



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

August 16, 2010

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U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Dear Sir or Madame:

**Subject: FPL Turkey Point Units 6 & 7 ("Proposed Project")  
Combined License Application Review  
Scoping Comments**

This letter is in response to your June 24, 2010 letter requesting the South Florida Water Management District's (SFWMD's) participation in the scoping process for the Proposed Project. The SFWMD is a regional governmental agency that oversees the water resources in the southern half of Florida, including 16 counties from Orlando to the Florida Keys with a population of more than 7.5 million. The SFWMD is the oldest and largest of the state's five water management districts.

Charged with safeguarding the region's water resources, the SFWMD is responsible for managing and protecting water quality, flood control, natural systems and water supply. The SFWMD operates and maintains the Central and Southern Florida (C&SF) Project, one of the world's largest water management systems. The C&SF Project consists of many miles of canals, levees, water storage areas, pump stations, and other water control structures.

The SFWMD is also the lead state agency in the Federal-State initiative to restore America's Everglades through the Comprehensive Everglades Restoration Plan (CERP), the largest environmental project in North America. The CERP is a framework for restoring, protecting and preserving the water resources of central and southern Florida. The CERP is a 30-year, 50-50 partnership between the State of Florida and the Federal government. The State of Florida and the SFWMD have invested approximately \$2.4 billion toward this effort, including approximately \$300 million in construction, as of June 30, 2010.

The SFWMD is currently reviewing a Site Certification Application (SCA) for this project, pursuant to the State of Florida's Power Plant and Electrical Transmission Line Siting Act (Sections 403.501-403.539, Florida Statutes). During the SCA review process, the

*SUNSI Review Complete  
Template - ADM-013*

*F-REDS = ADM-03  
Call - A. Kugel (95K1)*

SFWMD has identified a number of issues that have the potential to result in significant adverse regional water resource-related impacts, including potential impacts to specific CERP projects and related restoration initiatives. Specifically, the Proposed Project may result in adverse impacts to:

- 1) The Biscayne Bay Coastal Wetlands CERP Project – This project will replace lost overland fresh water flow and partially compensate for the reduction in groundwater seepage by redistributing, through a spreader system, available surface water entering the area from regional canals. The goal of this project is to improve the ecological health of Biscayne Bay (including freshwater wetlands, tidal creeks and near-shore habitat) by adjusting the quantity, quality, timing, and distribution of freshwater entering Biscayne Bay and Biscayne National Park. Redistribution of freshwater flow and the expansion and restoration of wetlands will help to restore or enhance freshwater wetlands, tidal wetlands, and near shore bay habitat. The project, located in southeastern Miami-Dade County, includes pump stations, spreader swales, stormwater treatment areas, flowways, levees, culverts, and backfilled canals. The project covers 13,600 acres along the L-31E Canal. The purpose of the project is to capture, treat, and redistribute freshwater runoff from the watershed going into Biscayne Bay, creating more natural water deliveries and expanding the spatial extent and connectivity of coastal wetlands and improving recreational opportunities.
- 2) The L31N (L-30) Seepage Management Pilot CERP Project – This project, located along a portion of the L-30 levee north of U.S. Highway 41 in Miami-Dade County, will help resolve critical uncertainties associated with seepage management, including the characterization of the Biscayne aquifer hydrodynamics, constructability in south Florida geology, reliability of materials and technologies, feasibility of implementing a seasonally flexible operating system, appropriateness of monitoring to evaluate effects on seepage, and cost and time requirements necessary for implementation. The recommended plan will test two structural seepage reduction technologies (steel sheet pile and slurry wall), and will test the ability to seasonally manage seepage flows through pumping operations with the use of extraction and injection wells. Field tests, seepage reports, and historical data independently show that this is one of the most transmissive parts of the Biscayne aquifer.
- 3) The South Dade C-111 Project and Modified Water Delivery Project to Everglades National Park (Modwaters) – This project will modify the existing water management infrastructure to improve water deliveries to Everglades National Park (ENP). Changes are being made to Water Conservation Area 3A/3B levees and canals to redirect water flow into Northeast Shark River Slough in and around the proposed new Florida Power and Light (FPL) Turkey Point

Units 6 & 7 transmission line corridors. Current water management actions focus on re-establishing sheet flow into ENP by removing barriers such as the Tamiami Trail road and replacing it with a bridge. Future water management changes will increase the volume of water introduced and distributed into Northeast Shark River Slough.

