FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

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PERMITTEE

Duke Energy Florida, Inc. (DEF)
299 First Avenue North
Mail Code CN77
St. Petersburg, Florida 33701

Authorized Representative:
Mr. Robby Odom, Plant Manager

Air Permit No. 0170004-045-AC
Facility ID No. 0170004
SIC N
Fuel Use, and Ammonia and PM Testing
Permit Expires: December 31, 2014

PROJECT

This is the final air construction permit revision, which authorizes changes to air construction permits related to fuel use, and ammonia and particulate matter (PM) testing at the Crystal River Plant. The facility is located in Citrus County at 15760 West Power Line Street, Crystal River, Florida. This final permit revision is organized into the following sections: Section 1 (General Information); Section 2 (Administrative Requirements); Section 3 (Emissions Unit Specific Conditions); and Section 4 (Appendices). As noted in the Final Determination provided with this final permit, no changes and clarifications were made to the draft permit.

STATEMENT OF BASIS

This air pollution construction permit revision 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

(DRAFT)

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

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FINAL PERMIT

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.

Mr. Robby Odom, DEF: (Robby.Odom@duke-energy.com)
Mr. Jamie Hunter, DEF: (Jamie.Hunter@duke-energy.com)
Mr. Michael Ballenger, P.E., Trinity Consultants: (mballinger@trinityconsultants.com)
Ms. Kelley M. Boatwright, DEP Southwest: (kelley.m.boatwright@dep.state.fl.u)
Mr. Justin Green, DEP Siting Office: (justine.green@dep.state.fl.us)
Ms. Heather Ceron, EPA Region 4: (ceron.heather@epa.gov)
Ms. Katy Lusky, EPA Region 4: (lusky.kathleen@epa.gov)
Ms. Natasha Hazziez, EPA Region 4: (hazziez.natasha@epa.gov)
Ms. Ana Oquendo, EPA Region 4: (oquendo.ana@epa.gov)
Ms. Lynn Scearce, DEP OPC: (lynn.scearce@dep.state.fl.us)
Ms. Alisa Coe, Earth Justice: (acoe@earthjustice.org)

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 AND PROJECT DESCRIPTION

EU No.	Brief Description
Regulated Emissions Units	
001	FFSG, Unit 1
002	FFSG, Unit 2
003	FFSG, Unit 5
004	FFSG, Unit 4
013	Cooling Towers for FFSG Units 1, 2
015	Cooling Towers for FFSG Units 4 and 5

This facility consists of: four coal-fired fossil fuel steam generating (FFSG) units with electrostatic precipitators; two natural draft cooling towers for FFSG Units 4 and 5; helper mechanical cooling towers for FFSG Units 1, 2; coal, fly ash, and bottom ash handling facilities; limestone and gypsum material handling activities; hydrate lime storage and transfer system for Units 4 and 5; and, various fire pumps and generators. The facility continuously operates low-NO_X burners, selective catalytic reduction systems (SCR), flue gas desulfurization systems (FGD) which includes limestone and gypsum material handling activities and acid mist mitigation (AMM) systems for existing Units 4 and 5, as authorized by permits No. 0170004-023-AC (PSD-FL-383C) and 0170004-037-AC (PSD-FL-383E). In conjunction with the new control equipment, Units 4 and 5 are now also authorized to burn a blend of bituminous/sub-bituminous coal.

Requested Changes

- DEF is no longer utilizing coal briquette and used oil as fuel sources at the Crystal River plant. Therefore, DEF requests that reference to these fuel types and the associated permit conditions in the Title V permit be removed. In addition, DEF requests that Crystal River be allowed the option to utilize sub-bituminous coal that is not limited to Powder River Basin as long as the facility meets the sulfur content limitation of 5.5 lb/MMBtu as outlined in Specific Condition **B.2.** in the Title V permit.
- DEF requests that DEP remove the requirement to test annually for opacity at the stack as required in Specific Condition **B.29.** Crystal River currently utilizes a COMS to continuously monitor the opacity in the ductwork just after the ESP as specified in Condition **B.22.d.**. and Appendix CAM of the Title V permit. Since the CAM plan requires that the facility continuously monitor opacity using a COMS, and confirm that the boiler and ESP are maintaining opacity within the constraints of the CAM plan, additional annual Method 9 testing at the stack is not necessary.
- DEF requests that DEP provide Crystal River the option of using a PM CEMS in lieu of PM stack testing and COMS opacity monitoring for Units 4 and 5. The PM emissions limitations established in Condition **B.6.a.** and **B.6.b.** are based on 40 CFR 60.42(a) requirements and Condition **B.6.c.** emission limitation was determined as Best Available Control Technology (Permit No. 0170004-023-AC) based on 40 CFR Part 60, Subpart Da PM emission limitations. If DEF chooses to use PM CEMS rather than PM stack testing and COMS, DEF will also request that the PM CAM plan (Permit Appendix CAM) for EU003 and EU004 also be removed at the time of the PM CEMS installation.
- DEF requests that DEP allow Crystal River to test for ammonia slip only once per permit term. DEF has consistently tested for ammonia slip emissions significantly below the permit limit of 5 ppmv per Specific Condition **B.10.** As provided in Appendix G of the application, ammonia slip

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test results were 0.4 ppmv for Unit 4 and 0 ppmv for Unit 5 per testing conducted on September 17 and 18, 2013, respectively.

