



# Florida Department of Environmental Protection

Bob Martinez Center  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Charlie Crist  
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Lt. Governor

Michael W. Sole  
Secretary

July 20, 2009

*Electronic Mail – Received Receipt Requested*

Mr. Randall R. LaBauve, Vice President of Environmental Services  
Florida Power and Light (FPL)  
700 Universe Boulevard, P.O. Box 14000  
Juno Beach, FL 33408

Re: **Request for Additional Information**  
Project No. 0250003-013-AC (PSD-FL-409)  
Florida Power and Light, Turkey Point Plant  
Cooling Tower Project to Support Proposed Units 6 and 7

Dear Mr. LaBauve:

On June 30, 2009, we received your application and sufficient fee for an air construction permit to construct cooling towers to support proposed Nuclear Units 6 and 7 at the existing Turkey Point Plant. The facility is located in Miami-Dade County approximately 9.5 miles east of Homestead on SW 344<sup>th</sup> Street. The application indicates that the project is subject to preconstruction review for the Prevention of Significant Deterioration (PSD) of Air Quality pursuant to Rule 62-212.400 of the Florida Administrative Code (F.A.C.). The application is incomplete. In order to continue processing your application, please provide the additional information requested below. Should your response to any of the requested items require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

1. Based on information provided in the application, the Department understands the project proposes to install cooling towers to support proposed Nuclear Units 6 and 7 at the existing Turkey Point Plant. Each proposed nuclear unit will have three cooling towers. Each cooling tower will have the following specifications.

Air Flow Specifications

Number of Cells: 12 cells with cooling fans  
Discharge Height: 67 feet  
Diameter: 33.67  
Exit Temperature: 104.7° F  
Volumetric Flow Rate: 1,764,500 acfm

Circulating Water Flow Specifications

Total Circulating Water Flow: 210,366.7 gpm  
PM Drift Rate: 0.0005%  
PM Emissions: 157.2 tons/year at 65,000 ppmw TDS  
PM<sub>10</sub> Emissions: 3.5 tons/year based on 4000 ppmw TDS  
("TDS" means total dissolved solids in proposed cooling water.)

"PM" means particulate matter. "PM<sub>10</sub>" means particulate matter with a mean particle diameter of 10 microns or less.

- a. Is the above an accurate description of the cooling towers proposed to support Nuclear Units 6 and 7?
- b. The application indicates the cooling tower exhaust will be controlled by mist eliminators (3-pass Marley type). Do the estimated PM and PM<sub>10</sub> emissions include control by this equipment?
- c. One source of cooling water is reclaimed water from the Miami-Dade South District Wastewater Treatment Plant (WWTP), which will be further treated at FPL's reclaimed water treatment facility at the Turkey Point Plant. The maximum TDS concentration was estimated at 4000 ppmw for purposes of

**REQUEST FOR ADDITIONAL INFORMATION**

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estimating maximum PM<sub>10</sub> emissions in the application. Provide the estimated PM emissions for a TDS concentration of 4000 ppmw. Provide a chemical analysis of the organic and inorganic contaminants in the reclaimed water from the WWTP. Provide the treatment criteria that FPL will use to treat the reclaimed water for use in the cooling towers. Identify the organic and inorganic contaminants in the treated water supplied to the cooling towers. What air quality impacts will result? The Department understands that the information presented in Tables A-1 through A-5 for estimating PM/PM<sub>10</sub> emissions from cooling towers was based on the use of salt water. Provide information to support the contention that PM/PM<sub>10</sub> emissions relationships will be similar with the use of treated reclaimed water.

- d. The second source of water will be from radial collector wells, which will pull water from Biscayne Bay. The maximum TDS concentration of the saltwater was estimated at 65,000 ppmw for purposes of estimating maximum PM emissions in the application. Provide the estimated PM<sub>10</sub> emissions for a TDS concentration of 65,000 ppmw. Provide a representative analysis of the actual TDS for this source of water.
  - e. Is it possible that the cooling water would be made up from a combination of these water sources?
  - f. The review for Best Available Control Technology (BACT) in the application indicates that air-cooled condensers (ACC) are not technically feasible. However, the application also indicates that ACC are available and in use in cooler and arid climates where water is not available. Therefore, ACC are technically feasible and will result in much lower PM and PM<sub>10</sub> emissions. Please revise the BACT review to include ACC with a cost analysis.
  - g. Add natural draft cooling towers to the BACT review and include a cost analysis.
2. The project also proposes to construct two service water cooling towers (one per nuclear unit) with the following specifications per tower.

Air Flow Specifications

Number of Cells: 2  
Discharge Height: 63 feet  
Diameter: 35 feet  
Exit Temperature: 96.9° F  
Volumetric Flow Rate: 1,358,000 acfm

Circulating Water Flow Specifications

Total Circulating Water Flow: 21,000 gpm  
PM Drift Rate: 0.0005%  
PM Emissions: 1.84 tons/year  
PM<sub>10</sub> Emissions: 0.35 tons/year  
(Emission based on high range of TDS in proposed cooling water.)

