annual emissions, and projected future production when performing the calculations described in paragraph b.(2) above.}

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