

January 11, 2017

Ms. Virginia M. Fay
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SUBJECT: RESPONSE TO ESSENTIAL FISH HABITAT CONSERVATION
RECOMMENDATIONS REGARDING PROPOSED TURKEY POINT
UNITS 6 AND 7

Dear Ms. Fay:

The U.S. Nuclear Regulatory Commission (NRC) received your letter dated May 22, 2015, providing the National Marine Fisheries Service's (NMFS) comments and conservation recommendations in response to the draft environmental impact statement (EIS) and essential fish habitat (EFH) assessment, respectively, for the construction and operation of the proposed Turkey Point Units 6 and 7. The two new units would be built at the existing Turkey Point Nuclear Plant adjacent to Biscayne Bay in Miami-Dade County. As cooperating agencies, the NRC and the U.S. Army Corps of Engineers (USACE) have conducted a joint EFH consultation with NMFS in association with reviews of the application submitted by Florida Power and Light Company (FP&L) for combined licenses from the NRC and a Department of the Army permit from USACE. The joint EFH consultation was initiated pursuant to Section 305 of the Magnuson-Stevens Fishery Conservation and Management Act (Public Law 94-265, December 1996) (the "Act"). The EFH assessment was referenced in Appendix F of the draft EIS, which was issued in February 2015. The EFH assessment was also provided to the NMFS by letter dated February 25, 2015.

This letter responds to the EFH conservation recommendations provided in your May 22, 2015, letter, thereby concluding EFH consultation by the NRC, as required by Section 305(b)(4)(B) of the Act. It is our understanding that USACE will respond to the NMFS's comments and conservation recommendations by separate letter.

In the EFH assessment, the NRC and USACE determined that construction and operation of the proposed Units 6 and 7 at the Turkey Point site would have minimal adverse effects on EFH within Biscayne Bay, resulting from the loss of spawning, nursery, forage, and/or shelter habitat for the 7 species evaluated within the snapper-grouper, spiny lobster, and pink shrimp fishery management plans.

NMFS's five EFH conservation recommendations in your May 22, 2015, letter are reproduced and responded to below:

- 1) Project plans within the Clean Water Act permit and project license should reflect all practicable avoidance and minimization of impacts to mangroves and seagrass habitats and demonstrate adequate compensatory mitigation is planned, as shown through a functional assessment comparing impact and mitigation areas. The mitigation plan should describe how mangrove impact areas will be re-graded to appropriate elevations and monitored to ensure mangrove vegetation returns to the impacted site. Performance measures, monitoring criteria, schedule, and frequency should also be identified in the plan.

FP&L's wetlands mitigation plan, included in the State of Florida Conditions of Certification (COCs) (2014), proposes to mitigate for all functional loss of wetlands through regional wetland restoration, enhancement, and preservation combined with purchase of credits from regional mitigation banks. The discussion of the wetland mitigation plan in Section 4.3.1.6 of the EIS has been expanded to better explain how the proposed mitigation would offset the unavoidable losses and degradation of specific wetland habitats, including the coastal mangrove forests. Although the NRC staff considers the possible benefits of the applicant's proposed wetland mitigation in its assessment of terrestrial and wetland impacts in the EIS, the details of the plan are developed by the applicant and approved by the Federal and State agencies that have regulatory oversight.

- 2) The final EIS and EFH assessment should analyze the effects of operating the RCW as the main water source when the primary water supply becomes unavailable for periods longer than 60 days or commit to notifying or reinitiating consultation with the NMFS when this occurs.

Reclaimed wastewater will be the primary source of cooling water for the proposed reactors. Saline water from the radial collector wells (RCWs) beneath Biscayne Bay will only be used when reclaimed treated wastewater is not available in sufficient quantity or quality, and for a maximum of 60 days per year that is permitted under the State of Florida COCs (State of Florida, 2014). The NRC review team determined that there is a reliable and sufficient volume of treated municipal wastewater that can be used for cooling the proposed plants without reliance on an alternative source of make-up. The applicant has agreed to the State of Florida's requirement to limit operation of the RCWs to 60 days per year. The NRC staff has no reason to believe that they will exceed that limit as indicated in EIS Section 5.2.1.2.

- 3) The final EIS and EFH assessment should characterize and quantify the level of exchange between the cooling canals and Biscayne Bay in order to ensure the biological monitoring implemented for RCW operation considers the interrelatedness and water exchange of the cooling canals and the RCW collection area.

The NRC staff performed additional groundwater modeling of the interaction between the planned RCWs, the existing hypersaline plume, and the cooling canals using a two-dimensional cross section model and a limited-extent three-dimensional model. These simulations were performed to better understand the effects of RCW pumping on salinity in the aquifer beneath the bay combined with the existing hypersaline plume from the Turkey Point Units 3 and 4 cooling canals and planned remediation actions, and the analysis has been added to Appendix G. This model was useful in showing salinity changes that occur in the aquifer near the RCWs when the wells are operated.

