UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

DEC 22 2016

Ms. Cindy Bladey, Chief
Rules, Announcements, and Directives Branch (RADB)
Division of Administrative Services
Office of Administration
Mailstop OWFN-12H8
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Re: EPA Review and Comments Final Environmental Impact Statement (FEIS) Turkey Point Nuclear Plant, Units 6 and 7, Combined Licenses (COLs), Florida; CEQ No.: 20160258

Dear Ms. Bladey:

Pursuant to Section 309 of the Clean Air Act (CAA) and Section 102(2)(C) of the National Environmental Policy Act (NEPA), the U.S. Environmental Protection Agency Region 4 reviewed the Final Environmental Impact Statement (FEIS) for the Turkey Point Nuclear Plant, Units 6 and 7, Combined Licenses (COLs), NUREG-2176. We appreciate your continued coordination and communication with us since issuance of the Draft Environmental Impact Statement (DEIS). The purpose of this letter is to provide our review and comments regarding the FEIS for the proposed project.

This FEIS is the result of Florida Power and Light Company (FPL) submitting an application to the U.S. Nuclear Regulatory Commission (NRC) for combined construction permits and operating licenses for the proposed Turkey Point Units 6 and 7. The proposed action includes construction and operation of two Westinghouse AP1000 Pressurized Water Reactors (PWRs) and ancillary facilities at the Turkey Point site, each having thermal power ratings of 3,415 megawatts (MW(t)).

The federal actions include the NRC's decision whether or not to issue the licenses, and the U.S. Army Corps of Engineers (USACE) decision to issue, deny, or issue with modifications a Department of the Army (DA) permit, pursuant to Section 404 of the Clean Water Act (CWA) for dredge and fill activities in Waters of the U.S., and to construct structures in navigable waters of the U.S. related to the project. The USACE and the National Park Service (NPS) are cooperating agencies on this EIS. Biscayne National Park (BNP) and the Everglades National Park (ENP) are in close proximity to the project area. After considering the environmental aspects of the proposed project, the NRC's preliminary recommendation is that the COLs be issued for Units 6 and 7. This FEIS addresses issues related to the licensing of the two new reactor units (Units 6 and 7), but does not review environmental issues pertaining to the existing reactor units (Units 3 and 4) and the existing support facilities. The EPA had noted in its comments on the DEIS that the construction of Units 6 and 7 would have impacts on the existing facility.

The EPA provided comments on the DEIS on July 15, 2015, and based upon our review, we rated the DEIS Preferred Alternative as Environmental Concerns (EC), Category 2-Insufficient Information. The EC-2 rating indicated that the document did not contain enough information needed to fully assess some of the environmental impacts that should be avoided in order to fully protect the environment. In response to the public notice for the Section 404 CWA permit, the EPA also provided the USACE with comment letters pursuant to the Section 404(q) *Memorandum of Agreement between the Army Corps of Engineers and the Environmental Protection Agency*, on April 9, 2015, and May 4, 2015.

The EPA has several environmental concerns that were not adequately addressed in the FEIS. Of greatest concern are the project's potential impacts related to wetlands, groundwater, drinking water, Underground Injection Control (UIC) permits, impacts to BNP and other aquatic preserves, environmental justice (EJ) and potential hurricane and severe storm impacts. The enclosed comments state our concerns in detail, and we request that these concerns be fully addressed in the Record of Decision (ROD) and subsequent COLs.

Beyond these concerns, the FEIS provides useful information and covers a variety of complex environmental issues related to the COL process for the proposed new units. We appreciate your coordination and outreach to us to discuss the numerous technical issues and our environmental concerns regarding this project. We look forward to continuing a dialogue with the NRC to reduce the proposed project's potential impacts, including its potential long-term risks. We are available for further discussion, and request a copy of the ROD when it becomes available. If you have any questions, please contact Mr. Christopher Militscher, Chief of the NEPA Program Office, at 404-562-9512 or by e-mail at Militscher.chris@epa.gov.

Sincerely,

G. Alan Farmer
Director
Resource Conservation and Restoration Division

Enclosure: EPA's Detailed Comments

cc: Alicia Williamson-Dickerson, NRC
Colonel Alan M. Dodd, USACE
Megan L. Clouser, SAJ
Bryan Faehner, NPS

EPA Detailed Comments
Final Environmental Impact Statement (FEIS)
Turkey Point Nuclear Plant, Units 6 and 7, Combined Licenses (COLs)
CEQ No.: 20160258

We appreciate your efforts to address our concerns from the DEIS. Based upon our detailed review of the FEIS, however, we have remaining environmental concerns which are discussed below.