Additional changes are being implemented along the Lower C-111 Canal to promote rehydration of Taylor Slough and northern Florida Bay in the southern limits of ENP. A series of detention areas are being constructed west of the L-31N Canal to provide storm water detention and create a hydrologic barrier between the managed canal levels and the Everglades marsh. Water levels will be managed at higher levels within the detention areas to create a positive hydrologic head and reduce seepage from ENP.

- 4) Decentralization of Water Conservation Area 3A/3B – This is a CERP project and a companion to the South Dade C-111/Modwaters Project promoting removal of existing levees and canals impacting sheet flow into ENP. Future changes include removal of existing canals, levees, and structures separating WCA 3A/3B and ENP, such as removal of the Miami Canal within WCA 3A, removal of the L-67A/C levee segments, and additional bridging of Tamiami Trail together with the removal of the L-29 containment levee.

In addition to the potential for significant adverse impacts to specific restoration projects, the SFWMD is concerned about the potential for significant adverse impacts that relate to its overall mission to manage the water resources of the State located within the SFWMD's geographic boundaries. The SFWMD recommends that the following issues be addressed in the Environmental Impact Statement:

#### Radial Well and Construction Dewatering Withdrawals at Power Plant Site

- The adequacy of the ground water modeling submitted by FPL.

Note: A summary of the District's concerns regarding FPL's ground water modeling is attached.

- The potential for the proposed withdrawals to exacerbate saline water intrusion and ground water contamination due to the existence of preferential flow paths within the Biscayne aquifer.
- The potential for the proposed withdrawals to adversely impact the ecology of Biscayne Bay.

- The potential for the proposed withdrawals to adversely impact the CERP Biscayne Bay Coastal Wetlands project.
- The potential for adverse impacts to regional water resources, including public water supply wellfields, Biscayne National Park, the Biscayne Bay Aquatic Preserve, and the Florida Keys National Marine Sanctuary from induced seepage from the Turkey Point cooling canal system as a result of cumulative impacts, including additional loading from construction dewatering/wastewater discharges and runoff from stored muck, and reduced head in the vicinity of the power block construction dewatering withdrawals and the radial well withdrawals. The unlined cooling canal system contains hypersaline water overlying the highly permeable Biscayne Aquifer. The salinity of cooling canal system water is significantly greater than natural groundwater salinity in the area and the waters within adjacent Biscayne Bay; therefore, the presence of density driven seepage upgradient (to the west) and downgradient (to the east and south) is likely. Monitoring wells up to approximately three miles west of the cooling canal system have encountered groundwater with chemical constituents indicative of cooling canal system water, including hypersalinity and/or tritium. Constituents within the cooling canal system that have or may have the potential to degrade water resources include hypersaline water, radiological isotopes, nutrients, or other compounds that may be discharged into the cooling canal system from plant operations and/or muck storage adjacent to the cooling canal system.

#### Additional Construction Impacts at Power Plant Site

- The potential for adverse impacts to wetlands and listed species.
- The potential for adverse impacts to Biscayne Bay associated with the proposed barge canal dredging.

#### Temporary Roadway Improvements for Construction of Units 6 & 7

- The potential for adverse impacts to wetlands and listed species.
- The potential for adverse impacts to the CERP Biscayne Bay Coastal Wetlands Project.
- The potential for adverse impacts to environmentally sensitive lands within the Model Land Basin.

Note: A copy of the SFWMD's letter to the Florida Department of Community Affairs concerning FPL's proposed roadway text amendments to Miami-Dade

County's comprehensive plan is attached. Please note that the letter includes comments on an alternate roadway proposal recommended by Miami-Dade County staff.

#### Reclaimed Water Pipeline

- The potential for adverse impacts to wetlands and listed species.
- The potential for adverse impacts to the CERP Biscayne Bay Coastal Wetlands Project.

#### Electrical Transmission Lines

- The potential for adverse impacts to wetlands and listed species.
- The potential for adverse impacts to the construction schedule for the U.S. Army Corps of Engineers (USACE) Seepage Management Pilot Project, which is a component of the CERP Project. The work on the USACE project will take place within the western levees of the SFWMD's L-30 and L-31N Canals, which are located within the West Preferred Corridor. The SFWMD is a participating partner with the USACE in this project. Work is scheduled to begin soon and may still be ongoing when FPL commences construction of the proposed transmission lines.
- The potential for adverse impacts to the SFWMD's L-30 and L-31N Canal levees, which are located within the West Preferred Corridor. FPL is proposing use the existing access roads on the canal levees for construction and maintenance purposes; however, portions of the levees have not been designed to accommodate the heavy equipment proposed to be used by FPL; therefore, the levees will need to be enhanced and widened. The SFWMD advised FPL that any proposed levee enhancements will need to meet USACE design specifications, compaction, and side slope stabilization (grass/sod) requirements.
- The potential for the Preferred Corridors to adversely impact SFWMD-owned communications towers and radio matrix sites. In particular, the West Preferred Corridor is located very close to various SFWMD communications towers and radio matrix sites. Although FPL has indicated that they will work with the SFWMD to resolve any unlikely interference issues, they have not provided the SFWMD with adequate information to determine if or to what extent critical SFWMD-owned communications facilities may be impacted by the proposed transmission line facilities. The SFWMD advised FPL that it is unacceptable to wait until impacts have occurred to identify, design, permit, construct, and