The results showed that when the wells are not operating, hypersaline water from the cooling canals is present in the high permeability zone where the well laterals are installed. This saline water is drawn into the wells during the first few days of RCW pumping, resulting in increasing, then decreasing salinity at the well. The salinity of the water produced by operation of the RCW system is then predicted to drop to about the concentration of the bay water. Water flowing down through the bed of the bay and into the RCWs is therefore expected to have about the same salinity as bay water. When RCW pumping ceases, water in the high permeability zone again increases in salinity because of the migration of water from the hypersaline plume. This migration of hypersaline water into the high permeability zone would occur regardless of the presence of the RCWs.

Predicted future change in sea level and its effect on interactions between the RCWs and the hypersaline plume were also simulated. The additional modeling confirmed that pumping of the RCWs would move hypersaline water toward the RCWs and would remove some groundwater captured by the RCWs from the hypersaline plume region of the Biscayne aquifer. The model also indicated that RCW operation is not likely to reduce the effectiveness of hypersaline plume remediation actions specified in the consent order between FP&L and Miami Dade County. Reclaimed wastewater will be the primary source of cooling water for the proposed reactors.

Saline water from the RCWs beneath Biscayne Bay will only be used when reclaimed treated wastewater is not available in sufficient quantity or quality, and for a maximum of 60 days per year that is permitted under the State of Florida COCs. The review team determined that the primary reclaimed water source is reliable because of the need for Miami Dade County to dispose of large volumes of treated wastewater that are currently discharged into the ocean. Therefore, it is likely that the RCWs will be used less than the 60 days per year permitted under the COCs.

Additionally, the COCs require extensive monitoring of sea grass beds in the vicinity of the RCW system. The monitoring will be conducted before, during, and after construction of the RCWs. Monitoring during operation of Units 6 and 7 will also be conducted. The biological monitoring program, the ongoing ground water and surface water monitoring, and the three modeling efforts have led the staff to conclude that the operation of the RCWs for up to 60 days per year will have no detectable effect on the biota of Biscayne Bay. In the unlikely event that the staff is incorrect in its conclusion, the monitoring required by the COCs will document any damage to the bay and allow for the development of additional mitigation measures. Sections 5.2.1 and 5.3.2 were revised to include the results of the additional modeling and effects to aquatic resources in Biscayne Bay such as seagrass and aquatic species.

- 4) The Clean Water Act permit and project license should require implementation of a biological monitoring and adaptive management program to assess changes in salinity and temperature in Biscayne Bay resulting from RCW operation. The NMFS offers to assist in the development of this plan.

The NRC staff agrees that an interagency team would be valuable to coordinate monitoring efforts and share data. The Florida Department of Environmental Protection (FDEP) provides detailed monitoring requirements for assessing potential adverse effects on ecological resources and water quality during the construction and operation of the RCW system, to include a 2 year period of pre-construction monitoring (State of Florida 2014). If the Department of Army permit is authorized, the USACE would include specific conditions regarding any monitoring and mitigation for unavoidable impacts to aquatic resources. Additional clarifying

text has been added to Sections 4.3.2 and 5.3.2 of the EIS to provide more details concerning surface water and biological monitoring and mitigation requirements as provided in the FDEP Conditions of Certification.

- 5) The Clean Water Act permit and project license should require the permittee to quickly identify and remedy both types of frac-outs in the case they occur.

Sections 4.3.2 and 5.3.2 of the EIS have been revised to include additional context and clarity concerning the potential for adverse effects on aquatic resources during installation and operation of the RCWs. The NRC staff has included in the final EIS specific installation requirements for the wells by the State of Florida (2014). Construction of the RCWs will not use high pressure water injection during drilling, thus eliminating any potential for a pressure induced "frac-out."

This response letter concludes the NRC's portion of the joint EFH consultation regarding construction and operation of proposed Units 6 and 7 at the Turkey Point site. The USACE will complete its consultation with the NMFS through a separate letter. If you have any questions concerning the response to NMFS's EFH conservation recommendations, please contact Ms. Alicia Williamson of my staff at 301-415-1878, or via e-mail to Alicia.Williamson@nrc.gov.

Sincerely,

/RA/

Jennifer Dixon-Herrity, Chief
Licensing Branch 4
Division of New Reactor Licensing
Office of New Reactors

Docket Nos.: 52-040 and 52-041

State of Florida. 2014. "Final Order on Certification, In Re: Florida Power & Light Company Turkey Point Units 6 & 7 Power Plant Siting Application No. PA 03-45A3." State of Florida Siting Board, Office of the General Council, Case No. 09-3107, Division of Administrative Hearings, Case No. 09-03575-EPP, Tallahassee, Florida (Agencywide Documents Access and Management System Accession No. ML14345A291).

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- 5) The Clean Water Act permit and project license should require the permittee to quickly identify and remedy both types of frac-outs in the case they occur.

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***concurring via email**

NRO-002

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**SUBJECT: RESPONSE TO ESSENTIAL FISH HABITAT CONSERVATION
RECOMMENDATIONS REGARDING PROPOSED TURKEY POINT
UNITS 6 AND 7 DATED JANUARY 11, 2017**

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