Underground Injection Control (UIC) and Underground Sources of Drinking Water (USDW)

Regarding UIC and USDW, the EPA's primary concerns have not been fully addressed and the recommendations for a path forward to address these long-term environmental concerns have not been taken. As a result, the potential impacts to USDW cannot be determined.

The EPA appreciates the NRC's efforts in reviewing the literature and simulating scenarios with respect to potential Upper Floridan impacts. The NRC's conceptualization of the system includes site characterizations pertaining to the general quality of Upper Floridan Aquifer waters, the magnitude of potential impacts even under extreme conditions (complete failure of the middle confining unit (MCU), and flow dynamics between Avon Park Permeable Zone and the Upper Floridan. These points relate to risk assessment associated with deep well injection. However, because the Upper Floridan is still considered an USDW any migration of fluids, regardless of the severity of contamination impacts, is a risk of significant concern.

The referenced literature tends to conclude that an intact MCU provides confinement for the Boulder Zone (the Lower Floridan Aquifer). But this literature also acknowledges the fact that the unit is characterized by karst, karst collapse features, faulting, and/or fracturing in some areas. While vertical contaminant penetration due to the presence of these features may be highly localized, it again would represent a potential impact that is highly significant. Well log analyses have indicated that the MCU is intact within the vicinity of Well EW-1. However, whether in the form of well testing, seismic surveys, monitoring, or other methodology, the EPA recommends that FPL demonstrate to the permitting agency that injection at the desired rates from the suite of 12 injection wells will not cause injection or formation fluids to move into an USDW.

The NRC concludes that contamination of the Biscayne Aquifer due to injection into a properly constructed and maintained deep, injection well is unlikely. In addition, the NRC contends that UIC permitting evaluations are the responsibility of the Florida Department of Protection (FDEP), and that demonstration of confinement for injection wells is not the NRC's responsibility. However, the EIS provides the assumption that yet to be permitted injection wells will be available for effluent disposal. The EPA is concerned that the validity of this assumption has not been demonstrated and reiterates the following recommendations for the ROD:

> *"The FEIS [now, ROD] should include more information regarding the proposed deep injection wells to be used for wastewater disposal, including the status of the permitting process of the 12 deep injection wells that are proposed, the planned timeline for permitting of these wells, and planning for surface discharge of effluents in the event that delays occur in the permitting process. In addition, the FEIS [ROD] should include information regarding subsurface karst delineation, aquifer testing and modeling that will be required to demonstrate that this project will be protective of the USDWs in the Upper Floridan. Also, the FEIS [ROD] should evaluate the other alternatives that are being considered for effluent discharge. The proposed injection*

wells are contingent upon future issuance of applicable UIC permits, for which substantial issues will need to be addressed. More data and modeling is needed to determine whether all requirements will be met in order to issue the required permits. Since the proposed planning for disposition of blowdown/effluent is contingent upon issuance of the required permits by FDEP, alternatives will need to be developed."

In response to the EPA's environmental concerns pertaining to additional Unit 6 and 7 water intake requirements, the NRC cites the reliability of the Miami-Dade Water and Sewer Department (MDWASD) wastewater stream, the Radial Collector Wells (RCW) backup system, and the option to shut-down operation while utilizing onsite stored emergency cooling water supplies. However, the general concerns expressed in our DEIS comment letter were not addressed in the FEIS. In the current state of operations, the facility releases pollutants, including hypersaline water, to the Biscayne Aquifer. While vigorous steps are currently in the planning or permitting process to mitigate/remediate this contamination, the EPA remains concerned regarding the long-term effectiveness of these efforts.

The EPA's over-riding environmental concerns stem from the fact that the existing facility is currently impacting an USDW. FPL has not yet demonstrated that these impacts can be mitigated and this FEIS was produced in support of a proposed expansion that could potentially complicate or exacerbate existing environmental impact issues. It is uncertain as to whether impacts associated with Units 6 and 7 construction dewatering operations and the plant stormwater run-off will have positive or negative effects.

Current Biscayne remediation plans that are required by the Miami-Dade County Department of Regulatory and Economic Resources, Division of Environmental Resources Management's (DERM) consent order[1] and Florida Department of Protection (FDEP) consent order[2] are attempting to address the westward portion of the hypersaline plume. However, the EPA cannot find supporting information that shows where efforts are being planned to address the larger, more dilute portion of the plume. The current tritium concentrations in the CCS and resulting plume are below the drinking water Maximum Contaminant Levels (MCLs), and therefore do not pose a direct and immediate health risk. However, tritium serves as an effective tracer for water originating from the CCS, and therefore, correlates to salt and nutrient impacts when present. Moreover, elevated tritium concentrations can pose an environmental risk to other ecological resources within Biscayne Bay. The presence of these contaminants also represents potential long-term environmental impacts to Biscayne Bay and municipal drinking water wells to the west, the implications of which have not been fully assessed in the FEIS.

