TECHNICAL EVALUATION

&

PRELIMINARY DETERMINATION

APPLICANT

Progress Energy Florida, Inc.
299 First Avenue North, CN77
St. Petersburg, FL 33701

Crystal River Power Plant
ARMS Facility ID No. 0170004

PROJECT

Draft Permit No. 0170004-034-AC
Concrete Batch Plant and Ancillary Equipment for Crystal River Unit 3 (CR3)

COUNTY

Citrus County, Florida

PERMITTING AUTHORITY

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

April 13, 2012

1. GENERAL PROJECT INFORMATION

State Regulations

This project is subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The Florida Statutes authorize the Department of Environmental Protection to establish rules and regulations regarding air quality as part of the Florida Administrative Code (F.A.C.). This project is subject to the applicable rules and regulations defined in the following Chapters of the F.A.C.: 62-4 (Permitting Requirements); 62-204 (Ambient Air Quality Requirements, PSD Increments, and Federal Regulations Adopted by Reference); 62-210 (Permits Required, Public Notice, Reports, Stack Height Policy, Circumvention, Excess Emissions, and Forms); 62-212 (General Preconstruction Review, Preconstruction Review for the Prevention of Significant Deterioration (PSD) of Air Quality Review and Best Available Control Technology (BACT); 62-213 (Title V Air Operation Permits for Major Sources of Air Pollution); 62-296 (Emission Limiting Standards); and 62-297 (Test Methods and Procedures, Continuous Monitoring Specifications, and Alternate Sampling Procedures). PSD applicability and the preconstruction review requirements of Rule 62-212.400, F.A.C. are discussed in Section 3 of this Technical Evaluation and Preliminary Determination (TEPD).

Federal Regulations

The Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 identifies New Source Performance Standards (NSPS) for a variety of industrial activities. Part 61 specifies National Emissions Standards for Hazardous Air Pollutant (NESHAP) based on specific pollutants. Part 63 specifies NESHAP provisions based on the Maximum Achievable Control Technology (MACT) for given source categories. Federal regulations are adopted in Rule 62-204.800, F.A.C. Additional details of the applicable federal regulations are provided in Section 3 of this report.

The applicable requirements of specific state and federal regulations are specified under the Department's review in Section 3 of this TEPD.

Facility Description and Location

The Crystal River Power Plant is an electrical generating plant categorized under Standard Industrial Classification Code No. 4911 for electrical services. The existing power plant is located at the Crystal River Energy Complex in Citrus County, north of Crystal River and west of U.S. Highway 19. The Crystal River Power Plant consists of the following units: four coal-fired steam generating units (FFSG) with electrostatic precipitators; two natural draft cooling towers; two sets of mechanical draft cooling towers; coal and ash material handling facilities; and relocatable diesel-fired generators. FFSG Units 4 and 5 are equipped with low-NO_X burners and selective catalytic reduction systems for the control of nitrogen oxide emissions and with flue gas desulfurization systems for the control of sulfur dioxide emissions. The Crystal River Energy Complex also includes a nuclear unit and its associated facilities. The UTM coordinates are Zone 17, 334.3 kilometers East and 3204.5 kilometers North.

Primary Regulatory Categories

- 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.
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is an existing PSD major stationary source in accordance with Rule 62-212.400, F.A.C.
- The existing facility is subject to Power Plant Site Certification No. PA 77-09.

Project Description

The applicant proposed to construct/install and operate a portable concrete batch plant with a maximum production rate of 20,000 cubic yards per year to support current and future maintenance and repair activities at the Crystal River facility. The proposed concrete batch plant will be provided by outside vendors on an as-needed basis.

The following new emission units (EU) will be added to the Title V facility permit.

EU No.	Emissions Unit Description
031	Portable Concrete Batch Plant

Concrete batch plant operations at the facility will consist primarily of trucks delivering sand and aggregate to the site for further processing. Sand and aggregate will be stored in partially enclosed (covered and walled on three sides) stockpiles. The sand and aggregate will then be transferred to hoppers via front end loaders. Cement and cement additives will be stored in sealed silos, which will be equipped with bin vent filters. The aggregate and sand will pass through weigh hoppers and then be mixed with cement, cement additives, and water to manufacture concrete. The mixing will occur in trucks. A representative plant is shown in the picture below.

In addition to the concrete batch plant, this project also includes the following miscellaneous ancillary equipment: nine (9) hydro-demolition diesel pumps with a rating of 475 horsepower (HP) each; two (2) water transfer diesel pumps with a rating of 20 HP each; and, twelve (12) air compressors with a rating of 575 HP each. The requested operating hours of the Concrete Batch Plant are 8,760 hours per year (hr/yr). The ancillary engines operating hours are projected to be as follows: the Hydro Demolition Diesel Pumps (9 units) will be operating up to 1,500 hr/yr total; the Water Transfer Diesel Pumps (2 units) will be operating up to 1,500 hr/yr total; and, the Air Compressors (12 units) will be operating up to a total of 144 hr/yr.

Processing Schedule

02/17/2012 Application received; requested additional information.

03/14/2012 Received additional information; application complete.

