

**TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION**

APPLICANT

Duke Energy Florida, LLC (DEF)

Crystal River, Florida 34428

Crystal River Power Plant
Facility ID No. 0170004

PROJECT

Draft Permit Nos. 0170004-054-AC/PSD-FL-383G
Application for Minor Source Air Construction (AC) Permit

Minor Source Air Construction Permit & Revisions

COUNTY

Citrus County, Florida

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Division of Air Resource Management
Office of Permitting and Compliance
2600 Blair Stone Road, MS#5505
Tallahassee, Florida 32399-2400

December 16, 2016

1. GENERAL PROJECT INFORMATION

1.1. Air Pollution Regulations

Projects at stationary sources with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following applicable chapters: 62-4 (Permits); 62-204 (Air Pollution Control - General Provisions); 62-210 (Stationary Sources - General Requirements); 62-212 (Stationary Sources - Preconstruction Review); 62-213 (Operation Permits for Major Sources of Air Pollution); 62-296 (Stationary Sources - Emission Standards); and 62-297 (Stationary Sources - Emissions Monitoring). Specifically, air construction permits are required pursuant to Rules 62-4, 62-210 and 62-212, F.A.C.

In addition, the U.S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial categories. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories. The Department adopts these federal regulations on a quarterly basis in Rule 62-204.800, F.A.C.

1.2. Facility Description and Location

Duke Energy Florida, LLC (DEF) operates the existing Crystal River Power Plant, which is categorized under Standard Industrial Classification Code No. 4911. The facility is located in Citrus County at 15760 West Power Line Street, Crystal River, FL 34428. The location of Citrus County is shown in **Figure 1** while the location of the facility is shown in **Figure 2**. A satellite view of the facility is given in **Figure 3**. The UTM coordinates of the existing facility are: Zone 17, 334.3 km East and 3204.5 km North. Latitude is: 28° 57' 34" North and Longitude is: 82° 42' 1" West.

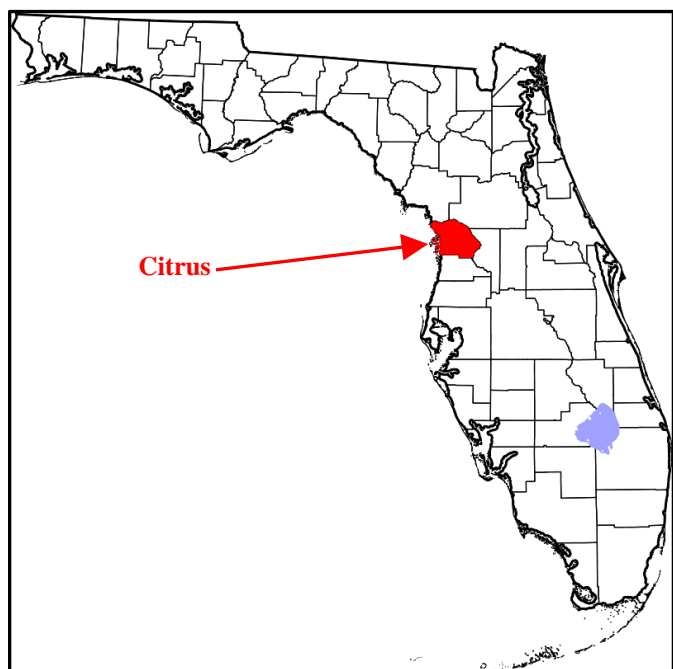


Figure 1. Location of Citrus County.

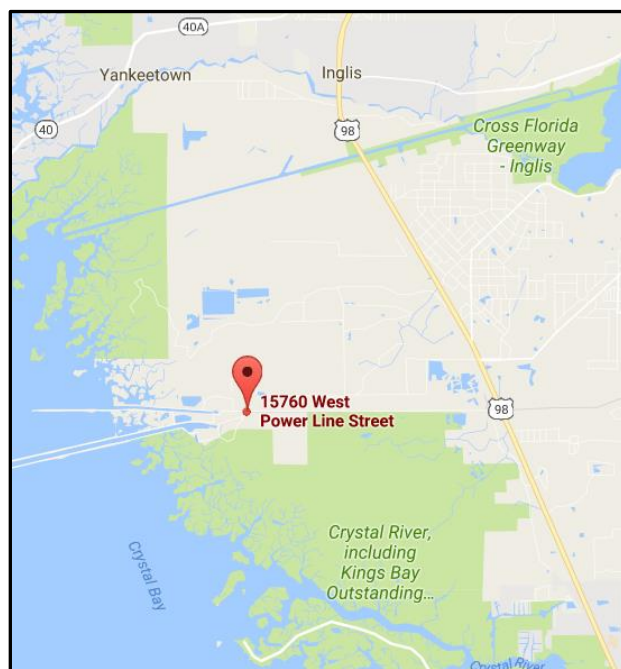


Figure 2. Location of Crystal River Power Plant.