- a. Is the above an accurate description of the proposed service water cooling towers?
  - b. The source of water for these cooling towers is potable water from Miami-Dade County. For purposes of estimating PM/PM<sub>10</sub> emissions, the TDS concentration was estimated at 4000 ppmw. What is the actual average TDS concentration for potable water from Miami-Dade County?
3. See Table 3-3 in the application (Maximum Emissions Due to the Project Compared to the PSD Significant Emissions Rates). Although the table indicates emissions of volatile organic compounds (VOC) will be less than the PSD significant emissions rate, the last column identifies the project as being subject to PSD review for VOC emissions. Please correct as necessary.
4. Please identify and quantify any hazardous air pollutants that will be emitted from the cooling tower project.
5. Will the temporary boilers be rental boilers? Will the temporary boilers be subject to New Source Performance Standards in Subpart Db of 40 CFR 60 or will this be determined when they are needed for service?
6. Will FPL own and operate the temporary concrete batch plant or will it be an existing concrete batch plant authorized by a previous Air General Permit?

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7. Provide a discussion of the PM emissions impacts to soils, vegetation and wildlife.
8. The National Park Service commented on the modeled visibility impacts in the Biscayne National Park. Discuss the methods available to the FPL treatment facility that can be used to maintain the TDS content of the treated wastewater below 4000 ppmw to mitigate visibility impacts caused by PM<sub>10</sub> emissions.
9. The Department is still reviewing the air quality impact analysis and may later submit additional questions regarding this modeling analysis.
10. Please address the following questions from Air Facilities Section of the Miami-Dade County Environmental Resources Management (DERM).
  - a. DERM expressed concerns that non-metallic mineral rock mining equipment and operations may be included in the scope of the proposed project; however, no such information is provided with the PSD application. Provide information related to site-preparation and construction operations addressing any limestone excavation, grading and fill activities to be conducted. Include technical and design specifications on equipment and processes for crushing, conveying and screening operations.
  - b. The information in the PSD application regarding the use of “general purpose diesel engines” is limited in detail as to the number and type of engines, equipment the engines are to service, fuel tanks and day tanks to be associated with the engines, etc. Provide details including the design and technical specifications for the general purpose diesel engines similar to the information provided for the generator and fire pump engines.
  - c. DERM expressed concerns that constituents in the cooling water will be emitted as particulates in the aerosol/drift exhaust from the cooling towers. Provide additional information regarding the chemical makeup of the proposed cooling water (both reclaimed and subsurface water) as well as a characterization of emissions from the cooling towers.
    - 1) Provide water quality/chemical analysis reports for the reclaimed water to be received from the Miami-Dade Water and Sewer Department (WASD). Provide a process flow diagram with description of the proposed FPL reclaim treatment plant including characterization of plant effluent. Provide a technical discussion and analysis of the effect that the cooling tower (heat transfer) process has on the reclaim water constituents and the related air emissions (both criteria and hazardous air pollutants). Source water analysis constituents to be addressed include: TDS, total suspended solids, chlorides, organics and metals. In addition to PM and PM<sub>10</sub>, provide emissions calculations for other criteria pollutants and hazardous air pollutants.
    - 2) Provide water quality/chemical analysis reports of cooling water to be used from radial collection wells. Provide evaluation on the effect that the cooling tower (heat transfer) process has on the radial collection well water constituents and the related air emissions (both criteria and hazardous air pollutants). Radial collection well water constituents to be addressed include: TDS, total suspended solids, chlorides, organics and metals. In addition to PM and PM<sub>10</sub>, provide emissions calculations for other criteria pollutants and hazardous air pollutants.
  - d. DERM expressed concerns over the significant PM/PM<sub>10</sub> emissions that would result from the proposed wet circulating water cooling towers. Provide a comprehensive evaluation of alternative cooling technologies instead of the proposed mechanical draft cooling towers.
  - e. Although not related directly to the PSD application, the DERM advises FPL of the following:
    - 1) If any demolition activities or renovation of existing buildings is to occur during the proposed project, either on-site or off-site, all applicable asbestos notifications and surveys shall be submitted.
    - 2) If site-preparation and construction activities include open burning, Chapter 24 requires Open Burning Permits for Land Clearing be obtained from the Miami Dade County Fire Department.

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The above information is requested pursuant to the following F.A.C. regulations: Rule 62-4.050 (Procedures to Obtain Permits and Other Authorizations; Applications); 62-4.055 (Permit Processing); 62-4.070 (Standards for Issuing or Denying Permits; Issuance; Denial); 62-4.120 (Construction Permits); 62-204.800 (Federal Regulations Adopted by Reference); 62-212.300 (Permits Required); 62-210.370 (Emissions Computations and Reporting); 62-210.900 (Forms and Instructions); 62-212.300 (General Preconstruction review); and 62-212.400 (Preventions of Significant Deterioration). All applications for a Department permit must be certified by a professional engineer registered in the State of Florida pursuant to Rule 62-4.050(3), F.A.C. This requirement also applies to responses to Department requests for additional information of an engineering nature. For any material changes to the application, please include a new certification statement by the authorized representative or responsible official.