implement solutions, since this could substantially impact the SFWMD's ability to use these facilities to meet SFWMD flood protection and other critical emergency management responsibilities.

- The potential for adverse impacts to existing wetland slough systems, located within the vicinity of U.S. Highway 1, from new and/or improved fill roads associated with the West Preferred Corridor. East of U.S. 1, under the CERP Biscayne Bay Coastal Wetlands Project, additional surface water flows are to be diverted southward, through existing wetland slough systems in this area, to hydrate wetlands to the south, including wetlands in the SFWMD's Model Lands Basin area, and possibly the SFWMD's Southern Glades Basin area. The SFWMD is a partner with the USACE in this project. Even if culverts are installed, they are very poor at maintaining low head flows (i.e., sheetflow). West of U.S. 1, the corridor crosses the SFWMD's Southern Glades Save Our Rivers Parcel GR701-025.
- The potential for adverse impacts to wetlands that are part of northeastern Shark River Slough, within the boundaries of Everglades National Park, and wetlands within Water Conservation Area 3B, associated with the West Secondary Corridor. Both of these areas are part of the Everglades Protection Area as defined in the Everglades Forever Act and are targets for restoration under CERP. FPL has not provided adequate information on potential impacts from the construction, operation, and maintenance of the proposed transmission lines and related access (fill) roads through these areas. Currently, there are no existing access roads in this area other than the L-30 and L-31N levee roads. New road construction would result in long-term impacts to wetland habitat, disrupt existing hydrologic flows, and impact water quality. New road construction would potentially conflict with future CERP project restoration efforts related to the relocation of the S-356 pump station and the promotion of wetland sheet flow. Vehicles (other than airboats) moving over the wetlands (without roads) would also result in major disturbance to existing wetlands by compacting soils, disrupting existing hydrologic flows, and impacting habitat for listed species. Another area of concern is specific to tree islands, which are commonly used as bird rookeries. Islands in or adjacent to this corridor have been Wood Stork rookeries in recent years. Given that Wood Storks are an endangered species and that restoration of the Wood Stork population, along with other Everglades wading bird populations, is a primary CERP target, the construction and presence of electrical transmission lines that could impact these tree islands and their fauna should be avoided. Please note that there may also be potential adverse impacts to the Wood Stork population and other Everglades wading bird populations from the West Preferred Corridor.

Chief  
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Regarding Water Conservation Area 3B, there are potential impacts related to the construction, operation, and maintenance of the proposed transmission line with respect to the SFWMD's legally mandated responsibilities for managing its lands within Water Conservation Area 3B. These lands were specifically acquired for water management-related purposes (i.e., flood control, water supply, conservation, reclamation, and other allied purposes) and are managed by the SFWMD and other agencies, including the U.S. Fish and Wildlife Service and the Florida Fish and Wildlife Conservation Commission, through special agreements for those purposes.

#### Wetland Mitigation Proposals

- The potential benefits and/or adverse impacts related to FPL's wetland mitigation proposals. Limited information has been provided to date by FPL regarding potential wetland mitigation options

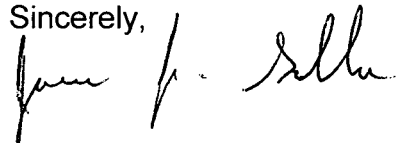
#### Hurricanes/Climate Change/Sea Level Rise

- The potential for adverse impacts related to the siting and design of the proposed plant and associated facilities directly on the coast in an area subject to the direct effects of hurricane tidal surge, climate change, and sea level rise.

Additional details concerning the above are contained within the completeness letters that the SFWMD sent to the Florida Department of Environmental Protection (DEP) as part of the SCA review process. Those letters are available on the DEP Siting Office web page at: <http://www.dep.state.fl.us/siting/apps.htm>. Please note that the SFWMD's letters are included with the letters from the other reviewing agencies.

If you have any questions concerning the above, please give me a call at (561) 682-6862.

