PERMITTEE

Florida Power Corporation
d/b/a Progress Energy Florida (PEF), Inc.
299 First Avenue, North
St. Petersburg, Florida 33701

PERMITTING AUTHORITY

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

PROJECT

Air Permit No. 0170004-038-AC
Crystal River Power Plant Units 1 and 2
Nitrogen Oxides (NO_x) Emission Standards/Controls

This final air construction permit establishes an additional NO_X emission standard for Crystal River Units 1 and 2, authorizes installation of selective catalytic reduction (SCR) systems and authorizes physical changes to plant components, installation of storage tanks, and feed pumps to facilitate installation of the SCR systems. The proposed work will be conducted at the existing Crystal River Power Plant, which is a nominal 2,300 megawatts (MW) coal-fueled power plant (excluding a nuclear unit). The plant is located in Citrus County at 15760 West Power Line Street in Crystal River, Florida. The UTM coordinates are Zone 17, 334.3 km East and 3204.5 km North.

NOTICE AND PUBLICATION

The Department distributed a draft minor air construction permit package on September 20, 2012. The applicant published the Public Notice in the Citrus County Chronicle on September 22, 2012. The Department received the proof of publication on October 1, 2012. No requests for administrative hearings or requests for extensions of time to file a petition for administrative hearing were received.

COMMENTS

No comments on the draft permit were received from the applicant, individual members of the public or the EPA Region 4 Office. Comments were received as a single submittal on behalf of the Sierra Club, the National Parks Conservation Association, Earthjustice, and respective members (Sierra et al.) in Florida described in the communication "who will be substantially affected by the draft permit for construction at Progress Energy's Crystal River Plant".

Comments were submitted by the Sierra Club et al. as a cover letter with attachments comprising approximately 177 pages. Link to Sierra Club et al. Comments . The key comments contained in the 12-page cover letter are repeated or paraphrased *(in italics)* below and followed by the Department's response.

1. *Sierra Club et al. overall comments: "The permit does not assure compliance with state or federal law". ….."This permit, therefore, may not properly issue. 'The Department may issue a permit only after it receives reasonable assurance that the installation will not cause pollution in violation of any of the provisions of Chapter 403, F.S., or the rules promulgated thereunder'. This permit violates both prongs of this requirement". (Sierra et al. footnote No. 2: F.A.C. 62-4.030; see also 62-4.070(1) (same); 62-212.300(3)(a)(2) (requiring applicant to demonstrate that they will comply with all relevant law).*

   Department Response: The Department disagrees. The final permit complies with applicable state and federal law and implementing regulations for issuing minor source construction permits. The final permit complies with the Department's Standards for Issuing and Denying Permit as the Department has reasonable

assurance that the construction, expansion, modification, operation, or activity of the installation will not discharge, emit, or cause pollution in contravention of Department standards or rules.
[Rules 62-4.070 and 62-212.300, Florida Administrative Code (F.A.C.)]

All applicable requirements including permits, regulations, continuous monitoring and reporting requirements will continue to be incorporated into the facility Title V air operation permit, revisions and renewals. Taken together, the permits (including future permits) and enforceable requirements provide reasonable assurance of compliance with state or federal law.

2. *Sierra et al. characterization of Crystal River Units 1 and 2 and its emissions: "These units are aging, largely uncontrolled coal-fired boilers which emit a variety of haze-causing pollutants including nitrogen oxides (NO_X), a dangerous pollutant which also contributes to visibility impairment throughout the state".*

   Department Response: The draft permit to install NO_X controls is premised on the following two options under consideration by the applicant: (A) Discontinuation of operation of the older Units 1 and 2 as coal-fired units by December 31, 2020; or (B) Installation of NO_X, sulfur dioxide (SO_2) and particulate control equipment.

   The Department agrees that the units emit (combustion exhaust gases that contain) several haze-causing pollutants including SO_2. Given the type of source, the rates emitted within the combustion exhaust gases and the ground-level concentrations experienced in the vicinity of the site, NO_X is a ***criteria pollutant***. EPA has set National Ambient Air Quality Standards (NAAQS) for six criteria pollutants. NO_X is not on the list of approximately 188 pollutants listed as hazardous air pollutants (HAP) that are regulated pursuant to the Standards of Performance for New Stationary Sources (NSPS) contained in 40 Code of Federal Regulations, Part 60 (40 CFR 60).

3. *Sierra et al. reference to the Crystal River BART determination: "The Crystal River BART determination cannot assure compliance with the required reductions in visibility-impairing pollutants. The permit fails to set emissions limits for NO_X which are commensurate with BART if the facility does not retire in 2020".*

   Department Response: The permit is not the Crystal River Unit 1 and 2 BART determination. A draft BART determination was indeed submitted as an update of the Department's State Implementation Plan (SIP) and in accordance with the federal process prescribed pursuant to the Clean Air Act. Issuance of the present permit will enhance the ultimate success of the SIP process and does not contravene the draft SIP submittal or the as-yet unknown ultimate EPA decision regarding that submittal.