The EPA encourages FPL to work closely with the FDEP and other regulatory agencies to resolve issues related to the hyper-salinity plume. Further, the EPA recommends that the NRC continue to monitor the issues related to the hyper-salinity plume as FPL moves through the final planning and construction phase of Units 6 and 7.

Wetlands

Overall, the FEIS did not address the EPA's comments regarding wetlands impacts. The EPA intends to work closely with the USACE during the Clean Water Act Section 404 permitting process to address outstanding issues regarding the identification of the Least Environmentally Damaging Practicable

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[1] Miami-Dade County Department of Regulatory and Economic Resources, Division of Environmental Resources Management vs. Florida Power and Light, Oct. 7, 2015

[2] Florida Department of Environmental Protection vs. Florida Power and Light (OGE File No: 16-0241), June 20, 2016.

Alternative (LEDPA) for the proposed project and ensuring the compensatory mitigation plans comply with the 2008 Mitigation Rule.

Radial Collector Wells (RCW)

The EPA acknowledges the NRC's modeling efforts to address our concerns from the DEIS. For the most part, the FEIS addresses our concerns regarding the RCW operation. However, we still remain concerned with regard to the impacts to Biscayne Bay and BNP should the RCW be required to operate past 60 days. The NRC did do additional modeling to determine the RCW's operational impacts to Biscayne Bay and Biscayne Aquifer. In addition, on page 5.17 of the FEIS, the NRC states, "*The plant can be shut down if water is not available.*" However, the FEIS does not describe what mechanism or regulatory agency action is necessary to shut down the plant if the use of the RCW does go beyond 60 days. The NRC does cite the FDEP's Conditions of Certification (COC), "*When harm occurs, or is imminent, SFWMD will require [the] Licensee to modify withdrawal rates or mitigate the harm*" (FDEP COCs, Page 61). This implies that harm might first occur and then be mitigated. Further, the FEIS does not specifically describe the relevant requirement that the plant be shut down after 60 days of operation in a year. In other words, the FEIS does not identify the responsible regulatory agency nor does it explain the regulatory process to shut the RCW operations down. Similarly, the FEIS is unclear as to whether the RCW operating permit could be extended past the 60 days nor does the FEIS discuss this process. The NRC conducted model runs up to 90 days (Appendix G, Page G-34), albeit that information is not discussed in the main body of the FEIS text. The modeling of the RCWs past 60 days implies that there is a potential that the RCW could be operated past the 'permitted' 60 days. However, the FEIS does not disclose the conditions for operating past 60 days, nor does it discuss any potential permit or licensing extensions that might be required. The EPA remains concerned that there is not a contingency plan in place that addresses what would happen should the RCW operation reach the 60 day limit.

Accordingly, as discussed in our DEIS comment letter, the EPA recommends that the NRC and the USACE list any regulatory or licensing requirements that would require FPL to shut down the plant after operating the RCW for 60 days and any possible situations in which the plant could be granted an extension past the 60 days. The EPA also recommends that the NRC and

FPL develop a contingency plan to address a scenario that requires operation of the RCW past 60 days. These environmental and operational commitments (including a RCW contingency plan) should be included in the ROD and the other respective decision documents (i.e., COLs and Section 404 permit).

Biscayne National Park (BNP) and Biscayne Bay Aquatic Preserve/Monitoring and Adaptive Management

As discussed in our DEIS comment letter, the EPA remains concerned regarding the impacts to the Everglades National Park (ENP), BNP, and the Biscayne Bay Aquatic Preserve (BBAP). There are many unknowns related to regional climate change, potential migration of the hyper-salinity plume, inter-connectivity between the industrial wastewater facilities (IWF), Biscayne Aquifer and Biscayne

Bay and subsequent impacts to BNP and BBAP. To adjust for this uncertainty, the EPA (in our DEIS comment letter) recommended that the NRC and the USACE develop a monitoring and adaptive management plan. In response to our comments, the NRC states,

> *"The 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, which include a 2-year period of pre-construction monitoring (State of Florida 2014-TN3637). The USACE would also provide special conditions regarding any monitoring and mitigation for USACE authorized activities in accordance with 33 CFR 320.4 for compliance with Federal and state wildlife provisions and for water quality standards under the Clean Water Act if Department of the Army permit is issued."*

The EPA fully recognizes the importance of the FDEP's permit monitoring requirements and the USACE's monitoring and mitigation special conditions. However, this type of monitoring is limited in scope and does not follow the monitoring and adaptive management framework that is suggested in conventional literature and the *NEPA Task Force Report to the Council of Environmental Quality Modernizing NEPA Implementation*[1]. The EPA recommends that the NRC and the USACE commit to a broader, vigorous monitoring and adaptive management approach to address the important uncertainties identified above in the ROD and respective decision documents (i.e., COLs and Section 404 permit).