This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to state and federal Ambient Air Quality Standards (AAQS).



Figure 3. Satellite View of the Crystal River Power Plant.

1.3. Facility Regulatory Categories

- The facility is a major source of hazardous air pollutants (HAP).
- This facility operates units subject to the acid rain provisions of the Clean Air Act.
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

1.4. Project Description

This project is for a minor source air construction (AC) permit which includes revisions to previously issued AC/PSD permits. The minor source AC permit is for the shutdown of FFSG, Units 1 & 2. The previously issued AC/PSD permits being revised pertain to FFSG, Units 5 & 4.

This permitting action is intended to confirm attainment of the 1-hour SO₂ National Ambient Air Quality Standard (NAAQS) for future years based on modeled emissions of the Crystal River Plant's potential emission rates in response to the U.S. Environmental Protection Agency's (U.S. EPA's) Data Requirements Rule (DRR).

1.5. Application Processing Schedule

Minor Source Air Construction Permit Application received on November 18, 2016 (complete).

{Documents specifically related to this project are posted and publicly available on the Department's world wide website at <http://appprod.dep.state.fl.us/air/emission/apds/default.asp> by entering the project number shown above.}

1.6. Relevant Documents

- Permit No. 0170004-049-AV, Current Title V Air Operation Permit (a renewal).
- PSD-FL-383 and revisions thereof.

2. PSD APPLICABILITY

2.1. General PSD Applicability

For areas currently in attainment with the state and federal AAQS or areas otherwise designated as unclassifiable, the Department regulates major stationary sources of air pollution in accordance with Florida's PSD preconstruction review program as defined in Rule 62-212.400, F.A.C. Under preconstruction review, the Department first must determine if a project is subject to the PSD requirements ("PSD applicability review") and, if so, must conduct a PSD preconstruction review. A PSD applicability review is required for projects at new and existing major stationary sources. In addition, proposed projects at existing minor sources are subject to a PSD applicability review to determine whether potential emissions *from the proposed project itself* will exceed the PSD major stationary source thresholds. A facility is considered a major stationary source with respect to PSD if it emits or has the potential to emit:

- 250 tons per year or more of any regulated air pollutant; or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the following 28 PSD-major facility categories: fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), Kraft pulp mills, Portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants and charcoal production plants.

Once it is determined that a project is subject to PSD preconstruction review, the project emissions are compared to the "significant emission rates" (SERs) defined in Rule 62-210.200, F.A.C. for the following pollutants: carbon monoxide (CO); nitrogen oxides (NO_x); sulfur dioxide (SO₂); particulate matter (PM); particulate matter with a mean particle diameter of 10 microns or less (PM₁₀); volatile organic compounds (VOC); lead (Pb); fluorides (F); sulfuric acid mist (SAM); hydrogen sulfide (H₂S); total reduced sulfur (TRS), including H₂S; reduced sulfur compounds, including H₂S; municipal waste combustor organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans; municipal waste combustor metals measured as PM; municipal waste combustor acid gases measured as SO₂ and hydrogen chloride (HCl); municipal solid waste landfills emissions measured as non-methane organic compounds (NMOC); and mercury (Hg). In addition, significant emissions rate also means any emissions rate or any net emissions increase associated with a major stationary source or major modification which would construct within 10 kilometers of a Class I area and have an impact on such area equal to or greater than 1 µg/m³, on a 24-hour average.

If the increase in emissions from the project exceeds the defined significant emissions rate (SER) of a PSD pollutant, the project is considered "significant" for the pollutant and the applicant must employ the Best Available Control Technology (BACT) to minimize the emissions and evaluate the air quality impacts. Although a facility or project may be *major* with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

PSD applicability for a "modification" to an existing major stationary source is based on thresholds known as the significant emission rates (SER) as defined in [Rule 62-210.200\(258\), F.A.C.](#) Any "net emissions increase" as defined in Rule 62-210.200(189), F.A.C. of a PSD pollutant from the project that equals or exceeds the respective SER is considered "*significant*." SER also means any emissions rate or any net emissions increase of a PSD pollutant associated with a major stationary source or major modification which would construct within 10 km of a Class I area and have an impact on such area equal to or greater than 1 gram per cubic meter, 24-hour average.