We will resume processing your application after receipt of the requested information. You are reminded that Rule 62-4.055(1), F.A.C. requires applicants to respond to requests for information within 90 days or to provide a written request for an additional period of time to submit the information. If you have any questions regarding this matter, please contact the project engineer, Tammy McWade (850/488-1906) or me (850/921-9536).

Sincerely,



Jeffery F. Koerner, Administrator  
New Source Review Section

This letter was sent to the following people by electronic mail with received receipt requested.

Mr. Randall R. LaBauve, FPL (randall\_r\_labauve@fpl.com)  
Mr. Matthew J Raffenberg, FPL (Matthew.Raffenberg@fpl.com)  
Mr. Kennard F. Kosky, Golder Associates Inc. (kkosky@golder.com)  
Mr. Lennon Anderson, SED Office (lennon.anderson@dep.state.fl.us)  
Mr. Patrick Wong, Miami-Dade DERM (wongp@miamidade.gov)  
Ms. Mallika Muthias, Miami-Dade DERM (muthim@miamidade.gov)  
Mr. Mike Halpin, DEP Siting Office (mike.halpin@dep.state.fl.us)  
Ms. Kathleen Forney, EPA Region 4 (forney.kathleen@epa.gov)  
Ms. Heather Abrams, EPA Region 4 (abrams.heather@epa.gov)  
Ms. Ana M. Oquendo (oquendo.ana@epa.gov)  
Mr. Dee Morse, NPS (dee\_morse@nps.gov)  
Ms. Vickie Gibson, DEP BAR Reading File (victoria.gibson@dep.state.fl.us)

JFK/tm

## Livingston, Sylvia

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**From:** Livingston, Sylvia  
**Sent:** Monday, July 20, 2009 2:24 PM  
**To:** 'randall\_r\_labauve@fpl.com'  
**Cc:** 'matthew.raffenberg@fpl.com'; 'kkosky@golder.com'; Anderson, Lennon;  
'wongp@miamidade.gov'; 'muthim@miamidade.gov'; 'abrams.heather@epamail.epa.gov';  
'oquendo.ana@epa.gov'; 'dee\_morse@nps.gov'; Gibson, Victoria; Koerner, Jeff; Walker,  
Elizabeth (AIR)  
**Subject:** RAI - 0250003-013-AC (FPL - Turkey Point Plant)  
**Attachments:** RAI 0250003-013-AC.pdf

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software, *noting that you can view the documents*, and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site: <http://www.adobe.com/products/acrobat/readstep.html> .

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Thank you,

Sylvia Livingston  
Bureau of Air Regulation  
Division of Air Resource Management (DARM)  
850/921-9506  
[sylvia.livingston@dep.state.fl.us](mailto:sylvia.livingston@dep.state.fl.us)

Tracking:

## Livingston, Sylvia

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**From:** Randall\_R\_LaBauve@fpl.com  
**Sent:** Monday, July 20, 2009 2:53 PM  
**To:** Livingston, Sylvia  
**Subject:** Re: RAI - 0250003-013-AC (FPL - Turkey Point Plant)  
**Attachments:** pic14604.gif; RAI 0250003-013-AC.pdf

Received. Thank You

▼"Livingston, Sylvia" <[Sylvia.Livingston@dep.state.fl.us](mailto:Sylvia.Livingston@dep.state.fl.us)>

"Livingston, Sylvia"

<[Sylvia.Livingston@dep.state.fl.us](mailto:Sylvia.Livingston@dep.state.fl.us)> To: randall\_r\_labauve@fpl.com  
cc: matthew.raffenberg@fpl.com, kkosky@golder.com, "Anderson, Lennon" <[Lennon.Anderson@dep.state.fl.us](mailto:Lennon.Anderson@dep.state.fl.us)>, wongp@miamidade.gov, muthim@miamidade.gov, abrams.heather@epamail.epa.gov, oquendo.ana@epa.gov, dee\_morse@nps.gov, "Gibson, Victoria" <[Victoria.Gibson@dep.state.fl.us](mailto:Victoria.Gibson@dep.state.fl.us)>, "Koerner, Jeff" <[Jeff.Koerner@dep.state.fl.us](mailto:Jeff.Koerner@dep.state.fl.us)>, "Walker, Elizabeth (AIR)" <[Elizabeth.Walker@dep.state.fl.us](mailto:Elizabeth.Walker@dep.state.fl.us)>  
07/20/2009 02:24 PM Subject: RAI - 0250003-013-AC (FPL - Turkey Point Plant)

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Thank you,

Sylvia Livingston  
Bureau of Air Regulation