Environmental Justice

While EPA notes that the USACE reviewed the EPA's Environmental Justice (EJ) and Socioeconomic DEIS comments, no changes were made to the FEIS. We continue to have concerns regarding the EJ analysis and EPA's EJ concerns identified in EPA's comments on the DEIS still remain. The EPA encourages the NRC and the USACE to commit to greater and more vigorous outreach activities (including EJ) in the ROD and respective decision documents (i.e., COLs and Section 404 permit).

Hurricane and Storm Impacts

Most of our concerns from the DEIS comment letter regarding potential hurricane and storm impacts were not addressed by the NRC in the FEIS and those concerns remain. The EPA acknowledges that the NRC did add language to Appendix I (The Effects of Climate Change on the Evaluation of Environmental Impacts) to better explain the NRC's safety monitoring role in construction and operations of the plant. The EPA notes that the NRC released the "Final Safety Evaluation Report (FSER) for Turkey Point for Units 6 and 7 Combined License (COL)" on November 10, 2016, which was after the release of the FEIS on November 4, 2016. Within Chapter 2 (Site Characterization), FPL provided the NRC with storm surge analysis using the National Weather Service's 'SLOSH' (Sea, Lake, and Overland Surges from Hurricane) and conducted a 'Probable Maximum Storm Surge Analysis' (PMSS). This analysis was also conducted in the context of forecasted sea level rise. The NRC also performed limited confirmatory analysis using SLOSH. Additionally, the NRC and the USACE conducted hurricane modeling and storm surge analysis by combining "various wind models, the WAM

[1] Council on Environmental Quality, NEPA Task Force Report to the Council of Environmental Quality Modernizing NEPA Implementation, Sept 2003.

offshore and STWAVE nearshore wave models, and the ADCIRC basin-to-channel scale unstructured grid circulation model." (Page 2-129, FSER). We note, however, none of this information was disclosed nor cited within the FEIS. There, the NRC used the National Climate Assessment (NCA) to determine site specific climate change impacts to the facility. The NCA is a regional tool and does not provide site specific details. The more detailed SLOSH and USACE modeling data provided site specific hurricane and storm surge analysis used in the FSER would have been appropriate information to include within the FEIS.

The EPA notes that the FSER states:

> *"The applicant noted that the estimated PMSS still-water level at Turkey Point Units 6 and 7, combined with coincidental wind-wave run-up, of approximately 24.8 ft (7.6 m) NAVD 88 is lower than the design plant grade elevation of 26 ft (7.9 m) NAVD 88 for safety-related facilities. Therefore, the applicant concluded that the postulated PMH [Probable Maximum Hurricane] event does not affect the safety functions of the plant, and debris, waterborne projectiles, and sediment erosion and deposition are not of concern to the safety-related facilities."(Page, 2-138)*

The NRC accepted FPL's rationale without significant further evaluation. The EPA acknowledges the NRC's responsibility in verifying the applicant's safety evaluation and defers to the NRC on matters of safety. However, it appears that the FSER does not provide documentation to support FPL's assertion that the PMSS event would not affect the plant's safety function. The hurricane and storm surge analysis within the FSER did not evaluate the potential impacts of the PMSS event that was estimated to be 24.8 ft. and any potential damage that might be incurred to the plant (i.e., wave erosion and undercutting of the facility, damage due to debris impacts, etc.). In addition, the EPA is concerned that the NRC did not factor in reasonably foreseeable future land use and population growth in considering potential impacts of a catastrophic storm event. It also remains unclear whether FPL's design considerations will address such a storm occurring several times during its project life, including the cumulative effect of the land subsidence associated with the weight of the proposed facility in conjunction with a strong hurricane surge.

We recommend that the NRC and USACE discuss the findings of the FSER regarding the PMSS and hurricane and storm data within the NRC's ROD as well as in the USACE's Section 404 permit. Further, the EPA recommends that the NRC and USACE provide information within the ROD and Section 404 permit that considers potential damage to the facility from a PMSS event (such as erosion and undercutting, debris impacts, wind damage etc.) and identifies reasonable design, mitigation and adaptive management strategies for potential cumulative impacts from future severe storm events.