TECHNICAL EVALUATION & PRELIMINARY DETERMINATION

According to guidance¹ issued by the U.S. EPA in July 2014, a source that triggers PSD review for a traditional PSD pollutant (listed above) would also trigger a PSD review for GHGs emissions if the source would emit or have the potential to emit 75,000 tons per year of GHGs on a CO₂e basis. Under this framework, a source cannot become subject to PSD review solely on the basis of GHG emissions.

2.2. PSD Applicability to the Project

This project is expected to have no impact on emissions from the facility. Therefore, there are no emission increases associated with the project, and the project is not subject to PSD preconstruction review.

3. APPLICANT REVIEW

3.1. Background

The applicant applied on November 18, 2016, to the Department for a minor source air construction permit.

3.2. Applicant Request

This project is for a minor source air construction (AC) permit which includes revisions to previously issued AC/PSD permits. The AC permit also adds conditions dealing with the future shutdown date of FFSG Units 1 & 2.

The previously issued AC/PSD permits being revised pertain to FFSG Units 5 & 4. The revisions lower the SO₂ emission limit from 0.27 pounds per million British thermal units (lb/MMBtu) of heat input based on a 30-day rolling average to 0.25 lb/MMBtu based on a 30-day rolling average. Compliance with the revised SO₂ emission limit shall occur on or before December 31, 2017.

4. DEPARTMENT REVIEW

A specific, detailed review for FFSG Units 5 & 4 is shown below. No detailed review for FFSG, Units 1 & 2 is necessary as the permit simply defines their future shutdown date. FFSG Units 1 & 2 began operation in the 1960's.

Air pollution control equipment on FFSG, Units 5 & 4 includes: low-NO_x burners; selective catalytic reduction (SCR) systems; flue gas desulfurization (FGD) systems; acid mist mitigation (AMM) systems; and, an electrostatic precipitator (ESP).

4.1. Physical Changes (Equipment) & Methods of Operation Review

There are no physical changes or changes in methods of operation proposed in this project.

4.2. Air Pollutant Emission Changes - NSPS Applicability

The FFSG, Units 5 & 4 are regulated under NSPS 40 CFR 60, Subpart D.

The proposed project does not meet the definition of reconstruction or modification under NSPS 40 CFR 60, therefore the units are not subject to Subparts Da (Electric Utility Steam Generating Units) or TTTT (Greenhouse Gas Emissions for Electric Generating Units).

4.3. Air Pollutant Emission Changes - NESHAPs Applicability

The FFSG, Units 5 & 4 are regulated under the NESHAP (MACT) 40 CFR 63, Subpart UUUUU a.k.a. "MATS Rule."

The applicant claims that the requested revision to the SO₂ emissions limit will not affect the current applicability or compliance approach to the MATS rule.

4.4. Air Pollutant Emission Changes & PSD Applicability

A PSD applicability analysis is not required because there is no expected impact on emissions from the facility, specifically, no increase in emissions or new emissions.

¹ U.S. Supreme Court opinion dated June 23, 2014, [UARG v EPA](#). [EPA guidance](#) dated July 24, 2014.

TECHNICAL EVALUATION & PRELIMINARY DETERMINATION

The applicant asserts that the revised, lower SO₂ emissions limit reflects a decrease in allowable emissions only, by reducing the compliance margin. Review of the reported SO₂ emissions in the AOR for calendar year 2015 for each unit indicates that an adequate compliance margin does currently exist.

4.5. Authorizations and Permit Conditions

FFSG, Units 1 & 2 (E.U. ID Nos. 001 & 002)

The Department authorizes the shutdown of FFSG, Units 1 & 2. New conditions are added in this permit. In summary, the new/stand-alone permit conditions required are:

- An authorization to shutdown the units as proposed by the applicant in the permit application; and,
- Notification of the actual shutdown dates.

FFSG, Units 5 & 4 (E.U. ID Nos. 003 & 004)

The Department authorizes revisions to lower the SO₂ emission limit. Affected conditions in the previous AC/PSD permits are revised and several new conditions are added in this permit. In summary, the permit conditions required are:

- Revisions to Specific Condition 3.A.9.b. from Permit No. 0170004-037-AC/PSD-FL-383F; and,
- A requirement that the permittee conduct an initial compliance test using CEMS data for the new, lower SO₂ emission limit. A 2-year permit term affords the applicant sufficient time to conduct and submit the test results.

5. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state rules and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. No air quality modeling analysis is required because the project does not result in a significant increase in emissions.

Mr. Scott M. Sheplak, CPM, P.E. is the permit processor responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting them in the Department's Office of Permitting and Compliance at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Scott may be contacted by telephone at 850/717-9074 or by e-mail at scott.sheplak@dep.state.fl.us.