Sincerely,



James J. Golden, AICP  
Lead Planner  
Intergovernmental Policy and Planning Division

/jjg

Enclosures

## Ground Water Modeling Summary

The ground water model (built using MODFLOW and the Visual MODFLOW tool) is a steady state, constant density model. It has no water quality features active and does not purport to simulate density dependent flow or salinity changes resulting from any proposed operations or actions. FPL has indicated that this tool is limited in use and scope to two specific narrow questions:

- 1) What is the pumping rate required to dewater the power block area, as described in the application?; and
- 2) What is the origin of the water pulled into the radial collector well system?

In both cases, according to FPL, the focus of the modeling analyses is on pump induced drawdown, which FPL contends is the basis of the SFWMD's completeness questions. FPL has made no claim to have addressed flows resulting from water with different temperature or density, both of which are factors associated with the proposed project.

The SFWMD has identified the following issues associated with the modeling:

### *Conceptualization and Configuration*

The entire model domain is assumed to be constant density and saline. Both of these assumptions are inconsistent with other submitted documentation. The simulation bounds of the model are neither all saline nor are they of the same density. FPL has asserted that the assumption is valid for the type of analyses (pump induced drawdown of flux) conducted. While this may be possible in the narrowest interpretation, it is likely that impacts of density dependent flow or temperature induced buoyancy may dominate in some areas; however, the modeling provided does not afford the SFWMD or FPL the opportunity to examine these situations. Also, it is unusual for a system that is made up of fresh, brackish, salt and hyper-saline water to be generically represented as sea water. While we understand an equivalent fresh water head was used, the impacts of this representation on gradients, stage (heads), simulated drawdown, and flows, as well as conclusions derived from these, need to be further explored and justified.

### *Boundary Conditions*

By utilizing a steady state simulation, the impact of selected boundary conditions will propagate over the entire model. By definition, a steady state is reached when all hydrologic drivers, including those specified at the boundaries, reach equilibrium. This assumption makes the specification of the model boundaries, such as head in the constant head cells that represent Biscayne Bay, very crucial. It is understood that for permitting purposes, non-exact simulations may be acceptable, if they are conservatively estimated; however, a non-conservative estimate (e.g., the water level in Biscayne Bay) could result in under-estimation or over-estimation of pumping rate necessary to achieve necessary drawdown during dewatering. Similarly, a non-



conservatively selected stage in Biscayne Bay could overestimate the contribution of this boundary (source) to the radial collection well system. It is typical in these scenarios for extensive sensitivity analyses to be performed to establish the sensitivity of the outcome or conclusions, to erroneous or non-conservatively specified boundary conditions. FPL has applied an average value to the boundary representing Biscayne Bay. This may mask tidal or seasonal trends and is unlikely to represent the critical condition for dewatering or assessing the impacts of dewatering.

### *Parameterization*

In selecting model parameters and applying them to the model cells, FPL has used a homogeneous representation of aquifer parameters in a highly heterogeneous aquifer system. This representation is, along with some unusual layering in the model construct, suspect, and must be tested to ensure that it does not negate conclusions drawn from the model. Specific concerns include the representation of the vertical hydraulic conductivity of the top two layers in the model (1 to 1 ratio for  $K_h$  to  $K_v$ ), the representations of those layers in locations where canals and other surface features intersect the conceptual (or physical) tops of the model layers, as well as the representation of the vertical connectivity in layers that were split for predictive simulations following the calibration. It is important for FPL to demonstrate that the conclusions and determinations based on modeling remain unchanged, with more correct representation of model parameters.

### *Calibration*

The model was calibrated to the results of on-site pump tests (quantitative) and to regional groundwater gradients and flow directions (qualitative). Both calibrations were based on steady state simulations. FPL justified these simulations by the rapid response of the system to the volumes extracted during the pump test. This was further justified by the intent to apply the tools also in steady state. While these justifications are understood, the calibration remains insufficient and does not represent stresses to the system similar in magnitude to the intended applications. In addition, the conditions used for calibration do not demonstrate the impact of the effect of boundary conditions on the simulation results. Lastly, the model does not include important on-site operations or features present during the pump test that could contribute to the observed data to which the model is calibrated. The foregoing notwithstanding, a review of the calibration results presented show a number of situations where multiple monitoring wells show exactly the same response in the model while they vary in the measured data. This may be suggestive of impacts of a specified boundary or inadequately tuned model parameter. If the variability that is missing is important to the required outcome from the model, then the model may not be adequately calibrated for use.