4. *Sierra et al. claim regarding compliance of non-compliance with the Florida BART rule: "For reasons explained in the attached analysis, it (i.e. the permit) does not reasonably assure compliance with the Florida BART rule 62-296.340, the federal regional haze rule, 40 CFR § 51.308 (which is incorporated by reference into Florida law), or the Clean Air Act, 42 U.S.C. § 7491".*

   Presumably Sierra et al. refer to analysis incorporated within the letter and not as an attachment. The claim that this permit does not reasonably assure compliance with Rule 62-296.340 (BART), F.A.C., is refuted by the fact that the rule does not require a BART determination for SO_2 or nitrogen oxides (NO_X) for any electric generating unit at a BART-eligible source that is subject to the Clean Air Interstate Rule (CAIR) Program.

5. *Sierra et al. claim regarding violation of Florida Law: "The permit offers no reasonable assurance that Crystal River will not 'cause pollution in violation of Florida Law. (Sierra et al. footnote No. 3: "See F.A.C. 62-4.030") "Pollution is:*

   > *The presence in the outdoor atmosphere or waters of any substances, contaminants, noise, biological, or radiological integrity of air or water in quantities or at levels which are or may be harmful or injurious to human health or welfare, animal or plant life, or property or which unreasonably interfere with enjoyment of life or property, including outdoor recreation unless authorized by applicable law"[4]. (Sierra et al. footnote No. 3: "See F.S. 403.031(7)").*

"As our comments below explain, Crystal River's proposed emissions, authorized by this draft permit, will continue to cause or contribute to visibility impairment at the region's Class I areas and across the state due to the presence of NO_X which, again, is a dangerous pollutant that contributes significantly towards smog and acid rain".

Department Response: Refer to Figure 1.

Figure 1. NO_X Emission Trend for Crystal River Power Plant, including Units 1, 2, 4 and 5 (tons/year)

There has been a dramatic reduction of NO_X emissions at the Crystal River Power Plant between 1997 and 2011. Much of the reduction occurred following installation of add-on NO_X controls on coal-fueled Units 4 and 5 such as now proposed for Units 1 and 2. Facility NO_X reductions for the time frame shown equal 37,900 tons/year and 84 percent (%).

Units 4 and 5 were constructed pursuant to a prevention of significant deterioration (PSD) permit (PSD-FL-007) and a BACT determination issued by the U.S. EPA in 1978. The NO_X project implemented between 2008 and 2010 represents control beyond that required by that EPA BACT determination.

Clearly, based on Figure 1, meaningful reductions have already occurred from Units 1 and 2. The shutdown of Units 1 and 2 under Scenario A or installation of add-on air pollution control equipment to meet a limit of 0.09 lb/MMBtu will have a further ameliorative effect on ambient nitrogen dioxide (NO_2) concentrations, ground level ozone (smog) values and regional haze.

The four Crystal River coal-fueled units (including Units 1 and 2), operate in compliance with State laws and Department rules. The Department has reasonable assurance that after issuance of the permit, the facility will continue to comply with State laws and rules. Scenarios A or B (shutdown or implementation of the proposed NO_X emission standard applicable to Units 1 and 2) in accordance with the final permit will provide further

reductions to those already realized from the Crystal River Power Plant. The suggestion that the act of issuance of this permit somehow causes pollution not authorized by applicable law is without merit.

Refer to Figure 2.

Figure 2. NO_X Emission Trends for Three Large Regional Progress Energy Facilities

Figure 2 includes graphs of the NO_X emission trends (tons/year) at the PEF Crystal River Power Plant, the PEF Anclote Power Plant (~1,050 MW) located in Pasco County and the Bartow Power Plant (~1,200 MW) located in Pinellas County. The total emissions and electrical generation in gigawatts-hours (GW-hours) from the three facilities when combined are also shown.

Remarkably large NO_X emission reductions have been realized at all three plants even as the total electrical generation from the three plants has remained fairly steady. The emission reductions already achieved at the three plants coupled with the additional NO_X project at Crystal River Units 1 and 2 authorized by this permit have reduced and will continue to reduce background NO_X concentrations, groundlevel ozone (smog) impacts, regional haze and acid rain to which the three plants may have contributed.

The foregoing discussion refutes the claim and even the notion regarding violation of Florida Law. In fact it demonstrates the diligence with which the company has pursued emission reductions in an atmosphere of great uncertainty in federal rulemaking. There is every reason to believe that the Crystal River coal-fueled units comply and will continue to comply with existing and future air pollution rules. There is also every reason to believe that the pronounced downward trend in emissions and ambient NO_X concentrations will continue and will be facilitated by issuance of the final permit.

6. *Sierra et al. claims that proposed emission levels are not adequate: The comments compiled from several parts of the letter are:*

   "The proposed emissions levels do not reflect an adequate NO_X BART determination as they are higher than they should be, and so will allow visibility impairment and high levels of pollution of NO_X pollution to persist longer and more severely than a legally-compliant permit would do".

   "The draft permit's NO_X BART determinations are legally and technically flawed".