- DEF requests that Specific Condition **F.5.** and its associated PM emission limits be removed from the permit. The cooling towers for FFSG 1 and 2 (EU013) are equipped with high efficiency drift eliminators that were designed to meet the 0.004% drift rate which is the basis of the PM emission limits. In addition, these cooling towers are "helper cooling towers" that are limited in hours of operation, further reducing the need for a PM limit due to work practice standards and operational constraints. Additionally, more recent DEP cooling tower permitting (Permit No. 017004-010-AC) for the portable cooling towers for FFSG Units 1 and 2 (EU020) set the drift emission rate as BACT and did not include associated PM emission limits. The PM emission limits set for EU013, although they do not have associated PM testing required, oblige the facility to pay additional Title V fees annually since PM is set in the permit as a regulated pollutant for this source. In addition to Permit 017004-010-AC, DEP has recently permitted other saltwater cooling towers at facilities, such as DEF's Anclote Power Plant (Facility ID: 1010017) and Florida Power and Light's Turkey Point Power Plant (Facility ID: 0250003), that do not have associated PM emission limits. According to DEF, since the Crystal River facility has PM emission limits in their permit, they are being penalized into paying additional Title V fees that are not required at all similar facilities. DEF requests that the PM emission limits in Specific Condition **F.5.** be removed from the permit, to remove the fee penalty that is inconsistent with other cooling tower permitting.

Department Response

These changes were approved by the Department and are noted below as revisions to prior issued air construction permits.

REGULATORY CLASSIFICATION

Title III: The facility is a potential major source of hazardous air pollutants (HAP).

NESHAP: The facility operates units subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) in 40 Code of Federal Regulations (CFR) 63.

NSPS: The facility operates units subject to the New Source Performance Standards (NSPS) of 40 CFR 60.

Title V: The facility is a Title V major source of air pollution in accordance with Chapter 213, Florida Administrative Code (F.A.C.).

PSD: The facility is a Prevention of Significant Deterioration (PSD)-major stationary source in accordance with Rule 62-212.400, F.A.C.

RELEVANT DOCUMENTS

The following relevant documents are not a part of this permit, but helped form the basis for this permitting action: the permit application and additional information received to make it complete, the draft air construction permit, and the Technical Evaluation and Preliminary Determination.

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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. The mailing address for the Office of Permitting and Compliance 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 Office. The mailing address and phone number are: 13051 N. Telecom Parkway, Temple Terrace, Florida 33637-0926, Telephone: (813) 470-5700, Fax: (813) 470-5995.

3. Appendices: The following Appendices are attached as 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, 62-214, 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 emissions unit shall be constructed or 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. 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.]

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The specific conditions in this section apply to the following emissions units:

EU No.	Brief Description
001	FFSG, Unit 1
002	FFSG, Unit 2
003	FFSG, Unit 5
004	FFSG, Unit 4
013	Cooling Towers for FFSG Units 1, 2
015	Cooling Towers for FFSG Units 4 and 5

Specific Condition 1.

Other Permits: Except as specified below, these units remain subject to the applicable requirements established in all previous air construction permits issued for this facility. [Rule 62-4.070, F.A.C.]

Specific Condition 2

Specific Condition 2. of permit No. 0170004-006-AC is changed as follows:

2. Fuel: The emissions units described above may combust a mixture of bituminous coal and sub-bituminous coal ~~briquettes~~. [Rule 62-210.200, F.A.C, Definitions-potential to emit (PTE)]

Specific Condition 3

Specific Condition 3. of permit No. 0170004-006-AC is changed as follows:

3. Sulfur Limitation: The maximum sulfur content of the ~~coal/briquette mixture~~ bituminous coal and sub-bituminous shipment, averaged on an annual basis, shall not exceed the following:

Specific Condition 4

Specific Condition A.19.b. of permit No. 0170004-023-AC is changed as follows:

A.19.b. *Subsequent Tests: D*uring each federal fiscal year (October 1st to September 30th), Units 4 and 5 shall be tested to determine emissions of ~~ammonia slip, opacity,~~ PM, and SAM. Ammonia slip stack testing shall be required prior to permit renewal. If requested by the Department, a VE test shall be conducted. If a PM CEMS is installed on the units, an annual PM/PM_{10} stack test is no longer required. A RATA test can be used instead.

[§60.48Da(f); Rules 62-4.070(3), 62-212.400(BACT) and 62-297.310, F.A.C.]

