FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
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PERMITTEE

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

Authorized Representative:
Robby Odom, Plant Manager

Air Permit No. 0170004-040-AC
Crystal River Energy Complex Units 1 and 2
Standard Industrial Classification Code No. 4911
Expiration Date: December 31, 2013

Coal Blend Testing/Post Combustion Controls
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 a test burn program for Units 1 and 2 at the Crystal River Energy Complex. The test burn program will involve the temporary installation, testing, and operation of new coal blends, equipment, and process. The coal blending of Powder River Basin (PRB) with Western Bituminous (WB) will be done offsite to reduce fugitive emissions impacts. As part of the test burn program, Units 1 and 2 will have additional temporary post combustion controls such as hydrated lime injection and activated carbon injection upstream to the electrostatic precipitator. This authorization is only for a test lasting no more than ninety days in duration to determine whether this fuel blend along with post combustion controls reduces overall emissions impact.

This final permit is organized into the following sections: Section 1 (General Information); Section 2 (Administrative Requirements); Section 3 (Emissions Unit Specific Conditions).

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

for Jeffery F. Koerner, 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 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, Plant Manager, DEF: robby.odom@pgnmail.com
Jamie Hunter, Lead Environmental Specialist, DEF: John.Hunter@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
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Barbara Friday, DEP OPC: barbara.friday@dep.state.fl.us
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.

FACILITY DESCRIPTION

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

E.U. No.	Brief Description
Regulated Emission Units	
001	Fossil Fuel Steam Generator, Unit 1
002	Fossil Fuel Steam Generator, Unit 2
004	Fossil Fuel Steam Generator, Unit 4
003	Fossil Fuel Steam Generator, Unit 5
006	Fly ash transfer (Source 1) from FFSG Unit 1
008	Fly ash storage silo (Source 3) for FFSG Units 1 and 2
009	Fly ash transfer (Source 4) from FFSG Unit 2
010	Fly ash transfer (Source 5) from FFSG Unit 2
014	Bottom ash storage silo for FFSG Units 1 and 2
012	Relocatable diesel generators
013	Cooling towers for FFSG Units 1, 2, and 3
015	Cooling towers for FFSG Units 4 and 5
016	Material handling activities for coal-fired steam units
020	Portable Cooling Towers for Fossil Fuel Steam Generators Units 1 and 2
028	3500 kW diesel generator associated with Unit 3
029	Diesel fire pump, south yard
030	Emergency generator (meteorological weather station)
Unregulated Emissions Units and/or Activities	
017	Fuel and lube oil tanks and vents
018	Sewage treatment, water treatment, lime storage
019	Two 3,500 kW diesel generators associated with Unit 3

PROPOSED PROJECT

This project addresses coal-fired Units 1 and 2. The project will authorize a test burn program of coal blends up to 40 percent Powder River Basin (PRB) coal with 60 percent West Bituminous (WB). Worst case emission scenario would be firing WB coal only. Unit 1 and 2 will have additional temporary post combustion controls such as hydrated lime injection and activated carbon injection upstream to the electrostatic precipitator. The test burn program is being initiated in an attempt to reduce overall emissions such as particulate matter, acid gases, and mercury to determine the potential for units 1 and 2 to comply with the MATs during the 2015 through 2020 timeframe.

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 is subject to the Clean Air Interstate Rule (CAIR) set forth in Rule 62-296.470, Florida Administrative Code (F.A.C.)
- The facility operates units subject to the Standards of Performance for New Stationary Sources (NSPS) pursuant to 40 CFR Part 60.

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); and Appendix C (Common Conditions).

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. Unconfined Emissions of Particulate Matter: No person shall cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any activity, including vehicular movement; transportation of materials; construction, alteration, demolition or wrecking; or industrially related activities such as loading, unloading, storing or handling; without taking reasonable precautions to prevent such emissions. Any permit issued to a facility with emissions of unconfined particulate matter shall specify the reasonable precautions to be taken by that facility to control the emissions of unconfined particulate matter. Reasonable precautions include the following: a) Paving and maintenance of roads, parking areas and yards; b) Application of water or chemicals to control emissions from such activities as demolition of buildings, grading roads, construction, and land clearing; c) Application of asphalt, water, oil, chemicals or other dust suppressants to unpaved roads, yards, open stock piles and similar activities; d) Removal of particulate matter from roads and other paved areas under the control of the owner or operator of the facility to prevent re-entrainment, and from buildings or work areas to prevent particulate from becoming airborne; e) Landscaping or planting of vegetation; f) Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter; g) Confining abrasive blasting where possible; and, h.) Enclosure or covering of conveyor systems. In determining what constitutes reasonable precautions for a particular facility, the Department shall consider the cost of the control technique or work practice, the environmental impacts of the technique or practice, and the degree of reduction of emissions expected from a particular technique or practice. [Rule 62-296.320(4)(c), F.A.C.]

8. General Visible Emissions (VE) Standard:

a. No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity, the density of which is equal to or greater than that designated as Number 1 on the Ringelmann Chart (20 percent opacity).

b. Notwithstanding subparagraph 62-296.320(4)(b)1., F.A.C., above, the owner or operator of an emissions unit subject to the general visible emission standard may request the Department to establish a higher visible emissions standard for that emissions unit. The owner or operator may request that a visible emissions standard be established at that level at which the emissions unit will be able, as indicated by compliance tests, to meet the opacity standard at all times during which the emissions unit is meeting the applicable particulate matter standard. The Department shall establish such a standard, through the permitting process, if it finds that:

(i.) The emissions unit was in compliance with the applicable particulate emission standard while a compliance test was being conducted but failed to comply with the general visible emissions standard during the test;

(ii.) The emissions unit and associated air pollution control equipment were operated and maintained in a manner to minimize the opacity emissions during the compliance test; and

(iii.) The emissions unit and associated air pollution control equipment were incapable of being adjusted or operated in such a manner as to meet the opacity standard.