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

February 11, 2010

Ray Eubanks, Administrator  
Plan Review and DRI Processing  
Department of Community Affairs  
2555 Shumard Oak Boulevard  
Tallahassee, FL 32399-2100

Dear Mr. Eubanks:

**Subject: Miami-Dade County DCA #10-1  
Comments on Proposed Comprehensive Plan Amendment Package**

The South Florida Water Management District (District) has reviewed the proposed amendments from Miami-Dade County (County). The package includes six amendments of which two present water resources issues of concern to the District. Application Five revises the Miami-Dade Comprehensive Development Master Plan's Open Land category to allow an ancillary use of commercial vehicle storage in Open Land Subarea 1. Application Six, which is related to the Florida Power and Light (FPL) Turkey Point Units 6 & 7 Site Certification, proposes amendments to the roadway network on the Future Land Use Map and amendments to the Transportation Circulation Sub-element for new/temporary roadways. We have the following recommendations concerning Applications Five and Six which we request you incorporate into your response to the County.

Application Five:

- **Incorporate specific environmental controls into the amendment to protect the water resources of the area from potential risks such as leaking fluids and washdown water.**
- **Identify in the text the entity responsible for the proposed environmental monitoring.**
- **Include a policy for coordination with the District regarding environmental monitoring and reporting, especially for the Comprehensive Everglades Restoration Plan (CERP) Study Area.**

Application Six:

- **Indicate which roadway improvements will be temporary and which will be permanent and specify the time-frames when each temporary roadway improvement will be restored to its previous, or better, condition.** Although the applicant, FPL, indicates that all of the roadway improvements will be temporary, the County's Supplement to the Initial Recommendations Report for Application 6 states, "The [Miami-Dade County Planning] Department favors the dedication of the proposed roadway improvements as permanent facilities". Without clear identification of temporary and permanent roadway improvements, the District cannot identify all potential impacts.
- **Provide assurance that the proposed roadway improvements will be designed to be compatible with CERP Biscayne Bay Coastal Wetlands Project Alternative "O".** The amendment does not demonstrate how the proposed roadway improvements will be designed to be compatible with CERP Biscayne Bay Coastal Wetlands Project Alternative "O". Under Alternative "O", additional surface water flow (sheetflow) is to be diverted southward, through existing wetland slough systems, into environmentally sensitive lands

located south of Palm Drive (S.W. 344<sup>th</sup> Street), generally between the District's L-31E Canal and U.S. Highway 1. Under this amendment, several new roadway improvements are proposed that could interfere with the proposed sheetflow. Prior to adoption, the amendment should be revised to include policies, strategies, and commitments to ensure that the appropriate engineering analyses are conducted and any proposed drainage features, including culverts, be designed, sized, and spaced to handle existing and proposed flows.

- **Eliminate or reduce the direct and secondary wetland impacts and impacts to wetland-dependent listed species.** The amendment does not demonstrate elimination or reduction of direct and secondary wetland impacts and impacts to wetland-dependent listed species. Please provide alternative analyses to document elimination or reduction of direct and secondary wetland impacts for all potential roadway corridors. Potential secondary impacts include habitat fragmentation, other induced development, and habitat alteration related to opportunistic undesirable (or exotic) vegetation.
- **Revise the *FPL Turkey Point Units 6 & 7 Mitigation Plan* to address the following:**
  - **Revise the habitat assessment to better reflect the actual habitat values.**
  - **Provide mitigation adequate to offset the proposed wetland impacts.**
  - **Include the additional roadway improvements proposed under the "Additional Access Option" in the plan.** The plan only addresses the roadway improvements proposed by FPL. It should be modified to include the additional roadway improvements under consideration that are referred to in the County's Supplement to the Initial Recommendations Report as the "Additional Access Option".
- **Identify specific measures that will be adopted to protect the environmentally sensitive lands south of Palm Drive (S.W. 344<sup>th</sup> Street) from illegal access and activities such as dumping, use of all-terrain vehicles, and poaching.** The new roadways proposed south of Palm Drive will increase opportunities for illegal access to environmentally sensitive lands, including those in the Model Lands Basin area.

We look forward to continuing this collaboration with the County and the Department of Community Affairs in developing sound, sustainable solutions to protect the region's water resources. For assistance or additional information, please contact Rod Braun, Director, Intergovernmental Policy and Planning Division, at (561) 682-2925 or [rbraun@sfwmd.gov](mailto:rbraun@sfwmd.gov).

Sincerely,



Kim Shugar  
Director, Intergovernmental Programs Department  
South Florida Water Management District

- c: Bob Dennis, DCA  
Marc C. LaFerrier, Miami-Dade Planning and Zoning Department  
Rachel Kalin, SFRPC  
Jim Quinn, DEP  
Kim Shugar, SFWMD  
Steven D. Scroggs, FPL