Specific Condition 5

- **Specific Condition A.13.** of permit No. 0170004-023-AC is changes as follows:

13. Existing CEMS/COMS: For Units 4 and 5, the permittee shall continue to calibrate, operate, and maintain continuous monitoring equipment to measure and record opacity, NO_X and SO_2 in terms of the applicable standards. The permittee shall either relocate the existing CEMS to the new stack configurations or replace the monitoring systems. Due to the wet stack, the existing COMS shall be relocated or new COMS installed in the ductwork after the ESP and prior to the wet FGD system. Each COMS and CEMS shall be installed such that representative measurements of emissions or process parameters from the facility are obtained. The monitors shall be installed, operated and maintained in accordance with the existing requirements of 40 CFR 60.45, as well as the provisions of the federal acid rain program. If a PM CEMS is installed, a COMS is no longer required. [40 CFR

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75.14(e); §60.42Da(b)(1) and Rule 62-4.070(3), F.A.C.]

Specific Condition 6

- **Specific Condition A.25.** of permit No. 0170004-023-AC is changes as follows:

1. Control Device – Parametric Monitoring:

   a. *SCR System*: The permittee shall continuously monitor and record the ammonia injection rate of the SCR control system. Data shall be reduced to 1-hour block averages. [Rule 62-4.070(3), F.A.C.]

   b. *FGD System*: The permittee shall continuously monitor and record the limestone slurry injection rate of the FGD control system. Data shall be reduced to 1-hour block averages. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

   c. *Alkali Injection System*: The permittee shall continuously monitor and record the alkali injection rate of the alkali injection system. Data shall be reduced to 1-hour block averages. Operation of the alkali injection system shall be determined by the automated control system, which shall be set in accordance with the preliminary performance and compliance tests for SAM emissions. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

   d. *ESP*: The permittee shall continuously monitor and record the opacity in the ductwork just after the ESP for use as part of the Compliance Assurance Monitoring Plan under Title V. Operation of the ESP shall be based upon COMS data collected during satisfactory PM emissions compliance tests. If a PM CEMS is installed, operation of the ESP shall be based upon CEMS data. . Note that opacity monitoring and the CAM requirements are not needed if the option to use PM CEMS is implemented. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

Specific Condition 7

Specific Condition **2.** of permit No. AC 09-162037 is deleted:

~~**2.** The maximum allowable emissions of particulate matter form each cell (stack) is 11.89 #/hour. This is based on a 0.004% drift rate (ratio of drift to the circulate rate) and the following table:~~

~~**Flow Rate (gpm)**~~	~~**Total PM (from all 36 cells)**~~		~~**PM10**~~	
	~~#/hr~~	~~T/yr~~	~~#/hr~~	~~T/yr~~
~~**735,000**~~	~~**428**~~	~~**925**~~	~~**214**~~	~~**462**~~

~~(PM$_{10}$ is approximately 50% of total PM)~~

Specific Condition 8

Specific Condition **1.a.** of permit No. PSD-FL-007 is deleted:

~~**1.** Emission Limitations~~
~~**a.** Cooling tower emissions from each unit individually shall not exceed the following:~~

~~Total Suspended Particulate: 175 lb/hr~~

Specific Condition 9

Specific Condition **2.a.** of permit No. PSD-FL-007 is deleted:

~~**2.a.** Unit 4 tower shall be tested after October 1, 1998, but no later than December 31, 1988. The first compliance test for unit 5 tower shall be conducted after January 1, 1992, but not later than May 1, 1992.~~

~~Additionally, units 4 and 5 shall be tested no less than once every five years thereafter, during the same periods of the respective calendar years.~~

Specific Condition 10

Specific Condition **4.b.** of permit No. PSD-FL-007 is deleted:

~~**b.** Should either tower emissions rate exceed 175 lb/hr, the permittee shall do the following:~~

~~(1) Notify EPA and the Florida Department of Environmental Regulation (FDER) of the occurrence within 10 days of becoming aware of the situation.~~

~~(2) Provide an assessment of necessary corrective actions and a proposed schedule of implementation within an additional 20 days.~~

~~(3) Expeditiously complete .corrective actions~~

~~(4) Retest the tower within three months after the correction is completed.~~

~~(5) Submit the testing report within 45 days after completion of said tests.~~

Specific Condition 11

Specific Condition **2.b.** of permit No. PSD-FL-007 is deleted:

~~b. The following test methods and procedures shall be used for compliance testing:~~

~~(1) Particulate emissions shall be measured by the sensitive paper (SP) method for each cooling tower.~~

~~(2) Testing shall be done at either the drift eliminator level within the tower or at the tower exit plane.~~

~~(3) For· demonstrating compliance with the applicable emission limits, not less than three tests shall be conducted. All valid data from each of these tests shall be averaged in demonstration compliance. No individual test result shall determine compliance or noncompliance or. The emissions rate reported as a percent of the circulated water as well as lb/hr and total dissolved solids in the cooling tower basin(s) and intake water shall be reported for each test.~~

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