(iv.) If the presence of uncombined water is the only reason for failure to meet visible emission standards given in this rule, such failure shall not be a violation of this rule.

[Rule 62-296.320(4)(b) F.A.C, General Visible Emissions Standard]

9. Objectionable Odors Prohibited: No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor.
[Rule 62-296.320(2), F.A.C.; Rule 62-4.070, F.A.C. Reasonable Assurance]

{Permitting Note: An objectionable odor is defined in Rule 62-210.200(Definitions), F.A.C., as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance.}

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

EMISSION UNITS 1 AND 2

This section of the permit addresses the following emissions units.

ID 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

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. [Application No. 0170004-040-AC; Rule 62-4.070(3), F.A.C.]

TEMPORARY EQUIPMENT

2. Hydrated Lime Injection System: The permittee is authorized to temporarily install and operate pneumatic conveying system, sorbent silos, fabric filters, injection system, rotary valves and blowers. These systems must meet the reasonable requirements to minimize unconfined emissions of particulate matter (PM) and VE standards specified in **Specific Condition 7 and 8 of Section II** of this permit. [Application No. 0170004-040-AC; Rule 62-4.070(3), F.A.C.]

3. Activated Carbon Injection System: The permittee is authorized to temporarily install and operate pneumatic conveying system, sorbent silos, fabric filters, injection system, rotary valves and blowers. These systems must meet the reasonable requirements to minimize unconfined emissions of particulate matter (PM) and VE standards specified in **Specific Condition 7 and 8 of Section II** of this permit. [Application No. 0170004-040-AC; Rule 62-4.070(3), F.A.C.]

PERFORMANCE RESTRICTIONS

4. Duration of Test Burn: The test burn program is only for a total of ninety days to determine whether the fuel blend along with post combustion controls reduces overall emissions impact. The ninety days do not have to be consecutive, i.e., days may be broken into testing periods so long as all testing is concluded by December 31, 2013. [Application No. 0170004-040-AC; Rule 62-4.070(3), F.A.C.]

5. Authorized Fuel: Units 1 and 2 shall burn 100 percent WB coal or a blend up to 40 percent PRB coal with 60 percent WB coal for trial burn testing. [Application 0170004-040-AC]

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

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

8. Sorbent Storage Particulate Matter (PM) Control: The hydrated lime and activated carbon storage silos shall not exceed the flow rate of 2,000 cfm through the dust collection system during loading operations. Loading operations shall not exceed six hours/day/silo. [Application 0170004-040-AC]

9. Coal and Ash Handling Equipment: The permittee is authorized to make changes and improvements to the coal and ash handling equipment to facilitate the use of lower sulfur coal blends and facilitate removal of dry reaction products. [Application 0170004-040-AC]

10. Emission Increases: This permit does not authorize major modifications or increases in capacity. [Rule 62-210.200, F.A.C. (Definitions: Major Modification, Potential-to-Emit, Actual Baseline Emissions; Projected Actual Emissions and Significant Emissions Rate)]

TEST SCHEDULE

11. Compliance Authority Test Schedule Notification: Fifteen days (15) prior to fuel blend testing and sorbent injection, the permittee shall provide to the Compliance Authority in writing a test schedule. At a minimum the schedule shall include the test dates for each coal or coal blend trial burn, the amounts of individual sorbents added prior to the ESP's for each planned trail burn, the planned duration of each trail burn and the air emission tests that will be conducted during each trail burn (stack test or Continuous Emission Monitor (CEM) data).
[Rule 62-4.070(3), F.A.C.; Rule 62-210.200(PTE), F.A.C.]

MONITORING REQUIREMENTS

12. Test Burn Emissions: Emissions shall be determined by CEMS for NO_X and SO_2, and a continuous opacity monitor (COM) for VE, when firing representative coal fuel blends and injection of hydrated lime and activated carbon in each unit. [Application No. 0170004-040-AC; Rule 62-210.200(PTE), F.A.C.; Rule 62-4.070(3), F.A.C.]

13. Monitoring of Operations: For each trial test burn on each unit, the permittee shall conduct the following monitoring: the type, amount, and heat input of coal fired; electrical outputs; hydrated lime injection rates; and activated carbon injection rates.
[Application No. 0170004-040-AC; Rule 62-210.200(PTE), F.A.C.; Rule 62-4.070(3), F.A.C.]

RECORDS AND REPORTS

14. Test Report: Within 60 days of completing all test burns, the permittee shall submit a final report summarizing all test burns to the Office of Permitting and Compliance and the Compliance Authority. The final report shall provide the following: the actual schedule and overall description of each trial test burn; any operational issues related to coal blending and sorbent injection; continuous emissions monitors (NO_X and SO_2) and VE (opacity) data ; a summary of the specified operational parameters; stack test emissions results for Hg, HCl and PM.
[Rule 62-4.070(3) F.A.C.; Rule 62-210.200(PTE) F.A.C.; Rule 62-212.400, F.A.C.]