2. PSD APPLICABILITY REVIEW

General PSD Applicability

The Department regulates major stationary sources in accordance with Florida's prevention of significant deterioration (PSD) program pursuant to Rule 62-212.400, F.A.C. PSD preconstruction review is required in areas that are currently in attainment with the state and federal Ambient Air Quality Standards (AAQS) or areas designated as "unclassifiable" for these regulated pollutants. As defined in Rule 62-210.200, F.A.C., a facility is considered a "major stationary source" if it emits or has the potential to emit 5 tons per year of lead, 250 tons per year or more of any PSD pollutant, or 100 tons per year or more of any PSD pollutant and the facility belongs to one of the 28 listed PSD major facility categories. PSD pollutants include: CO, NO_X, SO_2, PM, PM_{10}, $PM_{2.5}$, (VOC), lead (Pb), fluorides (F), SAM, hydrogen sulfide (H_2S), total reduced sulfur (TRS) including H_2S, reduced sulfur compounds including H_2S) and mercury (Hg).

For major stationary sources, PSD applicability is based on emissions thresholds known as the "significant emission rates" as defined in Rule 62-210.200, F.A.C. Emissions of PSD pollutants from the project exceeding these rates are considered "significant" and the Best Available Control Technology (BACT) must be employed to minimize emissions of each PSD pollutant. Although a facility may be "major" for only one PSD pollutant, a project must include BACT controls for any PSD pollutant that exceeds the corresponding significant emission rate. Rule 62-210.200, F.A.C. defines "BACT" as:

> *An emission limitation, including a visible emissions standard, based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account:*
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> 1. *Energy, environmental and economic impacts, and other costs;*
> 2. *All scientific, engineering, and technical material and other information available to the Department; and*
> 3. *The emission limiting standards or BACT determinations of Florida and any other state;*
>
> *determines is achievable through application of production processes and available methods, systems and techniques (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of each such pollutant.*
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> *If the Department determines that technological or economic limitations on the application of measurement methodology to a particular part of an emissions unit or facility would make the imposition of an emission standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reductions achievable by implementation of such design, equipment, work practice or operation.*
>
> *Each BACT determination shall include applicable test methods or shall provide for determining compliance with the standard(s) by means which achieve equivalent results.*

In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60, 61, and 63.

In addition, applicants must provide an Air Quality Analysis that evaluates the predicted air quality impacts resulting from the project for each PSD pollutant.

PSD Applicability for the Project

The project is located in Citrus County, which is in an area that is currently in attainment with (or designated as unclassifiable for) the state and federal Ambient Air Quality Standards (AAQS). The proposed project will result in an increase in emissions not subject to PSD regulations. The Table below shows the potential emissions from this project compared to the PSD significant emissions rates (SERs).

Pollutant	Concrete Batch Plant	Hydro Demolition Diesel Pumps	Water Transfer Diesel Pumps	Air Compressors	Stockpiles	Truck Traffic	TOTAL	PSD SERs
SO_2	NA	0.02	2.0E-04	3.3E-03	NA	NA	0.03	40
NO_X	NA	1.46	0.15	0.17	NA	NA	1.8	40
CO	NA	2.04	0.16	0.24	NA	NA	2.4	100
VOC	NA	0.90	0.04	0.10	NA	NA	1.0	NA
PM	0.4	0.12	0.16	1.4E-02	0.07	3.8	4.6	25
PM_{10}	0.2	0.12	0.16	1.4E-02	0.03	0.8	1.3	15
$PM_{2.5}$	0.2	0.12	0.16	1.4E-02	0.005	0.2	0.7	10

Notes: Assumed $PM = PM_{10} = PM_{2.5}$

3. DEPARTMENT REVIEW

This permit application request is for a minor source air construction permit to include the above mentioned emissions units as part of this facility. The proposed construction does not affect emissions in a significant way, production rates or any other significant change at the facility.

The Department's position is to issue a stationary minor air construction permit to allow the construction/installation of the proposed emissions units at this facility. Although the majority of these emissions units are not going to be located permanently at the facility, this permit will establish allowable operation and emissions limiting conditions that must be complied with whenever these portable emissions unit are brought on-site for use. Any permits or authorizations that a contracted operator may hold to operate these portable units at other sites will have no enforceable affect while the units are operating under the authority of this permit, nor are they in any way invalidated for future use when the units are relocated elsewhere.

The project total increase of emissions is below 5 tons per year (TPY) for each individual pollutant (SO_2, NO_X, CO, VOC, $PM/PM_{10}/PM_{2.5}$). The requested operating hours of the Concrete Batch Plant are 8,760 hours per year (hr/yr).

The ancillary engines operating hours are projected to be as follows: the Hydro Demolition Diesel Pumps (9 units) will be operating up to 1,500 hr/yr total; the Water Transfer Diesel Pumps (2 units) will be operating up to 1,500 hr/yr total; and, the Air Compressors (12 units) will be operating up to a total of 144 hr/yr. Because these internal combustion engines are portable and not stationary emissions units, they are not subject to the New Source Performance Standards, 40 CFR 60, Subpart IIII-Standards of Performance for Stationary Compression Ignition Internal Combustion Engines and 40 CFR 60, Subpart JJJJ-Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. Similarly, they are also not subject to the National Emission

Standards for Hazardous Air Pollutants, 40 CFR 63, Subpart ZZZZ-National Emission Standards for Reciprocating Internal Combustion Engines. As such, these very minor emissions units are exempt from the requirement to obtain an air construction permit and they will be incorporated into the Title V permit as insignificant sources of air pollution.

4. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state 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. Teresa Heron is the project engineer responsible for reviewing the application and drafting the permit documents. Jonathan Holtom, P.E., is the Air Permitting Supervisor responsible for reviewing and approving these documents. Additional details of this analysis may be obtained by contacting the project engineer at the Department's Bureau of Air Regulation at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.