   "We focus our discussion on NO_X BART option 2 below. Option 2 is not BART because it does not set emissions levels commensurate with the 'best available retrofit technology,' and so allows impermissibly excessive emissions. The permit may not issue with these options in their current form".

   "The proposed draft air permit for Crystal River Units 1 and 2 correctly selects SCR as BART, but fails to set the appropriate control efficiency standards. The proposed 0.09 lb NO_X/MMBtu allowable emission rate is not BART because lower emission rates can be cost-effectively achieved. When this is corrected, an emission limit of no higher than 0.05 lb NO_X/MMBtu emerges as the appropriate control. We discuss the details associated with this analysis below".

   "The proposed BART determinations which this draft permit implements, appropriately identifies SCR as BART, but fails to set an appropriate emission limit reflecting the control efficiency of which SCR is capable".

   "Because the permit does not reflect BART emission levels, it therefore does not reasonably assure compliance with Florida's pollution prohibition or with relevant federal and state law relating to the haze program".

   "DEP therefore must not finalize this permit in its current form. Its terms clearly do not comply with the BART and are not approvable by EPA".

   Department Response: Refer to Department's response to Comment 3.

7. *Sierra et al. claim that the permit is harmful: (continuation from the previous comment) "The permit therefore harms the health and welfare of the people, plants, and animals of the region, and further interferes with the enjoyment of the property affected by Crystal River's emissions".*

   Department Response: Sierra et al. did not provide any data in support of past or present harm to the health and welfare of people, plants, and animals in the region and does not recognize the ameliorative effect of past and ongoing emission reductions upon the environment, including the Class I areas. Contrary to the claim that the permit is harmful and further interferes with enjoyment property, the issuance of the permit facilitates further improvements in ground level air pollution, acid rain, regional haze and reduction of cross-state pollution transport.

8. *Sierra et al. discussion regarding NO_X visibility impairment in Florida: (Refer to page 3, Section II of the comment letter available at the link given above). NO_X is an important contributor to visibility impairment in Florida. Progress Energy Florida's Crystal River Plant is a BART-eligible source of NO_X, so must be properly controlled to insure protection of wild spaces and public health".*

   Department Response: The Department does not dispute this statement. The Department notes the massive reductions (documented above) achieved to-date from the Crystal River Power Plant, as well as from the other nearby power plants, that have greatly reduced the precursors of visibility impairing species including NO_X. The present permit ensures further reductions of NO_X from the Crystal River Power Plant and further amelioration of any remaining visibility effects.

9. *Sierra et al. claim regarding NO_X emission reductions from Units 1 and 2: "According to DEP, baseline visibility impacts for Crystal River Units 1 and 2 were 6.43 deciviews (apparently at the Chassahowitzka Class I area) for 2003 with 29.5% contributed from nitrate and NO_2. Thus, NO_X emissions from these units contribute to nearly one-third of the total visibility impacts resulting from Crystal River's air pollution emissions. Reducing NO_X by over 90% will significantly improve air quality and visibility from current conditions".*

   Department Response: The Department notes that in 2003, NO_X emissions from the Crystal River Power Plant were nearly 38,800 tons whereas current (2011) emissions were only 7,400 tons (a reduction of 80%). The total contributions from Units 1 and 2 were 10,320 tons in 2003 and only 4,965 tons in 2011. Thus a reduction greater than 50% has already been realized since 2003 from Units 1 and 2. For reference, Units 1 and 2 are legally permitted to emit 22,718 tons NO_X/year in compliance with their federal Title IV Acid Rain Permit (more than four times the actual emissions in 2011). Installation of SCR systems can only further reduce emissions as evidenced by the excellent performance of Units 4 and 5.

10. *Sierra et al. claim of inadequacy of controls: "These inadequate NO_X controls will illegally allow Crystal River to emit excess amounts of air pollution that will continue to impermissibly and unnecessarily impair Class I air quality".*

    Department Response: The foregoing responses overwhelmingly demonstrate a continuous program (including issuance of this permit) of improvement of Class I air quality (the Chassahowitzka National Wildlife Area) and of Class II air quality experienced where people live.

11. *Sierra et al. claim regarding permit emission standards: "Because the permit does not reflect BART emission levels, it therefore does not reasonably assure compliance with Florida's pollution prohibition or with relevant federal and state law relating to the haze program".*

    Department Response: Refer to responses to comments above.

12. *Sierra et al. conclusion regarding permit issuance: "In short, because DEP lacks any reasonable assurance that this permit will assure compliance with pollution control mandates, it must revise or at a minimum not finalize the permit".*

    Department Response: The Department provided notice of its intent to issue an air construction permit to the applicant for the project described above and the basis that the applicant has provided reasonable assurance that operation of proposed equipment will not adversely impact air quality and that the project will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C. Based on the foregoing, the project will clearly not adversely impact air quality. The project will comply with the mentioned rules.

    The Department is actually compelled to finalize the permit and has determined that no changes are necessary to finalize the permit in its drafted form.

CONCLUSION

The final action of the Department is to issue the permit as drafted.